As filed with the Securities and Exchange Commission on September 9, 2020

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

GRAIL, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	8071	47-5117880
(State or Other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

1525 O'Brien Drive
Menlo Park, California 94025
(650) 542-0372
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐	Accelerated filer ☐
Non-accelerated filer ☒	Smaller reporting company ☐
	Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

CALCULATION OF REGISTRATION FEE

Title Of Each Class Of Securities To Be Registered	Proposed Maximum Aggregate Offering Price[1][2]	Amount Of Registration Fee
Common stock, par value $0.001 per share	$100,000,000	$12,980

(1) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase to cover over-allotments, if any.
(2) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS (Subject to Completion, Dated September 9, 2020)

Shares

GRAIL

COMMON STOCK

GRAIL, Inc. is offering shares of its common stock. This is our initial public offering, and no public market currently exists for our common stock. We anticipate that the initial public offering price will be between $ and $ per share.

We have applied to list our common stock on the Nasdaq Global Select Market under the symbol "GRAL."

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 and may, therefore, elect to comply with reduced reporting requirements. Investing in our common stock involves risks. See "Risk Factors" beginning on page 16.

PRICE $ A SHARE

	Price to Public	*Underwriting Discounts and Commissions[1]*	*Proceeds to GRAIL*
Per Share	*$*	*$*	*$*
Total	*$*	*$*	*$*

(1) See "Underwriting" for a description of the compensation payable to the underwriters.

We have granted the underwriters the right to purchase up to additional shares of common stock to cover over-allotments.

The Securities and Exchange Commission and state securities regulators have not approved or disapproved these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares to purchasers on or about , 2020.

MORGAN STANLEY ***GOLDMAN SACHS & CO. LLC*** ***BofA SECURITIES***

COWEN ***EVERCORE ISI***

, 2020

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In this prospectus, "GRAIL," the "Company," "we," "us," and "our" refer to GRAIL, Inc. and, as appropriate, its consolidated subsidiaries. We and the underwriters have not authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by us or on our behalf. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide you. We are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of the common stock. Our business, financial condition, results of operations, and future growth prospects may have changed since that date.

"GRAIL," the GRAIL logos, and other trade names, trademarks, or service marks of GRAIL appearing in this prospectus are the property of GRAIL. Our application to register the "Galleri" mark and logo and some of our applications to register the "GRAIL" mark and the logos associated with GRAIL in the United States and other countries are pending. Other trade names, trademarks, or service marks appearing in this prospectus are the property of their respective holders. Solely for convenience, trade names, trademarks, and service marks referred to in this prospectus appear without the ®, ™ and ℠ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or that the applicable owner will not assert its rights, to these trade names, trademarks, and service marks.

Until , 2020 (the 25th day after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary may not contain all of the information that you should consider before deciding to invest in our common stock. You should read this entire prospectus carefully, including "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Business," and our audited consolidated financial statements and unaudited condensed consolidated financial statements and related notes included elsewhere in this prospectus before making an investment decision.

GRAIL, INC.

Our mission is to detect cancer early, when it can be cured.

Despite decades of effort, a war on cancer, the genomic revolution, dramatic biotechnology interventions, and the recommendation to screen for five cancers, cancer is projected to become the world's leading killer by 2021. Most cancers are still diagnosed too late, predominantly because we lack recommended screening tests for most types of cancers, which are responsible for 71% of cancer deaths. Cancer is a disease of the genome, and while the human genome project deciphered the living human code two decades ago and ushered in the genomic revolution, it has previously not been applied to diseases that can significantly impact the population as a whole.

We are a healthcare company focused on saving lives and improving health by pioneering new technologies for early cancer detection. We have built a multi-disciplinary organization of scientists, engineers, and physicians and we are using the power of next-generation sequencing (NGS), population-scale clinical studies, and state-of-the-art computer science and data science to overcome one of medicine's greatest challenges. Using our platform technology, we have developed a multi-cancer early detection blood test that has demonstrated in clinical studies the ability to detect more than 50 types of cancer, across all stages, and localize the cancer signal with a high degree of accuracy, from a single blood draw. We believe that our multi-cancer early detection test can lead to a dramatic increase in early cancer diagnosis. Based on our own calculations using 2006 to 2015 data from the Surveillance, Epidemiology, and End Results Program of the U.S. National Cancer Institute (SEER) and our own performance data, we believe that using our multi-cancer early detection test in conjunction with the five existing recommended screenings in the United States could avert many deaths by earlier detection of up to 75% of cancers with less than a 50% five-year survival rate.

Our multi-cancer early detection test, Galleri, is designed as a screening test for asymptomatic individuals over 50 years of age. We plan to commercially launch Galleri in 2021 as a laboratory developed test (LDT). In addition to Galleri, we are utilizing our proprietary technology platform and population-scale studies from which Galleri was developed to introduce additional products that address significant unmet medical needs, including a diagnostic aid for cancer test (DAC). DAC is designed to accelerate diagnostic resolution for patients for whom there is a clinical suspicion of cancer. We plan to commercially launch DAC after Galleri in the second half of 2021 as an LDT. We are also developing a minimal residual disease (MRD) test, designed to enable blood-based detection with or without tissue, and without the need for a personalized assay, as well as other post-diagnostic applications.

In developing Galleri, we undertook a rigorous, comprehensive, multi-omic discovery approach to explore and identify the most promising biological hallmarks of cancer. We have invested significant capital and resources in our foundational studies, which have collectively enrolled approximately 115,000 participants, to build what we believe are the largest linked datasets of genomic and clinical data in the cancer field. As of August 31, 2020, we have reported clinical study data using samples from approximately 9,500 participants. We applied machine learning analytics to these data and objectively investigated various scientific approaches to determine the optimal means of detecting cancer. We compared the performance of three different NGS approaches—mutations, chromosomal alterations and methylation patterns—in head-to-head studies. While all of the markers were capable of detecting cancer, we found that methylation profiling yielded significantly better results for cancer detection than was observed by interrogating mutations or chromosomal alterations, alone or in combination. In contrast to typical cancer mutations that only affect a handful of genomic locations, there are nearly 30 million methylation sites across the human genome, making them a ubiquitous and rich signal for detecting cancer.

After comprehensive analysis of whole-genome methylation patterns, we discovered highly informative and low-noise methylation regions for cancer signal detection and localization. This led to our development of a targeted methylation approach that had superior performance and lower costs compared to whole-genome methylation. Our targeted methylation approach helps solve a core problem in detecting cancer early in asymptomatic individuals, which is the low level of cancer signal circulating in the blood. While methylation profiling is the approach we are using with Galleri, we continue to evaluate multi-omic approaches including evaluation of additional analytes and biofluids.

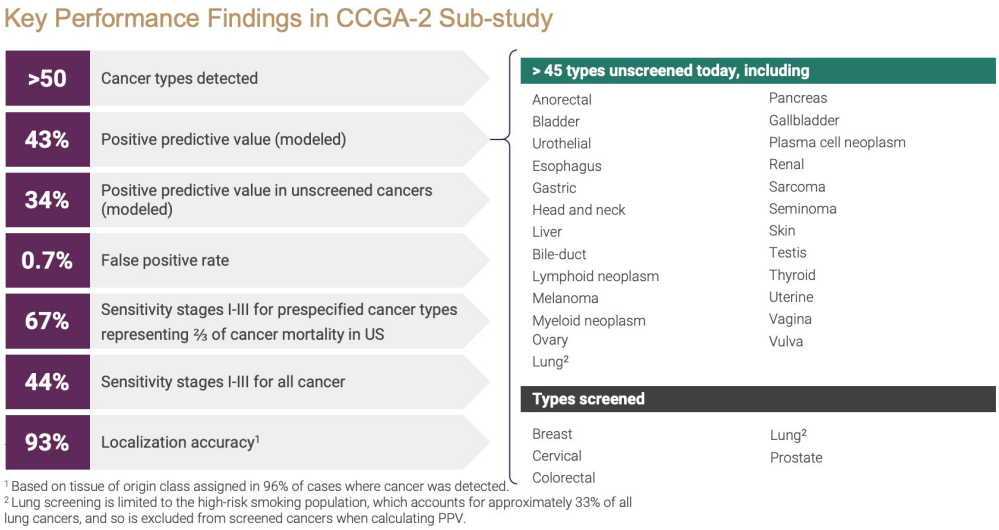
We believe that we have an unprecedented opportunity to transform cancer care and establish a market leading position for Galleri. Initially, we plan to target the following key channels in the United States: large, self-insured employers; physician-directed channels, including concierge practices and executive health programs; and progressive, integrated health systems. These channels represent a significant segment of the overall early detection market of 107 million individuals between the ages of 50-79 in the United States.

Our multi-cancer early detection test – Galleri

We believe our first anticipated commercially available product, Galleri, has the potential to transform cancer care and population health. We anticipate the commercial launch of Galleri as an LDT in 2021. In a clinical study, an earlier version of Galleri identified over 50 types of cancers, over 45 of which lack recommended screenings. Data showed that when our test detected a cancer, it was also able to localize the cancer signal with high accuracy. In the second sub-study (CCGA-2) of our foundational Circulating Cell-Free Genome Atlas Study (CCGA), when a cancer signal was detected, an earlier version of Galleri localized the cancer signal in 96% of the samples, and of these, Galleri correctly localized the cancer signal in 93%. Early data also suggested that indolent cancers are unlikely to be detected by Galleri, potentially reducing the problem of treating over-diagnosed cancers.

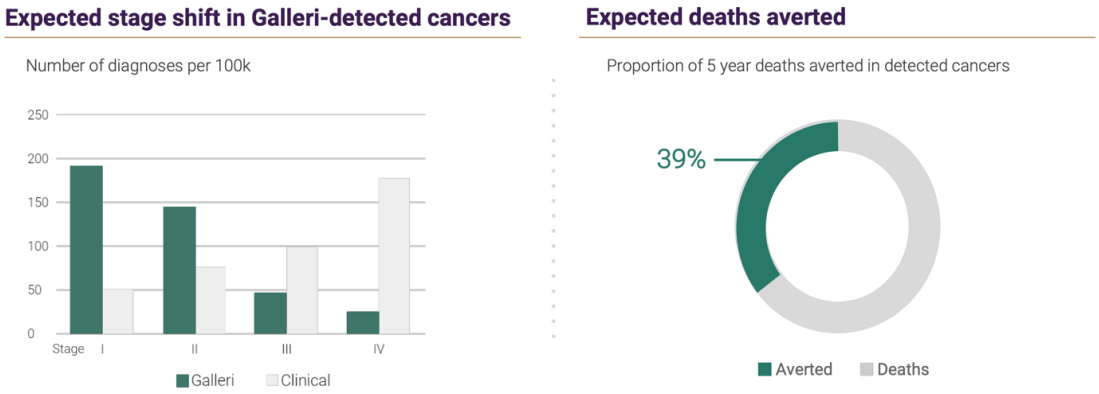
The most pressing unmet need in cancer early detection is to identify cancers for which there are no existing recommended screening tests. Galleri is designed to detect unscreened cancers and to complement the United States Preventive Services Task Force (USPSTF)-recommended screenings (specifically, lung for high-risk smokers, breast, cervical, prostate, and colorectal cancers have recommended screenings). Because the risk of cancer increases significantly after age 50, we expect the use of Galleri to be concentrated in an elevated risk population, for example, in individuals over the age of 50, when the risk of cancer increases significantly.

The sensitivity, true positive rate, specificity, and true negative rate of a test, together with the prevalence of disease in the population, enable a calculation of positive predictive value (PPV). PPV is the percentage of participants with a positive test result who truly have the disease, and we believe it is the most clinically relevant metric for a multi-cancer screening test, as physicians are unaware of a patient's cancer status when test results are returned. Data from CCGA-2, using an earlier version of Galleri, showed the following performance data that were published in the *Annals of Oncology* in March 2020. CCGA-2 included approximately 6,700 total participants across validation and training sets.



In those over age 50, Galleri demonstrated a 66% detection rate of Stage II cancers for which there are no current recommended screenings. We believe Galleri could be integrated directly into the existing healthcare pathways delivered to 40 million patients a year who are already going to a physician for their standard-of-care cancer screening.

We have developed a cancer epidemiology forecast model to estimate the potential impact of multi-cancer early detection testing on cancer stage shift and mortality reduction. Based on the performance of Galleri in our CCGA-2 study and using 2006 to 2015 data from SEER, our model estimates that by adding Galleri to diagnosis by usual care, there is potential to detect nearly 70% of cancers resulting in death within five years at an earlier stage (excluding cancers that grow too quickly to be detected by any screening program), which would translate to the potential to avert 39% of the deaths expected if not for early detection by Galleri.



We believe Galleri has the potential to dramatically increase population early cancer detection, reducing the attendant morbidity, mortality and costs of late-stage cancer diagnoses. It has been estimated that a 1% reduction in cancer mortality in the United States would be worth $695 billion in today's dollars from increased quality of life, productivity and survival. This estimate does not include intangible benefits such as the decreased emotional burden to family, friends and caregivers.

By detecting unscreened cancers early and potentially averting deaths, we believe the clinical and economic utility of Galleri will support its commercial adoption. Our market research indicates that there is a significant addressable market opportunity we can access even before approval under traditional fee-for-service Medicare reimbursement. While such approval would be needed for broad-based adoption, we expect such approval will take several years to obtain, if at all. In the interim, we will pursue our initial market representing a significant segment of the overall early detection market of 107 million individuals between the ages of 50-79 in the United States. Specifically, we plan to target the following key channels:

- **Large, self-insured employers (estimated total addressable U.S. market: 24 million people).** We are targeting self-insured employers with an estimated market of approximately 24 million people over the age of 50 in the United States. Many of these are companies known to offer compelling and innovative health care offerings as part of a way to attract and retain employees.

- **Progressive, integrated health systems (estimated total addressable U.S. market: 27 million people).** By detecting cancer earlier, Galleri has the potential to improve population health. Many of the nation's premier healthcare institutions have robust programs in population health management and precision medicine. We believe these programs lend themselves to innovative partnerships with us. In addition, by detecting more cancers, we believe health systems would not only have the potential benefit of improved health for patients but could also gain revenue from diagnostic workup and treatment of the detected cancers.

- **Physician-directed channels, including concierge practices and executive health programs (estimated total addressable U.S. market: 1 million people)**. We believe Galleri could be compelling to physicians whose clients are focused on preventive health and wellness and have the financial means to enroll in these programs. The physician practices we are targeting are known to offer innovative, cutting-edge health offerings and market research suggests the members are willing to invest in differentiated and leading healthcare. We believe there are approximately 1 million people in the United States who have a concierge doctor or participate in an executive health program.

We believe there is a significant opportunity to improve the current cancer diagnosis journey for patients and we designed the Galleri testing process to be easy to use for physicians and patients. For patients who receive a "no cancer signal detected" result, our simple test report will remind individuals to continue with their standard-of-care cancer screenings. For those with a "cancer signal detected" result, our test report provides predicted tissue localization which is designed to help physicians determine the appropriate diagnostic workup. We are working with study investigators, key opinion leaders and clinical advisors to develop clear care pathways to help guide diagnostic workups. At commercialization, to support our large self-insured employers, we plan to have entered into agreements with a telemedicine provider that can order Galleri for employees when deemed medically appropriate by such provider and a phlebotomy partner to help support sample collection.

We plan to utilize data from our third sub-study of CCGA (CCGA-3), which has completed enrollment and is in ongoing follow-up, and our ongoing PATHFINDER study to help validate the version of Galleri that we plan to launch as an LDT. We expect to complete these activities in 2021, although a significant delay in the enrollment of PATHFINDER could delay our anticipated launch. Following the launch of Galleri as an LDT, we plan to submit a premarket approval application (PMA) of a subsequent version of Galleri in as early as 2023. We anticipate using a subset of data from the STRIVE study, along with other data, in support of the application.

Diagnostic Aid for Cancer Test

Every year in the United States, more than 12 million patients are subject to potentially invasive and time-consuming diagnostic workups. We estimate 2.4 million of these patients are already referred to a specialist doctor for a cancer diagnostic workup, and this represents our initial addressable market in the United States. Many of these patients, particularly those with non-focal symptoms, undergo several months of tests before they receive a cancer diagnosis. Our engagement with physicians indicates they would value tools to help triage cases with non-localizing concerning signs and symptoms, equivocal imaging or lab findings, where biopsy may be challenging due to anatomy or concurrent medical conditions, or where there has been other failure to make a diagnosis. To accelerate

diagnostic resolution for patients with a clinical suspicion of cancer, we are developing DAC to help physicians achieve resolution quickly and cost effectively. We presented early data on an investigational version of DAC at the American Association for Cancer Research (AACR) Virtual Annual Meeting in April 2020, which showed that DAC's specificity, sensitivity and ability to identify the location of the cancer signal was comparable to overall CCGA-2 performance. We plan to initially focus our commercial efforts on specialist physicians (such as pulmonologists, gastroenterologists, otolaryngologists, and hepatologists) and suspicion of cancer clinics. We expect to launch DAC as an LDT in the second half of 2021 after our launch of Galleri.

In addition, we estimate more than 10 million of the over 12 million patients that are subject to potentially invasive and time-consuming workups present with non-specific signs and symptoms to primary care physicians. There are numerous causes for these symptoms, including cancer, and some primary care physicians either initiate diagnostic odysseys or refer these individuals to specialists. We believe DAC would be a useful aid to help primary care physicians better determine next steps. To support our launch of DAC as an LDT, we plan to validate our test using samples from our CCGA study, which has completed enrollment and is in ongoing follow-up. We plan to conduct additional clinical studies in individuals with concerning non-specific symptoms, but who are not currently indicated for a cancer workup, in an effort to expand the adoption of DAC in this population. We anticipate initiating this study in the first half of 2021, and subject to favorable results, we expect potential uptake of DAC in this expanded patient population as early as 2023.

Future product opportunities

Minimal residual disease and recurrence monitoring

We believe that our technology platform could address current challenges with MRD testing, which is used in pharmaceutical trials and clinical settings to detect the presence or absence of residual disease and inform treatment decisions, including identifying patients who may be eligible for adjuvant therapy. The majority of currently available tests require tissue samples, and processing times can take over three weeks, and may require development of complex and time-consuming patient-specific assays.

We believe our technology could enable a blood-based MRD detection solution without the need for a personalized assay for reduced operational complexity and delivery of results in approximately 10 days. Because sensitivity in this setting is critical, we are developing a flexible approach to perform personalized analysis that can be informed by a baseline plasma sample or tissue, if available. We believe that this approach could provide comparable sensitivity to current bespoke assay approaches and potentially provide us with a timing and complexity advantage. We have not validated our MRD test and will need to conduct clinical studies in order to do so. We are seeking to validate the performance of our test in MRD settings in collaboration with pharmaceutical partners and we anticipate reporting data from these initial studies in the first half of 2021.

Patients with cancer, primary or metastatic, following completion of therapy, often require monitoring for possible progression. Many metastatic patients may remain on maintenance therapy during the remainder of their lives or are routinely monitored for cancer recurrence. We believe our MRD test could also help monitor for early signs of cancer recurrence in cancer survivors. Recurrence monitoring can be used to identify signs of early progression as well as therapeutic response or non-response and to guide further workup of the patient. Often patients are monitored with imaging or other modalities that may not detect recurrence as efficiently as a blood test due to both imaging intervals and insensitivity for very small tumors. Following a potential launch of our MRD test, we plan to develop a recurrence monitoring and therapy response test to serve this market, which we estimate to include over 16.9 million cancer survivors in the United States.

Potential enhancements to Galleri and DAC

We seek to continually enhance the performance and features of our tests, and invest in enhancing our core targeted methylation platform through improvements designed to achieve higher efficiency and scalability. We also aim to further improve the sensitivity of our tests by obtaining deeper coverage and a better understanding of noise and leveraging even larger datasets to further develop our advanced biologically directed machine learning algorithms.

Beyond improvements to our methylation technology, we also continue to research and develop multi-omics technologies that have the potential to complement methylation through orthogonal biological information, including additional analytes and biofluids, such as RNA and urine. We believe RNA may provide an additional unique opportunity to detect cancer signals, predict the tumor tissue of origin, and determine the cancer subtype. As a result, we have developed a targeted cell-free RNA (cfRNA) assay to study a panel of biomarkers for breast and lung cancers and evaluate their potential to complement methylation. In an early study, data suggested that cfRNA could help detect signals for early stage hormone-receptive positive (HR-positive) breast cancer and lung adenocarcinoma patients missed by methylation in a small cohort of commercially-sourced samples. We have developed an early platform for extraction of cfNA from urine that is compatible with processing through our targeted methylation platform. This will allow us to evaluate the potential of our technology to increase tumor fraction and improve sensitivity of certain urologic cancers.

Capabilities and future research

We will continue to take a comprehensive, rigorous, and multi-omics approach to discovery and research. By using our large linked datasets of clinical and genomic data, we believe our multi-omics technology platforms, including, for example, our technology related to interrogating mutations, chromosomal alterations and RNA, could generate additional product opportunities, including for diseases other than cancer. We plan to augment our existing data sets with additional clinical trials and studies over time as well as data obtained through commercial use of our tests and our patient registry. We believe these additional datasets could potentially drive improved performance and functionality of our technology platform. We also plan to leverage relationships, including with academic and industry partners, to help expedite bringing potential new applications of our technology to market.

Our Strengths

We believe our competitive advantages include:

- ***Our multi-cancer early detection test, Galleri:*** We believe detection of multiple types of cancers at earlier stages will lead to improved clinical outcomes. In a clinical study, Galleri detected over 50 types of cancers, over 45 of which lack recommended screenings, with a false positive rate of less than 1%. When a cancer was detected, Galleri localized the cancer signal with high accuracy, all from a single blood draw. Galleri is intended to complement existing screening methods. We are preparing to launch Galleri commercially in 2021.

- ***Our diagnostic aid for cancer test (DAC):*** Using the same proprietary platform used to develop Galleri, we have developed a test that could help accelerate diagnostic resolution for symptomatic patients with a suspicion of cancer. Through a single blood test, DAC could provide physicians with a powerful decision-making tool to inform diagnostic workup plans quickly and cost effectively. We intend to launch DAC in the second half of 2021, and our commercial focus for DAC will be targeted to physician specialists and suspicion of cancer clinics.

- ***One of the cancer field's largest genomic databases linked with population-scale clinical evidence:*** Our research to date has enabled us to build one of the world's largest databases of genomic and clinical data in the cancer field. Each sample that we sequence contributes additional genomic, phenotypic, and clinical data that could help inform our platform. Together with our partners at leading academic cancer institutions and large community networks, we have taken a rigorous approach to the design of our clinical programs and collection of population-scale clinical data, which to date includes approximately 115,000 enrolled participants in four studies.

- ***Our platform, derived from a rigorous scientific approach to cancer biology and machine learning:*** We have taken a first principles approach to developing a deep and comprehensive understanding of cancer biology by building an atlas to characterize the landscape of cell-free nucleic acids (cfNA) in a generalizable population, seeking diverse individuals both with and without cancer in our studies. Data from initial discovery studies have enabled us to compare the performance of these signals and to select and refine our proprietary methylation technology that targets the most informative methylation sites for use in Galleri and DAC. Our state-of-the-art machine learning technology analyzes subtle and complex signals in

data generated through our clinical studies, significantly reducing technical and biological noise. We are leveraging our platform to broaden our applications beyond early cancer detection, including developing tests for post-cancer diagnostic applications, and over time, potentially in areas beyond cancer.

- ***Our multidisciplinary team:*** Our team is constructed to tackle the difficult challenge of improving outcomes for cancer patients. We are led by a multidisciplinary team with extensive experience across biotechnology, life science, public health, genomics, computer science, data science, biostatistics, clinical development, medical and regulatory affairs, quality assurance and laboratory operations.

- ***Our intellectual property portfolio:*** We own or license exclusive, worldwide commercial rights to the products we are developing. We have exclusive licenses to more than 230 granted patents globally and own more than 170 pending patent applications, covering technologies that form the basis for our methylation technology as well those related to other NGS approaches to help detect cancer.

Our Strategy

Key elements of our strategy include:

- ***Establishing commercial leadership in large markets with significant unmet medical needs.*** We believe that we have an unprecedented opportunity to transform cancer care and establish market leading positions for both Galleri and DAC. We believe the potential clinical and economic utility of Galleri will support commercial adoption. DAC could also serve a significant unmet medical need by allowing physicians to accelerate the diagnostic resolution for symptomatic patients. In the near term, we plan to focus on facilitating adoption of Galleri and DAC in the United States by increasing physician awareness of the potential value of our products.

- ***Expanding access to our tests by pursuing reimbursement and coverage from payors.*** To help support reimbursement and coverage for our tests, we plan to seek U.S. Food and Drug Administration (FDA) clearance or approval for Galleri following its planned initial launch as an LDT. We believe that enabling early detection of multiple cancer types early could drive significant value for healthcare stakeholders as the costs of cancer-related care for individuals diagnosed at later stages can be significantly higher than for those diagnosed at earlier stages.

- ***Continuing to enhance our core technology platform.*** We seek to continually enhance the performance and features of our tests, including seeking ways to improve sensitivity and reduce sequencing costs. We also plan to grow our database of genomic and clinical data, which could lead to performance improvements for Galleri and DAC. We also continue to take a comprehensive, rigorous, and unbiased multi-omics approach to discover and evaluate additional signals that may enhance our test performance, including from cfRNA and urine cfDNA.

- ***Broadening the applications of our technology platform.*** We are developing applications for our technology within cancer management, including for monitoring and diagnostic purposes, which currently include our potential products, such as minimal residual disease and other post-diagnostic tests. We also seek to enter into agreements with academic and industry partners to help expedite additional discovery efforts. Over time, we believe our platform capabilities may allow us to move into testing applications in additional disease areas beyond cancer.

- ***Maintaining a patient-first, entrepreneurial corporate culture that champions diversity.*** Our goal is to leverage our platform to help patients. To accomplish this goal, we aim to foster an entrepreneurial and inclusive culture for our diverse employee pool with expertise in biology, chemistry, bioinformatics software, drug discovery, development, and commercialization.

Risk Factors

Investing in our common stock involves risk. You should carefully consider all the information in this prospectus prior to investing in our common stock. These risks are discussed more fully in the section titled "Risk Factors" immediately following this prospectus summary and elsewhere in this prospectus. These risks and uncertainties include, but are not limited to, the following:

- We are a pre-commercial stage healthcare company operating in a rapidly evolving field and have a limited operating history, which makes it difficult to evaluate our current business and predict our future performance.
- We have incurred significant net losses in each period since our inception and anticipate that we will continue to incur net losses for the foreseeable future.
- Our products may not perform as expected, and the results of our clinical studies, some of which were conducted on an earlier version of Galleri than the version we plan to initially launch, may not support the launch or use of our products and may not comply with the requirements, or be replicated in later studies, required for any necessary or desirable regulatory clearances or approvals. This could materially and adversely affect our business, financial condition, results of operations, and growth prospects.
- Clinical trials are necessary to validate our investigational products to launch them as LDTs and to support future product submissions to FDA. The clinical trial process is lengthy and expensive with uncertain outcomes, and often requires the enrollment of large numbers of patients, and suitable patients may be difficult to identify and recruit. We have encountered delays and may encounter substantial delays in our clinical studies, including due to the novel strain of coronavirus (COVID-19), and may therefore be unable to complete our clinical studies on the timelines we expect, if at all, which could materially and adversely impact our ability to launch our products and seek regulatory clearance or approval.
- Even if we commercially launch our products, they may fail to achieve the degree of market acceptance necessary for commercial success.
- We have never generated revenue from product sales, do not expect any near-term revenue to offset our ongoing operating expenses, and may never be profitable.
- We may be unable to develop and commercialize new products.
- We rely on Illumina, Inc. as a sole supplier for our next-generation sequencers and associated reagents, Streck as a sole supplier of our blood collection tubes, and Twist Bioscience as a sole supplier of our deoxyribonucleic acid (DNA) panels. Additionally, we rely on a limited number of suppliers for some of our laboratory instruments and reagents, and we may not be able to find replacements or immediately transition to alternative suppliers if necessary.
- We plan to initially launch our products as LDTs, and if FDA were to end or modify its current policy of enforcement discretion on LDTs, or if Congress enacts legislation that changes the current requirements for LDTs, we may lose the ability to commercialize Galleri and DAC without FDA premarket clearance or approval, which could require us to incur substantial costs and delays.
- The regulatory clearance or approval processes of FDA and comparable foreign regulatory authorities are lengthy, time-consuming, and unpredictable. If we are ultimately unable to obtain any necessary or desirable regulatory approvals or clearances, or if such approvals or clearances are significantly delayed, our business will be substantially harmed.
- If we are unable to obtain and maintain intellectual property protection for our technology, or if the scope of the intellectual property protection we obtain is not sufficiently broad, our competitors could develop and commercialize technology and tests similar or identical to ours, and our ability to successfully commercialize our products may be impaired.

- Our success depends on our ability to develop and commercialize our technology without infringing, misappropriating, or otherwise violating the intellectual property of third parties. Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, and if they prevail, could block sales of our products and force us to make large damages and/or royalty payments, which could have a material adverse effect on the success of our business.
- Our business is subject to risks arising from epidemic diseases, such as the recent global outbreak of COVID-19.

Corporate Information

We were incorporated in the State of Delaware on September 11, 2015. Our principal executive offices are located at 1525 O'Brien Drive, Menlo Park, California 94025, and our telephone number is (650) 542-0372. Our website is https://grail.com/. Neither our website nor the information contained in, or accessible from, our website is incorporated into this prospectus or the registration statement of which it forms a part.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 (JOBS Act). For as long as we remain an emerging growth company, we are permitted and currently intend to rely on the following provisions of the JOBS Act that contain exceptions from disclosure and other requirements that otherwise are applicable to companies that conduct initial public offerings and file periodic reports with the Securities and Exchange Commission (SEC). These JOBS Act provisions:

- provide an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting under the Sarbanes-Oxley Act of 2002 (SOX);
- permit us to present only two years of audited financial statements and related Management's Discussion and Analysis of Financial Condition and Results of Operations in this prospectus;
- provide an exemption from compliance with the requirement of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor's report on the financial statements;
- permit us to include reduced disclosure regarding executive compensation in this prospectus and our SEC filings as a public company; and
- provide an exemption from the requirement to hold a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute arrangements not previously approved.

We will remain an emerging growth company until:

- the first to occur of the last day of the fiscal year (1) that follows the fifth anniversary of the completion of this offering, (2) in which we have total annual gross revenue of at least $1.07 billion, or (3) in which we are deemed to be a "large accelerated filer," as defined in the Securities Exchange Act of 1934 (Exchange Act); or
- if it occurs before any of the foregoing dates, the date on which we have issued more than $1 billion in non-convertible debt over a three-year period.

We could become a "large accelerated filer" as early as December 31, 2021 if our aggregate worldwide voting and non-voting equity market capitalization held by non-affiliates exceeds $700 million on the relevant measurement date.

We have elected to take advantage of certain of the reduced disclosure obligations in this prospectus and may elect to take advantage of other reduced reporting requirements in our future filings with the SEC. As a result, the

information that we provide to our stockholders may be different than what you might receive from other public reporting companies in which you hold equity interests.

We have irrevocably elected not to avail ourselves of the provision of the JOBS Act that permits emerging growth companies to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. As a result, we will be subject to new or revised accounting standards at the same time as other public companies that are not emerging growth companies.

THE OFFERING

Common stock offered	shares
Common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their over-allotment option in full)
Over-allotment option	shares
Use of proceeds	We estimate that the net proceeds to us from this offering will be approximately $ million, or approximately $ million if the underwriters exercise their over-allotment option in full, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase or decrease in the initial public offering price per share would increase or decrease our net proceeds, after deducting estimated underwriting discounts and commissions, by $ million (assuming no exercise of the underwriters' over-allotment option). Each increase or decrease of 1,000,000 shares in the number of shares offered by us would increase or decrease our net proceeds by $ million, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We currently expect to use the net proceeds from this offering, together with our existing cash, cash equivalents, and marketable securities, for current and future product development, including expansion of our laboratory operations, to fund ongoing and new clinical trials, for preparation for commercial launch and expansion of commercial operations, and for working capital and general corporate purposes. See "Use of Proceeds."
Risk factors	See "Risk Factors" beginning on page 16 and other information included in this prospectus for a discussion of factors you should carefully consider before deciding whether to invest in our common stock.
Directed share program	At our request, the underwriters have reserved % of the common stock offered by this prospectus, at the initial public offering price, to certain of our directors, officers, employees, business associates and related persons through a directed share program. If these persons purchase reserved shares, this will reduce the number of shares available for sale to the general public. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same terms as other shares offered by this prospectus. Morgan Stanley & Co. LLC, an underwriter in this offering, will administer our directed share program. See "Underwriting" for additional information.
Proposed Nasdaq Global Select Market stock symbol	"GRAL"

Unless we specifically state otherwise or the context otherwise requires, the number of shares of our common stock to be outstanding after this offering is based on 671,186,864 shares of common stock outstanding as of June 30, 2020 and excludes:

- 98,033,707 shares of common stock issuable upon exercise of stock options outstanding as of June 30, 2020, at a weighted-average exercise price of $1.62 per share;
- 30,343,670 shares of common stock issuable upon the vesting and settlement of restricted stock units (RSUs) outstanding as of June 30, 2020;
- 9,233,000 shares of common stock issuable upon exercise of stock options granted after June 30, 2020, at a weighted-average exercise price of $2.09 per share;
- shares of our common stock to be reserved and available for future issuance under our current 2016 Equity Incentive Plan (the 2016 Plan) and equity incentive plans that we expect to implement in connection with the Offering, as more fully described in the section titled "Executive Compensation—Executive Compensation Arrangements—Equity Incentive Plans," including:
  - 14,975,649 shares of our common stock reserved for future issuance under our 2016 Plan as of June 30, 2020;
  - any shares of our common stock issuable in connection with the vesting or exercise (as applicable) of outstanding awards under our 2016 Plan;
  - shares of our common stock that we expect to reserve for future issuance under our 2020 Equity Incentive Plan (the 2020 Plan), which we expect will become effective in connection with this offering;
  - any shares authorized as automatic annual increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 Plan;
  - automatic increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 Plan;
  - shares of our common stock that we expect to reserve for future issuance under our 2020 Employee Stock Purchase Plan (the 2020 ESPP), which we expect will become effective in connection with this offering; and
  - any shares authorized as automatic annual increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 ESPP.

Unless we specifically state otherwise or the context otherwise requires, this prospectus reflects and assumes the following:

- no exercise of outstanding stock options subsequent to June 30, 2020;
- no vesting and settlement of outstanding RSUs subsequent to June 30, 2020;
- outstanding shares include 605,555 shares of Class A common stock issued upon early exercise of stock options and subject to repurchase as of June 30, 2020;
- no exercise by the underwriters of their over-allotment option to purchase additional shares of our common stock in this offering;
- a one-for- reverse stock stock split of our common stock to be effected prior to the closing of this offering;

- the filing and effectiveness of our amended and restated certificate of incorporation, to be in effect at the closing of this offering; and
- the conversion of all Class B common stock into 26,179,368 shares of Class A common stock, the reclassification of our Class A common stock and Class B common stock into a single class of common stock, and the conversion of all our redeemable convertible preferred stock into 534,145,027 shares of common stock prior to the closing of the offering as described under "Description of Capital Stock—Reclassification and Conversion of Class A Common Stock, Class B Common Stock, and Redeemable Convertible Preferred Stock."

SUMMARY CONSOLIDATED FINANCIAL DATA

The following tables summarize our consolidated financial data for the periods and as of the dates indicated. We have derived the consolidated statements of operations data for the years ended December 31, 2018 and 2019 from our audited consolidated financial statements and related notes included elsewhere in this prospectus. We have derived the consolidated statements of operations data for the six months ended June 30, 2019 and 2020 and the consolidated balance sheet data as of June 30, 2020 from our unaudited condensed consolidated financial statements and related notes included elsewhere in this prospectus. Our unaudited condensed consolidated financial statements were prepared on a basis consistent with our audited consolidated financial statements and include, in our opinion, all adjustments of a normal and recurring nature that are necessary for the fair statement of the financial information set forth in those statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of results that may be expected in the future. You should read the following summary consolidated financial data together with our audited consolidated financial statements and our unaudited condensed consolidated financial statements and the related notes appearing elsewhere in this prospectus and the information in the sections titled "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
	(in thousands, except share and per share data)			
Consolidated Statements of Operations Data:				
Operating expenses:				
Research and development[1]	$ 190,205	$ 158,886	$ 83,230	$ 83,009
Research and development—related parties[1]	32,955	8,202	4,493	4,190
Marketing[1]	6,107	7,679	4,080	4,690
General and administrative[1]	58,229	80,896	31,612	47,304
Total operating expenses	287,496	255,663	123,415	139,193
Loss from operations	287,496	255,663	123,415	139,193
Interest income, net	(12,550)	(12,430)	(6,995)	(4,128)
Other expense, net	287	1,817	714	1,335
Loss before provision for (benefit from) income taxes	275,233	245,050	117,134	136,400
Provision for (Benefit from) income taxes	485	(195)	66	16
Net loss	$ 275,718	$ 244,855	$ 117,200	$ 136,416
Net loss attributable to Class A and Class B common stockholders				
Basic and diluted	$ 275,718	$ 244,855	$ 117,200	$ 136,416
Net loss per share attributable to Class A and Class B common stockholders[2]				
Basic and diluted	$ (2.42)	$ (1.99)	$ (0.97)	$ (1.03)
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders[2]				
Basic and diluted	114,138,912	123,188,351	120,748,150	132,864,532
Pro forma net loss per share attributable to common stockholders (unaudited)[2]				
Basic and diluted		$ (0.42)		$ (0.21)
Weighted-average shares of common stock used in computing pro forma net loss per share (unaudited)[2]				
Basic and diluted		587,035,445		643,637,763

(1) Includes stock-based compensation expense as follows:

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
	(in thousands)			
Research and development	$ 937	$ 3,913	$ 1,595	$ 2,957
Research and development—related parties	778	135	67	30
Marketing	123	202	13	1,230
General and administrative	9,203	24,141	6,004	19,730
Total stock-based compensation expense	$ 11,041	$ 28,391	$ 7,679	$ 23,947

(2) See Note 13 to our audited consolidated financial statements and Note 12 to our unaudited condensed consolidated financial statements for further details on the calculation of net loss per share attributable to Class A and Class B common stockholders, basic and diluted, and the weighted-average shares used to compute net loss per share attributable to Class A and Class B common stockholders, basic and diluted, and pro forma information.

	As of June 30, 2020		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)
	(in thousands)		
Consolidated Balance Sheet Data:			
Cash, cash equivalents, and marketable securities	$ 685,571	$ 685,571	
Working capital(3)	633,653	633,653	
Total assets	756,427	756,427	
Total liabilities	82,028	82,028	
Redeemable convertible preferred stock	1,994,921	—	
Accumulated deficit	(1,442,047)	(1,442,047)	
Total stockholders' (deficit) equity	(1,320,522)	674,399	

(1) The unaudited pro forma information in the table above has been prepared to reflect the following prior to or upon the closing of this offering: (i) the filing and effectiveness of our amended and restated certificate of incorporation and (ii) the conversion of all outstanding redeemable convertible preferred stock into common stock.

(2) The pro forma as adjusted consolidated balance sheet data in the table above reflects the pro forma adjustments described in footnote (1) above plus the sale and issuance by us of shares of our common stock in this offering, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase or decrease in the initial public offering price of $ per share would increase or decrease the pro forma as adjusted amount of each of cash, cash equivalents, and marketable securities, working capital, total assets, and total stockholders' equity by approximately $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1,000,000 shares in the number of shares offered by us would increase or decrease each of cash, cash equivalents, and marketable securities, working capital, total assets, and stockholders' equity by approximately $, assuming the initial public offering price of $ per share remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing.

(3) We define working capital as current assets less current liabilities. See our unaudited condensed consolidated financial statements for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this prospectus, before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations, and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks Related to Our Business and Industry

We are a pre-commercial stage healthcare company operating in a rapidly evolving field and have a limited operating history, which makes it difficult to evaluate our current business and predict our future performance.

We are a pre-commercial stage healthcare company operating in a rapidly evolving field and, having commenced operations in January 2016, have a limited operating history. We do not currently have a commercial product for sale. We have funded our operations to date primarily with the proceeds from the sale of equity securities and have never generated any revenue. Our short operating history as a company makes any assessment of current business or our future success and viability subject to significant uncertainty. We expect to encounter risks and difficulties, including those frequently experienced by early-stage companies in rapidly evolving fields. If we do not address these risks and difficulties successfully, our business will suffer.

We have incurred significant net losses in each period since our inception and anticipate that we will continue to incur net losses for the foreseeable future.

Since our inception, we have not generated any revenue and have incurred significant net losses. Our net losses were $275.7 million and $244.9 million for the years ended December 31, 2018 and 2019, respectively, and $136.4 million for the six months ended June 30, 2020. Substantially all of our net losses since inception have resulted from our research and development programs, and general and administrative costs associated with our operations, as well as costs incurred in connection with the acquisition of Cirina Limited in 2017. As of June 30, 2020, we had an accumulated deficit of $1.4 billion.

We have invested significant financial resources in research and development activities, including to develop our technology, develop our investigational products, including our multi-cancer test, Galleri, and diagnostic aid for cancer test (DAC), and plan for commercial launch. The amount of our future net losses will depend, in part, on the level of our future expenditures and our ability to generate revenue. Moreover, our net losses may fluctuate significantly from quarter to quarter and year to year, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance.

We expect to continue to incur significant expenses and operating losses for the foreseeable future if and as we:

- attract, hire, and retain qualified personnel;
- continue our research and development activities;
- conduct our existing clinical studies and initiate and conduct additional clinical studies to support the development and commercialization of our products;
- expand our laboratory capacity and operating capabilities as we prepare for commercial scale;
- seek regulatory approvals and any other marketing authorizations or clearances that may be necessary or desired for our products;
- establish sales, marketing, and distribution infrastructure to commercialize our products;

- acquire or in-license additional intellectual property and technologies;
- make milestone, royalty, or other payments due under any license or collaboration agreements;
- obtain, maintain, protect, and enforce our intellectual property portfolio, including intellectual property obtained through license agreements;
- provide additional infrastructure to support our continued research and development operations and any planned commercialization efforts in the future;
- meet the requirements and demands of being a public company; and
- defend against any product liability claims or other lawsuits related to our products.

Our products may not perform as expected, and the results of our clinical studies, some of which for Galleri were conducted on an earlier version than the version we plan to initially launch, may not support the launch or use of our products and may not comply with the requirements, or be replicated in later studies, required for any necessary or desirable regulatory clearances or approvals. This could materially and adversely affect our business, financial condition, results of operations, and growth prospects.

We do not currently have a commercial product. Our success depends on the market's confidence that we can provide reliable, high-quality products, as well as our ability to complete clinical studies and comply with applicable regulatory requirements that would allow us to commercially launch our products. Assuming successful launch, our products, including Galleri and DAC, may not perform as expected, and the results obtained from our ongoing or future studies may be inconsistent with certain results obtained from our previous studies. If this were to occur, either before or after launch, our business, financial condition, results of operations, and growth prospects would suffer.

Our products require a number of complex and sophisticated biochemical and bioinformatics processes, many of which are highly sensitive to external factors. An operational or technological failure in one of these complex processes or fluctuations in external variables may result in sensitivity and specificity rates that are lower than we anticipate or that vary between test runs or in a higher than anticipated number of tests that fail to produce consistent results. In addition, we regularly evaluate and refine our algorithms and other processes under development. These refinements may inadvertently result in unanticipated issues that may reduce our sensitivity and specificity rates or otherwise adversely affect the performance of our test and its results.

Additionally, many of the studies we have performed on Galleri were performed on an earlier version of the test than the version we plan to launch as a laboratory developed test (LDT). If the version of Galleri we plan to launch as an LDT does not have comparable performance to the earlier version of the test, we may be unable to launch that version, may have to narrow or change the intended use or claims, and/or we may find its commercial profile to be different than expected. Additionally, following the launch of Galleri as an LDT, we currently intend to seek clearance or approval from FDA, and after the launch of DAC as an LDT, we may seek clearance or approval from FDA. FDA and other regulators may require that we generate additional clinical data to support clearance or approval, which could result in delays, increased costs, or other limitations on our ability to receive such clearance or approval. For additional information, see "Risk Factors—Our multi-cancer detection tests are a new approach to cancer screening, which present a number of novel and complex issues for FDA review. Because FDA has never cleared or approved a multi-cancer detection test, it is difficult to predict what information we will need to submit to obtain approval of a PMA from FDA for a proposed intended use, or if we will be able to obtain such approval on a timely basis or at all."

Further, we plan to iterate and improve, enhancing product performance, offerings, scalability, and/or cost of goods. However, we may not be successful in transitioning our products to a new or enhanced version or iteration. Product development involves a lengthy and complex process and we may be unable to commercialize, validate, or improve performance of any of our products on a timely basis, or at all. Our failure to successfully develop new and/or improved products (including new versions of existing products) on a timely basis could have a material adverse effect on our results of operation and business.

Finally, generating the clinical data necessary to validate and support the initial launch of our products as LDTs and new versions of products and subsequently obtain regulatory clearance or approval, is time-consuming and carries with it the risk of not yielding the desired results. The performance achieved in published studies may not be replicated in later studies that may be required to obtain or maintain premarket clearance or approval. Limited results from earlier-stage verification studies may not predict results from studies in larger numbers of participants drawn from more diverse populations over a longer period of time. Unfavorable results from ongoing clinical studies could result in delays, modifications, or abandonment of ongoing or future clinical studies, or abandonment of a product development program, or may delay, limit, or prevent regulatory clearances or approvals or commercialization of our products.

Clinical trials are necessary to validate our investigational products to launch them as LDTs and to support future product submissions to FDA. The clinical trial process is lengthy and expensive with uncertain outcomes, and often requires the enrollment of large numbers of patients, and suitable patients may be difficult to identify and recruit. We have encountered delays and may encounter substantial delays in our clinical studies, including due to COVID-19, and may therefore be unable to complete our clinical studies on the timelines we expect, if at all, which could materially and adversely impact our ability to launch our products and seek regulatory clearance or approval.

Clinical testing is expensive, time-consuming, and subject to uncertainty. Initiating and completing clinical trials necessary to validate and support the launch of Galleri or DAC as LDTs, and to support any future submissions to FDA for regulatory clearance or approval for our products, will be time-consuming and expensive and the outcomes uncertain. Clinical trials must be conducted in accordance with the laws and regulations of FDA and other applicable regulatory authorities' legal requirements and regulations, and are subject to oversight by these governmental agencies and IRBs at the medical institutions where the clinical trials are conducted.

We cannot guarantee that any clinical studies will be conducted as planned or completed on schedule, if at all. The timely completion of clinical studies in accordance with their protocols depends, among other things, on our ability to enroll a sufficient number of participants who remain in the study until its conclusion. Many of our clinical studies require enrolling a large number of participants without cancer who may not see value in enrollment. Additionally, we may encounter delays as a result of the administrative complexities in managing and recruiting for studies of this scope and size. If we are unable to recruit sufficient participants for our clinical studies, including PATHFINDER and SUMMIT, or maintain sufficient participation of enrolled participants, our product development, commercialization activities and our ability to seek regulatory clearance or approval for our products could be delayed, modified, or prevented.

For example, the launch of Galleri as an LDT will require validation of data from our clinical studies, including certain data from our ongoing PATHFINDER study, which we are conducting under an approved Investigational Device Exemption (IDE) application. We may encounter difficulties enrolling and completing diagnostic workup on a sufficient number of PATHFINDER participants. The ongoing COVID-19 pandemic has delayed anticipated completion of our PATHFINDER study as we had to suspend enrollment of the study during the second quarter of 2020. While certain study sites have resumed enrollment, not all of them have, and we may need to suspend enrollment again in the future at sites that have resumed enrollment. Federal, state and local governmental policies and initiatives designed to reduce the transmission of COVID-19 have resulted in, among other things, a significant reduction in physician office visits and the willingness of individuals, who may be subject to shelter-in-place orders, to participate in clinical studies. Several factors, including the burden on hospitals and medical personnel, have resulted in the cancellation of non-essential medical procedures, which also contributed to a delay of achieving diagnostic resolutions for participants in the study. Further delays in our PATHFINDER study would cause us to delay the launch of Galleri, which would negatively impact our financial condition and results of operations. For additional information, see "Risk Factors—Our business is subject to risks arising from epidemic diseases, such as the recent global outbreak of COVID-19."

In addition, we intend to launch Galleri as an LDT. Although LDTs are classified as medical devices, FDA has historically exercised enforcement discretion and has not enforced certain FDA requirements with respect to such products, including premarket review, though such practices may not continue in the future. We intend to launch Galleri as an LDT after validating our product, including on a sufficient number of PATHFINDER participants.

Moreover, there is risk that the clinical validation data from PATHFINDER, along with other available clinical validation data, may be insufficient to support the launch of Galleri as an LDT for its proposed intended use. Further, FDA may determine that the launch of Galleri as an LDT for its proposed intended use is not permitted while the PATHFINDER study continues to be conducted under an approved IDE. A delay in the launch of Galleri, or inability to launch altogether, as well as a narrowing of the proposed intended use of the product, may negatively impact our financial condition and results of operations.

Moreover, additional issues may arise that could result in the delay, suspension, clinical hold, or termination of such clinical studies. Other events that may prevent successful or timely initiation or completion of clinical studies, or the ability to use data from clinical studies in support of launch as an LDT or for regulatory submissions or otherwise, include:

- the inability to generate sufficient data to support the initiation or continuation of clinical studies or to validate Galleri or DAC in our intended use populations or at all;
- the inability to rely on previously-collected data on earlier versions of Galleri and DAC in support of the launch or submission for marketing authorization of the later versions of our products;
- the potential requirement to submit an additional IDE application to FDA, which must become effective prior to commencing certain human clinical trials of medical devices, and which FDA may disapprove;
- the potential that FDA may modify, withdraw or impose a clinical hold on our current IDE approval pursuant to which we are conducting the PATHFINDER study, and notify us that we may not begin or must discontinue other clinical trials;
- delays caused by participants withdrawing from clinical studies or failing to return for follow-up or by institutions failing to submit data, including follow-up data, to us;
- delays or failure in reaching a consensus or agreement, if required, with regulatory agencies on study design or feedback from regulatory agencies necessitating changes to ongoing or planned clinical study design;
- delays or failure in reaching agreement on acceptable terms with prospective contract research organizations (CROs), service providers, and clinical study sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical study sites;
- delays or failure in obtaining any required Institutional Review Board (IRB) approval or ethics committee approval for our clinical study sites;
- delays in amending, or the inability to amend, our IRB-approved protocols at clinical study sites when necessary or desired;
- difficulty or delays in collaborating with sites, institutions, and investigators;
- failure by us, investigators, sites, or participants to comply with the applicable study protocol or applicable regulatory requirements and standards for data collection, reporting, records maintenance, or data integrity;
- failure by us or any CROs or other third parties to adhere to clinical study requirements, including the applicable protocol;
- failure to perform in accordance with good clinical practice (GCP) and good laboratory practice (GLP) requirements, and/or other applicable regulations and requirements of FDA or other applicable governmental authorities;
- failure to comply with applicable data privacy and security laws related to clinical trials, including the European Union’s General Data Protection Regulation (GDPR);
- failure of our products to achieve acceptable sensitivity, specificity, or PPV, and safety endpoints;

- unacceptable safety findings, including findings related to the risk of the false positive tests (which could lead to unnecessary biopsy or anxiety) or false negative tests (which could lead to a delay in diagnosis or disease progression);
- termination or suspension of a study or site by us or the data safety monitoring board, suspension or termination of a study or site by an IRB, ethics committee, or institution, or clinical hold or termination of a study or site by a regulatory authority, including FDA;
- disqualification, termination, or suspension of a clinical investigator;
- adverse inspection results by any applicable regulatory authority, including FDA or MHRA;
- changes in statutory or regulatory requirements or guidance, or clinical guidelines, that require amending existing or designing new clinical protocols, obtaining new IRB or ethics committee approvals, modifying our clinical studies, modifying our consent process or obtaining additional consent from study participants, or altering the pathway to clearance or approval of our products;
- changes in the standard of care on which a clinical development plan was based, which may require new or additional clinical studies;
- the cost of clinical studies of our products being greater than we anticipate;
- destruction or compromise of, or other inability to access or receive, clinical study samples processed, stored, or managed at a third-party site or otherwise in the control of a third party;
- clinical studies of our products producing negative or inconclusive results, which may result in our deciding, or regulators requiring us, to conduct additional clinical studies or abandon product development programs; and
- lack of adequate funding.

We depend on our collaborators and on medical institutions and CROs to conduct our clinical trials in compliance with applicable GCP requirements. To the extent our collaborators or the CROs fail to enroll participants for our clinical trials, fail to conduct the study to GCP requirements or are delayed for a significant time in the execution of trials, including achieving full enrollment, we may be affected by increased costs, program delays, and/or enforcement actions. In addition, clinical trials that are conducted in countries outside the United States may subject us to further delays and expenses.

Any inability to initiate or complete clinical studies successfully could result in additional costs to us, slow down or prevent our product development, or impair our ability to generate revenue. Delays in initiating or completing our planned clinical studies could also allow our competitors to bring competing products to market before we do or sooner than expected, which could impair our ability to successfully commercialize Galleri, DAC, or other future products and may harm our business, financial condition, and results of operations. In addition, many of the factors that may cause, or lead to, a delay in initiation or completion of clinical studies may also ultimately lead to the delay or the narrowing or denial of any regulatory clearance or approval we may seek with respect to our products. Delays in the initiation or completion of any clinical study of our products in development will increase our costs, slow down or jeopardize our product development and regulatory clearance or approval process, and delay or potentially jeopardize our ability to commence product sales and generate revenue.

Even if we commercially launch our products, they may fail to achieve the degree of market acceptance necessary for commercial success.

The commercial success of our products, including Galleri, DAC, and any future product we may develop, will depend upon the degree of market acceptance by consumers, including self-insured employers, integrated health

systems, healthcare providers, patients, and, over the longer-term, third-party payors. The degree of market acceptance of our products will depend on a number of factors, including:

- the performance and clinical utility of such products as demonstrated in clinical studies and published in peer-reviewed journals;
- our ability to demonstrate the clinical utility of our products and their potential advantages to the medical community;
- the ability of our products to demonstrate the same performance in real-world intended use populations as in clinical studies;
- the willingness of consumers, including self-insured employers, integrated health systems, healthcare providers, patients and others in the medical community to utilize our products;
- the willingness of commercial third-party payors and government payors to cover and reimburse for our products, the scope and amount of which will affect an individual's willingness or ability to pay for our products and likely heavily influence healthcare providers' decisions to recommend our products;
- with respect to Galleri, which we intend to launch for use in a broad asymptomatic population, the concern that the product could lead to over-diagnosis or a high false-positive rate and unnecessary medical procedures and costs;
- the introduction of competing products, including the expansion of the capabilities of existing products;
- the market acceptance of existing competitive products, including tests that are currently reimbursed;
- publicity concerning our products or competing products; and
- the strength of our marketing and distribution support.

The failure of our products, once introduced, to be listed in physician guidelines or of our studies to produce favorable results or to be published in peer-reviewed journals could limit the adoption of our products. In addition, healthcare providers and third-party payors, including Medicare, may rely on physician guidelines issued by industry groups, medical societies, and other key organizations, such as the USPSTF, before utilizing or reimbursing the cost of any diagnostic or screening test. Although we have a number of clinical studies underway designed to demonstrate the clinical validity of Galleri, our product is not yet, and may never be, listed in any such guidelines.

Further, if our products or the technology underlying them do not receive sufficient favorable exposure in peer-reviewed publications, the rate of physician and market acceptance of our products and positive reimbursement coverage decisions for our products could be negatively affected. The publication of clinical data in peer-reviewed journals is a crucial step in commercializing and obtaining reimbursement for products, such as Galleri or DAC, and our inability to control when, if ever, results are published may delay or limit our ability to derive sufficient revenues from any product that is developed using data from a clinical study.

Failure to achieve broad market acceptance of our products, including Galleri and DAC, would materially harm our business, financial condition, and results of operations.

We have never generated revenue from product sales, do not expect any near-term revenue to offset our ongoing operating expenses, and may never be profitable.

Our ability to generate revenue from product sales and achieve profitability depends on our ability to commercialize our products. While we plan to commercially launch both Galleri and DAC in the United States in 2021 as LDTs, we cannot assure you that we will successfully be able to do so as planned, if at all, and our failure to do so would prevent us from generating revenue. Furthermore, even if we are able to launch these products in a

timely manner, we may not be able to generate sufficient revenue to offset our costs and achieve profitability. Our ability to generate future revenue from product sales depends heavily on our success in:

- completing clinical development and validation of our products and continuing to improve product performance and expand product features over time;
- seeking, obtaining, and maintaining marketing approvals, clearances, licenses, or exemptions that may be necessary or desired for Galleri, DAC, and any future products that we develop;
- launching and commercializing Galleri and DAC by establishing a sales force, marketing, medical affairs and distribution infrastructure or, alternatively, collaborating with a commercialization partner;
- obtaining market acceptance by consumers, including self-insured employers, integrated health systems, healthcare providers, patients and third-party payors;
- establishing and maintaining supply and manufacturing relationships with third parties that can timely and consistently provide adequate, in both amount and quality, products and services to support clinical development and the market demand for Galleri and DAC;
- achieving adequate coverage and reimbursement recognition from governments, health insurance organizations, and other third-party payors for products that we launch;
- addressing any technological and market developments, including competing products;
- negotiating favorable terms in any collaboration, licensing, or other arrangements into which we may enter and maintaining such existing or future arrangements;
- maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, trade secrets, know-how, and trademarks;
- defending against third-party interference or infringement claims, if any; and
- attracting, hiring and retaining qualified personnel.

We anticipate incurring significant costs to commercialize our products. Our expenses could increase beyond expectations if we are required by FDA or other regulatory agencies to delay our launch, narrow or change our intended use or product claims, modify or expand our clinical studies or to perform additional clinical trials or studies, either pre- or post-approval, in addition to those that we currently anticipate. Additionally, it may be difficult for us to offset the costs of the high-single-digit royalties that we will be required to pay under our agreement with Illumina. See “Related-Party Transactions—Illumina Commercial Agreements” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Contractual Obligations and Commitments” for more information. Even if we are able to generate revenue from the sale of any products, we may not become profitable and may need to obtain additional funding to continue operations.

We may be unable to develop and commercialize new products.

We continue to expand our research and development efforts to use our proprietary platform and our large clinical and genomic datasets to develop enhanced versions of our products and additional products, including in disease areas beyond cancer. The commercialization of any new products will require the completion of certain clinical development activities, regulatory activities and the expenditure of additional cash resources. We cannot assure you that we can successfully complete the clinical development of any such products.

We expect our operating costs to continue to exceed our revenue, if any, for the foreseeable future. We also cannot assure you that we will be able to reduce our expenditures sufficiently, generate sufficient revenue from products that we successfully commercialize or otherwise mitigate the risks associated with our business to raise enough capital to develop and commercialize new products. In addition, once our development efforts for a product are completed, commercialization efforts, including allocation of resources necessary to comply with applicable

laws and regulations, will require significant expenditures. Any failure to develop and commercialize new products could have a material adverse effect on our ability to implement our strategy and grow our business.

One of the key elements of our strategy is to expand access to our tests by pursuing reimbursement and coverage from third-party payors. If our products do not receive adequate coverage and reimbursement from third-party payors, our ability to expand access to our tests beyond our initial sales channels will be limited and our overall commercial success will be limited.

We anticipate that we will not have broad-based coverage and reimbursement at the initial commercial launch for Galleri. However, a key element to our strategy is to expand access to our tests by pursuing coverage and reimbursement by third-party payors, including government payors. Coverage and reimbursement by third-party payors, including managed care organizations, private health insurers, and government healthcare programs, such as Medicare and Medicaid in the United States and similar programs in other countries, for the types of early detection tests we perform can be limited and uncertain. Healthcare providers may not order our products unless third-party payors cover and provide adequate reimbursement for a substantial portion of the price of our products. If we are not able to obtain adequate coverage and an acceptable level of reimbursement for our products from third-party payors, there could be a greater co-insurance or co-payment obligation for any individual for whom a test is ordered. The individual may be forced to pay the entire cost of a test out-of-pocket, which could dissuade physicians from ordering our products and, if ordered, could result in delay in or decreased likelihood of our collection of payment. We believe our revenue and revenue growth will depend on our success in achieving broad coverage and adequate reimbursement for our products from third-party payors.

Medicare is the single largest U.S. payor and a particularly important payor for many cancer-related laboratory services given the demographics of the Medicare population. Generally, traditional Medicare fee-for-service will not cover screening tests that are performed in the absence of signs, symptoms, complaints, personal history of disease, or injury except when there is a statutory provision that explicitly covers the test. Galleri could be considered a screening test under Medicare and, accordingly, may not be eligible for traditional Medicare fee-for-service coverage and reimbursement unless we pursue substantial additional measures, which would require significant investments, and may ultimately be unsuccessful or may take several years to achieve.

Further, with respect to Galleri and other products we are developing to help detect other disease, the U.S. Medicare Improvements for Patients and Providers Act of 2008 authorizes the Centers for Medicare and Medicaid Services (CMS) to cover additional preventive services that are not expressly covered by the statute if the service is (a) reasonable and necessary for the prevention or early detection of an illness or disability; (b) recommended with a grade of A or B by the USPSTF, an independent, volunteer panel of experts in the field of prevention, evidence-based medicine and primary care, and (c) appropriate for Medicare beneficiaries under Part A or Part B. CMS establishes coverage through a national coverage determination (NCD) process. In its discretion, the USPSTF generally waits for FDA clearance or approval before it considers undertaking review of novel technology. Because multi-cancer early detection is not expressly authorized for coverage by the Medicare statute, a possible pathway for reimbursement is to first obtain FDA clearance or approval, and then seek a grade of A or B from USPSTF, to enable CMS to issue a NCD. If the USPSTF does not provide our products a grade of A or B or CMS declines to initiate an NCD, or the decision regarding an NCD is negative, our product would not be eligible for fee-for-service Medicare coverage in the absence of a new statutory provision providing for coverage. Even if the USPSTF were to recommend Galleri or other products we are developing, the USPSTF review process and the ensuing NCD process by CMS could take several years to complete, and coverage for our products would be delayed while review is ongoing. The Affordable Care Act (ACA) mandates that many private insurance plans cover, among other preventive health services, evidence-based items or services recommended by USPSTF with a grade of A or B, with certain prohibitions on cost-sharing requirements. Accordingly, if USPSTF does not recommend use of Galleri or other products we are developing or requires a substantial amount of time to review such products, our business and results of our operations would be harmed. Coverage and adequate reimbursement under Medicare Advantage are also uncertain as discussed further in “Government Regulation – Coverage and Reimbursement.” DAC is intended to be a diagnostic product, and we believe we could obtain Medicare coverage and reimbursement in the next several years, although there can be no assurances that we will be successful in doing so.

If eligible for reimbursement, laboratory tests such as ours generally are classified for reimbursement purposes under CMS's Healthcare Common Procedure Coding System (HCPCS) and the American Medical Association's (AMA) Current Procedural Terminology (CPT) coding systems. We and payors must use those coding systems to bill and pay for our diagnostic tests, respectively. These HCPCS and CPT codes are associated with the particular product or service that is provided to the individual. Accordingly, without a HCPCS or CPT code applicable to our products, the submission of claims would be a significant challenge. Once CMS creates an HCPCS code or the AMA establishes a CPT code, CMS establishes payment rates and coverage rules under traditional Medicare, and private payors establish rates and coverage rules independently. Under Medicare, payment for laboratory tests is generally made under the Clinical Laboratory Fee Schedule (CLFS) with payment amounts assigned to specific HCPCS and CPT codes. In addition, effective January 1, 2018, a new Medicare payment methodology went into effect for clinical laboratory tests, under which laboratory-reported private payor rates are used to establish Medicare payment rates for tests reimbursed via the Medicare Clinical Laboratory Fee Schedule. The new methodology implements Section 216 of the Protecting Access to Medicare Act of 2014 (PAMA) and requires laboratories that meet certain requirements related to volume and type of Medicare revenues to report to CMS their private payor payment rates for each test they perform, the volume of tests paid at each rate, and the HCPCS code associated with the test. CMS uses the reported information to set the payment rate for each test at the weighted median private payor rate. Most affected tests are revalued every three years, with the exception of the reporting period between January 1, 2020 and March 31, 2020, which must now be reported between January 1, 2021 and March 31, 2021, and certain advanced diagnostic laboratory tests that are offered by a single laboratory and meet certain other criteria are revalued every year. The full impact of the PAMA rate-setting methodology and its applicability to our products remains uncertain at this time.

Coverage and reimbursement by a third-party payor may depend on a number of factors, including a payor's determination that a product is appropriate, medically necessary, and cost-effective. Each payor will make its own decision as to whether to establish a policy or enter into a contract to cover our products and the amount it will reimburse for such products. Any determination by a payor to cover and the amount it will reimburse for our products would likely be made on an indication-by-indication basis. For example, because with Galleri we intend to cover a broad asymptomatic population and could potentially generate a significant number of false-positive results on an absolute basis, we may face additional scrutiny in obtaining reimbursement from third-party payors given the additional costs of further diagnostic workup. As a result, obtaining approvals from third-party payors to cover our products and establishing adequate coding recognition and reimbursement levels is an unpredictable, challenging, time-consuming, and costly process and we may never be successful. If third-party payors do not provide adequate coverage and reimbursement for our products, our ability to succeed commercially will be limited.

Even if we establish relationships with payors to provide our products at negotiated rates, such agreements would not obligate any healthcare providers to order our products or guarantee that we would receive reimbursement for our products from these or any other payors at adequate levels. Thus, these payor relationships, or any similar relationships, may not result in acceptable levels of coverage and reimbursement for our products, including Galleri and DAC, or meaningful increases in the number of billable tests we sell to healthcare providers. We believe it may take several years to achieve coverage and adequate reimbursement with a majority of third-party payors, including with those payors offering negotiated rates. In addition, we cannot predict whether, under what circumstances, or at what payment levels payors will cover and reimburse for our products. Although we do not expect Galleri to have Medicare or other third-party coverage or reimbursement in the near term, we plan to market our product to large self-insured employers, certain physician directed channels, including self-insured employers, concierge medicine and executive health programs and innovative health systems. If we fail to establish and maintain broad-based coverage and reimbursement for our products, our ability to expand access to our products, generate increased revenue, and grow our test volume and customer base will be limited and our overall commercial success will be limited.

If our competitors' products do not perform as intended, the market for our products could be impaired.

Many companies are developing competing cancer detection tests and technologies focused on improving cancer care with cancer detection tests and post-diagnostic products. If any tests marketed or being developed by our competitors similar to our products do not perform to expectations or cause harm or injury to patients, it may result in lower confidence in early disease detection and post-diagnosis tests in general, which could potentially adversely

affect confidence in our products. As a result, the failure of our products or our competitors' products to perform as expected could significantly impair our operating results and our reputation.

If we fail to obtain additional financing, we may be unable to expand our commercialization efforts with respect to Galleri and DAC and develop additional products.

Our operations have required substantial amounts of cash since inception. To date, we have financed our operations primarily through the sale of equity securities. Our product development and clinical trial activities are expensive, and we expect to continue to spend substantial amounts as we prepare for the launch and commercialization of Galleri and DAC, continue to enhance our core technology platform, broaden the applications of our technology platform and develop new products. In addition, obtaining any necessary or desirable regulatory approvals and clearances for our products will require substantial additional funding.

As of June 30, 2020, we had $685.6 million in cash, cash equivalents, and marketable securities. We believe that our existing cash, cash equivalents, and marketable securities, together with the proceeds of this offering, will be sufficient to fund our projected operations for at least the next 12 months. Our estimate as to how long we expect our existing cash, cash equivalents, and marketable securities to be available to fund our operations is based on assumptions that may prove to be inaccurate, and we could use our available capital resources sooner than we currently expect. In addition, changing circumstances may cause us to increase our spending significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. We may need to raise additional funds sooner than we anticipate.

We will require additional capital for the development and commercialization of Galleri and DAC, and development of additional products. Our future capital requirements depend on many additional factors, including:

- the cost of development and commercialization activities for our products, including Galleri and DAC, including marketing, sales and distribution costs;
- the cost related to scaling operations to support demand for our products, including the cost of construction of a new laboratory in Durham, North Carolina;
- the timing of, and the costs involved in, obtaining any required or desired regulatory approvals and clearances for our products;
- the timing, scope, progress, results and costs of developing additional products, and of conducting clinical studies;
- the costs involved in preparing, filing, prosecuting, maintaining, expanding, defending, and enforcing patent and other intellectual property rights and claims, including litigation costs and the outcome of such litigation;
- the timing and amount of sales of our products, if any, and collection of related receivables;
- the extent to which our products are eligible for coverage and reimbursement from third-party payors;
- the emergence of new technologies or any competing tests, products, or services and other adverse market developments; and
- other potential adverse developments.

Additional capital may not be available when we need it, on terms acceptable to us or at all. We have no committed source of additional capital. Furthermore, any additional capital raised through the sale of equity or equity-linked securities will dilute stockholders' ownership interests in us, may require stockholder approval, and may have an adverse effect on the price of our common stock. Debt financing, if available, may include restrictive covenants that could limit how we conduct our business. If adequate capital is not available to us on a timely basis, we may be required to significantly delay, scale back, or discontinue the commercialization of our products or research and development programs, or be unable to continue or expand our operations or otherwise capitalize on

our business opportunities, as desired, which could materially affect our business, financial condition, and results of operations and cause the price of our common stock to decline.

If our products result in direct or indirect participant harm or injury, we could be subject to significant reputational and liability risks, and our operating results, reputation, and business could suffer.

Our success will depend on the market's confidence that our products, including Galleri and DAC, can provide reliable, high-quality results, once such products are launched. We believe that patients, physicians, and regulators are likely to be particularly sensitive to errors in the use of our products or failure of our products to perform as described, and there can be no guarantee that our products will meet their expectations. Galleri is intended to be used to detect a cancer signal in individuals, but its results are not diagnostic. If a cancer signal is detected, the product would be used to localize the origin of the cancer signal; a "cancer signal detected" test result would need to be followed up by appropriate diagnostic methods. Because the product cannot detect all cancer signals, and may not detect signals for all cancer types, a negative test would not rule out the presence of cancer. Additionally, an individual undergoing unnecessary diagnostic tests on the basis of a false-positive result or an erroneous location of cancer signal result could expose us to significant liability and reputational risks. Similarly, an individual who receives a cancer diagnosis shortly following a "no cancer signal detected" test result may create negative publicity about our product, which would discourage adoption. Performance failures could establish a negative perception of our products among physicians, patients, and regulators, jeopardize our ability to successfully commercialize our products, impair our ability to obtain regulatory approvals or secure favorable coverage and reimbursement, or otherwise result in reputational harm. In addition, we may be subject to legal claims arising from any errors in the use, manufacture, design, labeling or performance of our products, including any false-positive or false-negative results.

We rely on Illumina, Inc. as a sole supplier for our next-generation sequencers and associated reagents, Streck as a sole supplier of our blood collection tubes, and Twist Bioscience as a sole supplier of our DNA panels. Additionally, we rely on a limited number of suppliers for some of our laboratory instruments and reagents, and we may not be able to find replacements or immediately transition to alternative suppliers if necessary.

We rely on Illumina, Inc. as the sole supplier of the next-generation sequencers and associated reagents we use to perform our genomic tests and as the sole provider of maintenance and repair services for these sequencers. Any disruption in Illumina's operations or breach of our supply-related agreements would impact our supply chain and laboratory operations as well as our ability to develop and commercialize our products, including Galleri and DAC. We also rely on Streck, Inc. as the sole supplier of our blood collection tubes and Twist Bioscience Corporation (Twist) as the sole supplier of our DNA panels. Any interruption in supply from these vendors would delay our ability to develop and commercialize our products.

Further, following our proposed launch of Galleri as an LDT, we are planning to submit a PMA to FDA. We may seek FDA premarket clearance or approval for DAC. For products supplied to us by Illumina, we have not negotiated the use of their products in any FDA-approved or cleared products. We are cooperating with Streck to obtain FDA clearance or approval for their blood collection tubes. In some cases, use of these third-party products in any FDA-cleared or approved product we may seek to commercialize will be conditioned on these suppliers having obtained FDA clearance or approval for their products. Before we pursue clearance or approval for our products that incorporate or use materials supplied to us by these suppliers, we will need to negotiate and execute agreements with these parties and in some cases may need to ensure these products have obtained the requisite clearances or approvals. Any failures or delays in negotiating agreements with our suppliers on reasonable terms, or their inability to obtain any required clearances or approvals, may increase our costs or delay or prevent us from obtaining clearance or approval of, and thus commercializing, Galleri or DAC. Moreover, products supplied to us by Streck for use in our products that we intend to launch as LDTs are currently only available to us as research use only (RUO) devices, which means that Streck intends for the products not to be used for clinical diagnostic use and that the products must be labeled "For Research Use Only. Not for use in diagnostic procedures." If FDA were to take enforcement action against us or our suppliers for our use of RUO products in connection with our products that we intend to use for diagnostic purposes, including our launch of LDTs, such action could require us to seek alternative suppliers and thus materially and adversely affect our ability to provide timely testing results to our customers and could significantly increase our costs of conducting business. Products for FDA approved or cleared *in vitro*

diagnostic use generally have significantly higher costs than LDT uses, which, in turn, are more costly than products intended for RUO.

Our current suppliers, including Illumina, Streck or Twist, may also discontinue or substantially change the specification of products that we utilize in our products. We believe there are only a few other manufacturers that are currently capable of supplying and servicing the other equipment and materials necessary for our laboratory operations, including certain instruments, components, consumables, and reagents. Transitioning to a new supplier for this equipment or these materials would be time-consuming and expensive, could result in interruptions in or otherwise affect the performance specifications of our laboratory operations and sample processing or could require that we revalidate our products and, if we receive FDA clearance or approval for our products, could require a new submission to FDA and other regulatory bodies to approve or clear such changes. In addition, we purchase certain products on a purchase order basis and cannot guarantee a consistent source of supply. The use of equipment or materials provided by a replacement supplier could require us to alter our laboratory operations and sample collection and processing and related procedures. In the case of attempting to obtain an alternative supplier for Illumina, Streck, or Twist, replacement instruments and associated reagents, tubes, and panels that meet our quality control and performance requirements may not be available at all, or may not be available on reasonable terms or in a timely manner. If we encounter delays or difficulties in securing, reconfiguring or revalidating the equipment, reagents and other materials that we require for our laboratory operations and sample collection and processing, we would likely face significant delays in commercializing our products and our business, financial condition, results of operations, and growth prospects would be adversely affected.

If our facilities or those of our third-party collaborators become inoperable, our ability to provide our products will be significantly impaired and our business will be harmed.

We currently perform all research and development, and anticipate that in the near term we will conduct commercial testing work, for our products, including Galleri and DAC when launched, in our laboratory located in Menlo Park, California. The facility may be harmed, rendered inoperable by physical damage or otherwise become partially or completely unusable due to fire, floods, earthquakes, power loss, telecommunications failures, break-ins, accidents, pandemics and similar events, which may render it difficult or impossible for us to provide our products for some period of time. Our laboratory and the equipment we use to perform our research and development or commercialization work could be unavailable or costly and time-consuming to repair or replace. It would be difficult, time-consuming, and expensive to rebuild our facility, particularly in light of the licensure, permits, and accreditation requirements for a clinical laboratory like ours. Although we carry insurance for damage to our properties and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all.

In June 2020, we entered into an agreement to lease space in Durham, North Carolina, and are in the process of constructing a new laboratory facility to help us increase product development and operations capacity as we anticipate commercial launch of Galleri and DAC in 2021. Construction requires significant resources and we may encounter difficulties and delays in construction as well as obtaining necessary validation, permits, licenses, certifications (including Clinical Laboratory Improvement Amendments of 1988 (CLIA) and College of American Pathologists (CAP) accreditation) for this forthcoming facility. For example, as circumstances around the COVID-19 pandemic are evolving, government-imposed quarantines and restrictions may also require us to temporarily halt construction or validation activities in North Carolina. If we are unable to complete construction in a timely and satisfactory manner and obtain necessary permits, licenses, certificates, and accreditations within our currently anticipated timelines, we may be unable to meet demand for our products at our Menlo Park facility alone, on a timely basis or at all, which would negatively impact our reputation and commercial plans. We may be unable to regain those customers or repair our reputation in the future, which would negatively impact our business and result of operations.

We also rely on our third-party collaborators, consultants, contractors, vendors, suppliers, and service providers. The facilities of these partners could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, tornadoes, hurricanes, fires, extreme weather conditions, medical epidemics, pandemics and other natural or man-made disasters or business interruptions. In addition, they may be affected by government shutdowns, changes to applicable laws, regulations, and policies, or withdrawn funding. The occurrence of any of

these business disruptions could seriously harm their ability to complete their contracted services to us, which may adversely impact our operations and financial condition.

Failure of, or defects in, our machine learning and cloud-based computing infrastructure, or increased regulation in the machine learning space, could impair our ability to process our data, develop products, or provide test results, and harm our business and results of operations.

The design, development, maintenance, and operation of our technology over time is expensive and complex, and may involve unforeseen difficulties including material performance problems, undetected defects, or errors. Overcoming technical obstacles and correcting defects or errors could prove to be impossible or impracticable, and the costs incurred may be substantial and adversely affect our results of operations. Additionally, regulation in the machine learning space is constantly evolving and may make it difficult for us to continue using our machine learning approach. If our technology does not function reliably, fails to meet expectations in terms of performance, or cannot be fully utilized due to increasing regulation, we may be unable to provide or our customers may stop using our products.

We currently host all of our data on, and conduct our data analysis through, Amazon Web Services (AWS) cloud-based hosting facilities. Any technical problems or outages that may arise in connection with AWS's data center hosting facilities could result in loss of our data or delayed or ineffective data processing. A variety of factors, including infrastructure changes, human or software errors, viruses, malware, security attacks, fraud, spikes in customer usage, or denial of service issues could cause interruptions in our service. Such service interruptions may reduce or inhibit our ability to provide our products, delay our clinical studies, and damage our relationships with our customers. We could also be exposed to potential lawsuits, liability claims or regulatory actions, for example if AWS experienced a data privacy breach. If we were required to transfer our data to an alternative hosting provider, the transfer and acclimation to the new provider could result in significant business delays and require additional resources.

If we are unable to scale our operations successfully to support demand for our products, our business could suffer.

As and to the extent test volumes grow, we will need to continue to ramp up laboratory capacity, including moving the processing of Galleri to our new Durham, North Carolina facility over time, as our Menlo Park laboratory may not support the capacity for the anticipated development and commercialization testing in the future. In addition, we will need to implement new infrastructure, data processing capabilities, customer service, billing and systems processes, and expand our internal quality assurance program and technology to support testing on a larger scale. We will also need additional equipment, and certified and licensed laboratory personnel to process higher volumes of tests. We cannot assure you that we will complete construction of our North Carolina facility and obtain necessary certifications, permits, licenses, and accreditations in a timely manner or at all; therefore, we may be unable to move the processing of Galleri to this new laboratory, and we may be unable to complete required development and commercial test processing activities. Because we intend to launch Galleri and DAC initially as LDTs under FDA's current policy of enforcement discretion, we will need to ensure that any commercialization of the products at the North Carolina facility comply with the requirements applicable to LDTs. According to FDA, an LDT is defined as an *in vitro* diagnostic test intended for clinical use and designed, manufactured and used within a single laboratory. Failure to comply with FDA requirements regarding the use of a single laboratory could result in FDA determining that its policy of enforcement discretion does not apply and that such products must comply with certain FDA requirements for medical devices, including premarket review. If FDA were to take this position, we and our products could be subject to enforcement action. Further, we may face difficulties increasing the scale of our operations, including implementing changes in infrastructure or programs or acquiring additional equipment or personnel. As we refine our products and develop additional products, we may need to bring new equipment on-line, implement new systems, technology, controls and procedures, and hire personnel with different qualifications, licenses, or certifications.

The value of Galleri and DAC will depend, in part, on our ability to perform tests and return results to providers on a timely basis and at an appropriate quality standard, and on our reputation for such timeliness and quality. Failure to implement necessary procedures, to transition to new equipment or processes, or to hire the appropriate,

qualified personnel could result in higher costs of processing, longer turnaround times or an inability to meet market demand. There can be no assurance that we will be able to perform tests on a timely basis at a level consistent with demand, that we will be able to maintain the quality of our test results as we scale our commercial operations, or that we will be successful in responding to the growing complexity of our laboratory operations, including the related data analysis requirements.

In addition, our growth may place a significant strain on our management, operating and financial systems, research and development, and our sales, marketing, and administrative resources. As a result of our growth, our operating costs may escalate even faster than planned, and some of our internal systems may need to be enhanced or replaced. If we cannot effectively manage our expanding operations and our costs, we may not be able to grow successfully or we may grow at a slower pace, and our business could be adversely affected.

Our business and results of operations will suffer if we fail to compete effectively.

The testing and diagnostic products industry is intensely competitive. We have competitors both in the United States and abroad, including AnchorDx, ArcherDx, Inc., Burning Rock Biotech Limited, Exact Sciences Corporation, Freenome, Inc., Guardant Health, Inc., Laboratory for Advanced Medicine, PapGene, Inc., Singlera Genomics, Inc. and Thrive Earlier Detection Corp. that have stated that they are developing tests designed to detect cancer, including some that will use cfNA analyses like ours. Our competitors have or may have substantially greater financial, technical, and other resources, such as larger research and development staff and well-established marketing and sales forces, or may operate in jurisdictions where lower standards of evidence are required to bring products to market. Our competitors may succeed in developing, acquiring, or licensing, on an exclusive basis or otherwise, tests or services that are more effective or less costly than our products. In addition, established medical technology, biotechnology, or pharmaceutical companies may invest heavily to accelerate discovery and development of tests that could make our products less competitive than we anticipate.

Our ability to compete successfully will depend largely on our ability to:

- successfully commercialize our products;
- demonstrate compelling advantages in the performance and convenience of our products, including on a cost competitive basis;
- achieve market acceptance of our products by healthcare providers and patients;
- achieve adequate coverage and reimbursement by third-party payors for our products;
- differentiate our product from the other tests and products of current and potential competitors;
- attract qualified scientific, data science, clinical development, product development, and commercial personnel;
- obtain, maintain, defend, and enforce patent and other proprietary protection as necessary for our products;
- obtain and maintain any necessary or desirable clearance or approval from regulators in the United States and other jurisdictions;
- successfully collaborate with institutions in the discovery, development, and commercialization of our products; and
- successfully expand our operations and implement a successful sales and marketing strategy to support commercialization.

We may not be able to compete effectively if we are unable to accomplish one or more of these or similar objectives.

Our business is subject to risks arising from epidemic diseases, such as the recent global outbreak of COVID-19.

The recent outbreak of COVID-19, which has been declared by the World Health Organization to be a pandemic, has spread across the globe and is impacting worldwide economic activity. A pandemic, including COVID-19 or other public health epidemic, poses the risk that our company, our personnel, courier delivery services, and other partners may be prevented from conducting business activities for an indefinite period of time, including due to spread of the disease within these groups or due to shutdowns that may be requested or mandated by governmental authorities. A recession or market correction resulting from the spread of COVID-19 could impact funding for healthcare globally, which may negatively impact our business. While it is not possible at this time to estimate the impact that COVID-19 could have on our business, the COVID-19 pandemic and mitigation measures have had and may continue to have an adverse impact on global economic conditions, which could have an adverse effect on our business, results of operations, cash flows, and financial condition, including impairing the ability to raise capital when needed.

The COVID-19 pandemic has delayed anticipated completion of our PATHFINDER and SUMMIT studies, as we had to suspend enrollment of the studies during the second quarter of 2020. While certain study sites have resumed enrollment, not all of them have, and we may need to suspend enrollment again in the future at sites that have resumed enrollment. There is a risk that changing circumstances relating to the COVID-19 pandemic may not allow our healthcare clinical trial investigators, their healthcare facilities or other necessary parties to continue to participate in our clinical studies through completion or may delay the initiation of planned clinical studies. Additionally, if our trial participants are unable to travel to our clinical study sites as a result of quarantines or other restrictions resulting from the COVID-19 pandemic, we may experience higher drop-out rates or delays in our clinical studies. Government-imposed quarantines and restrictions may also require us to temporarily terminate our clinical sites. Furthermore, if we determine that our trial participants may suffer from exposure to COVID-19 as a result of their participation in our clinical studies, we may voluntarily terminate certain clinical sites as a safety measure until we reasonably believe that the likelihood of exposure has subsided. As a result, our expected regulatory submissions and development timelines for our products have been and may be further negatively impacted. We cannot predict the ultimate impact of the COVID-19 pandemic as consequences of such an event are highly uncertain and subject to change. We do not yet know the full extent of potential delays or impacts on our business, our clinical trials or as a whole; however, the COVID-19 outbreak may materially disrupt or delay our business operations, further divert the attention and efforts of the medical community to coping with COVID-19, reduce the number of patients getting physicals and physicians potentially ordering our products, disrupt the clinical sites on which we depend, and/or have a material adverse effect on our operations.

If we cannot maintain our current collaborations and enter into new collaborations in a timely manner and on acceptable terms, our efforts to develop and commercialize our products could be delayed or adversely affected.

We rely, and expect to continue to rely, on collaborative partners to help us develop our products. For example, we currently collaborate with pharmaceutical companies, research institutions, including The Chinese University of Hong Kong and Hebrew University of Jerusalem among others, to enhance our research efforts. Under our Contract Research Agreement with the Chinese University of Hong Kong we have exclusive rights to certain intellectual property developed by the Chinese University of Hong Kong. After the Contract Research Agreement expires in August 2021, there is potential that the Chinese University of Hong Kong could develop intellectual property applicable to our business that we may be interested in, and if so, we would need to negotiate for rights to such intellectual property. Our reliance on these third parties reduces our control over our product development activities. If any of our collaborators were to breach or terminate its agreement with us or otherwise fail to conduct the contracted activities successfully and in a timely manner, the research, development or commercialization activities of our products could be delayed or terminated. Further, our collaborators may fail to properly protect our intellectual property rights, may infringe the intellectual property rights of third parties, may misappropriate our trade secrets, or may use our proprietary information or others' in such a way as to expose us to litigation and potential liability. Disagreements or disputes with our collaborators, including disagreements over proprietary rights, funding, or contract interpretation, might cause delays or termination of the research, development or commercialization of our products, might lead to additional responsibilities for us with respect to these products or activities or might result in litigation or arbitration, any of which would divert management attention and resources and be time-consuming and expensive. We may not be able to renew our current agreements with collaborators or

negotiate additional collaboration agreements on acceptable terms, if at all, and these collaborations may not be successful. Any transition from a current collaborator to a new collaborator could be costly and result in significant product development delays.

From time to time, we expect to engage in discussions with potential development and/or commercial collaborators that may or may not lead to collaborations. However, we cannot guarantee that any discussions will result in development or commercial collaborations. Further, once news of discussions regarding possible collaborations are known in the general public, regardless of whether the news is accurate, failure to announce a collaboration agreement, or the entity's announcement of a collaboration with an entity other than us, could result in adverse speculation about us, our products or our technology, resulting in harm to our reputation and our business. In addition, establishing collaborations is difficult, time-consuming and may require our significant financial investment. Potential collaborators may elect not to work with us based on their assessment of our financial, regulatory, or intellectual property position. Even if we establish new collaborations, they may not result in the successful development or commercialization of our products or technology.

If we are unable to establish sales and marketing capabilities, we may not be successful in commercializing our products.

We have only limited sales and marketing infrastructures and no experience as a company in the sale, marketing, and distribution of screening or diagnostic tests. In preparation of the commercial launch of Galleri and DAC, we are rapidly hiring additional personnel in our sales and marketing organization.

Factors that may inhibit our efforts to commercialize any of our products include:

- our inability to recruit and retain adequate numbers of effective sales, marketing, reimbursement, customer service, medical affairs, and other support personnel;
- the inability of sales personnel to persuade adequate numbers of customers, including healthcare systems and healthcare providers, to use our products;
- the inability to price our products at a sufficient price point to ensure an adequate and attractive level of profitability;
- our inability to effectively market to, collaborate with, and secure coverage and reimbursement from third-party payors;
- our failure to comply with applicable regulatory requirements governing the sale, marketing, reimbursement, and commercialization of our products; and
- unforeseen costs and expenses associated with creating an independent commercialization organization.

We rely on third parties to conduct portions of our clinical studies. These third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such studies.

We currently rely and expect to rely on third parties, such as CROs and other service providers, medical institutions, and clinical investigators, to conduct some aspects of our clinical studies. Any of these third parties may terminate their engagements with us, be unable to fulfill their contractual obligations or fail to meet applicable regulatory requirements. If we need to enter into alternative arrangements, our product development activities could be delayed.

Our reliance on third parties for clinical study-related activities reduces our control over these activities but does not relieve us of our responsibilities. For example, we remain responsible for ensuring that each of our clinical studies is conducted in accordance with the general investigational plan, protocol, consent form, IRB approval, and applicable requirements. Moreover, FDA requires compliance with applicable Good Clinical Practice (GCP) requirements for sponsoring clinical studies to assure that data and reported results are credible, reproducible and accurate and that the rights, welfare, and safety of study participants are protected for data used in support of a regulatory submission. We also are required to register applicable clinical studies and post certain results on a

government-sponsored database within certain timeframes. Failure to do so can result in fines, adverse publicity, and civil and criminal sanctions.

If the third parties we rely on do not successfully carry out their contractual duties, meet expected deadlines, or conduct our clinical studies in accordance with regulatory requirements or IRB- or ethics committee-approved protocols, we will not be able to obtain, or may be delayed in obtaining, any necessary or desirable marketing authorizations for our products and will not be able to, or may be delayed in our efforts to, successfully commercialize our products.

We depend on our information technology and telecommunications systems and those of third parties, any failure or disruption of these systems could harm our business.

We depend on information technology and telecommunications systems, including those provided by third parties and their vendors, for significant elements of our operations, such as our laboratory information management systems, including test validation, specimen tracking, and quality control; personal information collection, storage, maintenance, and transmission; our report production systems; and our billing and reimbursement, research and development, scientific and medical data analysis, and general administrative activities. In addition, our third-party service providers depend upon technology and telecommunications systems provided by outside vendors. In connection with becoming a public company, we expect to expand and strengthen a number of enterprise software systems that affect a broad range of business processes and functions, including, for example, systems handling human resources, financial controls and reporting, customer relationship management, regulatory compliance, security controls, and other infrastructure operations. These expansions may prove more difficult than we expect and could cause disruptions in our operations or additional expense.

Information technology and telecommunications systems are vulnerable to damage from a variety of sources, including telecommunications or network failures, malicious human acts and natural disasters. Moreover, despite network security and back-up measures, some of our servers are potentially vulnerable to physical or electronic break-ins, computer viruses and similar disruptive events. Despite the precautionary measures we have taken to detect and prevent or solve problems that could affect our information technology and telecommunications systems, failures or significant downtime of these systems or those used by our third-party service providers and their vendors could prevent us from conducting tests, preparing and providing reports to future customers, billing payors, conducting research and development activities, maintaining our financial controls and other reporting functions, and managing the administrative aspects of our business. Any disruption or loss of information technology or telecommunications systems on which critical aspects of our operations depend could have an adverse effect on our business.

We are highly dependent on our key personnel. If we are not successful in attracting, motivating, and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology industry depends upon our ability to attract, motivate, and retain highly qualified personnel. We are highly dependent on our executive management team and our scientific, medical, technological, and engineering personnel, all of whom have been working together as a group for only a limited period of time. The loss of the services provided by any of our executive officers, other key employees, and other scientific and medical advisors, and our inability to find suitable replacements, could result in delays in commercialization of our products and harm our business. We do not maintain “key person” insurance policies on the lives of these individuals or the lives of any of our other employees.

We are headquartered in Menlo Park, California, a region in which many other healthcare companies, technology companies and academic and research institutions are headquartered. In addition, we are constructing a new laboratory facility in Durham, North Carolina, where there is also demand for skilled personnel. Competition for personnel is intense and the turnover rate can be high, which may limit our ability to hire and retain highly qualified personnel on acceptable terms or at all. We expect that we may need to recruit talent from outside of our region, and doing so may be costly and difficult.

To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have generally provided stock option grants that vest over time. The value to employees of these equity grants that vest

over time may be significantly affected by movements in our stock price that are beyond our control, and may at any time be insufficient to counteract more lucrative offers from other companies. Although we have employment agreements with certain key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. If we are unable to attract and incentivize highly qualified personnel on acceptable terms, or at all, our business and results of operations may suffer.

We will need to grow the size and capabilities of our organization, and we may experience difficulties in managing this growth.

As of August 31, 2020, we had 436 employees, substantially all of whom were full-time. As our development plans and strategies develop, and as we transition into operating as a public company, we must add a significant number of additional managerial, operational, financial, and other personnel. Future growth will impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, retaining, and motivating additional employees;
- managing our internal development efforts effectively, including creating compliant programs and processes, such as a compliant laboratory and manufacturing quality system, and managing the regulatory requirements for our products, while complying with our contractual obligations to contractors and other third parties;
- expanding our operational, financial and management controls, reporting systems, and procedures; and
- managing the increasing complexity associated with a larger organization and expanded operations.

Our future financial performance and our ability to commercialize our products will depend, in part, on our ability to effectively manage any future growth. Our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to manage these growth activities. Our ability to successfully manage our expected growth is uncertain given the fact that we have been in operation as an independent company only since early 2016. Our executive management team's lack of long-term experience working together may adversely impact their ability to effectively manage our business and growth.

If we are not able to effectively expand our organization by hiring new employees, we may not be able to successfully implement the tasks necessary to commercialize our products, which would have negative impact on our business and result of operations.

Our business is subject to economic, political, regulatory, and other risks associated with international operations.

Our business is subject to risks associated with conducting business internationally. For example, some of our suppliers and parties with whom we have collaborative relationships are located outside the United States, including in the United Kingdom, China, and Hong Kong. Accordingly, our future results could be harmed by a variety of factors, including:

- economic weakness, including inflation, or political instability in particular non-U.S. economies and markets;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign jurisdictions that do not respect and protect intellectual property rights to the same extent as the United States;
- trade protection measures, import or export controls and licensing requirements (including possible restrictions on licensing intellectual property to certain non-U.S. persons) or other restrictive actions by U.S. or non-U.S. governments;
- changes in non-U.S. laws, regulations and customs, tariffs, and trade barriers;

- exchange rate risk we may face from denominating a portion of our transactions in currencies other than the U.S. dollar;
- changes in a specific country's or region's political or economic environment;
- negative consequences from changes in tax laws;
- negative consequences from changes in U.S. national security laws, including those governing non-U.S. investors' ownership of U.S. biotech and other technology companies and U.S. companies' ability to enter into joint ventures with non-U.S. entities;
- compliance with tax, employment, immigration, and labor laws for employees living or traveling abroad;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- difficulties associated with staffing and managing international operations, including differing labor relations;
- potential liability under the Foreign Corrupt Practices Act (FCPA) or comparable foreign laws; and
- business interruptions resulting from geo-political actions, including war and terrorism, pandemics, or natural disasters, including earthquakes, typhoons, floods, and fires.

The continued spread of COVID-19 and the measures taken by the governments of countries affected could disrupt the supply chain of material needed for our products, some of which we source from China and other countries outside the United States, and has delayed and could further delay clinical trial activities, which has delayed and may further delay product launch, all of which could have a material adverse effect on our business, financial condition and results of operations. For additional information, see "Risk Factors—Our business is subject to risks arising from epidemic diseases, such as the recent global outbreak of COVID-19."

In addition, the current U.S. administration has publicly supported potential trade proposals that may affect U.S. trade relations with other countries. For example, the current U.S. administration announced tariffs on China which resulted in retaliatory tariffs from China on certain products from the United States. While at this time neither the United States nor China has specifically imposed additional tariffs on healthcare-related products, the nature of this dispute is evolving and additional products such as ours could become subject to tariffs, which could adversely affect their marketability and our results of operations. It is unclear at this point how, if at all, such actions or other potential actions would impact our business or operations, but the uncertainty surrounding these matters could create difficulties in our efforts to partner with healthcare providers, suppliers, and insurance carriers. These and other risks associated with our planned international operations may materially and adversely affect our business and growth prospects.

We are also subject to a number of risks related to regulations and legal compliance. For additional information, see "Risk Factors—Risks Related to Regulation and Legal Compliance."

Our internal computer systems, or those used by our third-party research institution collaborators or other contractors or consultants, may fail or suffer security breaches.

Despite the implementation of security and back-up measures, our internal computer, server, and other information technology systems as well as those of our third-party collaborators, consultants, contractors, suppliers, and service providers, including AWS, may be vulnerable to damage from physical or electronic break-ins, computer viruses, malware, ransomware, denial of service and other cyber-attacks or disruptive incidents that could result in unauthorized access to, use or disclosure of, corruption of, or loss of sensitive, and/ or proprietary data, including personal and health information, and could subject us to significant liabilities and regulatory and enforcement actions, and reputational damage. For example, one of our research partners disclosed to one of its software vendors certain protected health information of participants who were recruited into one of our clinical studies. After conducting a breach analysis, this research partner informed the affected individuals of the incident. Although we believe this was an isolated incident, if we or any of our third-party collaborators were to experience

any material failure or security breach in the future, it could result in a material disruption of our development programs, reputation, and business operations. For example, the loss of clinical study data from completed or ongoing clinical studies could result in delays in any regulatory clearance or approval efforts and significantly increase our costs to recover or reproduce the data, and subsequently commercialize our products. If we or our third-party collaborators, consultants, contractors, suppliers, or service providers were to suffer an attack or breach, for example, that resulted in the unauthorized access to or use or disclosure of personal or health information, we may have to notify physicians, patients, partners, collaborators, government authorities, and the media, and may be subject to investigations, civil penalties, administrative and enforcement actions, and litigation, any of which could harm our business and reputation. Likewise, we rely on our third-party research institution collaborators and other third parties to conduct clinical studies, and similar events relating to their computer systems could also have a material adverse effect on our business. The COVID-19 pandemic is generally increasing the attack surface available to criminals, as more companies and individuals work online and work remotely, and as such, the risk of a cybersecurity incident potentially occurring, and our investment in risk mitigations against such an incident, is increasing. For example, there has been an increase in phishing and spam emails as well as social engineering attempts from “hackers” hoping to use the recent COVID-19 pandemic to their advantage. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or systems, or inappropriate or unauthorized access to or disclosure or use of confidential, proprietary, or other sensitive, personal, or health information, we could incur liability and suffer reputational harm, and the development and commercialization of our products could be delayed.

Our insurance policies may not be adequate to compensate us for the potential losses arising from such disruptions, failure, or security breach. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all. Further, our insurance may not cover all claims made against us and defending a suit, regardless of its merit, could be costly, divert management attention, and harm our reputation.

We rely on third-party services to collect, process, transport, and store our samples in a secure and cost-efficient manner. If these services were disrupted, our business would be harmed.

Our business depends on our ability to reliably sequence blood samples that we collect, which are transported to our facility for analysis. Our samples are initially collected, processed, frozen, and stored at several off-site facilities in the United States and Germany. Any disruption to the operations of these facilities could compromise the integrity of our samples and impede our ability to accurately sequence the data. For example, BioStorage Technologies, Inc. currently holds our STRIVE clinical samples in its long-term storage facility. If any natural or man-made disaster, accident, or break-in were to affect its facility, our STRIVE samples could be lost, destroyed, compromised, or otherwise adversely affected. In addition, we maintain samples from our clinical trials for several years. It is possible that the long-term stability of these samples may not be maintained with the passage of time, which could negatively impact our ability to use such samples to validate our products. Further, interruptions in collection, processing, freezing, or transportation of samples performed by third parties, whether due to labor disruptions, bad weather, natural disaster, terrorist acts, threats, or for other reasons could adversely affect the samples and our ability to process the samples in a timely manner, which could negatively affect our ongoing research studies and harm our business.

If we are sued for product or professional liability, we could face substantial liabilities that exceed our resources.

Our business depends upon our ability to provide reliable and accurate test results that incorporate rapidly evolving understanding of how to interpret minute signals detected by our assays as indications of potential presence of disease. Actual or perceived errors resulting from laboratory or reporting errors, false positive or false negative test results, or the manufacture, design, or labeling of our products, could subject us to product liability or professional liability claims. A product liability or professional liability claim against us could result in substantial damages and be costly and time-consuming to defend. Although we maintain liability insurance, including for errors and omissions, our insurance may not fully protect us from the financial impact of defending against these types of claims or any judgments, fines, or settlement costs arising out of any such claims. Any liability claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any liability lawsuit could damage our reputation or force us to suspend sales of our

products. The occurrence of any of these events could have a material adverse effect on our business, results of operations, financial condition, and prospects.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

As of December 31, 2019, we had federal and state net operating loss (NOL) carryforwards of $202.5 million and $279.4 million, respectively, and federal and state research and development credit carryforwards of $22.2 million and $18.2 million, respectively. Certain of these NOL and research and development credit carryforwards will begin to expire, if not utilized, in various years beginning in 2036. Federal NOLs generated after December 31, 2017 may be carried forward indefinitely subject to the 80% deduction limitation based upon pre-NOL deduction taxable income. Our ability to utilize such carryforwards is subject to certain conditions and may be subject to certain limitations due to prior or future ownership changes, if any, as defined in Section 382 of the U.S. Internal Revenue Code of 1986, as amended. As such, there can be no assurance that we will be able to utilize such carryforwards. We have experienced a history of losses and a lack of future taxable income would adversely affect our ability to utilize these NOL and research and development credit carryforwards. We have established valuation allowances against our NOLs and research and development credits due to the uncertainty surrounding the realization of such assets.

Our quarterly results of operations may fluctuate significantly or may fall below the expectations of investors or securities analysts, each of which may cause our stock price to fluctuate or decline.

We expect our results of operations to be subject to quarterly fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- our ability to successfully develop, market, and sell our products, including Galleri and DAC;
- the prices at which we are able to sell our products;
- the impact of competitive developments or our response thereto;
- disruptions in our business due to manufacturing, supply, security breaches, outages, or other issues;
- the cost of performing next-generation sequencing (NGS);
- the extent to which our product is deemed eligible or ineligible for coverage and reimbursement from third- party payors;
- changes in coverage and reimbursement or in reimbursement-related laws directly affecting our business;
- regulatory developments affecting our products or competing products;
- timing of expenditures in connection with our clinical studies; and
- non-routine cash and non-cash expenses and write-offs, whether associated with acquisitions, restructuring activities, litigation, investigations, or otherwise.

If our quarterly results of operations fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. Furthermore, any quarterly fluctuations in our results of operations may, in turn, cause the price of our stock to fluctuate substantially. We believe that quarterly comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

Acquisitions or other strategic transactions may increase our capital requirements, dilute our stockholders, cause us to incur debt or assume contingent liabilities, and subject us to other risks.

We have in the past engaged in acquisitions, including our acquisition of Cirina Limited, and we may engage in various acquisitions and strategic partnerships in the future, including licensing or acquiring complementary intellectual property rights, technologies, or businesses. Any acquisition or strategic partnership may entail numerous risks, including:

- increased operating expenses and cash requirements;
- the assumption of indebtedness or contingent liabilities;
- the issuance of our equity securities that would result in dilution to our stockholders;
- assimilation of operations, intellectual property, and products of an acquired company;
- difficulties associated with integrating new personnel;
- retention of key employees, the loss of key personnel, and uncertainties in our ability to maintain key business relationships;
- the diversion of our management's attention from our existing product programs and initiatives in pursuing such an acquisition or strategic partnership;
- risks and uncertainties associated with the other party to such a transaction, including the prospects of that party and their existing products or product candidates and regulatory approvals, and the validity and enforceability of their intellectual property;
- inability to consummate acquisitions on which we spend a significant amount of time and resources;
- possible write-offs or impairment charges relating to acquired businesses; and
- our inability to generate revenue from acquired intellectual property, technology, or tests sufficient to meet our objectives or offset the associated transaction costs.

In addition, as our strategy evolves, we may opt to discontinue, deprioritize, or dispose of assets, technologies, or acquired businesses. For example, in 2019, we made a decision not to commercialize a stand-alone nasopharyngeal cancer test we were developing and sublicensed the related technology to a third party. We may take similar actions with other products in the future.

Risks Related to Regulation and Legal Compliance

We plan to initially launch our products as LDTs, and if FDA were to end or modify its current policy of enforcement discretion on LDTs, or if Congress enacts legislation that changes the current requirements for LDTs, we may lose the ability to commercialize Galleri and DAC without FDA premarket clearance or approval, which could require us to incur substantial costs and delays.

While we currently anticipate that we will eventually seek regulatory clearance or approval from FDA for Galleri and DAC, we intend to initially launch Galleri and DAC in the United States as LDTs. LDTs are in vitro diagnostic tests that are intended for clinical use and are designed, manufactured, and used within a single laboratory. Although LDTs are classified as medical devices and FDA has statutory authority to ensure that medical devices are safe and effective for their intended uses, FDA has historically exercised enforcement discretion and has not enforced certain applicable FDA requirements, including premarket review, with respect to LDTs, though such practices may not continue in the future.

Even under its current enforcement discretion policy, FDA has issued warning letters to and safety communications about *in vitro* diagnostic device manufacturers for commercializing laboratory tests that were purported to be LDTs but that FDA alleged failed to meet the definition of an LDT or otherwise were not subject to

FDA's policy on enforcement discretion because they presented a potential safety risk. Additionally, FDA could modify its current approach to LDTs in a way that could subject our products that we plan to market as LDTs to the enforcement of additional regulatory requirements. In recent years, FDA has stated its intention to modify its enforcement discretion policy with respect to LDTs. Specifically, on July 31, 2014, FDA notified Congress of its intent to modify, in a risk-based manner, its policy of enforcement discretion with respect to LDTs. On October 3, 2014, FDA issued two draft guidance documents entitled "Framework for Regulatory Oversight of Laboratory Developed Tests (LDTs)," or the Framework Guidance, and "FDA Notification and Medical Device Reporting for Laboratory Developed Tests (LDTs)," or the Reporting Guidance. Moreover, even if FDA does not modify its policy of enforcement discretion, FDA may disagree that we are marketing our LDTs within the scope of its policy of enforcement discretion and may impose significant regulatory requirements or take enforcement actions. FDA may request that we provide additional analyses and information beyond that which we intend to produce based on the designs of our current and planned clinical studies, or that we modify or narrow our intended use or product claims. In addition, FDA may choose not to exercise enforcement discretion with respect to our launch of our products as LDTs. As a result, it is possible that FDA may disagree with our interpretation of data from clinical studies to support our LDT launches for our proposed intended uses. If we are required to provide additional analyses or additional data or perform additional clinical studies or research, our commercial launch of Galleri or DAC would be delayed or the indicated uses may be significantly narrowed or modified. A delay in the launch of our products, or significantly narrowing their intended uses, could negatively impact our financial condition and results of operations.

In addition, FDA and Congress have, for over the past decade, considered a number of proposals to change FDA's enforcement discretion policy for LDTs and subject LDTs to additional regulatory requirements. For example, Congress has recently been working on legislation to create an LDT and *in vitro* diagnostic regulatory framework for all *in vitro* clinical tests (IVCTs) that would be separate and distinct from the existing medical device regulatory framework. In March 2020, Members of Congress introduced the Verifying Accurate Leading-edge IVCT Development Act of 2020 (the VALID Act). If passed in its current form, the VALID Act would create a new category of medical products separate from medical devices for IVCTs. As proposed, the bill would establish a risk-based approach to imposing requirements related to premarket review, quality systems, and labeling requirements on all IVCTs, including LDTs, but would create exemptions for certain LDTs marketed before the effective date of the bill (though other regulation requirements may apply, for example, registration and notification, adverse event reporting). It is unclear whether the VALID Act or any other legislative proposals (including any proposals to reduce FDA oversight of LDTs) would be passed by Congress or signed into law by the President. Depending on the approach adopted under any potential legislation, certain LDTs (likely those of higher risk) may be required to undergo some form of premarket review, potentially with a transition period for compliance and a grandfathering provision.

Although FDA halted finalization of the guidance in November 2016 to allow for further public discussion on an appropriate oversight approach to LDTs and to give congressional authorizing committees the opportunity to develop a legislative solution, and FDA issued a discussion paper on possible approaches to LDT regulation in January 2017, if Congress does not take action in connection with the VALID Act or other LDT legislation, FDA could modify its current approach to LDTs in a way that could require that our products that we anticipate marketing as LDTs comply with additional FDA requirements. On August 19, 2020, the U.S. Department of Health and Human Services announced that FDA will not require premarket review of LDTs absent notice-and-comment rulemaking.

If FDA changes its policy of enforcement discretion for LDTs, we may be required to obtain premarket clearance or approval for our products from FDA or do so earlier than anticipated. The process for submitting a premarket notification and receiving FDA clearance usually takes from three to twelve months, depending on the type of submission, but it can take significantly longer and clearance is never guaranteed. The process for submitting and obtaining FDA clearance or approval is costly and uncertain. Moreover, there can be no assurance that any cleared or approved labeling claims will be consistent with the claims we would make about our products when launched as LDTs, or that such claims will be adequate to support continued adoption of and reimbursement for our products. If premarket review is required for some or all of our products, FDA may require that we stop selling our products pending clearance or approval, which would negatively impact our business. Even if our products are

allowed to remain on the market prior to required clearance or approval, demand or reimbursement for our products may decline if there is uncertainty about our products, if we are required to label our products as investigational by FDA, or if FDA limits the labeling claims we are permitted to make for our products. As a result, we could experience significantly increased development costs and a delay in generating additional revenue from our products, or from other products now in development.

If FDA changes its enforcement discretion policy or imposes significant changes to the regulation of LDTs, either generally or to our LDT products in particular, it could reduce our revenues or increase our costs and adversely affect our business, prospects, results of operations or financial condition.

The regulatory clearance or approval processes of FDA and comparable foreign regulatory authorities are lengthy, time-consuming, and unpredictable. If we are ultimately unable to obtain any necessary or desirable regulatory approvals or clearances, or if such approvals or clearances are significantly delayed, our business will be substantially harmed.

Following our planned initial launch of Galleri as an LDT, we currently anticipate seeking PMA approval from FDA for a version of Galleri. We may seek FDA premarket clearance or approval for a version of DAC after its LDT launch. Accordingly, we would be subject to FDA's regulatory review processes. The time required and ability to obtain clearance or approval by FDA and comparable foreign regulatory authorities is unpredictable, typically takes several years following the commencement of clinical studies, and depends upon numerous factors, including the type, complexity, and novelty of our products. In addition, policies, laws, regulations, or the type and amount of clinical data necessary to gain clearance or approval may change during the course of a test's clinical development and may vary among jurisdictions, which may cause delays in the clearance or approval of, or the decision not to approve, an application. Regulatory authorities have substantial discretion in the premarket review process and may refuse to accept any application, decide that our data are insufficient for clearance or approval, require additional clinical or other data, or determine that our manufacturing and quality systems are insufficient or in violation of applicable requirements. Even if we believe our data are sufficient to support regulatory approval, regulatory authorities may disagree that approval is warranted, or may require the generation and submission of additional data or data analyses and significantly delay approval.

Before a new medical device, or a new intended use of, claim for, or significant modification to an existing device, can be marketed in the United States, a company must first submit an application for and receive 510(k) clearance pursuant to a premarket notification submitted under Section 510(k) of the Federal Food, Drug, and Cosmetic Act (FDCA), de-novo classification, or PMA approval from FDA, unless an exemption applies. The PMA approval pathway, which we expect to pursue for Galleri following potential launch as an LDT, requires an applicant to demonstrate the safety and effectiveness of the product based, in part, on valid scientific evidence, including, but not limited to, technical, preclinical, and clinical data. The 510(k) pathway requires a FDA finding that the test is substantially equivalent to a legally marketed predicate device. If no legally marketed predicate can be identified to enable use of the 510(k) pathway, the device is automatically classified under the FDCA into class III, which generally requires PMA approval. However, for low- to moderate-risk devices, FDA allows for the possibility of marketing authorization through the "*de novo* classification" process rather than requiring the device to be subject to PMA approval.

Products that are approved through a PMA application generally need prior FDA approval before modifications can be made that affect safety or effectiveness, and certain modifications to a 510(k)-cleared device may also require FDA premarket review before the modified product can be marketed. See "Business—Government Regulation—U.S. Regulation and Product Approval—United States Food and Drug Administration." We have not applied for regulatory clearance or approval for any of our products, and it is possible that we will never obtain regulatory clearance or approval.

FDA or other regulators can delay, limit, or deny premarket clearance or approval of a product for many reasons, including but not limited to the following:

- FDA or comparable foreign regulatory authorities may disagree with the design, implementation, or results of, or interpretation of the data from, our clinical studies;

- FDA or comparable foreign regulatory authorities may determine that our product has not been shown to be safe and effective or has other characteristics that preclude us from obtaining marketing authorization or prevent or limit its commercial use (for example, a narrowed indication for use claim);
- the population studied in the clinical program may not be sufficiently broad, generalizable, or representative of the intended target population of our product to assure effectiveness and safety in the population for which we seek authorization or clearance;
- FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from clinical studies or may fail to accept data from clinical studies (or clinical sites), including if we fail to establish the integrity of our data;
- FDA or comparable foreign regulatory authorities may determine that our clinical studies otherwise fail to comply with applicable regulations;
- serious or unexpected adverse effects or other performance issues are identified with our products;
- FDA or comparable foreign regulatory authorities may determine that our manufacturing or quality system fails to comply with applicable regulations or otherwise fails to meet the standards necessary to support approval; and
- the approval policies or regulations of FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

We are engaged in ongoing discussions with FDA regarding the data that will be needed to support a successful PMA for a multi-cancer test for our planned indications, including whether we would need to provide additional analyses and information beyond that which we are currently planning to produce based on the designs of our current and planned clinical studies. There can be no assurance that our products for which we may seek clearance or approval will be approved or cleared by FDA or a comparable foreign regulatory authority on a timely basis, if at all, nor can there be assurance that labeling claims will be consistent with our anticipated claims or adequate to support continued adoption of, and reimbursement for, our products. If our products receive clearance or approval but there is uncertainty about our products among providers or payors, or if the approved indication or other labeling claims FDA or a comparable foreign regulatory authority allows us to make are more limited than we expect, reimbursement may be adversely affected and we may not be able to sell our products. Compliance with FDA or comparable foreign regulatory authority regulations will require substantial costs, and subject us to heightened scrutiny by regulators and substantial penalties for failure to comply with such requirements or the inability to market our products. The lengthy and unpredictable approval process, as well as the unpredictability of the results of our clinical studies, may result in our failing to obtain regulatory clearance or approval to market our products, which would significantly harm our business, results of operations, reputation, and prospects.

Our multi-cancer detection tests are a new approach to cancer screening, which present a number of novel and complex issues for FDA review. Because FDA has never cleared or approved a multi-cancer detection test, it is difficult to predict what information we will need to submit to obtain approval of a PMA from FDA for a proposed intended use, or if we will be able to obtain such approval on a timely basis or at all.

Our multi-cancer detection tests represent a new approach to cancer screening (including the use of pattern recognition of genomic signals), and obtaining FDA approval for Galleri presents a number of novel issues. FDA has never granted marketing authorization for a multi-cancer detection test. Additionally, in March 2020, FDA held a public workshop to discuss the clinical, scientific, and regulatory challenges associated with circulating tumor DNA cancer screening tests, and we expect FDA to continue to gather input from a variety of industry, academic, and clinical stakeholders to inform its thinking on how to assess these types of tests. As such, the FDA requirements that will govern any multi-cancer detection test we develop, as well as the breadth and nature of data we must provide FDA, to support the proposed intended use, may be subject to change.

As part of our ongoing discussions with FDA regarding the data that will be needed to support a PMA for a multi-cancer detection test based on a proposed intended use and consistent with discussions during the March 2020

public workshop, FDA has provided feedback regarding how it plans to assess the safety and effectiveness of Galleri based on potential intended use statements. In particular, in response to certain questions about the STRIVE study statistical analysis plan, FDA has provided feedback regarding the benefit-risk profile for each cancer type as well as comparative performance of our test against and in combination with standard of care screening methods. FDA has indicated that the sufficiency of our clinical data, including comparative performance data, will be a review issue as part of its review of our PMA for the proposed intended use. While we plan to continue discussions with FDA and provide FDA with additional information, the FDA may raise additional questions or request additional information in connection with the submission of a marketing application.

Given the novel nature and complexity of our multi-cancer detection tests, we cannot be certain whether we will receive FDA marketing authorization for Galleri and whether the studies we have conducted, are currently conducting, or plan to conduct will be sufficient to provide the data that FDA requires to support a proposed intended use. For example, we recognize that our STRIVE clinical study alone would not be sufficient for a proposed multi-cancer early detection intended use statement and we plan on providing evidence from additional clinical studies to support a PMA for Galleri. FDA may require us to perform new analyses of our clinical data or perform additional clinical trials in addition to those we are contemplating. We may be required to undertake significant efforts to address FDA's requests, which could delay or prevent approval, lead to a more limited intended use statement than the broader intended use statement we plan to pursue, and/or lead to significant post-approval limitations or restrictions, if approval is obtained at all.

Our use and disclosure of personal information, including individually identifiable health information, and biologic samples and related data are subject to federal, state and foreign privacy and security regulation. Data privacy rules are evolving and new legislation concerning privacy and data use may limit our ability to use such data and specimens. Our failure to comply with privacy and security requirements or to adequately secure such information could result in significant liability, administrative or governmental penalties, and/or reputational harm and, in turn, substantial harm to our business and results of operations.

We and our partners may be subject to federal, state, and foreign data protection laws and regulations (i.e., laws and regulations that address data privacy and security). We receive, store, process and use personal information as part of our business. In the United States, numerous state and federal laws and regulations govern the collection, dissemination, use, disclosure, privacy, confidentiality, security, availability and integrity of personal information, including health related information. We are currently not a covered entity under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, or the regulations that implement both laws (collectively HIPAA), but we expect to be a covered entity in 2021 around the time we commercially launch our LDT when we begin submitting electronic claims. HIPAA establishes a set of national privacy and security standards for the protection of individually identifiable health information, by health plans, healthcare clearinghouses and certain healthcare providers, referred to as covered entities, the business associates with whom such covered entities contract for services that involve creating, receiving, maintaining, or transmitting protected health information, and the subcontractors of such business associates. In addition, we may obtain health information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under HIPAA. Depending on the facts and circumstances, we could be subject to criminal penalties if we knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA covered entity in a manner that is not authorized or permitted by HIPAA.

Certain states have also adopted comparable privacy and security laws and regulations, such as the California Confidentiality of Medical Information Act; these laws are not preempted by HIPAA to the extent that they are more stringent than HIPAA. California recently enacted the California Consumer Privacy Act (CCPA), which went into effect on January 1, 2020 and limits how companies can collect and use personal data. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing and receive detailed information about how their personal information is used. The CCPA provides for fines and penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. Although there are limited exemptions for certain health-related data, including clinical trial data, the CCPA may increase our compliance costs and potential liability. Other states are also considering similar privacy laws and the federal government may seek to enact a similar federal privacy law. We could be adversely affected if

the CCPA and other state or federal legislation or regulations applicable to GRAIL require changes in our business practices or privacy policies, or if governing jurisdictions interpret or implement their legislation or regulations in ways that negatively affect our business, financial condition and results of operations.

Even when HIPAA does not apply, according to the FTC, violating consumers' privacy rights or failing to take appropriate steps to keep consumers' personal information secure may constitute unfair acts or practices in or affecting commerce in violation of the Federal Trade Commission Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Individually identifiable health information is considered sensitive data that merits stronger safeguards.

Compliance with data protection laws and regulations in the United States could cause us to incur substantial costs or require us to change our business practices and compliance procedures in a manner adverse to our business. We strive to comply with applicable laws, regulations, policies and other legal obligations relating to privacy, data protection and information security. However, the various regulatory frameworks for privacy and data protection are, and are likely to remain, uncertain for the foreseeable future, and it is possible that these or other actual or alleged obligations may be interpreted and applied in a manner that is inconsistent from one jurisdiction to another and may conflict with other rules and subject our business practices to uncertainty.

We seek to utilize biological samples and data from participants in our clinical studies in accordance with applicable law, IRB stipulations, and participant permissions (through consent forms and HIPAA authorizations). If we are unable or significantly restricted in using participant samples and data for secondary research purposes, our ability to develop additional products and/or improve or refine existing products will be limited, which may impact our business and prospects.

We also expect that there will continue to be new laws, regulations, and industry standards concerning privacy, data protection, and information security proposed and enacted in various jurisdictions. For example, European legislators adopted the General Data Protection Regulation (GDPR), which became effective on May 25, 2018, and superseded the prior European Union (EU) data protection legislation. The GDPR imposes more stringent data protection requirements, and provides for greater penalties for noncompliance. The GDPR is applicable in each EU and European Economic Area (EEA) member state and applies to companies established in the EU and EEA as well as companies that collect and use personal data to offer goods or services to, or monitor the behavior of, individuals in the EU and EEA, including, for example, through the conduct of clinical trials. The GDPR imposes stringent data protection obligations for processors and controllers of personal data. Among other things, the GDPR requires the establishment of a lawful basis for the processing of data, includes requirements relating to the consent of the individuals to whom the personal data relates, including detailed notices for clinical trial subjects and investigators, as well as requirements regarding the security of personal data and notification of data processing obligations or security incidents to appropriate data protection authorities or data subjects. We may face difficulty in fully complying with these regulations and any failure to do so could subject us to significant monetary penalties, liabilities, and adverse publicity. For example, because we collect personal data from EU data subjects as part of the SUMMIT study, including health data from participants enrolled in our clinical study in the United Kingdom, we are subject to the GDPR with respect to personal data collected in the study.

The GDPR prohibits, without an appropriate legal basis, the transfer of personal data to countries outside of the EEA, such as the United States, which are not considered by the European Commission to provide an adequate level of data protection. Although there are legal mechanisms to allow for the transfer of personal data from the EEA to the United States, recent legal developments in Europe have created complexity and uncertainty regarding such transfers of personal data. For example, on July 16, 2020, the Court of Justice of the European Union (CJEU) invalidated the EU-US Privacy Shield Framework (Privacy Shield) under which personal data could be transferred from the EEA to United States entities that had self-certified under the Privacy Shield scheme. While the CJEU upheld the adequacy of the standard contractual clauses (a standard form of contract approved by the European Commission as an adequate personal data transfer mechanism, and potential alternative to the Privacy Shield), it made clear that reliance on them alone may not necessarily be sufficient in all circumstances. Use of the standard contractual clauses must now be assessed on a case-by-case basis taking into account the legal regime applicable in the destination country, in particular applicable surveillance laws and rights of individuals and additional measures

and/or contractual provisions may need to be put in place; however, the nature of these additional measures is currently uncertain. Additionally, other countries have passed or are considering passing laws requiring local data residency.

Penalties and fines for failure to comply with the GDPR are significant, including fines of up to €20 million or 4% of total worldwide annual revenue, whichever is higher. Additionally, following the United Kingdom's withdrawal from the European Union, we will have to comply with both the GDPR and the data protection laws of the United Kingdom, which could be more or less stringent than the GDPR. The relationship between the United Kingdom and the European Union in relation to certain aspects of data protection law remains unclear, for example around how data can lawfully be transferred between each jurisdiction, which exposes us to further compliance risk. It is currently unclear how the GDPR and the United Kingdom versions of data privacy legislation would inter-operate or what costs or difficulties complying with these two regimes will create for us or similarly situated companies.

If we or our partners fail to comply with federal, state, and foreign laboratory and other applicable licensing and registration requirements, we could be prevented from performing our tests or experience disruptions to our business.

CLIA is a federal law that regulates clinical laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention, or treatment of disease, or impairment of, or the assessment of the health of, human beings. CLIA regulations require, among other things, clinical laboratories to obtain a certificate and mandate specific standards in the areas of personnel qualifications, administration, participation in proficiency testing, test management, and quality assurance. CLIA certification is also required for us to be eligible to bill state and federal healthcare programs, if such reimbursement is otherwise available, as well as many private third-party payors, for our products. To renew these certifications, we will be subject to routine surveys and inspections. Moreover, CLIA inspectors may make random or "for cause" inspections of our clinical laboratories.

In 2018, we received a CLIA Certificate of Registration from CMS for our laboratory in Menlo Park, California, to begin conducting moderate and/or high complexity testing, subject to inspection to determine compliance with the CLIA regulations. In 2019, we obtained College of American Pathologists (CAP) accreditation for our Menlo Park facility. While we have completed validation studies for an earlier version of Galleri, we are continuing our validation efforts for the version of Galleri that we intend to launch as an LDT. We may not successfully complete such validation. Any addition to our test menu requires notification to the regulatory and accrediting bodies that regulate our laboratory (e.g., CMS, the California Department of Public Health Laboratory Field Services (CALFS) and CAP) that we are adding a new specialty to our assay offerings. Further, before we are able to offer any products developed at our Durham, North Carolina laboratory, when and if we are able to complete construction, we will also be required to validate the products and provide the required notifications, certifications, permits, and accreditations to the regulatory and accrediting bodies that will regulate our North Carolina laboratory. At their discretion, any regulatory or accrediting body may come on-site to inspect our laboratory at any time. Any failure to pass inspections, maintain our CLIA Certificate of Registration, CAP accreditation, or state licenses, or add new validated products to our laboratory assay offerings could significantly harm our business, results of operations, and prospects.

In addition to obtaining federal certification for a laboratory under CLIA, we are also required to obtain and maintain state licenses to conduct testing in our laboratories. We have obtained a Clinical Laboratory Certificate of Deemed Status from the State of California Department of Public Health for our Menlo Park facility. The California licensure law establishes standards for the day-to-day operation of a clinical laboratory, including the training and skills required of personnel and quality control. In addition, California law mandates proficiency testing, which involves testing of specimens that have been specifically prepared for the laboratory. In the future, we will need to obtain a Clinical Laboratory Certificate of Deemed Status from the State of North Carolina Department of Public Health for our Durham facility. Further, if we test specimens originating from other states and return patient-specific results, our clinical laboratory must satisfy such states' licensure laws as well to the extent that such laws regulate out-of-state laboratories that test specimens originating in such states. For example, to be able to receive specimens originating from New York, we must obtain and maintain a New York State Department of Health clinical

laboratory permit. Research testing, however, does not require licensure if patient-specific results are not generated and/or returned for diagnostic purposes. We have applied for a New York State Department of Health clinical laboratory permit for our Menlo Park facility and we intend to apply for such a permit for our Durham facility, which we will need to obtain prior to accepting and generating for diagnosis or treatment purposes patient-specific results on specimens originating from New York at the applicable facility. Applicable New York laws and regulations establish standards for day-to-day operation of a clinical laboratory, including training and skill levels required of laboratory personnel, physical requirements of a facility, equipment, and validation and quality control. We believe that relevant New York regulatory authorities may be experiencing delays as a result of COVID-19 related issues, and there can be no assurance that we will be able to obtain New York clinical laboratory permits, or licenses or permits from any other states where we believe we will be required to be licensed or hold a permit, prior to commercial launch of our products, or at all. Failure to obtain such licenses or permits could expose us to fines and other penalties, or limit our potential testing population.

In connection with CLIA certification and state laboratory licensing and permitting, we remain subject to a number of risks in the event of noncompliance. Any sanction imposed under CLIA, its implementing regulations, or state or foreign laws or regulations governing licensure or permitting, or our failure to renew or maintain a CLIA certificate, a state license or permit, or accreditation (including CAP), could have a material adverse effect on our business and reputation. CMS also has the authority to impose a wide range of sanctions, including suspension, limitation, or revocation of the CLIA certification, termination of Medicare and Medicaid participation, civil money penalties, and a bar on the ownership or operation of a CLIA-certified laboratory by any owners or operators of the deficient laboratory. If we fail to obtain any required state licensure, or lose CLIA certification, CAP accreditation, or licensure once obtained, we would not be able to operate our clinical laboratories and offer our products in full or in particular states, which would adversely impact our business and results of operations. Even if we were able to bring our laboratory back into compliance, we could incur significant expenses and potentially lose revenue in doing so.

In addition to state laboratory licensing laws, we may also be subject to state registration and/or licensing requirements that apply to companies that manufacture medical devices. Certain states may require such registrations or licenses before the products are commercialized, including while manufacturers are evaluating the devices in clinical trials. Violations of these laws may result in the denial, suspension, or revocation of the registration or license, as well as other fines and penalties, including imprisonment.

Data from our clinical trials that we announce or publish from time to time before our trials are complete may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose then-available data from our clinical studies before the studies are complete, and the results and related findings and conclusions may be subject to change following the final analysis of the data related to the particular study or trial. This may happen for a number of reasons, including due to the stated protocol or because of the presentation of an abstract at a scientific conference, for example. As a result, the results that we report may differ from final results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully analyzed. As a result, such data should be viewed with caution until the final data are available. Additionally, such data from our clinical trials are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment and/or follow-up continues and more patient data become available. Significant adverse differences between initial or interim data and final data could significantly harm our reputation and business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, and our ability to receive regulatory clearance or approval or commercialize a particular product and our company in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding our business. If the data that we report differ

from final results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to commercialize or obtain regulatory clearance or approval for, our products may be harmed, which could harm our reputation, business, operating results, prospects or financial condition.

Any product for which we obtain regulatory clearance or approval will be subject to extensive ongoing regulatory requirements, and we may be subject to penalties if we or our partners fail to comply with regulatory requirements or if we experience unanticipated problems with our products.

Any product for which we obtain regulatory clearance or approval from FDA or other regulators, along with the manufacturing processes, post-market surveillance, labeling, packaging, advertising, and promotion, distribution, storage, import, export, reporting, and recordkeeping for such product, will be subject to continued regulatory review, oversight, requirements, and periodic inspections by FDA and comparable foreign regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports; registration and listing requirements; requirements relating to quality control, quality assurance, and corresponding maintenance of records and documents; requirements relating to recalls, removals, and corrections; and requirements relating to product labeling, advertising and promotion, and recordkeeping. The regulations to which we are subject are complex and have tended to become more stringent over time. Regulatory changes could result in restrictions on our ability to carry on or expand our operations, higher than anticipated costs or lower than anticipated sales. FDA enforces these regulatory requirements through, among other means, periodic unannounced inspections. We do not know whether we will be found compliant in connection with any future regulatory inspections.

Regulatory clearance or approval of a test or device may be subject to limitations by the regulatory body as to the indicated uses for which the product may be marketed or to other conditions of clearance or approval. In addition, clearance or approval may contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the test or device. After clearance or approval, discovery of problems with our product, suppliers, vendors, or contract manufacturers, or manufacturing processes (including software validation), and/or failure to comply with regulatory requirements, may result in actions such as:

- restrictions on operations of our laboratory;
- restrictions on manufacturing processes;
- restrictions on marketing of a product;
- Untitled or Warning letters;
- withdrawal or recall of the product from the market or seizure of the product;
- refusal to approve applications or supplements to approved applications that we may submit;
- fines, restitution or disgorgement of profits or revenue;
- suspension, limitation or withdrawal of regulatory approvals or clearances;
- exclusion from participation in U.S. federal or state healthcare programs, such as Medicare and Medicaid;
- safety communications;
- refusal to permit the import or export of our product;
- injunctions; or
- imposition of civil or criminal penalties.

For any of our products that are approved or cleared by FDA, we will be required to report to FDA certain information about adverse medical events or malfunctions, and if we fail to do so, we would be subject to sanctions that could harm our reputation, business, financial condition and results of operations. The discovery of serious safety issues with our products, or a recall of our products either voluntarily or at the direction of FDA or another governmental authority, could have a negative impact on us.

For products for which we obtain FDA clearance or approval, we will be subject to FDA's medical device reporting regulations and similar foreign regulations, which require us to report to FDA when we receive or become aware of information that reasonably suggests that one or more of our products may have caused or contributed to a death or serious injury or malfunctioned in a way that, if the malfunction were to recur, it could cause or contribute to a death or serious injury. The timing of our obligation to report is triggered by the date we become aware of the adverse event as well as the nature of the event. We may fail to report adverse events of which we become aware within the prescribed timeframe. We may also fail to recognize that we have become aware of a reportable adverse event, especially if it is not reported to us as an adverse event or if it is an adverse event that is unexpected or removed in time from the use of the product. If we fail to comply with our reporting obligations, FDA could take action, including warning letters, untitled letters, administrative actions, criminal prosecution, imposition of civil monetary penalties, revocation of our device clearance or approval, seizure of our products or delay in clearance or approval of future products.

FDA and foreign regulatory bodies have the authority to require the recall of commercialized products in the event of material deficiencies or defects in design or manufacture of a product or in the event that a product poses an unacceptable risk to health. FDA's authority to require a recall must be based on a finding that there is reasonable probability that the device could cause serious injury or death. We may also choose to voluntarily recall a product if any material deficiency is found. A government-mandated or voluntary recall by us could occur as a result of an unacceptable risk to health, component failures, malfunctions, manufacturing defects, labeling or design deficiencies, packaging defects or other deficiencies or failures to comply with applicable regulations. Product defects or other errors may occur in the future.

Depending on the corrective action we take to redress a product's deficiencies or defects, FDA may require, or we may decide, that we will need to obtain new clearances or approvals for the device before we may market or distribute the corrected device. Seeking such clearances or approvals may delay our ability to replace the recalled devices in a timely manner. Moreover, if we do not adequately address problems associated with our devices, we may face additional regulatory enforcement action, including FDA warning letters, product seizure, injunctions, administrative penalties or civil or criminal fines.

Companies are required to maintain certain records of recalls and corrections, even if they are not reportable to FDA. We may initiate voluntary withdrawals or corrections for our products in the future that we determine do not require notification of FDA. If FDA disagrees with our determinations, it could require us to report those actions as recalls and we may be subject to enforcement action. A future recall announcement could harm our reputation with customers, potentially lead to product liability claims against us and negatively affect our sales. Any corrective action, whether voluntary or involuntary, as well as defending ourselves in a lawsuit, will require the dedication of our time and capital, distract management from operating our business and may harm our reputation and financial results.

To obtain and maintain FDA approvals or clearances, our products will need to be manufactured in accordance with federal and state regulations, and we could be forced to recall our devices or terminate production if we or our partners fail to comply with these regulations.

The methods used in, and the facilities used for, the manufacture of our products must comply with FDA's QSR, which is a complex regulatory scheme that covers the procedures and documentation of the design, testing, production, process controls, quality assurance, labeling, packaging, handling, storage, distribution, installation, servicing and shipping of medical devices. Furthermore, we are required to verify that our suppliers maintain facilities, procedures and operations that comply with our quality standards and applicable regulatory requirements. FDA enforces the QSR through periodic announced or unannounced inspections of medical device manufacturing

facilities, which may include the facilities of subcontractors. Our products are also subject to similar state regulations and various laws and regulations of foreign countries governing manufacturing.

Our third-party manufacturers may not take the necessary steps to comply with applicable regulations, which could cause delays in the delivery of our products. In addition, failure to comply with applicable FDA requirements or later discovery of previously unknown problems with our products or manufacturing processes could result in, among other things: warning letters or untitled letters; fines, injunctions or civil penalties; suspension or withdrawal of approvals; seizures or recalls of our products; total or partial suspension of production or distribution; administrative or judicially imposed sanctions; FDA's refusal to grant pending or future clearances or approvals for our products; clinical holds; refusal to permit the import or export of our products; and criminal prosecution of us, our suppliers, or our employees.

Any of these actions could significantly and negatively affect supply of our products. If any of these events occurs, our reputation could be harmed, we could be exposed to product liability claims and we could lose customers and experience reduced sales and increased costs.

Healthcare reform measures, including recently enacted legislation reforming the U.S. healthcare system, and data protection measures, could cause significant harm to our business, operations and financial condition.

Healthcare systems are subject to ongoing reform in the United States and abroad. For example, in the United States, the Affordable Care Act (ACA) made a number of substantial changes to the way healthcare is financed both by governmental and private insurers. For example, the ACA imposed a 2.3% federal excise tax on manufacturers of certain medical devices, which was suspended in 2016, and repealed in December 2019. The ACA also contains a number of other provisions, including provisions governing enrollment in federal and state healthcare programs, reimbursement matters, and fraud and abuse, which we expect will influence our industry and our operations in ways that we cannot currently predict.

Since its enactment, there have been judicial and congressional challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. For example, the Tax Cuts and Jobs Act of 2017 includes a provision that entered into effect on January 1, 2019, that repeals the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." In December 2018, a U.S. district court held that the individual mandate was unconstitutional, which was upheld by the U.S. Court of Appeals for the Fifth Circuit. The Supreme Court of the United States granted *certiorari* on March 2, 2020, and the case is expected to be decided by mid-2021. We expect the Trump administration and Congress will likely continue to seek to modify, repeal, or otherwise invalidate all, or certain provisions of, the ACA. Complying with any new legislation or reversing changes implemented under the ACA could be time-intensive and expensive, resulting in a material adverse effect on our business.

Changes in federal policy and at regulatory agencies occur over time through policy and personnel changes following elections, which lead to changes involving the level of oversight. Healthcare reform and pricing of drugs and medical devices, including clinical laboratory tests, are and will remain a key bipartisan issue. Policies to be pursued in the future may be more aggressive, regardless of which party controls the White House. Uncertainty surrounding future changes may adversely affect our operating environment and therefore our business, financial condition, results of operations and growth prospects.

We cannot predict which healthcare reform measures will be implemented or the full impact of current or future healthcare reform measures on our business. For instance, a repeal of the ACA or payment reductions imposed by the ACA, as well as the expansion of the federal and state governments' role in the U.S. healthcare industry generally and the social, governmental and other pressures to reduce healthcare costs while expanding individual benefits, could limit the prices we will be able to charge or the amount, if any, of available reimbursement for products, which would reduce our potential revenue and have a material adverse effect on our business, financial condition, results of operations, and cash flows.

Obtaining and maintaining regulatory authorization of our products in one jurisdiction does not mean that we will be successful in obtaining regulatory authorization of our products in other jurisdictions.

Obtaining and maintaining regulatory authorization of products in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory authorization in any other jurisdiction, but a failure or delay in obtaining regulatory authorization in one jurisdiction may have a negative effect on the regulatory authorization process in others. For example, even if FDA or a comparable foreign regulatory authority grants clearance or approval of our products, comparable regulatory authorities in foreign jurisdictions may also need to authorize the products in those countries, which may be a *de novo* review process. Premarket authorization processes vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States, including additional clinical studies, because clinical studies conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions or the data may not be considered applicable to the jurisdiction's intended patient population. In some cases, the price that we intend to charge for our products may also be subject to approval.

Obtaining foreign regulatory authorization and maintaining compliance with foreign regulatory requirements could result in significant delays, difficulties, and costs for us and could delay or prevent the introduction of our products in certain countries. If we fail to comply with the regulatory requirements in other jurisdictions, or we fail to receive necessary or desirable marketing authorizations in other jurisdictions, our target market will be reduced and our ability to realize the full market potential of our products will be harmed.

Our employees, independent contractors, consultants, commercial partners, and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of fraud, misconduct, or other illegal activity by our employees, independent contractors, consultants, commercial partners, and vendors. Misconduct by these parties could include intentional, reckless and negligent conduct that fails to: comply with the rules and regulations of the CMS, FDA, and other comparable foreign regulatory authorities; provide true, complete and accurate information to such regulatory authorities; comply with manufacturing and clinical laboratory standards; comply with healthcare fraud and abuse laws in the United States and similar foreign fraudulent misconduct laws; or report financial information or data accurately or to disclose unauthorized activities to us. When we begin commercializing our products in the United States, our potential exposure under such laws will increase significantly, and our costs associated with compliance with such laws are also likely to increase. In particular, research, sales, marketing, education, and other business arrangements in the healthcare industry are subject to extensive laws designed to prevent fraud, kickbacks, self-dealing, and other abusive practices, as well as off-label product promotion. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, educating, marketing and promotion, sales and commission, certain customer incentive programs, and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of participant recruitment for clinical studies, which could result in regulatory sanctions and cause serious harm to our reputation. We have adopted a code of business conduct and ethics, but it is not always possible to identify and deter misconduct by employees and third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions. Even if it is later determined after an action is instituted against us that we were not in violation of these laws, we may be faced with negative publicity, incur significant expenses defending our actions, and have to divert significant management resources from other matters.

If we fail to comply with healthcare and other applicable laws and regulations, we could face substantial penalties and our business, reputation, and operations and financial condition could be adversely affected.

Our operations are subject to various U.S. federal and state fraud and abuse laws. In addition, the commercialization of our products outside the United States would also subject us to foreign equivalents of the healthcare laws described below, among other foreign laws. The laws that may impact our operations include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering, or paying any remuneration (including any kickback, bribe, or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item, or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation, and many courts have interpreted that statute as being violated if merely one purpose of any arrangement is to induce referrals or purchases. In 2018, Congress enacted the Eliminating Kickbacks in Recovery Act of 2018 (EKRA), which establishes an all-payor anti-kickback prohibition for, among other things, knowingly and willfully paying or offering any remuneration directly or indirectly to induce a referral of an individual to a clinical laboratory. Violations of EKRA may result in fines, imprisonment, or both, for each occurrence;

- the federal physician self-referral prohibition, commonly known as the Stark Law, which, in the absence of an applicable exception, prohibits a physician from making a referral for certain designated health services covered by the Medicare or Medicaid program, including clinical laboratory services, if the physician or an immediate family member of the physician has a financial relationship with the entity providing the designated health services. The Stark Law also prohibits the entity furnishing the designated health services from billing, presenting or causing to be presented a claim for the designated health services furnished pursuant to the prohibited referral;

- federal civil and criminal false claims laws, including the False Claims Act, which impose criminal and civil penalties, including through civil “qui tam” or “whistleblower” actions, against individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid, or other third-party payors that are false or fraudulent. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;

- healthcare fraud and false statements laws, which prohibit, among other things, knowingly making a false statement to improperly avoid, decrease, or conceal an obligation to pay money to the federal government. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of these statutes or specific intent to violate them in order to have committed a violation;

- the federal Civil Monetary Penalties Law, which, subject to certain exceptions, prohibits, among other things, the offer or transfer of remuneration, including waivers of copayments and deductible amounts (or any part thereof), to a Medicare or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary’s selection of a particular provider, practitioner or supplier of services reimbursable by Medicare or a state healthcare program;

- the federal Physician Payment Sunshine Act, created under the ACA, and its implementing regulations, which require manufacturers of drugs, devices, biologicals, and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance Program to report annually to the U.S. Department of Health and Human Services under the Open Payments Program, information related to payments or other transfers of value made to physicians (as defined by statute) and teaching hospitals and, for transfers of value made beginning in 2021, to other healthcare practitioners, as well as ownership and investment interests held by such physicians and their immediate family members;

- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers; and

- analogous state and foreign laws and regulations, such as state and foreign anti-kickback, false claims, consumer protection, and unfair competition laws that may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangement as well as submitting claims involving healthcare items or services reimbursed by any third-party payor, including commercial insurers; state laws that require healthcare companies to comply with the medical device industry's voluntary compliance guidelines, the relevant compliance guidance promulgated by the federal government that otherwise restricts payments that may be made to healthcare providers, and other potential referral sources or state-specific standards on financial interactions with healthcare providers; state laws that require healthcare companies to file reports with states regarding pricing and marketing information, such as the tracking and reporting of gifts, compensation, and other remuneration and items of value provided to healthcare professionals and entities; and state and foreign laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available and lack of clear guidance, it is possible that some of our business activities could, despite our efforts to comply, be subject to challenge under one or more of such laws. Efforts to ensure that our business arrangements will comply with applicable healthcare and other applicable laws may involve substantial costs. In the future, it is possible that governmental and enforcement authorities will conclude that our business practices may not comply with current or then-existing statutes, regulations, or case law interpreting applicable fraud and abuse or other healthcare or applicable laws and regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of civil, criminal, and administrative penalties, damages, disgorgement, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

If we or any contract manufacturers and suppliers we engage fail to comply with environmental, health, and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We and any contract manufacturers and suppliers we engage are subject to numerous federal, state, and local environmental, health, and safety laws, regulations, and permitting requirements, including those governing laboratory procedures; the generation, labeling, handling, use, storage, transport, treatment, and disposal of hazardous and regulated materials and wastes; the emission and discharge of hazardous materials into the ground, air, and water; and employee health and safety. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. Under certain environmental laws, we could be held responsible for costs relating to any contamination at our current or past facilities and at third-party facilities. We also could incur significant costs associated with civil or criminal fines and penalties. If the handling, use, labeling, storage, or transport of hazardous or biohazardous materials by us or our contract manufacturers or suppliers fail to comply with applicable requirements, we could incur significant costs, be subject to civil or criminal fines and penalties, experience disruption and delays in our operations, and face destruction of any non-compliant materials, which could include clinical and biological samples.

Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our research, product development and manufacturing efforts. In addition, we cannot entirely eliminate the risk of accidental injury or contamination from these materials or wastes. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not carry specific biological or hazardous waste insurance coverage. Accordingly, in the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical studies or regulatory approvals could be suspended, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Changes in funding or disruptions at FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire and retain key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved or commercialized in a timely manner or at all, or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of FDA to review and clear or approve new products or changes to existing products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory, and policy changes, FDA's ability to hire and retain key personnel and accept the payment of user fees, federal government shutdowns, and other events that may otherwise affect FDA's ability to perform routine functions. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at FDA and other agencies may also slow the time necessary for new medical devices or modifications to cleared or approved medical devices to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including for 35 days beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as FDA, have had to furlough critical FDA employees and stop critical activities.

Separately, in response to the COVID-19 pandemic, on March 10, 2020, FDA announced its intention to postpone most inspections of foreign manufacturing facilities, and on March 18, 2020, FDA temporarily postponed routine surveillance inspections of domestic manufacturing facilities. Subsequently, on July 10, 2020, FDA announced its intention to resume certain on-site inspections of domestic manufacturing facilities subject to a risk-based prioritization system. FDA intends to use this risk-based assessment system to identify the categories of regulatory activity that can occur within a given geographic area, ranging from mission critical inspections to resumption of all regulatory activities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent or delay FDA or other regulatory authorities from conducting, at all or in a timely manner, their regular inspections, reviews, or other regulatory activities (including pre-submission engagements), it could significantly impact the ability of FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Our business activities are subject to the FCPA and similar anti-bribery and anti-corruption laws.

Our business activities are subject to the FCPA and similar anti-bribery or anti-corruption laws, regulations, or rules of other countries in which we operate, including the U.K. Bribery Act. The FCPA generally prohibits offering, promising, giving, or authorizing others to give anything of value, either directly or indirectly, to a non-U.S. government official in order to influence official action, or otherwise obtain or retain business. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect the transactions of the corporation and to devise and maintain an adequate system of internal accounting controls. Our business is heavily regulated and therefore involves significant interaction with public officials, including officials of non-U.S. governments. Additionally, in many other countries, the healthcare providers who administer diagnostic tests are employed by their government, and the purchasers of diagnostics tests are government entities; therefore, our dealings with these providers and purchasers are subject to regulation under the FCPA. The SEC and Department of Justice have increased their FCPA enforcement activities with respect to biotechnology and pharmaceutical companies. There is no certainty that all of our employees, agents, contractors, or collaborators, or those of our affiliates, will comply with all applicable laws and regulations, particularly given the high level of complexity of these laws. Violations of these laws and regulations could result in fines, criminal sanctions against us, our officers, or our employees, the closing down of our facility, requirements to obtain export licenses, cessation of business activities in sanctioned countries, implementation of compliance programs, and prohibitions on the conduct of our business. Any such violations could include prohibitions on our ability to offer our products in one or more countries and could materially damage our reputation, our brand, our international expansion efforts, our ability to attract and retain employees, and our business, prospects, operating results, and financial condition.

Risks Related to Intellectual Property

If we are unable to obtain and maintain intellectual property protection for our technology, or if the scope of the intellectual property protection we obtain is not sufficiently broad, our competitors could develop and commercialize technology and tests similar or identical to ours, and our ability to successfully commercialize our products may be impaired.

Our ability to compete successfully will depend in part on our ability to obtain and enforce patent protection for our products, preserve our trade secrets and operate without infringing the proprietary rights of third parties. Filing, prosecuting, and defending patents on our products and other technologies in all countries throughout the world would be prohibitively expensive and time-consuming, and the laws of some foreign countries may not protect our rights to the same extent as the laws of the United States. We may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patents or patent applications at a reasonable cost or in a timely manner, or in all jurisdictions, or at all, or may choose not to do any of the foregoing. Furthermore, in some cases, we have only filed provisional patent applications on certain aspects of our products and technologies and each of these provisional patent applications, or any future provisional patent application on certain aspects of our products and technologies, is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of the filing date of the applicable provisional patent application. In cases where we have not obtained, or decided not to obtain, patent protection for certain of our inventions, we may not be able to prevent third parties from practicing our inventions or from selling or importing tests made using our inventions in and into the United States or other jurisdictions.

Moreover, while we have applied for patents that protect aspects of our technology in the United States and several other countries, we cannot assure you that our intellectual property position, including our owned and exclusively licensed pending and issued patents, will not be challenged or that all patents for which we have applied will be issued on a timely basis or at all, or that such patents will protect our technology, in whole or in part, or be issued in a form that will provide us with meaningful protection, prevent competitors from competing with us, or otherwise provide us with any competitive advantage. Although patents are presumed valid and enforceable upon issuance, a patent may be challenged as to its inventorship, scope, validity, or enforceability, and certain of our owned or exclusively in-licensed patents have been, and others in the future may be, challenged in the courts or patent offices in the United States and abroad. For example, three of our European patents were subject to oppositions in Europe, as described below. As a result of such challenges, our pending or future patent applications may not result in issued patents, or the scope of existing or future patents may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours, or our issued patents may be held invalid or unenforceable. It is also possible that we may fail to identify patentable technologies in a timely fashion, which could impair our ability to obtain patent protection on such technology at all. Our competitors may be able to circumvent our owned or exclusively in-licensed patents by developing similar or alternative technologies or tests in a non-infringing manner. Competitors could also set up laboratories outside the countries in which we have filed patent applications in order to compete without infringing upon our intellectual property, even if they process samples from countries in which we do have patent protection. In addition, to the extent we have granted, or may grant in the future, licenses or sublicenses of our intellectual property rights to third parties, we cannot provide any assurance that such intellectual property rights will not be used by those third parties in a manner that could compete with our business or otherwise negatively impact any competitive advantage provided by such intellectual property rights.

Publications of discoveries in scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our owned or licensed patents or pending patent applications, or that we were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are uncertain. Given the amount of time required for the development, testing, and regulatory review of new tests, patents protecting such tests might expire before or shortly after such products are commercialized. As a result, our owned or exclusively in-licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

If a third party obtains an issued patent on inventions we use in our products, that party could prevent us from using those inventions, and we may not be able to design around the third party's patents or obtain a license on commercially reasonable terms, if at all. Third-party patents or other intellectual property may exist that our current technology, manufacturing methods, products, or future methods or tests infringe or will infringe, which could result in litigation, the imposition of injunctions preventing our use of the foregoing, or require us to obtain licenses or pay royalties and/or other forms of compensation to third parties, which could be significant and could harm our results of operations.

Periodic maintenance fees, renewal fees, annuity fees, and various other government fees on patents and applications will be due to be paid to the U.S. Patent and Trademark Office (USPTO) and various government patent agencies outside of the United States over the lifetime of our owned or in-licensed patents and applications. In certain circumstances, we rely on our licensing partners to pay these fees due to U.S. and non-U.S. patent agencies and to take the necessary actions to comply with other requirements to maintain such in-licensed patents during their term. In some cases, non-compliance can result in abandonment or lapse of the patent or patent application, resulting in a partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market with similar or identical tests or technology, which could have a material adverse effect on our competitive position.

If we fail to comply with our obligations in the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

We have agreements with Illumina and license agreements with The Chinese University of Hong Kong, among others, that provide rights to certain technologies related to assays used in our products. We may need to obtain additional licenses from others to advance our research or allow commercialization of our products or technology without infringing the intellectual property of third parties. It is possible that we may be unable to obtain such additional licenses at a reasonable cost or on reasonable terms, if at all. In that event, we may be required to expend significant time and resources to redesign our technology or to develop or license replacement technology, any of which may not be feasible on a technical or commercial basis. If we are unable to obtain or maintain applicable licenses, we may be unable to commercialize certain of our products or continue to utilize our technology, which could harm our business, financial condition, results of operations, and prospects.

In addition, our in-licenses impose various development, diligence, commercialization, and other obligations on us, and we expect that our future license or development agreements will contain similar types of obligations. Certain of our license agreements also require us to meet development timelines, or to exercise commercially reasonable efforts to develop and commercialize licensed products, including, for example, analyzing a minimum number of samples using the applicable product within a certain number of years, in order to maintain the licenses. Despite our efforts, our licensors might conclude that we have materially breached our obligations under such license agreements or our sublicensees may fail to fulfill their obligations to us or materially breach our related sublicense agreements, and our licensors might therefore terminate the license agreements or otherwise modify our rights under those agreements, thereby removing or limiting our ability to develop and commercialize products and technology covered by these license agreements or resulting in litigation. If these in-licenses are terminated, or if the underlying patents fail to provide the anticipated market exclusivity, competitors or other third parties may have the freedom to seek regulatory approval of, and to market, tests highly similar to ours or we may be required to cease commercialization of our products or use of our technology. Any of the foregoing could have a material adverse effect on our competitive position, business, financial condition, results of operations, and prospects.

In addition, the agreements under which we currently license or otherwise obtain rights to intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations, which may lead to disputes between us and our licensor, including:

- the scope of rights granted under the license agreement;
- the extent to which our product and technology infringe on intellectual property of the licensor that is not subject to the license agreement;

- the right to sublicense patent and other rights under our collaborative development relationships;
- our diligence and other obligations under the license agreement; and
- the ownership of inventions and know-how resulting from the joint invention of intellectual property by us and our licensors and our partners.

The resolution of any contract disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations, and prospects. If we are required to engage in litigation to enforce or defend our rights under our license or development agreements, even if we are successful, such litigation could require significant financial resources, divert the attention of management and harm our business. Moreover, if disputes over intellectual property that we have licensed or otherwise obtained rights to prevent or impair our ability to maintain our current arrangements on commercially acceptable terms, or at all, we may be unable to successfully commercialize the affected product or technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Our use of open-source software could subject our proprietary technology to unwanted open-source license conditions that could negatively impact our business.

A portion of our technology capabilities incorporates open-source software, and we may incorporate open- source software into other offerings or products in the future. If an author or other third party that distributed such open-source software to us were to allege that we had not complied with the conditions of one or more of these licenses, we could be required to incur significant legal expenses defending against such allegations. Further, the outcome of such litigation may be particularly uncertain in some cases, because there is little legal precedent governing the interpretation of certain terms of common open source licenses. In addition, if we combine our proprietary software with open-source software in a certain manner and make it available to others, under some open-source licenses, we could be required to license or make available the source code of our proprietary software, which could substantially help our competitors develop products that are similar to or better than ours and harm our business.

Developments in patent law could have a negative impact on our business.

From time to time, the U.S. Supreme Court, other federal courts, the U.S. Congress, the USPTO, or applicable authorities in other jurisdictions may change the standards of patentability and any such changes could have a negative impact on our business.

Several decisions from the U.S. Supreme Court regarding patentable subject matter are of particular relevance to patents in the medical diagnostics and computer-implemented applications space. The 2012 decision in *Mayo Collaborative v. Prometheus Laboratories* (*Prometheus*) concerns patent claims directed to optimizing the amount of drug administered to a specific patient based on certain diagnostic measurements. The Supreme Court held that the applicable patent's claims were directed to a law of nature (i.e., a natural correlation between drug levels and efficacy or toxicity) and failed to incorporate a sufficiently inventive concept above and beyond routine and conventional method steps to allow the claimed methods of treatment to qualify as patent eligible. The 2013 decision in *Association for Molecular Pathology v. Myriad Genetics* (*Myriad*) concerns the patentability of isolated DNA sequences that were related to methods of diagnosing genetic predisposition to cancer. The Supreme Court held that isolated fragments of naturally occurring genetic material are not patent eligible, but non-naturally occurring fragments can be patented. The 2014 decision in *Alice Corporation Pty. Ltd. v. CLS Bank International* (*Alice*) concerns a computer-implemented, electronic escrow service for facilitating financial transactions. The Supreme Court held that an abstract idea could not be patented just because it is implemented on a computer, thus providing guidance on the patentability of computer-implemented applications such as our products. Our efforts to seek patent protection for our technologies and products may be negatively impacted by the *Prometheus*, *Myriad*, and *Alice* decisions, rulings in other cases, or guidance or procedures issued by the USPTO or authorities in other jurisdictions.

We cannot fully predict the impact of the *Prometheus*, *Myriad*, and *Alice* decisions or other decisions that have been made or in the future may be made by other authorities on our ability, or the ability generally of genomic testing, biopharmaceutical, or other companies, to obtain or enforce patents relating to DNA, genes, genomic-related discoveries, or computer-implemented tests, including such tests that use machine learning or rely on software pipelines, in the future, as the contours of whether claims are patent eligible, or recite laws of nature, natural phenomena, natural products, or abstract ideas are not clear and may take years to develop via interpretation at the USPTO and in the courts. There are many previously issued patents claiming nucleic acids and diagnostic methods based on natural correlations that issued before these recent Supreme Court decisions and, although many of these patents may be invalid under the standards set forth in these decisions, these patents are presumed valid and enforceable until they are successfully challenged. Thus, third parties holding these patents could allege that we infringe, or request that we obtain a license under, these patents, even if these patents are not likely enforceable under current U.S. laws. Whether based on patents issued prior to or after these Supreme Court decisions, we could be forced to defend against claims of patent infringement or obtain license rights, if available on commercially reasonable terms or at all, under these patents. In jurisdictions other than the United States, gene-related patent claims may remain valid and may be enforced against us.

Further, the U.S. Congress has periodically sought to pass bills concerning subject matter eligible for patent protection. We cannot fully predict the impact that such new laws may have on our ability to obtain patent protection on our products and technologies, and our ability to operate in view of the patents controlled by third parties.

These and other substantive changes to U.S. and foreign patent law could affect our susceptibility to patent infringement claims and our ability to obtain patents and, if obtained, to enforce or defend them, any of which could have a material adverse effect on our business.

Patent terms may be inadequate to protect our competitive position on our products for an adequate amount of time.

Patents have a limited lifespan in all jurisdictions around the world. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product are obtained, once the patent life has expired for a product, we may be open to competition. Given the amount of time required for the development, testing and regulatory review of new products, patents protecting such products might expire before or shortly after such products are commercialized. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing product candidates similar or identical to ours for a meaningful amount of time, or at all. Such an inability to exclude competitors from commercializing similar or identical products could have a material adverse impact on our reputation, business, financial condition, results of operations and business prospects.

Issued patents covering our products and other technologies could be found invalid or unenforceable if challenged in court or before administrative bodies in the United States and abroad.

Third parties may challenge the validity or enforceability of our owned or in-licensed patents in court or before administrative bodies in the United States or abroad. If we or one of our licensors initiated legal proceedings against a third party to enforce a patent, the defendant could counterclaim that our asserted patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, lack of subject matter eligibility, lack of written description, and non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a material misleading statement, during prosecution. Third parties have raised, and in the future may raise, claims challenging the validity or enforceability of our owned or in-licensed patents before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (such as opposition proceedings). Such proceedings could result in the revocation of, cancellation of, or amendment to our patents in such a way that they no longer cover Galleri, DAC or other technologies or products.

For example, we recently faced three patent oppositions in Europe with respect to European patent numbers EP 2 823 062 B1 and EP 2 898 100 B1, in-licensed from The Chinese University of Hong Kong, and European patent number EP 2 814 959 B1, in-licensed from the Fred Hutchinson Cancer Research Center. These opposition proceedings concluded with granted European patent numbers EP 2 823 062 B1 and EP 2 898 100 B1 being maintained based on claim amendments entered during the opposition proceedings and with EP 2 814 959 B1 being revoked. This revocation applies only in Europe, does not affect our patents outside of Europe and represents technology that is not currently being used in Galleri or DAC. We and the Fred Hutchinson Cancer Research Center have appealed the opposition division's decision revoking EP 2 814 959 B1, but the outcomes of legal assertions of invalidity and unenforceability are unpredictable. For example, we cannot be certain that there is no invalidating prior publications or inventions, of which we or our licensing partners and the patent examiner were unaware during prosecution. If a third party were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our products or other technologies. Such a loss of patent protection could have a material adverse impact on our business, financial condition, results of operations, and prospects.

We may be subject to claims by third parties asserting that our employees or we have infringed or misappropriated intellectual property rights, or to assertions by third parties or employees claiming ownership of what we regard as our own intellectual property.

Our former, current, and future employees may have been previously employed at universities or other biotechnology, diagnostic technology, or pharmaceutical companies, including our competitors or potential competitors and strategic partners. We train our employees not to bring or use proprietary information or technology from former employers to us or use it in their work. Although we try through such training and other measures to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we have been in the past, and in the future may be, subject to claims that an employee or we have used or disclosed intellectual property, including trade secrets or other proprietary information, of such employee's former employer. Litigation, which would be expensive, time-consuming, a distraction to management, and uncertain of outcome, may be necessary to defend against these claims.

In addition, while it is our policy to require our employees and contractors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing or enforcing such an agreement with each party who in fact develops intellectual property that we regard as our own. Our and their assignment agreements may be breached, and we may be forced to bring claims against third parties or current or former employees, or defend claims they may bring against us, to determine the ownership of what we regard as our intellectual property.

If we fail to prevail on any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, or be required to obtain a license, which may not be available to us on commercially reasonable terms or at all. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to management, which could harm our business.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patents for our products and other technologies, we also rely on trade secrets and confidentiality agreements to protect our unpatented know-how, technology, data, and other proprietary information and to maintain our competitive position. Trade secrets and know-how can be difficult to protect. We expect our trade secrets and know-how to over time be disseminated within the industry through independent development, the publication of journal articles describing the methodology, and the movement of personnel from academic to industry scientific positions.

We seek to protect these trade secrets and other proprietary technology, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, directors, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, suppliers, service providers, consultants, advisors, and other third parties. We also enter into confidentiality and invention or patent assignment

agreements with our employees and consultants, and remind departing employees when they leave their employment of their continuing confidentiality obligations. We cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. Despite our efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive, and time-consuming, and the outcome is unpredictable. Some courts outside the United States are less willing or unwilling to protect trade secrets. For example, in China, claims regarding infringement or misappropriation of trade secrets are difficult to prove, and consequently plaintiffs are rarely successful in bringing these claims. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third party, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be misappropriated by, disclosed to, or independently developed by a competitor or other third party, our competitive position could be materially and adversely harmed.

We have and may enter into collaboration, license, contract research and/or manufacturing relationships with contract organizations that operate in certain countries that are at heightened risk of theft of technology, data, and intellectual property through direct intrusion by private parties or foreign actors, including those affiliated with or controlled by state actors. Accordingly, our efforts to protect and enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license, and we may be at heightened risk of losing our proprietary intellectual property rights around the world, including outside of such countries, to the extent such theft or intrusion destroys the proprietary nature of our intellectual property.

Our success depends on our ability to develop and commercialize our technology without infringing, misappropriating, or otherwise violating the intellectual property of third parties. Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, and if they prevail, could block sales of our products and force us to make large damages and/or royalty payments, which could have a material adverse effect on the success of our business.

Our commercial success in part depends upon our ability, and the ability of our collaborators, to market, sell, and distribute our products and use our proprietary technologies without infringing, misappropriating, or otherwise violating the proprietary rights of third parties. There is considerable intellectual property litigation in the medical technology, biotechnology, diagnostic, and pharmaceutical industries. In addition, there is ongoing intellectual property litigation in the circulating nucleic acid analysis and cancer nucleic acid space, the outcome of which could also impact future litigation involving our intellectual property or our ability to commercialize our products. We may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our products, including interference proceedings before the USPTO and similar bodies in other jurisdictions. Third parties may assert infringement claims against us based on existing patents or patents that may be issued in the future.

If we are found to infringe, misappropriate, or otherwise violate a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing, marketing, selling, and distributing our products, or to cease using the infringing technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In addition, we could be found liable for monetary damages, including treble damages if we are found to have willfully infringed a patent and attorneys' fees if the court finds the case to be exceptional. A finding of infringement, misappropriation, or other violation could prevent us from commercializing our products or force us to cease some of our operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our personnel from their normal responsibilities. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial

or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the market place.

Intellectual property litigation may lead to unfavorable publicity that harms our reputation and causes the market price of our common stock to decline.

During the course of any intellectual property litigation, there could be public announcements of the initiation of the litigation as well as results of hearings, rulings on motions, and other interim proceedings in the litigation. If securities analysts or investors regard these announcements as negative, the perceived value of our existing products, programs or intellectual property could be diminished. Accordingly, the market price of shares of our common stock may decline. Such announcements could also harm our reputation or the market for our future products, which could have a material adverse effect on our business.

We may become involved in lawsuits to protect or enforce or defend our patents, which could be expensive, time-consuming and unsuccessful.

Our patents and any patents which we in-license may be challenged, narrowed, invalidated or circumvented. If our patents are invalidated or otherwise limited or will expire prior to the commercialization of our products, other companies may be better able to develop products that compete with ours, which could adversely affect our competitive position, business prospects, results of operations, and financial condition.

The following are examples of litigation and other adversarial proceedings or disputes that we could become a party to involving our patents or patents licensed to us:

- we or our collaborators may initiate litigation or other proceedings against third parties to enforce our patent rights;
- third parties may initiate litigation or other proceedings seeking to invalidate patents owned by us or that are licensed to us or to obtain a declaratory judgment that their product or technology does not infringe our patents or patents licensed to us or that such patents are invalid or unenforceable;
- third parties have initiated, and in the future may initiate, oppositions, inter partes review, post grant review, or reexamination proceedings challenging the validity or scope of our patent rights, requiring us or our collaborators and/or licensors to participate in such proceedings to defend the validity and scope of our patents;
- there may be a challenge or dispute regarding inventorship or ownership of patents currently identified as being owned by or licensed to us;
- at our initiation or at the initiation of a third party, the USPTO may initiate an interference between patents or patent applications owned by or licensed to us and those of our competitors, requiring us or our collaborators and/or licensors to participate in an interference proceeding to determine the priority of invention, which could jeopardize our patent rights; or
- third parties may seek approval to market products similar to our future approved products prior to expiration of relevant patents owned by or licensed to us, requiring us to defend our patents, including by filing lawsuits alleging patent infringement.

These lawsuits and proceedings would be costly and could affect our results of operations and divert the attention of our managerial, legal, and scientific personnel. There is a risk that a court or administrative body would decide that our owned or exclusively in-licensed patents are invalid or not infringed by a third party’s activities, or that the scope of certain issued claims must be limited. An adverse outcome in a litigation or proceeding involving our owned or exclusively in-licensed patents could limit our ability to assert our patents against competitors, affect our ability to receive royalties or other licensing consideration from our licensees or sublicensees, and may curtail or

preclude our ability to exclude third parties from making, using and selling similar or competitive products. We may become more susceptible to these types of lawsuits and proceedings given the proliferation of organizations pursuing intellectual property protections in the cfNA space. Any of these occurrences could adversely affect our competitive business position, business prospects and financial condition.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our application to register the "Galleri" mark and logo (for our multi-cancer test) and some of our applications to register the "GRAIL" mark and the logos associated with GRAIL in the United States are pending and we cannot assure you that our pending trademark applications will be approved. In addition, our registered or unregistered trademarks or trade names may be challenged, infringed or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we view as valuable to building name recognition among potential partners and customers in our markets of interest. At times, competitors or other third parties have adopted or may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion and/or litigation. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Our efforts to enforce, protect, or defend our proprietary rights related to trademarks may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our business, financial condition, results of operations and prospects.

Risks Related to This Offering and Ownership of Our Common Stock

We do not know whether a market will develop for our common stock or what the market price of our common stock will be. As a result, it may be difficult for you to sell your shares of our common stock.

There is currently no public trading market for our common stock. If a market for our common stock does not develop or is not sustained, it may be difficult for you to sell your shares of common stock at an attractive price or at all. We cannot predict the prices at which our common stock will trade. It is possible that in one or more future periods our results of operations, clinical study results, regulatory approval process, and progression of our product pipeline may not meet the expectations of securities research analysts and investors. As a result of these and other factors, the price of our common stock may fall.

The market price of our common stock may be volatile, which could result in substantial losses for investors purchasing shares in this offering.

The initial public offering price for our common stock will be determined through negotiations with the underwriters. This initial public offering price may differ from the market price of our common stock after the offering. As a result, you may not be able to sell your common stock at or above the initial public offering price. Some of the factors that may cause the market price of our common stock to fluctuate include:

- the timing of launch of our products, including Galleri and DAC, and the degree to which the launch and commercialization thereof meets the expectations for securities analysts and investors;
- the timing and results of clinical studies for our products;
- commencement or termination of collaborations for our product development and research programs;
- failure or discontinuation of any of our product development and research programs;
- the success of existing or new competitive tests, services, or technologies;
- results of clinical studies, or regulatory approvals of diagnostic tests of our competitors, or announcements about new research programs or diagnostic tests of our competitors;

- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents, or other proprietary rights;
- the impact of COVID-19 on our business and on global economic conditions;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our research programs or clinical development programs;
- actual or anticipated changes in our estimates as to our financial results or development timelines;
- whether our financial results, forecasts, and development timelines meet the expectations of securities analysts or investors;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders, or other stockholders;
- expiration of market standoff or lock-up agreements;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in estimates or recommendations by securities analysts, if any, that cover our stock;
- changes in the structure of healthcare payment systems, including changes that would affect coverage and reimbursement by third-party payors;
- market conditions in the healthcare sector;
- general economic, industry, and market conditions; and
- the other factors described in this “Risk Factors” section.

In recent years, stock markets in general, and the market for healthcare companies in particular (including companies in the biotechnology, diagnostics, and related sectors), have experienced significant price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations. Broad market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. Following periods of such volatility in the market price of a company’s securities, securities class action litigation has often been brought against that company. Because of the potential volatility of our stock price, we may become the target of securities litigation in the future. Securities litigation could result in substantial costs and divert management’s attention and resources from our business.

If securities analysts do not publish research or reports about our business or if they publish negative evaluations of our stock, the price of our stock could decline.

The trading market for our common stock will rely in part on the research and reports that industry or securities analysts publish about us or our business. We do not currently have, and may never obtain, research coverage by industry or securities analysts. If no or few analysts commence coverage of us, the trading price of our stock could decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our stock, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which in turn could cause our stock price to decline.

Sales of a substantial number of shares of our common stock by our existing stockholders following this offering could cause the price of our common stock to decline.

Sales of a substantial number of shares of our common stock in the public market could occur at any time following the expiration of the market standoff and lock-up agreements or the early release of these agreements or

the perception in the market that the holders of a large number of shares of common stock intend to sell shares, and could reduce the market price of our common stock. After this offering, we will have a single class of common stock, of which shares of common stock will be outstanding. Of these shares, the shares we are selling in this offering may be resold in the public market immediately, unless purchased by our affiliates. Substantially all of the remaining shares of our common stock that will be outstanding after this offering are currently prohibited or otherwise restricted under securities laws, market standoff agreements entered into by our stockholders with us, or lock-up agreements entered into by our stockholders with the underwriters; however, subject to applicable securities law restrictions and excluding shares of restricted stock that will remain unvested, these shares will be able to be sold in the public market beginning 180 days after the date of this prospectus. The representatives may, in their sole discretion, release all or some portion of the shares subject to lock-up agreements at any time and for any reason. Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, any applicable market standoff and lock-up agreements, and Rule 144 and Rule 701 under the Securities Act of 1933, as amended (the Securities Act). See the section titled “Shares Eligible for Future Sale” for additional information.

Moreover, after this offering, holders of an aggregate of shares of our common stock will have rights, subject to conditions, to require us to file registration statements with the SEC covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also plan to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance and once vested, subject to volume limitations applicable to affiliates and the lock-up agreements described in the section titled “Underwriting” in this prospectus. If any of these additional shares are sold, or if it is perceived that they will be sold, in the public market, the market price of our common stock could decline.

You will incur immediate and substantial dilution as a result of this offering.

If you purchase common stock in this offering, you will incur immediate and substantial dilution of $ per share, representing the difference between the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, and our pro forma net tangible book value per share after giving effect to this offering and reclassification of all of our outstanding Class A common stock, Class B common stock, and redeemable convertible preferred stock into a single class of common stock prior to the closing of the offering. As of June 30, 2020, there were 98,033,707 shares of common stock issuable upon exercise of outstanding stock options with a weighted-average exercise price of $1.62 per share and 30,343,670 shares of common stock issuable upon the vesting and settlement of outstanding RSUs. To the extent that these outstanding options or RSUs, or any other rights, are exercised, or we issue additional equity or convertible securities in the future, or the underwriters exercise their option to purchase additional shares, you will incur further dilution. See the section titled “Dilution” for a further description of the dilution you will experience immediately after this offering.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations, or require us to relinquish rights to our technologies or our products.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships, and alliances and licensing arrangements. We, and indirectly, our stockholders, will bear the cost of issuing and servicing securities issued in any such transactions. Because our decision to issue debt or equity securities in any future offering will depend on market conditions and other factors beyond our control, we cannot predict or estimate the amount, timing or nature of any future offerings. To the extent that we raise additional capital through the sale of equity or debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell, or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. Additionally, any future collaborations we enter into with third parties may provide capital in the near term but limit our potential cash

flow and revenue in the future. If we raise additional funds through strategic partnerships, alliances, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or our products, or grant licenses on terms unfavorable to us. Certain of the foregoing transactions may require us to obtain stockholder approval, which we may not be able to obtain.

Insiders will continue to have substantial influence over us after this offering, which could limit your ability to affect the outcome of key transactions, including a change of control.

After this offering, our directors, executive officers, holders of more than 5% of our outstanding stock, and their respective affiliates will beneficially own shares representing approximately % of our outstanding common stock. As a result, these stockholders, if they act together, will be able to influence our management and affairs and all matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying or preventing a change in control of our company and might affect the market price of our common stock.

We are an "emerging growth company," and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 (the JOBS Act). For so long as we remain an emerging growth company, we are permitted by SEC rules and plan to rely on exemptions from certain disclosure requirements that are applicable to other SEC-registered public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (SOX Section 404), not being required to comply with the auditor requirements to communicate critical audit matters in the auditor's report on the financial statements, reduced disclosure obligations regarding executive compensation, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. As a result, the information we provide stockholders will be different than the information that is available with respect to other public companies. We have taken advantage of reduced reporting burdens in this prospectus. In particular, in this prospectus, we have provided only two years of audited financial statements and we have not included all of the executive compensation related information that would be required if we were not an emerging growth company. We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our stock price may be more volatile.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards, and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We will incur increased costs as a result of operating as a public company. Our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an emerging growth company, we will incur significant legal, accounting, and other expenses that we did not incur as a private company. SOX Section 404, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Listing Rules, and other applicable U.S. rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. We expect that we will need to hire additional accounting, finance, and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company, and our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. These requirements will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that the rules and regulations applicable to us as a public company may make it more difficult and more expensive for us to obtain director and officer liability insurance, which could make it more

difficult for us to attract and retain qualified members of our board of directors. We cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to SOX Section 404, we will be required to furnish a report by our management on our internal control over financial reporting beginning with our second filing of an Annual Report on Form 10-K with the SEC after we become a public company. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with SOX Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented, and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by SOX Section 404. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds, including for any of the purposes described in the section titled “Use of Proceeds” in this prospectus. Our management may spend a portion or all of the net proceeds from this offering in ways that our stockholders may not desire or that may not yield a favorable return. The failure by our management to apply these funds effectively could harm our business, financial condition, results of operations and prospects. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

We do not expect to pay any dividends for the foreseeable future. Investors in this offering may never obtain a return on their investment.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. In addition, any future credit facility or debt securities may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

Delaware law and provisions in our amended and restated certificate of incorporation and bylaws that will be in effect prior to the closing of this offering might discourage, delay, or prevent a change in control of our company or changes in our management and, therefore, depress the trading price of our common stock.

Provisions in our amended and restated certificate of incorporation and bylaws that will be in effect prior to the closing of this offering may discourage, delay, or prevent a merger, acquisition, or other change in control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares of our common stock. These provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our organizational documents will:

- establish that our board of directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered three-year terms;

- provide that our directors may be removed only for cause;
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum;
- eliminate cumulative voting in the election of directors;
- authorize our board of directors to issue shares of preferred stock and determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval;
- permit stockholders to take actions only at a duly called annual or special meeting and not by unanimous written consent;
- prohibit stockholders from calling a special meeting of stockholders;
- require that stockholders give advance notice to nominate directors or submit proposals for consideration at stockholder meetings;
- authorize our board of directors, by a majority vote, to amend certain provisions of the bylaws; and
- require the affirmative vote of at least % or more of the outstanding shares of common stock to amend many of the provisions described above.

In addition, Section 203 of the General Corporation Law of the State of Delaware (DGCL) prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, which is generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

Any provision of our amended and restated certificate of incorporation, amended and restated bylaws, or Delaware law that has the effect of delaying or preventing a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our capital stock and could also affect the price that some investors are willing to pay for our common stock.

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees, or stockholders to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the DGCL or our amended and restated certificate of incorporation and bylaws; and
- any action asserting a claim governed by the internal affairs doctrine.

However, this provision would not apply to suits brought to enforce a duty or liability created by the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction. Furthermore, our amended and restated certificate of incorporation will also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Any person

purchasing or otherwise acquiring or holding any interest in shares of our capital stock is deemed to have received notice of and consented to the foregoing provisions. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds more favorable for disputes with us or with our directors, officers, other employees or agents, or our other stockholders, which may discourage such lawsuits against us and such other persons. Alternatively, if a court were to find this choice of forum provision inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, results of operations and financial condition.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us, because healthcare companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of our management's attention and resources, which could harm our business.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements, particularly in the sections titled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Business.” In some cases, you can identify these statements by forward-looking words such as “aim,” “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “potential,” “predict,” “should,” “would,” or “will,” the negative of these terms, and other comparable terminology. These forward-looking statements, which are subject to risks, uncertainties, and assumptions about us, may include expectations and projections of our future financial performance, future tests or products, technology, clinical studies, regulatory compliance, potential market opportunity, anticipated growth strategies, and anticipated trends in our business.

These statements are only predictions based on our current expectations and projections about future events and trends. There are important factors that could cause our actual results, level of activity, performance, or achievements to differ materially and adversely from those expressed or implied by the forward-looking statements, including those factors discussed under “Risk Factors.” You should specifically consider the numerous risks described under “Risk Factors.” Moreover, we operate in a competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results, level of activity, performance, or achievements to differ materially and adversely from those contained in any forward-looking statements we may make.

Although we believe the expectations and projections expressed or implied by the forward-looking statements are reasonable, we cannot guarantee future results, level of activity, performance, or achievements. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of any of these forward-looking statements. Except to the extent required by law, we undertake no obligation to update any of these forward-looking statements after the date of this prospectus to conform our prior statements to actual results or revised expectations or to reflect new information or the occurrence of unanticipated events. Given these risks, uncertainties, and assumptions, you are cautioned not to place undue reliance on such forward-looking statements as predictions of future performance or otherwise.

INDUSTRY AND MARKET DATA

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity, and market size, is based on information from various sources on assumptions that we have made that are based on such information and other, similar sources and on our knowledge of, and expectations about, the markets for our products. This information involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. While we believe the market position, market opportunity, and market size information included in this prospectus is generally reliable, such information is inherently imprecise. In addition, projections, assumptions, and estimates of our future performance and the future performance of the industry in which we operate is necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in “Risk Factors” and elsewhere in this prospectus. These and other factors could cause results to differ materially from those expressed in the estimates made by independent third parties and by us.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately $ million, or approximately $ million if the underwriters exercise their over-allotment option in full, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase or decrease in the initial public offering price per share would increase or decrease our net proceeds, after deducting estimated underwriting discounts and commissions, by $ million (assuming no exercise of the underwriters' over-allotment option). Each increase or decrease of 1,000,000 shares in the number of shares offered by us would increase or decrease our net proceeds by $ million, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The principal purposes of this offering are to obtain additional capital to fund our research and product development, create a public market for our common stock, facilitate our future access to the public equity markets, increase awareness of our company among potential partners, and improve our competitive position. We intend to use the net proceeds of this offering for development and commercialization of Galleri and DAC, development of additional products, scaling of our technology and laboratory operations, and general corporate purposes.

We currently expect to use the net proceeds from this offering, together with our existing cash, cash equivalents, and marketable securities, as follows:

- approximately $ million to fund our clinical studies through the initial commercialization of Galleri and DAC as LDTs, and to fund ongoing and new clinical studies to validate and demonstrate the utility of our products, and support our reimbursement efforts;
- approximately $ million for current and future product development, including expansion of our laboratory operations to support future growth;
- approximately $ million for preparation for commercial launch and expansion of commercial operations, including the growth of our sales force within the United States; and
- any proceeds not applied to the foregoing for working capital and general corporate purposes.

We may also use a portion of the net proceeds for the acquisition of, or investment in, complementary businesses (including through joint ventures), products, services, technologies, assets, or intellectual property. We periodically evaluate strategic opportunities; however, we have no current commitments to enter into any such acquisitions or make any such investments.

Our expected use of net proceeds from this offering represents our current intentions based upon present plans and business conditions. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering, or the amounts that we will actually spend on the uses set forth above. The amounts and timing of any expenditures will vary depending on numerous factors, including the progress of our ongoing and planned clinical studies, the amount of cash used by our operations, competitive and scientific developments, the rate of growth, if any, of our business, and other factors described in the section titled "Risk Factors." Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from this offering, and investors will be relying on the judgment of our management regarding the application of these net proceeds.

Due to the many inherent uncertainties in the development of our product offerings, the amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our research and development, the timing of patient enrollment and evolving regulatory requirements, our ongoing clinical studies and our clinical studies we may commence in the future, the timing of regulatory submissions, any strategic alliances that we may enter into with third parties for our product offerings or strategic opportunities that become available to us, and any unforeseen cash needs.

Pending the uses described above, we intend to invest the net proceeds from this offering in interest-bearing obligations, investment-grade instruments, certificates of deposit, or direct or guaranteed obligations of the U.S. government.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock and do not anticipate paying any cash dividends in the foreseeable future. We currently anticipate that we will retain all available funds for use in the operation and expansion of our business. Any future determination to pay dividends on our common stock will be made at the discretion of our board of directors and will depend upon, among other factors, our financial condition, results from operations, current and anticipated cash needs, plans for expansion, and other factors that our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash, cash equivalents, and marketable securities, and capitalization as of June 30, 2020:

- on an actual basis;
- on a pro forma basis to reflect the following prior to or upon the closing of this offering: (i) the filing and effectiveness of our amended and restated certificate of incorporation; (ii) the conversion of all of our outstanding redeemable convertible preferred stock into common stock; (iii) the conversion of all outstanding Class B common stock into Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock; and (iv) the reclassification of our Class A and Class B common stock into a single class of common stock; and
- on a pro forma as adjusted basis to reflect: (i) the pro forma adjustments set forth above; and (ii) the issuance and sale of shares of common stock by us in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma as adjusted information discussed below is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. This table should be read in conjunction with "Selected Consolidated Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our unaudited condensed consolidated financial statements and related notes included elsewhere in this prospectus.

	As of June 30, 2020		
	Actual	Pro Forma	Pro Forma as Adjusted[1]
	(in thousands, except share and per share data)		
Cash, cash equivalents, and marketable securities	$ 685,571	$ 685,571	
Redeemable convertible preferred stock, $0.001 par value per share, 534,145,027 shares authorized; 534,145,027 shares issued and outstanding, actual; no shares authorized, issued, and outstanding, pro forma and pro forma as adjusted	$ 1,994,921	$ —	
Stockholders' (deficit) equity:			
Preferred stock, $0.001 par value per share, no shares authorized, issued and outstanding, actual; shares authorized, pro forma and pro forma as adjusted; no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	
Class A common stock, $0.001 par value per share, 868,203,200 shares authorized; 110,862,469 shares issued and outstanding, actual; no shares authorized, issued, and outstanding, pro forma and pro forma as adjusted	112	—	
Class B common stock, $0.001 par value per share, 30,000,000 shares authorized; 24,989,397 shares issued and outstanding, actual; no shares authorized, issued, and outstanding, pro forma and pro forma as adjusted	34	—	
Common stock, $0.001 par value per share, no shares authorized, issued and outstanding, actual; shares authorized, pro forma and pro forma as adjusted; 671,186,864 shares issued and outstanding, pro forma; shares issued and outstanding pro forma as adjusted	—	681	
Additional paid-in capital	116,960	2,111,346	
Accumulated other comprehensive income	4,419	4,419	
Accumulated deficit	(1,442,047)	(1,442,047)	
Total stockholders' (deficit) equity	(1,320,522)	674,399	
Total capitalization	$ 674,399	$ 674,399	

(1) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the amount of our cash, cash equivalents, and marketable securities, additional paid-in capital, total stockholders' deficit, and total capitalization by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1,000,000 shares in the number of shares offered by us would increase or decrease, as applicable, the amount of our cash, cash equivalents, and marketable securities, additional paid in-capital, total stockholders' equity, and total capitalization by $ million, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters' over-allotment option to purchase additional shares of our common stock were exercised in full, pro forma as adjusted cash, cash equivalents, and marketable securities, additional paid-in capital, total stockholders' equity, total capitalization, and shares of common stock outstanding as of June 30, 2020 would be $ million, $ million, $ million, $ million, and shares, respectively.

The number of shares of our common stock to be outstanding after this offering is based on 671,186,864 shares of common stock outstanding as of June 30, 2020 and excludes:

- 98,033,707 shares of common stock issuable upon exercise of stock options outstanding as of June 30, 2020, at a weighted-average exercise price of $1.62 per share;
- 30,343,670 shares of common stock issuable upon the vesting and settlement of RSUs outstanding as of June 30, 2020;
- 9,233,000 shares of common stock issuable upon exercise of stock options granted after June 30, 2020, at a weighted-average exercise price of $2.09 per share;
- shares of our common stock to be reserved and available for future issuance under our current 2016 Plan and equity incentive plans that we expect to implement in connection with the Offering, as more fully described in the section titled "Executive Compensation—Executive Compensation Arrangements—Equity Incentive Plans," including:
  - 14,975,649 shares of our common stock reserved for future issuance under our 2016 Plan, as of June 30, 2020;
  - any shares of our common stock issuable in connection with the vesting or exercise (as applicable) of outstanding awards under our 2016 Plan;
  - shares of our common stock that we expect to reserve for future issuance under our 2020 Plan, which we expect will become effective in connection with this offering;
  - any shares authorized as automatic annual increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 Plan;
  - shares of our common stock that we expect to reserve for future issuance under our 2020 ESPP, which we expect will become effective in connection with this offering; and
  - any shares authorized as automatic annual increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 ESPP.

DILUTION

If you purchase shares of our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the initial public offering price per share of our common stock in this offering and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

As of June 30, 2020, our historical net tangible book value (deficit) was ($1,321) million, or ($9.72) per share of our common stock, based on 135,851,866 shares of common stock issued and outstanding as of such date. Our historical net tangible book value per share represents tangible assets, less liabilities and redeemable convertible preferred stock, divided by the aggregate number of shares of common stock outstanding as of June 30, 2020.

Our pro forma net tangible book value as of June 30, 2020 was $674.4 million or $1.00 per share of common stock. Pro forma net tangible book value per share represents tangible assets, less liabilities, divided by the aggregate number of shares of common stock outstanding, after giving effect to (i) the conversion of all of our outstanding redeemable convertible preferred stock into common stock; (ii) the conversion of all outstanding Class B common stock into Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock; and (iii) the reclassification of our Class A and Class B common stock into a single class of common stock.

After giving further effect to the sale by us of shares of common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2020 would have been $ million or $ per share. This represents an immediate increase in pro forma net tangible book value to existing stockholders of $ per share and an immediate dilution in pro forma net tangible book value to new investors of $ per share. Dilution per share represents the difference between the price per share to be paid by new investors for the shares of common stock sold in this offering and the pro forma as adjusted net tangible book value per share immediately after this offering. The following table illustrates this per share dilution:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of June 30, 2020	$ (9.72)	
Increase in historical net tangible book value (deficit) per share as of June 30, 2020 attributable to the pro forma adjustments described above	10.72	
Pro forma net tangible book value per share as of June 30, 2020	1.00	
Increase in pro forma net tangible book value per share attributable to new investors		
Pro forma as adjusted net tangible book value per share after offering		
Dilution per share to new investors		$

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease our pro forma as adjusted net tangible book value per share after this offering by $ per share and the dilution in pro forma per share to investors participating in this offering by $ per share, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each 1,000,000 share increase or decrease in the number of shares offered by us would increase or decrease our pro forma as adjusted net tangible book value per share after this offering by $ per share and the dilution in pro forma as adjusted net tangible book value per share to investors participating in this offering by $ per share, assuming the initial public offering price of $ per share remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their over-allotment option to purchase additional shares of our common stock in full, the pro forma as adjusted net tangible book value per share of our common stock after this offering would be $ per share, and the dilution in pro forma net tangible book value per share to investors participating in this offering would be $ per share of common stock.

The following table sets forth, on a pro forma basis, as of June 30, 2020, the number of shares of common stock purchased from us, the total consideration paid, or to be paid, and the average price per share paid, or to be paid, by existing stockholders and by the new investors, at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us:

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
	(in thousands, except share and per share data)				
Existing stockholders					
New investors					
Total		100 %	$	100 %	

Each $1.00 increase or decrease in the assumed initial public offering price per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease the total consideration paid by new investors, total consideration paid by all stockholders, and the average price per share paid by all stockholders by approximately $ million, $ million, and $, respectively, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each 1,000,000 share increase or decrease in the number of shares offered by us would increase or decrease the total consideration paid by new investors, total consideration paid by all stockholders, and the average price per share paid by all stockholders by approximately $ million, $ million, and $, respectively, assuming the initial public offering price of $ per share remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The foregoing tables assume no exercise of the underwriters' over-allotment option or of outstanding stock options after June 30, 2020. If the underwriters' over-allotment option is exercised in full, the number of shares of common stock held by our existing stockholders will represent approximately % of the total number of shares of our common stock outstanding after this offering and the number of shares held by new investors will represent approximately % of the total number of shares of our common stock outstanding after this offering.

In addition, to the extent any outstanding stock options or other rights are exercised, or we issue additional equity or convertible securities in the future, investors participating in this offering will experience further dilution.

The number of shares of our common stock to be outstanding after this offering is based on 671,186,864 shares of common stock outstanding as of June 30, 2020 and excludes:

- 98,033,707 shares of common stock issuable upon exercise of stock options outstanding as of June 30, 2020, at a weighted-average exercise price of $1.62 per share;
- 30,343,670 shares of common stock issuable upon the vesting and settlement of RSUs outstanding as of June 30, 2020;
- 9,233,000 shares of common stock issuable upon exercise of stock options granted after June 30, 2020, at a weighted-average exercise price of $2.09 per share;
- shares of our common stock to be reserved and available for future issuance under our current 2016 Plan and equity incentive plans that we expect to implement in connection with the Offering, as more fully described in the section titled "Executive Compensation—Executive Compensation Arrangements—Equity Incentive Plans," including:
  - 14,975,649 shares of our common stock reserved for future issuance under our 2016 Plan as of June 30, 2020;
  - any shares of our common stock issuable in connection with the vesting or exercise (as applicable) of outstanding awards under our 2016 Plan;

- shares of our common stock that we expect to reserve for future issuance under our 2020 Plan, which we expect will become effective in connection with this offering;
- any shares authorized as automatic annual increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 Plan;
- shares of our common stock that we expect to reserve for future issuance under our 2020 ESPP, which we expect will become effective in connection with this offering; and
- any shares authorized as automatic annual increases in the number of shares of our common stock reserved for future grants pursuant to our 2020 ESPP.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables summarize our selected consolidated financial data for the periods and as of the dates indicated. We have derived our selected consolidated statements of operations data for the years ended December 31, 2018 and 2019 and the consolidated balance sheet data as of December 31, 2018 and 2019 from our audited consolidated financial statements and related notes included elsewhere in this prospectus. We have derived the consolidated statements of operations data for the six months ended June 30, 2019 and 2020 and the consolidated balance sheet data as of June 30, 2020 from our unaudited condensed consolidated financial statements and related notes included elsewhere in this prospectus. Our unaudited condensed consolidated financial statements were prepared on a basis consistent with our audited consolidated financial statements and include, in our opinion, all adjustments of a normal and recurring nature that are necessary for the fair statement of the financial information set forth in those statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future. You should read the following consolidated financial data together with our audited consolidated financial statements and our unaudited condensed consolidated financial statements and the related notes appearing elsewhere in this prospectus and the information in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations".

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
	(in thousands, except share and per share data)			
Consolidated Statements of Operations Data:				
Operating expenses:				
Research and development[1]	$ 190,205	$ 158,886	$ 83,230	$ 83,009
Research and development—related parties[1]	32,955	8,202	4,493	4,190
Marketing[1]	6,107	7,679	4,080	4,690
General and administrative[1]	58,229	80,896	31,612	47,304
Total operating expenses	287,496	255,663	123,415	139,193
Loss from operations	287,496	255,663	123,415	139,193
Interest income, net	(12,550)	(12,430)	(6,995)	(4,128)
Other expense, net	287	1,817	714	1,335
Loss before provision for (benefit from) income taxes	275,233	245,050	117,134	136,400
Provision for (Benefit from) income taxes	485	(195)	66	16
Net loss	$ 275,718	$ 244,855	$ 117,200	$ 136,416
Net loss attributable to Class A and Class B common stockholders				
Basic and diluted	$ 275,718	$ 244,855	$ 117,200	$ 136,416
Net loss per share attributable to Class A and Class B common stockholders[2]				
Basic and diluted	$ (2.42)	$ (1.99)	$ (0.97)	$ (1.03)
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders[2]				
Basic and diluted	114,138,912	123,188,351	120,748,150	132,864,532
Pro forma net loss per share attributable to common stockholders (unaudited)[2]				
Basic and diluted		$ (0.42)		$ (0.21)
Weighted-average shares of common stock used in computing pro forma net loss per share (unaudited)[2]				
Basic and diluted		587,035,445		643,637,763

(1) Includes stock-based compensation expense as follows:

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
	(in thousands)			
Research and development	$ 937	$ 3,913	$ 1,595	$ 2,957
Research and development—related parties	778	135	67	30
Marketing	123	202	13	1,230
General and administrative	9,203	24,141	6,004	19,730
Total stock-based compensation expense	$ 11,041	$ 28,391	$ 7,679	$ 23,947

(2) See Note 13 to our audited consolidated financial statements and Note 12 to our unaudited condensed consolidated financial statements for further details on the calculation of net loss per share attributable to Class A and Class B common stockholders, basic and diluted, and the weighted-average shares used to compute net loss per share attributable to Class A and Class B common stockholders, basic and diluted, and pro forma information.

	As of December 31,		As of June 30,
	2018	2019	2020
	(in thousands)		
Consolidated Balance Sheet Data:			
Cash, cash equivalents, and marketable securities	$ 641,350	$ 558,277	$ 685,571
Working capital[1]	575,074	512,583	633,653
Total assets	686,845	635,519	756,427
Total liabilities	86,473	84,992	82,028
Redeemable convertible preferred stock	1,603,224	1,763,060	1,994,921
Accumulated deficit	(1,060,776)	(1,305,631)	(1,442,047)
Total stockholders' deficit	(1,002,852)	(1,212,533)	(1,320,522)

(1) We define working capital as current assets less current liabilities. See our audited consolidated financial statements and unaudited condensed consolidated financial statements for further details regarding our current assets and current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our "Selected Consolidated Financial Data," audited consolidated financial statements, and unaudited condensed consolidated financial statements and related notes included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those forward-looking statements below. Factors that could cause or contribute to those differences include, but are not limited to, those identified below and those discussed in the section titled "Risk Factors" included elsewhere in this prospectus.

Overview

We are a healthcare company focused on saving lives and improving health by pioneering new technologies for early cancer detection. We have built a multi-disciplinary organization of scientists, engineers, and physicians and we are using the power of NGS, population-scale clinical studies, and state-of-the-art computer science and data science to overcome one of medicine's greatest challenges. Using our platform technology, we have developed a multi-cancer early detection blood test that has demonstrated in clinical studies the ability to detect more than 50 types of cancer, across all stages, and localize the cancer signal with a high degree of accuracy, from a single blood draw. We believe that our multi-cancer early detection test can lead to a dramatic increase in early cancer diagnosis. Based on our own calculations using 2006 to 2015 SEER data and our own performance data, we believe that using our multi-cancer early detection test in conjunction with the five existing recommended screenings in the United States could avert many deaths by earlier detection of up to 75% of cancers with less than a 50% five-year survival rate.

Our multi-cancer early detection test, Galleri, is designed as a screening test for asymptomatic individuals over 50 years of age. We plan to commercially launch Galleri in 2021 as an LDT. In addition to Galleri, we are utilizing our proprietary technology platform and population-scale studies from which Galleri was developed to introduce additional products that address significant unmet medical needs, including DAC. DAC is designed to accelerate diagnostic resolution for patients for whom there is a clinical suspicion of cancer. We plan to commercially launch DAC after Galleri in the second half of 2021 as an LDT. We are also developing an MRD test, designed to enable blood-based detection with or without tissue, and without the need for a personalized assay, as well as other post-diagnostic applications.

Our company was formed within Illumina in 2015. In 2016, we received investments from third parties and began operating as a stand-alone company. Through June 30, 2020, we have raised over $1.9 billion through a combination of leading venture capital and strategic partners. In June 2017, we acquired Hong Kong-based Cirina Limited, founded on the basis of the work of Dr. Dennis Lo, a pioneer in clinical applications of cfNA sequencing, which provided us with a number of patents and exclusive licenses to patents related to the use of cfNA for early detection of cancer.

To date, we have funded our operations primarily from the issuance and sale of our redeemable convertible preferred stock and have not generated any revenues. We do not yet have a commercial product for sale. Since our inception, we have incurred net losses each year. Our net losses were $275.7 million and $244.9 million for the years ended December 31, 2018 and 2019, respectively, and $117.2 million and $136.4 million for the six months ended June 30, 2019 and 2020, respectively. As of June 30, 2020, we had an accumulated deficit of $1.4 billion. Substantially all of our net losses resulted from our research and development programs and general and administrative costs associated with our operations. We expect to continue to incur significant expenses and increasing operating losses over at least the next several years. We expect our expenses will increase substantially in connection with our ongoing activities, as we:

- attract, hire, and retain qualified personnel;
- scale our technology infrastructure and laboratory operations to prepare for the commercial launch of Galleri and DAC targeted for 2021;

- continue our research and development activities, including for new products and to enhance existing products; and
- conduct our existing clinical studies and initiate and conduct additional clinical studies to provide the evidence to support our products.

In order to increase our laboratory capabilities to support commercial launch of our products and as we plan to conduct additional research and development activities to support our products, in June 2020, we entered into a lease for approximately 200,000 square feet of laboratory and office space in North Carolina. We expect to commence construction of a laboratory and office space at this location in the third quarter of 2020.

In December 2019, COVID-19 was first reported in Wuhan, China and has since become a global pandemic. The ongoing COVID-19 pandemic has delayed anticipated completion of certain of our clinical studies as we had to suspend enrollment of the studies during the second quarter of 2020. While certain study sites have resumed enrollment, not all of them have, and we may need to suspend enrollment again in the future at sites that have resumed enrollment. The extent to which COVID-19 could impact our future financial condition, liquidity, and results of operations is uncertain.

Components of Results of Operations

Revenue

To date, we have not generated any revenues and do not expect to generate revenues until we commercialize our products, if at all. Our ability to generate revenues will depend heavily on our ability to successfully develop and commercialize our products, which are in development. If we fail to complete the development of our products in a timely manner, our ability to generate future revenues and, as a result, our results of operations and financial position would be materially and adversely affected.

Research and Development and Research and Development—Related Parties

Research and development expenses include costs incurred to develop our technology (prior to establishing technological feasibility), collect clinical samples, and conduct clinical studies to develop and support our products. These costs consist of personnel costs, including salaries, benefits, and stock-based compensation expense associated with our research and development personnel, costs associated with setting up and conducting clinical studies at domestic and international sites, laboratory supplies, consulting costs, depreciation, and allocated overhead including facilities and information technology expenses, which we do not allocate by product. We expense both internal and external research and development costs in the periods in which they are incurred. Research and development—related parties expenses include only those costs incurred with related parties as further discussed in Note 12 to our audited consolidated financial statements and Note 11 to our unaudited condensed consolidated financial statements included elsewhere in this prospectus. Nonrefundable advance payments for goods and services that will be used or rendered in future research and development activities are deferred and recognized as expense in the period in which the related goods are delivered or services are performed. We expect our research and development expenses to continue to increase in the near term as we continue our research and development activities for new products and to enhance existing products and conduct our existing clinical studies and initiate and conduct additional clinical studies to provide the evidence to support our products. Our research and development expenses will decrease as we complete our clinical studies to support our reimbursement efforts, and may fluctuate based on new product development and the evolving regulatory environment.

Marketing

Marketing expenses consist primarily of personnel costs, including salaries, stock-based compensation expense, and benefits, consulting costs, allocated overhead including facilities and information technology expenses, and travel associated with our commercial organization and product marketing personnel. Also included are costs associated with marketing programs that consist of brand and product awareness activities and trade events and conferences. Our marketing expenses may significantly increase in the foreseeable future as we continue to invest in building brand awareness and additional product marketing and sales functions.

General and Administrative

General and administrative expenses consist of personnel expenses, including salaries, stock-based compensation expense, and benefits for executive, finance and accounting, legal, human resources, business development, corporate communications, and management information systems personnel. Also included are professional fees, legal costs, including patent and trademark-related expenses, allocated overhead including facilities and information technology expenses, accounting and audit fees, and other corporate expenses. We expect our general and administrative expenses to continue to increase for the foreseeable future as we become a public company and continue to grow our business. We will incur additional expenses as a result of operating as a public company, including expenses related to compliance with the rules and regulations of the SEC, director and officer insurance premiums, investor relations activities, and other expenses related to administrative and professional services. We also expect to increase our administrative headcount when operating as a public company.

Interest Income, Net

Interest income, net, consists primarily of interest income earned on our cash, cash equivalents, and marketable securities and amortization of premiums and accretion of discounts on our marketable securities.

Other Expense, Net

Other expense, net primarily consists of foreign currency gains and losses as a result of our intercompany agreements and realized gains or losses on marketable securities.

Provision for (Benefit from) Income Taxes

Provision for income taxes consists of income tax expense in a foreign jurisdiction. As of December 31, 2019, we had federal and state NOL carryforwards of $202.5 million and $279.4 million, respectively, and federal and state research and development credit carryforwards of $22.2 million and $18.2 million, respectively. Certain of these NOL and research and development credit carryforwards will begin to expire, if not utilized, in various years beginning in 2036. We have established full valuation allowances against our NOLs and research and development credits due to the uncertainty surrounding the realization of these assets.

Results of Operations

The following table sets forth our results of operations:

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
	(in thousands)			
Operating expenses:				
Research and development	$ 190,205	$ 158,886	$ 83,230	$ 83,009
Research and development—related parties	32,955	8,202	4,493	4,190
Marketing	6,107	7,679	4,080	4,690
General and administrative	58,229	80,896	31,612	47,304
Total operating expenses	287,496	255,663	123,415	139,193
Loss from operations	287,496	255,663	123,415	139,193
Interest income, net	(12,550)	(12,430)	(6,995)	(4,128)
Other expense, net	287	1,817	714	1,335
Loss before provision for (benefit from) income taxes	275,233	245,050	117,134	136,400
Provision for (Benefit from) income taxes	485	(195)	66	16
Net loss	$ 275,718	$ 244,855	$ 117,200	$ 136,416

Comparison of the Six Months Ended June 30, 2019 and 2020

The following table sets forth our results of operations:

	Six Months Ended June 30,		
	2019	2020	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 83,230	$ 83,009	$ (221)
Research and development—related parties	4,493	4,190	(303)
Marketing	4,080	4,690	610
General and administrative	31,612	47,304	15,692
Total operating expenses	123,415	139,193	15,778
Loss from operations	123,415	139,193	15,778
Interest income, net	(6,995)	(4,128)	2,867
Other expense, net	714	1,335	621
Loss before provision for income taxes	117,134	136,400	19,266
Provision for income taxes	66	16	(50)
Net loss	$ 117,200	$ 136,416	$ 19,216

Research and Development and Research and Development—Related Parties

Research and development and research and development—related parties expenses for the six months ended June 30, 2019 and 2020 were as follows:

	Six Months Ended June 30,		
	2019	2020	Change
	(in thousands)		
Clinical studies and research collaboration expenses	$ 16,918	$ 17,867	$ 949
Compensation expenses	36,513	41,516	5,003
Laboratory supplies and expenses	13,132	6,849	(6,283)
Depreciation and impairment expenses	3,674	2,386	(1,288)
Cloud computing expenses	4,906	5,649	743
Allocated and other expenses	12,580	12,932	352
Total research and development and research development— related parties expenses	$ 87,723	$ 87,199	$ (524)

The increase in clinical studies and research collaboration expenses was primarily related to our PATHFINDER clinical study, which began enrollment in the fourth quarter of 2019, partially offset by a reduction in expenses as a result of the conclusion of enrollment in our CCGA and STRIVE clinical studies and decreases in our SUMMIT clinical study expense, primarily related to a temporary decrease in enrollment due to the COVID-19 pandemic. The increase in compensation expenses was related to additional headcount and a net increase in stock-based compensation expenses related primarily to grants to new executives and equity modifications, partially offset by the impact of the departure of an executive officer. The decrease in laboratory supplies and expenses related to the temporary shutdown of our laboratory due to COVID-19 causing a delay in PATHFINDER sample processing. The decrease in depreciation and impairment expense was primarily driven by an impairment of laboratory equipment in 2019 as a result of the closure of our Hong Kong facility. The increase in cloud computing expenses related to increased processing of clinical trial data. Allocated and other expenses remained relatively unchanged.

Marketing. The increase of $0.6 million in marketing expenses was primarily attributable to an increase of $1.9 million of compensation expenses for new executives and an increase in headcount, partially offset by a decrease of $1.3 million of professional service fees related to a temporary decrease in travel-related activity due to COVID-19.

General and Administrative. The increase of $15.7 million in general and administrative expenses was attributable to an increase of $10.7 million in compensation-related expenses primarily due to stock-based compensation for new executives and an increase in corporate headcount. Consulting fees related to government affairs and health economic research projects increased by $5.2 million and professional service fees increased $2.0 million related to legal, consulting, and other costs incurred in connection with then anticipated financing activities. These increases were partially offset by a $2.2 million reduction in facilities expenses primarily related to the closure of our Hong Kong facility in the first half of 2019.

Interest Income, Net. The decrease of $2.9 million in interest income, net was attributable to a decrease in interest earned on marketable securities primarily due to changes in market conditions and lower interest rates.

Other Expense, Net. The increase of $0.6 million in other expense, net primarily related to unrealized foreign currency losses as a result of our intercompany agreements.

Comparison of the Years Ended December 31, 2018 and 2019

The following table sets forth our results of operations:

	Year Ended December 31,		
	2018	2019	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 190,205	$ 158,886	$ (31,319)
Research and development—related parties	32,955	8,202	(24,753)
Marketing	6,107	7,679	1,572
General and administrative	58,229	80,896	22,667
Total operating expenses	287,496	255,663	(31,833)
Loss from operations	287,496	255,663	(31,833)
Interest income, net	(12,550)	(12,430)	120
Other expense, net	287	1,817	1,530
Loss before provision for (benefit from) income taxes	275,233	245,050	(30,183)
Provision for (Benefit from) income taxes	485	(195)	(680)
Net loss	$ 275,718	$ 244,855	$ (30,863)

Research and Development and Research and Development—Related Parties

The research and development and research and development—related parties expenses during 2018 and 2019 were as follows:

	Year Ended December 31,		
	2018	2019	Change
	(in thousands)		
Clinical studies and research collaboration expenses	$ 86,806	$ 31,765	$ (55,041)
Compensation expenses	65,701	75,180	9,479
Laboratory supplies and expenses	27,517	19,579	(7,938)
Depreciation and impairment expenses	13,969	6,687	(7,282)
Cloud computing expenses	7,862	9,942	2,080
Allocated and other expenses	21,305	23,935	2,630
Total research and development and research development— related parties expenses	$ 223,160	$ 167,088	$ (56,072)

The decrease in research and development and research and development—related parties expenses was primarily driven by decreases in clinical studies as a result of the conclusion of enrollments in our CCGA and

STRIVE clinical studies and a $15.0 million expense incurred during 2018 related to a data delivery requirement under a supply and commercialization agreement with Illumina, which was subsequently paid in 2019. The increase in compensation expenses was primarily related to additional headcount. The decrease in laboratory supplies and expenses related to the decrease in enrollments in our CCGA and STRIVE clinical studies. The decrease in depreciation and impairment expense was driven by prior year impairment of laboratory equipment as a result of moving to the Illumina NovaSeq platform. The increase in cloud computing expenses related to increased processing of clinical trial data. The increase in allocated and other expenses was primarily attributable to an additional leased facility in Menlo Park, California.

Marketing. The increase of $1.6 million in marketing expenses was primarily attributable to professional service fees related to market research and branding.

General and Administrative. The increase of $22.7 million in general and administrative expenses was primarily attributable to an increase of $30.3 million in compensation-related expenses, due to incremental stock-based compensation expense largely due to equity modifications, severance for terminated employees, compensation for new executives, and an increase in corporate headcount, as well as an increase of $0.8 million in facilities-related expenses attributable to additional leased facilities in Menlo Park, California. These increases were partially offset by a decrease in legal and consulting fees of $6.6 million and a decrease of $1.8 million of expenses related to a decrease of our business activities in Hong Kong and the early termination of our Hong Kong lease.

Interest Income, Net. The decrease of $0.1 million in interest income, net was attributable to a decrease in interest earned on marketable securities, which decreased during the year ended December 31, 2019 as a result of cash burned throughout the year to support our operating activities prior to our Series D redeemable convertible preferred stock financing, which occurred in the fourth quarter of 2019.

Other Expense, Net. The increase of $1.5 million in other expense, net was primarily due to unrealized foreign currency losses as a result of our intercompany agreements.

Liquidity and Capital Resources

Sources of Liquidity

From inception through June 30, 2020, we have funded our operations primarily through the sale and issuance of our redeemable convertible preferred stock, for aggregate net cash proceeds of $1.9 billion. As of June 30, 2020, our cash, cash equivalents, and marketable securities totaled $685.6 million.

Future Funding Requirements

Since our inception, we have not generated any revenues, and we have incurred significant losses and negative cash flows from operations. We had an accumulated deficit of $1.4 billion as of June 30, 2020. We expect to incur additional losses in the foreseeable future as we conduct and expand our research and development efforts and seek to commercialize our products. We believe that our existing cash, cash equivalents, and marketable securities will be sufficient to meet our working capital and capital expenditure needs for at least the next 12 months. However, we anticipate that we will need to raise additional financing in the future to fund our operations. Our future capital requirements will depend on many factors, including the timing and extent of spending to support development commercialization efforts; the timing of our launch and market acceptance of our products; other expenditures, including marketing activities; and additional costs associated with operating as a public company. We are subject to all the risks typically related to the development of new products, and we may encounter unforeseen expenses, difficulties, complications, delays, including in our PATHFINDER study, the data of which is needed to support commercial launch of our products, and other unknown factors that may adversely affect our business.

We may in the future enter into arrangements to acquire or invest in complementary businesses, services, technologies, and intellectual property rights. We may be required to seek additional equity or debt financing. In the event that additional financing is required, we may not be able to raise it on terms acceptable to us or at all. If we raise additional funds through the issuance of additional debt or equity securities, it could result in dilution to our existing stockholders, increased fixed payment obligations, and the existence of securities with rights that may be

senior to those of our common stock. If we incur indebtedness, we could become subject to covenants that would restrict our operations. We may also choose to raise funds through collaborations and licensing arrangements, in which case we may relinquish significant rights or grant licenses on terms that are not favorable to us. If we are unable to raise additional capital when desired, our business, results of operations, and financial condition would be adversely affected.

The following table summarizes our cash flows for the periods presented:

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
	(in thousands)			
Net cash used by operating activities	$ (209,260)	$ (245,794)	$ (134,776)	$ (101,513)
Net cash (used by) provided by investing activities	(93,390)	133,037	163,275	70,475
Net cash provided by financing activities	300,618	160,326	149	232,489
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	483	124	37	50
Net increase (decrease) in cash, cash equivalents, and restricted cash	$ (1,549)	$ 47,693	$ 28,685	$ 201,501

Net Cash Used by Operating Activities

During the six months ended June 30, 2020, net cash used by operating activities consisted of a net loss of $136.4 million, adjusted by non-cash charges of $29.4 million, and cash provided by changes in our operating assets and liabilities of $5.5 million. The non-cash charges consisted of stock-based compensation expense of $23.9 million, depreciation and amortization of $4.3 million, loss on foreign currency of $1.4 million and impairment of property and equipment of $0.1 million, which was partially offset by a non-cash gain of $0.3 million relating to amortization of the discount on marketable securities. The cash provided by changes in our operating assets and liabilities was due to a decrease of $6.2 million in prepaid expenses and other assets and prepaid expenses and other assets—related parties, a decrease of operating lease right-of-use assets of $1.2 million, an increase of $2.8 million in accounts payable and accounts payable—related parties, and an increase in other current liabilities—related parties of $2.5 million, which were partially offset by a decrease of $5.8 million in accrued and other liabilities and a decrease of $1.4 million in our operating lease liabilities.

During the six months ended June 30, 2019, net cash used by operating activities consisted of a net loss of $117.2 million, adjusted by non-cash charges of $13.1 million, and cash used by changes in our operating assets and liabilities of $30.7 million. The non-cash charges consisted of stock-based compensation expense of $7.7 million, depreciation and amortization of $5.4 million, impairment of property and equipment of $2.1 million, loss on disposal of property and equipment of $0.2 million, and loss on foreign currency of $0.7 million, which was partially offset by a non-cash gain of $3.0 million relating to amortization of the discount on marketable securities. The cash used by changes in our operating assets and liabilities was due to a decrease of $29.1 million in accrued and other liabilities and accrued and other liabilities—related parties, a decrease of $3.0 million in our operating lease liabilities, and a decrease of $2.3 million in accounts payable and accounts payable—related parties, which was partially offset by a decrease of operating lease right-of-use assets of $2.0 million and a decrease of $1.7 million in prepaid expenses and other assets and prepaid expenses and other assets—related parties. Our accrued and other liabilities—related parties decreased primarily due to a payment of $15.0 million to fulfill our data delivery requirements under our supply and commercialization agreement with Illumina.

During the year ended December 31, 2019, net cash used by operating activities consisted of a net loss of $244.9 million, adjusted by non-cash charges of $38.3 million, and cash used by changes in our operating assets and liabilities of $39.2 million. The non-cash charges consisted of depreciation and amortization of $10.3 million, stock-based compensation expense of $28.4 million, loss on disposal of fixed assets of $0.3 million, an impairment of property and equipment and other long-term assets of $2.2 million, and a loss on foreign currency of $1.6 million, which was partially offset by a non-cash gain of $4.5 million relating to amortization of the discount on marketable securities. The cash used by changes in our operating assets and liabilities was due to an increase of $4.8 million in

prepaid expenses and other assets and prepaid expenses and other assets—related parties, a decrease of $25.7 million in accrued and other liabilities and accrued and other liabilities—related parties, a decrease of $6.2 million in our operating lease liabilities, and a decrease of $6.5 million in accounts payable and accounts payable—related parties, which was partially offset by a decrease of operating lease right-of-use assets of $4.0 million. Our accrued and other liabilities—related parties decreased primarily due to the payment of $15.0 million to fulfill data delivery requirements under our supply and commercialization agreement with Illumina. Our accounts payable decreased primarily due to a reduction in clinical studies enrollment expenses.

During the year ended December 31, 2018, net cash used by operating activities consisted of a net loss of $275.7 million, adjusted by non-cash charges of $26.8 million, and cash provided by changes in our operating assets and liabilities of $39.6 million. The non-cash charges consisted primarily of depreciation and amortization of $14.1 million, stock-based compensation expense of $11.0 million, and an impairment of property and equipment of $5.7 million, which was partially offset by a non-cash gain of $4.2 million relating to amortization of the discount on marketable securities. The cash provided by changes in our operating assets and liabilities was primarily due to an increase of $38.1 million in accrued and other liabilities and accrued and other liabilities—related parties. Our accrued and other liabilities—related parties increased primarily due to an accrual of $15.0 million to fulfill our data delivery requirements under our supply and commercialization agreement with Illumina. Accrued and other liabilities also increased due to higher compensation-related expenses, reflecting our increased headcount and accrued clinical studies enrollment expenses.

Net Cash (Used by) Provided by Investing Activities

During the six months ended June 30, 2020, net cash provided by investing activities consisted of $274.0 million in proceeds from the maturities of marketable securities, partially offset by $202.3 million in purchases of marketable securities and $1.2 million of capital expenditures. Capital expenditures were primarily related to purchases of machinery and equipment for use in our laboratories.

During the six months ended June 30, 2019, net cash provided by investing activities consisted of $461.1 million in proceeds from the maturities of marketable securities, partially offset by of $295.7 million in purchases of marketable securities and $2.2 million of capital expenditures. Capital expenditures were primarily related to purchases of machinery and equipment for use in our laboratories.

During the year ended December 31, 2019, net cash provided by investing activities primarily consisted of $687.8 million in proceeds from the maturities of marketable securities, partially offset by $551.5 million in purchases of marketable securities and $3.3 million of capital expenditures. Capital expenditures were primarily related to purchases of machinery and equipment for use in our laboratories.

During the year ended December 31, 2018, net cash used by investing activities primarily consisted of $681.1 million in purchases of marketable securities and $16.0 million of capital expenditures, partially offset by $603.3 million in proceeds from the maturities of marketable securities. Capital expenditures were primarily related to leasehold improvements for our Menlo Park facility.

Net Cash Provided by Financing Activities

During the six months ended June 30, 2020, net cash provided by financing activities primarily consisted of $231.9 million in net proceeds from the issuance of Series D redeemable convertible preferred stock and $1.3 million in proceeds from the exercise of stock options, primarily offset by $0.7 million in repayment of borrowings on a finance lease.

During the six months ended June 30, 2019, net cash provided by financing activities consisted of $1.7 million in proceeds from the exercise of stock options and the early exercise of unvested stock options, partially offset by $0.7 million in repayment of borrowings on a finance lease, $0.7 million in payments of deferred offering costs, and $0.1 million of repurchases of early exercised stock options.

During the year ended December 31, 2019, net cash provided by financing activities primarily consisted of $159.8 million in net proceeds from the issuance of Series D redeemable convertible preferred stock and $3.2

million in proceeds from the exercise of stock options and the early exercise of unvested stock options, primarily offset by $1.6 million in repayment of borrowings on a finance lease and $0.9 million in payments of deferred offering costs.

During the year ended December 31, 2018, net cash provided by financing activities primarily consisted of $299.6 million in net proceeds from the issuance of Series C redeemable convertible preferred stock and $2.9 million in proceeds from the exercise of stock options and the early exercise of unvested stock options, partially offset by $1.5 million in repayment of borrowings on a capital lease.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations as of December 31, 2019:

	Total	Less Than 1 Year	1-3 Years	4-5 Years	More Than 5 Years
			(in thousands)		
Operating leases, including imputed interest	$ 51,983	$ 6,780	$ 22,955	$ 16,018	$ 6,230
Minimum royalties[1]	10,610	565	1,145	2,150	6,750
Purchase commitments[2]	845	845	—	—	—
Finance leases, including imputed interest	812	812	—	—	—
Total contractual obligations	$ 64,250	$ 9,002	$ 24,100	$ 18,168	$ 12,980

(1) We have certain minimum royalty commitments associated under licensing agreements related to our research and development efforts.
(2) We have purchase commitments primarily related to the purchase of laboratory supplies in the ordinary course of business.

During the six months ended June 30, 2020, we entered into a new agreement to lease approximately 200,000 square feet of laboratory and office space in North Carolina, which will be recognized as an operating lease upon the lease commencement date. We expect the lease to commence during the third or fourth quarter of 2020 for a term of 12.5 years with three five-year renewal options. The total estimated aggregate base rent payments, excluding the renewal options and tenant improvement allowances, for the North Carolina laboratory and office space are $82.6 million. In connection with the construction of the laboratory in North Carolina, we are in the process of entering into agreements with the State of North Carolina and Durham County in North Carolina that may provide us with cash grants based on the job creation and capital investment commitments.

Contractual obligations represent future cash commitments and liabilities under agreements with third parties and exclude purchase orders for goods and services that are cancellable. Our non-cancelable purchase orders represent authorizations to purchase rather than binding agreements. The contractual commitment amounts in the table above are associated with agreements that are enforceable and legally binding and that specify all significant terms, including: fixed or minimum services to be used; fixed, minimum, or variable price provisions; and the approximate timing of the transaction.

The table above includes minimum annual royalty payments, but does not include the aggregate high single-digit royalties that would be payable on net sales of Galleri, if launched, and any future products, pursuant to existing agreements and licenses with Illumina, The Chinese University of Hong Kong, and other third parties in excess of minimum annual royalty payments.

- We have entered into a supply and commercialization agreement with Illumina. Under the terms of the agreement, regardless of whether our products incorporate any Illumina technology, we have agreed to pay to Illumina a high single-digit royalty, subject to certain reductions, in perpetuity on net sales generated by our products or revenues otherwise generated or received by us, subject to certain exceptions, in the field of oncology.

- In the case of The Chinese University of Hong Kong, to the extent our products use certain technology licensed from The Chinese University of Hong Kong, we agreed to pay The Chinese University of Hong Kong low single-digit royalties on net sales of such products, subject to minimum annual guarantees.

Critical Accounting Policies and Significant Judgments and Estimates

This discussion and analysis of our financial condition and results of operations is based on our audited consolidated financial statements and our unaudited condensed consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these audited consolidated financial statements and unaudited condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the audited consolidated financial statements or the unaudited condensed consolidated financial statements, as well as the reported expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. While our significant accounting policies are described in more detail in the notes to our audited consolidated financial statements included elsewhere in this prospectus, we believe that the following accounting policies are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Accrued Clinical Studies and Research and Development Expenses

We accrue for estimated costs of research and development activities conducted by third-party service providers, including those conducting clinical studies. We record the estimated costs of research and development activities based upon the estimated amount of services provided and include these costs in accrued liabilities and accrued liabilities—related parties in our consolidated balance sheets and within research and development and research and development—related parties expenses in our consolidated statements of operations. These costs are a significant component of our research and development expenses. We accrue for these costs based on factors such as estimates of the work completed and in accordance with agreements established with our third-party service providers. We make judgments and estimates in determining the accrued liabilities balance in each reporting period.

Stock-Based Compensation Expense

We measure employee and non-employee director stock-based compensation expense at the grant date based on the fair value of the award. We have granted awards with service-based, performance-based, and market-based vesting conditions. The fair value of the service-based awards is recognized as an expense on a straight-line basis over the requisite service period, which is generally the vesting period. The stock-based compensation expense related to awards that vest upon satisfaction of performance-based and performance- and market-based conditions is recognized using the accelerated attribution method when management determines it is probable that the performance-based vesting conditions will be satisfied.

In determining the fair value of the stock-based awards with service- and performance-based conditions granted under our 2016 Equity Incentive Plan and non-plan incentive awards, we use the Black-Scholes option-pricing model, which requires the input of subjective assumptions. These assumptions include: the fair value of common stock, the estimated length of time employees will retain their vested stock options before exercising them (expected term), the estimated volatility of our common stock price over the expected term (expected volatility), the risk-free interest rate, and expected dividends. Changes in the following assumptions can materially affect the estimate of stock-based compensation expense:

Expected Term—For awards with service-based vesting conditions, the expected term of stock options represents the period the stock options are expected to remain outstanding and is calculated using the simplified method, due to limited history, which calculates the expected term as the midpoint of the contractual term of the awards and the vesting period. For awards with performance-based vesting conditions, we evaluate the award's service period, contractual term, and our expectations of the projected timing of achievement of milestones in estimating the expected term.

Expected Volatility—As there has been no public market for our common stock to date, and we do not have any trading history of our common stock, the expected volatility is estimated based on the average volatility for comparable publicly-traded companies over a period equal to the expected term of the stock option grants. The comparable companies are chosen based on their similar size, stage in the life cycle, or area of specialty.

Risk-Free Interest Rate—The risk-free interest rate is based on the implied yield currently available on U.S. Treasury zero-coupon issues with a remaining term equivalent to the expected term of a stock award.

Expected Dividends—We have not paid dividends on our common stock and do not anticipate paying any dividends on our common stock in the near future.

Fair Value of Common Stock—Given the absence of a public trading market, our board of directors considers numerous objective and subjective factors to determine the fair value of our common stock at each grant date, including the factors described under "—*Common Stock Valuations*" below.

For awards that contain performance- and market-based conditions, we use a Monte Carlo simulation to determine the fair value at the grant date and recognize stock-based compensation expense over the derived service period when it becomes probable that the performance-based condition will be met. Under the Monte Carlo simulation, stock returns are simulated for us to estimate the payouts established by the vesting conditions of the awards and an estimated time that the awards will vest. The assumptions used in the Monte Carlo simulation include: the fair value of common stock; estimating the length of time employees will retain their vested stock options before exercising them (expected term); the estimated volatility of our common stock price over the expected term (expected volatility); the risk-free interest rate; and expected dividends.

We account for stock-based compensation arrangements with non-employees (other than non-employee directors) using a fair value approach. We believe that for stock options issued to non-employees, the fair value of the stock option is more reliably measurable than the fair value of the services rendered. Therefore, we estimate the fair value of these non-employee stock options using a Black-Scholes option-pricing model with appropriate inputs.

For details of our unamortized stock-based compensation expense, see Note 10 to our audited consolidated financial statements and unaudited condensed consolidated financial statements included elsewhere in this prospectus.

We will continue to use judgment in evaluating the assumptions used in the Black-Scholes option-pricing model and Monte Carlo simulation on a prospective basis. As we continue to accumulate additional data related to our common stock, we may have refinements to our estimates, which could materially impact our future stock-based compensation expense.

Common Stock Valuations

We are a privately-held company with no active public market for our common stock. Therefore, our board of directors, with the assistance and upon the recommendation of management and based upon independent third-party valuations, has for financial reporting purposes periodically determined the estimated per share fair value of our common stock at various dates using contemporaneous valuations consistent with the American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held Company Equity Securities Issued as Compensation (Practice Aid). Within the contemporaneous valuations performed by our board of directors, a range of factors, assumptions, and methodologies were used. The significant factors included:

- our most recently available valuations of our common stock performed at periodic intervals by an independent third-party valuation firm;
- the prices for our redeemable convertible preferred stock sold to outside investors;
- our capital structure, including the rights and preferences of our various classes of equity, including our redeemable convertible preferred stock relative to our common stock;
- our stage of development and commercialization as well as developments in the business;

- the lack of marketability of the common stock for a privately-held company;
- the likelihood of achieving a liquidity event for shares of our common stock, such as an initial public offering or sale, given prevailing market conditions;
- our historical operating results; and
- valuations of comparable public companies.

In valuing our common stock, our board of directors estimated our enterprise value as of the various valuation dates using a probability-weighted expected return method (PWERM). Under the PWERM, shares are valued based upon the probability-weighted present value of expected future returns, considering various future outcomes available to us, as well as the rights of each share class. The PWERM included both IPO and non-IPO scenarios that were based on management's estimated market valuations, discounted back to the valuation dates. We used the market approach to support enterprise value from transactions involving our own securities and by comparisons to similar publicly-traded companies. We also applied a discount for lack of marketability, resulting from the illiquidity of our common stock.

The dates of our contemporaneous valuations have not always coincided with the dates of our stock-based compensation grants. In such instances, our board of directors' estimates have been based on the most recent contemporaneous valuation of our shares of common stock and its assessment of additional objective and subjective factors it believed were relevant and that may have changed from the date of the most recent contemporaneous valuation through the date of the grant.

Our board of directors and management develop best estimates based on application of these approaches and the assumptions underlying these valuations. Such estimates involve inherent uncertainties and the application of significant judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our equity-based compensation could be materially different. Following the closing of this offering, our board of directors will determine the fair value of our common stock based on its closing price as reported on the date of grant on the Nasdaq Global Select Market or other primary stock exchange on which our common stock is then traded.

JOBS Act

We are an emerging growth company under the Jumpstart our Business Startups Act of 2012 (JOBS Act). As an emerging growth company, we may delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have nonetheless irrevocably elected not to avail ourselves of this exemption and, as a result, upon completion of this offering, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

We will remain an emerging growth company until the first to occur of the last day of the fiscal year (1) that follows the fifth anniversary of the completion of this offering, (2) in which we have total annual gross revenue of at least $1.07 billion, or (3) in which we are deemed to be a "large accelerated filer" under the Securities Exchange Act of 1934 (Exchange Act); or if it occurs before any of the foregoing dates, the date on which we have issued more than $1 billion in non-convertible debt over a three-year period.

Recent Accounting Pronouncements

See Note 2 to our audited consolidated financial statements and unaudited condensed consolidated financial statements included elsewhere in this prospectus for details of recent accounting pronouncements.

Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Sensitivity

We are exposed to market risk related to changes in interest rates. We had cash, cash equivalents, and marketable securities of $558.3 million and $685.6 million as of December 31, 2019 and June 30, 2020,

respectively, which consisted primarily of bank deposits, money market funds, commercial paper, and investment-grade, short- to intermediate-term fixed income securities. The primary objective of our investment activities is to preserve capital to fund our operations. We do not enter into investments for trading or speculative purposes.

Our investments are subject to interest rate risk and could fall in value if market interest rates increase. Due to the short-term duration of our investment portfolio and the low-risk profile of our investments, a hypothetical 10% relative change in interest rates during any of the periods presented would not have had a material impact on our audited consolidated financial statements or our unaudited condensed consolidated financial statements.

Foreign Currency Sensitivity

The majority of our transactions occur in U.S. dollars. However, we do have certain transactions that are denominated in currencies other than the U.S. dollar, primarily the British pound and the Hong Kong dollar, and we therefore are subject to foreign exchange risk. The fluctuation in the value of the U.S. dollar against the foreign currencies affects the reported amounts of expenses, assets, and liabilities associated with certain activities. We do not currently engage in any hedging activity to reduce our potential exposure to currency fluctuations, although we may choose to do so in the future. A hypothetical 10% change in foreign exchange rates during any of the periods presented would not have had a material impact on our audited consolidated financial statements or our unaudited condensed consolidated financial statements.

BUSINESS

Our mission is to detect cancer early, when it can be cured.

Despite decades of effort, a war on cancer, the genomic revolution, dramatic biotechnology interventions, and the recommendation to screen for five cancers, cancer is projected to become the world's leading killer by 2021. Most cancers are still diagnosed too late, predominantly because we lack recommended screening tests for most types of cancers, which are responsible for 71% of cancer deaths. Cancer is a disease of the genome, and while the human genome project deciphered the living human code two decades ago and ushered in the genomic revolution, it has previously not been applied to diseases that can significantly impact the population as a whole.

We are a healthcare company focused on saving lives and improving health by pioneering new technologies for early cancer detection. We have built a multi-disciplinary organization of scientists, engineers, and physicians and we are using the power of next-generation sequencing (NGS), population-scale clinical studies, and state-of-the-art computer science and data science to overcome one of medicine's greatest challenges. Using our platform technology, we have developed a multi-cancer early detection blood test that has demonstrated in clinical studies the ability to detect more than 50 types of cancer, across all stages, and localize the cancer signal with a high degree of accuracy, from a single blood draw. We believe that our multi-cancer early detection test can lead to a dramatic increase in early cancer diagnosis. Based on our own calculations using 2006 to 2015 data from the Surveillance, Epidemiology, and End Results Program of the U.S. National Cancer Institute (SEER) and our own performance data, we believe that using our multi-cancer early detection test in conjunction with the five existing recommended screenings in the United States could avert many deaths by earlier detection of up to 75% of cancers with less than a 50% five-year cancer specific survival rate.

Our multi-cancer early detection test, Galleri, is designed as a screening test for asymptomatic individuals over 50 years of age. We plan to commercially launch Galleri in 2021 as a laboratory developed test (LDT). In addition to Galleri, we are utilizing our proprietary technology platform and population-scale studies from which Galleri was developed to introduce additional products that address significant unmet medical needs, including a diagnostic aid for cancer test (DAC). DAC is designed to accelerate diagnostic resolution for patients for whom there is a clinical suspicion of cancer. We plan to commercially launch DAC after Galleri in the second half of 2021 as an LDT. We are also developing a minimal residual disease (MRD) test, designed to enable blood-based detection with or without tissue, and without the need for a personalized assay, as well as other post-diagnostic applications.

In developing Galleri, we undertook a rigorous, comprehensive, multi-omic discovery approach to explore and identify the most promising biological hallmarks of cancer. We have invested significant capital and resources in our foundational studies, which have collectively enrolled approximately 115,000 participants, to build what we believe are the largest linked datasets of genomic and clinical data in the cancer field. As of August 31, 2020, we have reported clinical study data using samples from approximately 9,500 participants. We applied machine learning analytics to these data and objectively investigated various scientific approaches to determine the optimal means of detecting cancer. We compared the performance of three different NGS approaches—mutations, chromosomal alterations and methylation patterns—in head-to-head studies. While all of the markers were capable of detecting cancer, we found that methylation profiling yielded significantly better results for cancer detection than was observed by interrogating mutations or chromosomal alterations, alone or in combination. In contrast to typical cancer mutations that only affect a handful of genomic locations, there are nearly 30 million methylation sites across the human genome, making them a ubiquitous and rich signal for detecting cancer. After comprehensive analysis of whole-genome methylation patterns, we discovered highly informative and low-noise methylation regions for cancer signal detection and localization. This led to our development of a targeted methylation approach that had superior performance and lower costs compared to whole-genome methylation. Our targeted methylation approach helps solve a core problem in detecting cancer early in asymptomatic individuals, which is the low level of cancer signal circulating in the blood. While methylation profiling is the approach we are using with Galleri, we continue to evaluate multi-omic approaches including evaluation of additional analytes and biofluids.

We believe that we have an unprecedented opportunity to transform cancer care and establish a market leading position for Galleri. Initially, we plan to target the following key channels in the United States: large, self-insured employers; physician-directed channels, including concierge practices and executive health programs; and

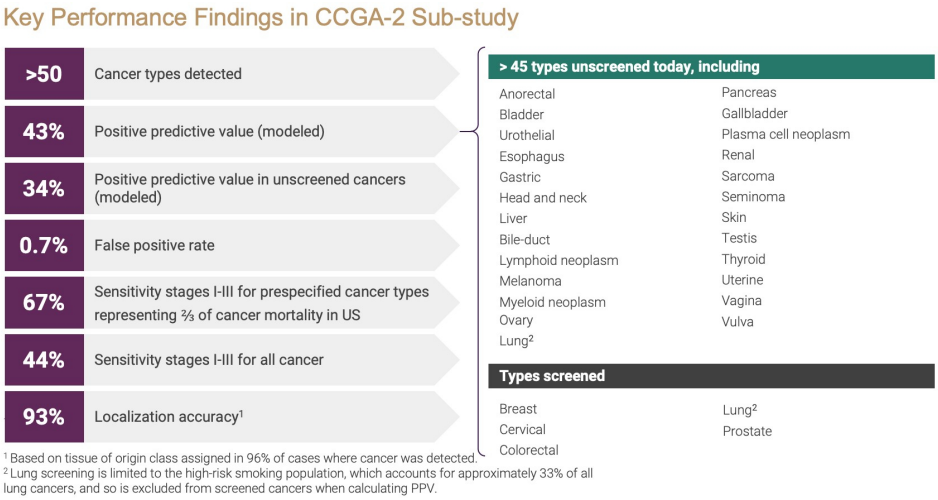
progressive, integrated health systems. These channels represent a significant segment of the overall early detection market of 107 million individuals between the ages of 50-79 in the United States, based on data from the 2014 National Population Projection Tables of the U.S. Census Bureau. We believe there could be significant access to these channels while we pursue broader reimbursement.

Our multi-cancer early detection test – Galleri

We believe our first anticipated commercially available product, Galleri, has the potential to transform cancer care and population health. We anticipate the commercial launch of Galleri as an LDT in 2021. In a clinical study, an earlier version of Galleri identified over 50 types of cancers, over 45 of which lack recommended screenings. Data showed that when our test detected a cancer, it was also able to localize the cancer signal with high accuracy. In the second sub-study (CCGA-2) of our foundational Circulating Cell-Free Genome Atlas Study (CCGA), when a cancer signal was detected, an earlier version of Galleri localized the cancer signal in 96% of the samples, and of these, Galleri correctly localized the cancer signal in 93%. Early data also suggested that indolent cancers are unlikely to be detected by Galleri, potentially reducing the problem of treating over-diagnosed cancers.

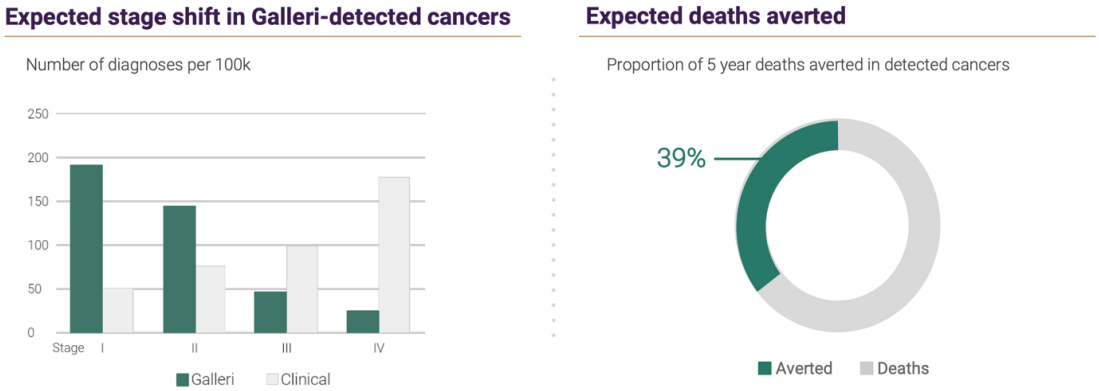
The most pressing unmet need in cancer early detection is to identify cancers for which there are no existing recommended screening tests. Galleri is designed to detect unscreened cancers and to complement the United States Preventive Services Task Force (USPSTF)-recommended screenings (specifically, lung for high-risk smokers, breast, cervical, prostate, and colorectal cancers have recommended screenings). Lung cancer represents the most common killer among cancers, but recommendations for lung screening are limited to the high-risk smoking population, which accounts for only 33% of all lung cancers, according to a 2012 article by Paul F. Pinsky and Christine D. Berg published in the *Journal of Medical Screening*. Hence, there is no effective screening in place for the vast majority of lung cancer diagnoses. The Galleri test report would also report cancers that have recommended screenings. Because the risk of cancer increases significantly after age 50, we expect the use of Galleri to be concentrated in an elevated risk population, for example, in individuals over the age of 50, when the risk of cancer increases significantly.

The sensitivity, true positive rate, specificity, and true negative rate of a test, together with the prevalence of disease in the population, enable a calculation of positive predictive value (PPV). PPV is the percentage of participants with a positive test result who truly have the disease, and we believe it is the most clinically relevant metric for a multi-cancer screening test, as physicians are unaware of a patient's cancer status when test results are returned. Data from CCGA-2, using an earlier version of Galleri, showed the following performance data that were published in the *Annals of Oncology* in March 2020. CCGA-2 included approximately 6,700 total participants across validation and training sets.



In those over age 50, Galleri demonstrated a 66% detection rate of Stage II cancers for which there are no current recommended screenings. We believe Galleri could be integrated directly into the existing healthcare pathways delivered to 40 million patients a year who are already going to a physician for their standard-of-care cancer screening.

We have developed a cancer epidemiology forecast model to estimate the potential impact of multi-cancer early detection testing on cancer stage shift and mortality reduction. Based on the performance of Galleri in our CCGA-2 study and using 2006 to 2015 SEER data for ages 50-79, our model estimates that by adding Galleri to diagnosis by usual care, there is potential to detect nearly 70% of cancers resulting in death within five years at an earlier stage (excluding cancers that grow too quickly to be detected by any screening program), which would translate to the potential to avert 39% of the deaths expected if not for early detection by Galleri.



We believe Galleri has the potential to dramatically increase population early cancer detection, reducing the attendant morbidity, mortality and costs of late-stage cancer diagnoses. Based on a 2006 article by Kevin M. Murphy and Robert H. Topel published in the *Journal of Political Economy* and the U.S. Bureau of Labor Statistics inflation calculator, it has been estimated that a 1% reduction in cancer mortality in the United States would be worth $695 billion in today's dollars from increased quality of life, productivity and survival. This estimate does not include intangible benefits such as the decreased emotional burden to family, friends and caregivers.

By detecting unscreened cancers early and potentially averting deaths, we believe the clinical and economic utility of Galleri will support its commercial adoption. Our market research indicates that there is a significant addressable market opportunity we can access even before approval under traditional fee-for-service Medicare reimbursement. While such approval would be needed for broad-based adoption, we expect such approval will take several years to obtain, if at all. In the interim, we will pursue our initial market representing a significant segment of the overall early detection market of 107 million individuals between the ages of 50-79 in the United States. Specifically, we plan to target the following key channels:

- **Large, self-insured employers (total addressable U.S. market: estimated at 24 million people based on our analysis of numerous sources, including 2019 U.S. Bureau of Labor Statistics).** We are targeting self-insured employers with an estimated market of approximately 24 million people over the age of 50 in the United States. Many of these are companies known to offer compelling and innovative health care offerings as part of a way to attract and retain employees. As healthcare costs continue to escalate, many employers are looking for greater value from their healthcare related expenditure. Moreover, health benefits have become increasingly important to employees in differentiating corporate benefits and to employers in recruiting and retaining employees. Cancer is one of the top healthcare expenditures for self-insured employers, thereby making early cancer detection a focus area given treating localized cancers are on average half the cost of treating late-staged cancers. We believe our test offering could detect a number of early cancers and contribute to improved health outcomes for employees.

- **Progressive, integrated health systems (total addressable U.S. market: estimated at 27 million people based on our analysis of numerous sources, including Medicare claims data).** By detecting cancer earlier, Galleri has the potential to improve population health. Many of the nation's premier healthcare institutions have robust programs in population health management and precision medicine. We believe these programs lend themselves to innovative partnerships with us. In addition, by detecting more cancers, we believe health systems would not only have the potential benefit of improved health for patients but could also gain revenue from diagnostic workup and treatment of the detected cancers. One of our planned strategies upon commercial launch is to offer Galleri at select certain regional health systems, which could help them attract new patients by offering a comprehensive cancer screening service that is not available at competing health systems in the region.

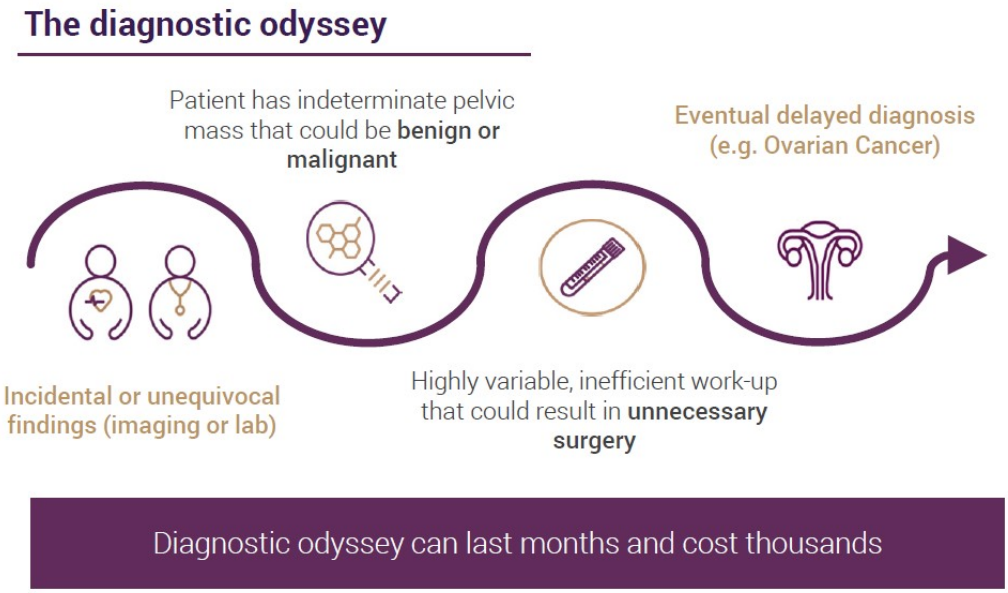
- **Physician-directed channels, including concierge practices and executive health programs (total addressable U.S. market: estimated at 1 million people based on our analysis of numerous of sources, including concierge practice company websites and interviews with key opinion leaders).** We believe Galleri could be compelling to physicians whose clients are focused on preventive health and wellness and have the financial means to enroll in these programs. The physician practices we are targeting are known to offer innovative, cutting-edge health offerings and market research suggests the members are willing to invest in differentiated and leading healthcare. We believe there are approximately 1 million people in the United States who have a concierge doctor or participate in an executive health program. Initial engagement with these practices has been positive, with several contracted practices in advance of our anticipated launch of Galleri.

Traditional fee-for-service Medicare does not cover screening tests, which are considered preventive services, such as our multi-cancer early detection test unless there is a statutory provision to explicitly authorize coverage. Under current law, Centers for Medicare & Medicaid Services (CMS), the agency responsible for administering the Medicare program, is authorized to cover additional preventive services that are not expressly covered by the statute if the service is (a) reasonable and necessary for the prevention or early detection of an illness or disability, (b) recommended with a grade of A or B by the USPSTF, an independent, volunteer panel of experts in the field of prevention, evidence-based medicine and primary care, and (c) appropriate for Medicare beneficiaries. CMS establishes coverage through a national coverage determination (NCD) process. This coverage authorization could take several years. Nonetheless, we plan to seek Medicare coverage for Galleri. Because multi-cancer early detection is not expressly authorized for coverage by the Medicare statute, a possible pathway for reimbursement is to first obtain FDA marketing authorization, and then obtain a grade of A or B from USPSTF, to enable CMS to issue a NCD.

We believe there is a significant opportunity to improve the current cancer diagnosis journey for patients and we designed the Galleri testing process to be easy to use for physicians and patients. For patients who receive a "no cancer signal detected" result, our simple test report will remind individuals to continue with their standard-of-care cancer screenings. For those with a "cancer signal detected" result, our test report provides predicted tissue localization, which is designed to help physicians determine the appropriate diagnostic workup. We are working with study investigators, key opinion leaders and clinical advisors to develop clear care pathways to help guide diagnostic workups. At commercialization, to support our large self-insured employers, we plan to have entered into agreements with a telemedicine provider that can order Galleri for employees when deemed medically appropriate by such provider and a phlebotomy partner to help support sample collection.

We plan to utilize data from our third sub-study of CCGA (CCGA-3), which has completed enrollment and is in ongoing follow-up, and our ongoing PATHFINDER study to help validate the version of Galleri that we plan to launch as an LDT. We expect to complete these activities in 2021, although a significant delay in the enrollment of PATHFINDER could delay our anticipated launch. Following the launch of Galleri as an LDT, we plan to submit a PMA of a subsequent version of Galleri in as early as 2023. We anticipate using a subset of data from the STRIVE study, along with other data, in support of the application.

Diagnostic Aid for Cancer Test



Every year in the United States, more than 12 million patients are subject to potentially invasive and time- consuming diagnostic workups. Based on data from numerous sources, including 2017 data from the Association of American Medical Colleges, we estimate 2.4 million of these patients are already referred to a specialist doctor for a cancer diagnostic workup, and this represents our initial addressable market in the United States. Many of these patients, particularly those with non-focal symptoms, undergo several months of tests before they receive a cancer diagnosis. Our engagement with physicians indicates they would value tools to help triage cases with non-localizing concerning signs and symptoms, equivocal imaging or lab findings, where biopsy may be challenging due to anatomy or concurrent medical conditions, or where there has been other failure to make a diagnosis. To accelerate diagnostic resolution for patients with a clinical suspicion of cancer, we are developing DAC to help physicians achieve resolution quickly and cost effectively. We presented early data on an investigational version of DAC at the American Association for Cancer Research (AACR) Virtual Annual Meeting in April 2020, which showed that DAC's specificity, sensitivity and ability to identify the location of the cancer signal was comparable to overall CCGA-2 performance. We plan to initially focus our commercial efforts on specialist physicians (such as pulmonologists, gastroenterologists, otolaryngologists, and hepatologists) and suspicion of cancer clinics. We expect to launch DAC as an LDT in the second half of 2021 after our launch of Galleri.

In addition, we estimate more than 10 million of the over 12 million patients that are subject to potentially invasive and time-consuming workups present with non-specific signs and symptoms to primary care physicians. There are numerous causes for these symptoms, including cancer, and some primary care physicians either initiate diagnostic odysseys or refer these individuals to specialists. We believe DAC would be a useful aid to help primary care physicians better determine next steps. To support our launch of DAC as an LDT, we plan to validate our test using samples from our CCGA study, which has completed enrollment and is in ongoing follow-up. We plan to conduct additional clinical studies in individuals with concerning non-specific symptoms, but who are not currently indicated for a cancer workup, in an effort to expand the adoption of DAC in this population. We anticipate initiating this study in the first half of 2021, and subject to favorable results, we expect potential uptake of DAC in this expanded patient population as early as 2023.

We believe that the health benefit of a targeted and faster diagnosis could support reimbursement and coverage of DAC as a medical benefit. DAC is intended to be a diagnostic product, and we believe we could obtain Medicare coverage and reimbursement in the next several years.

Future product opportunities

Minimal residual disease and recurrence monitoring

We believe that our technology platform could address current challenges with minimal residual disease (MRD) testing, which is used in pharmaceutical trials and clinical settings to detect the presence or absence of residual disease and inform treatment decisions, including identifying patients who may be eligible for adjuvant therapy. There are numerous companies that have commercialized MRD products. The majority of these currently available tests require tissue samples, and processing times can take over three weeks. These tests typically require development of patient-specific assays after tissue sequencing, which complicates the workflow, contributes to the long turnaround time and has the potential to delay treatment decisions.

We believe our technology could enable a blood-based MRD detection solution without the need for a personalized assay. Importantly, this would reduce operational complexity and enable delivery of results in approximately 10 days as compared to multiple weeks with current tissue-based approaches. Because sensitivity in this setting is critical, we are developing a flexible approach to perform personalized analysis that can be informed by a baseline plasma sample or tissue, if available. We believe that this approach could provide comparable sensitivity to current bespoke assay approaches and potentially provide us with a timing and complexity advantage. We have not validated our MRD test and will need to conduct clinical studies in order to do so. We are seeking to validate the performance of our test in MRD settings in collaboration with pharmaceutical partners, and we anticipate reporting data from these initial studies in the first half of 2021.

We believe the MRD setting represents a significant opportunity with biopharmaceutical companies given the estimated 1,800 ongoing oncology studies as of July 31, 2020 (based on the U.S. National Library of Medicine's clinical trials database as of such date) and the significant need to identify residual disease or recurrence early to help inform treatment decisions.

Patients with cancer, primary or metastatic, following completion of therapy, often require monitoring for possible progression. Many metastatic patients may remain on maintenance therapy during the remainder of their lives or are routinely monitored for cancer recurrence. We believe our MRD test could also help monitor for early signs of cancer recurrence in cancer survivors. Recurrence monitoring can be used to identify signs of early progression as well as therapeutic response or non-response and to guide further workup of the patient. Often patients are monitored with imaging or other modalities that may not detect recurrence as efficiently as a blood test due to both imaging intervals and insensitivity for very small tumors. Following a potential launch of our MRD test, we plan to develop a recurrence monitoring and therapy response test to serve this market, which we estimate to include over 16.9 million cancer survivors in the United States, based on the American Cancer Society's Cancer Treatment and Survivorship Facts and Figures 2019-2021.

Potential enhancements to Galleri and DAC

We seek to continually enhance the performance and features of our tests, and invest in enhancing our core targeted methylation platform through improvements designed to achieve higher efficiency and scalability. We also aim to further improve the sensitivity of our tests by obtaining deeper coverage and a better understanding of noise and leveraging even larger datasets to further develop our advanced biologically directed machine learning algorithms.

Beyond improvements to our methylation technology, we also continue to research and develop multi-omics technologies that have the potential to complement methylation through orthogonal biological information including additional analytes and biofluids, such as RNA and urine. We believe RNA may provide an additional unique opportunity to detect cancer signals, predict the tumor tissue of origin, and determine the cancer subtype. As a result, we have developed a targeted cell-free RNA (cfRNA) assay to study a panel of biomarkers for breast and lung cancers and evaluate their potential to complement methylation. In an early study, data suggested that cfRNA could help detect signals for early stage hormone-receptive positive (HR-positive) breast cancer and lung adenocarcinoma patients missed by methylation in a small cohort of commercially-sourced samples. We have developed an early platform for extraction of cfNA from urine that is compatible with processing through our targeted methylation

platform. This will allow us to evaluate the potential of our technology to increase tumor fraction and improve sensitivity of certain urologic cancers.

Capabilities and future research

We will continue to take a comprehensive, rigorous, and multi-omics approach to discovery and research. By using our large linked datasets of clinical and genomic data, we believe our multi-omics technology platforms, including, for example, our technology related to interrogating mutations, chromosomal alterations and RNA, could generate additional product opportunities, including for diseases other than cancer. We have conducted early research and development in areas such as immunology. We plan to augment our existing data sets with additional clinical trials and studies over time as well as data obtained through commercial use of our tests and our patient registry. We believe these additional datasets could potentially drive improved performance and functionality of our technology platform. We also plan to leverage relationships, including with academic and industry partners, to help expedite bringing potential new applications of our technology to market.

Our Strengths

We believe our competitive advantages include:

- ***Our multi-cancer early detection test, Galleri:*** We believe detection of multiple types of cancers at earlier stages will lead to improved clinical outcomes. In a clinical study, Galleri detected over 50 types of cancers, over 45 of which lack recommended screenings with a false positive rate of less than 1%. When a cancer was detected, Galleri localized the cancer signal with high accuracy, all from a single blood draw. Weighted for 2006 to 2015 data from SEER, data from an earlier test version showed a PPV of approximately 43% across more than 50 cancer types in the over 50 age group. In a pre-specified set of 12 groups of cancers that account for two-thirds of all cancer deaths today, the PPV was approximately 36% in the over 50 age group. Galleri is intended to complement existing screening methods. We are preparing to launch Galleri commercially in 2021.

- ***Our diagnostic aid for cancer test (DAC):*** Using the same proprietary platform used to develop Galleri, we have developed a test that could help accelerate diagnostic resolution for symptomatic patients with a suspicion of cancer. Through a single blood test, DAC could provide physicians with a powerful decision-making tool to inform diagnostic workup plans quickly and cost effectively. We intend to launch DAC in the second half of 2021, and our commercial focus for DAC will be targeted to physician specialists and suspicion of cancer clinics. We estimate 2.4 million patients are referred to a specialist doctor for a cancer diagnostic workup in the United States. We also plan to conduct clinical studies of DAC to generate evidence in individuals with concerning, non-specific symptoms, but who are not currently indicated for a cancer workup, in an effort to accelerate the diagnosis. If our studies are successful, we believe DAC could provide benefit to a total of over 12 million patients in the United States annually. Because DAC is intended to be a diagnostic product, we believe we could obtain Medicare coverage and reimbursement as a medical benefit for DAC in the next several years.

- ***One of the cancer field's largest genomic databases linked with population-scale clinical evidence:*** Our research to date has enabled us to build one of the world's largest databases of genomic and clinical data in the cancer field. Each sample that we sequence contributes additional genomic, phenotypic, and clinical data that could help inform our platform. Together with our partners at leading academic cancer institutions and large community networks, we have taken a rigorous approach to the design of our clinical programs and collection of population-scale clinical data, which to date includes approximately 115,000 enrolled participants in four studies. The magnitude of our clinical program is driven by the need to conduct studies in screening populations where only 1-1.5% of individuals are expected to be diagnosed with cancer in any given year, based on 2013 to 2017 SEER data, while thousands of cancer events are needed to clinically validate our test. We carefully designed these studies to be generalizable to real-world populations to help us to build models that characterize cancer and non-cancer biology and validate our test. We sought to include broad populations with diversity in age, gender, behaviors, non-cancer diseases, environmental exposures, and other differences in our studies.

- ***Our platform, derived from a rigorous scientific approach to cancer biology and machine learning:*** We have taken a first principles approach to developing a deep and comprehensive understanding of cancer biology by building an atlas to characterize the landscape of cell-free nucleic acids (cfNA) in a generalizable population, seeking diverse individuals both with and without cancer in our studies. In our initial discovery work, we developed multiple prototype assays to identify, measure and evaluate a wide variety of cancer genome signals that are reflected in cfNA. Data from these comprehensive discovery studies have enabled us to compare the performance of these signals and to select and refine our proprietary methylation technology that targets the most informative methylation sites for use in Galleri and DAC. Our state-of-the-art machine learning technology analyzes subtle and complex signals in data generated through our clinical studies, significantly reducing technical and biological noise. We are leveraging our platform to broaden our applications beyond early cancer detection, including developing tests for post-cancer diagnostic applications, and over time, potentially in areas beyond cancer. We believe our platform could also drive performance improvements to our tests as we continue to accumulate data over time.

- ***Our multidisciplinary team:*** Our team is constructed to tackle the difficult challenge of improving outcomes for cancer patients. We are led by a multidisciplinary team with extensive experience across biotechnology, life science, public health, genomics, computer science, data science, biostatistics, clinical development, medical and regulatory affairs, quality assurance and laboratory operations. Our technology teams have deep experience in large-scale software engineering and technology infrastructure, essential for the collection and utilization of data at scale.

- ***Our intellectual property portfolio:*** We own or license exclusive, worldwide commercial rights to the products we are developing. We have exclusive licenses to more than 230 granted patents globally and own more than 170 pending patent applications, covering technologies that form the basis for our methylation technology as well those related to other NGS approaches to help detect cancer. Our patents, trade secrets and know-how cover proprietary chemistry, bioinformatics and biologically directed machine learning techniques in our product development pipeline and are valid at least through 2028. We own or license exclusive, worldwide commercial rights to Galleri and DAC.

Our Strategy

Key elements of our strategy include:

- ***Establishing commercial leadership in large markets with significant unmet medical needs.*** We believe that we have an unprecedented opportunity to transform cancer care and establish market leading positions for both Galleri and DAC. We believe the potential clinical and economic utility of Galleri will support commercial adoption. DAC could also serve a significant unmet medical need by allowing physicians to accelerate the diagnostic resolution for symptomatic patients. In the near term, we plan to focus on facilitating adoption of Galleri and DAC in the United States by increasing physician awareness of the potential value of our products. For Galleri, we plan to target self-insured employers and certain physician directed self-pay channels, including concierge medicine and executive health practices. We are also engaged in discussions with health systems known to be early adopters of new technologies or highly focused on population health and the prevention and early detection of disease. We also plan to engage with key opinion leaders and other physicians regarding the clinical utility of our tests to help drive broader scientific endorsements. For DAC, we plan to target specialist physicians (such as pulmonologists, gastroenterologists, otolaryngologists, and hepatologists) and suspicion of cancer clinics.

- ***Expanding access to our tests by pursuing reimbursement and coverage from payors.*** To help support reimbursement and coverage for our tests, we plan to seek FDA clearance or approval for Galleri following its planned initial launch as an LDT. We believe that enabling early detection of multiple cancer types early could drive significant value for healthcare stakeholders as the costs of cancer-related care for individuals diagnosed at later stages can be significantly higher than for those diagnosed at earlier stages.

- ***Continuing to enhance our core technology platform.*** We seek to continually enhance the performance and features of our tests, including seeking ways to improve sensitivity and reduce sequencing costs. We

also plan to grow our database of genomic and clinical data, which could lead to performance improvements for Galleri and DAC. We also continue to take a comprehensive, rigorous, and unbiased multi-omics approach to discover and evaluate additional signals that may enhance our test performance, including from cfRNA and urine cfDNA. We believe we may potentially benefit from adding some of these other features to complement our targeted methylation profiling platform.

- ***Broadening the applications of our technology platform.*** We are developing applications for our technology within cancer management, including for monitoring and diagnostic purposes, which currently include our potential products, such as minimal residual disease and other post-diagnostic tests. For minimal residual disease in particular, given the large number of oncology studies currently underway, we believe there is significant market potential for partnerships with biopharmaceutical companies in the post-diagnostic space. We also seek to enter into agreements with academic and industry partners to help expedite additional discovery efforts. Over time, we believe our platform capabilities may allow us to move into testing applications in additional disease areas beyond cancer.

- ***Maintaining a patient-first, entrepreneurial corporate culture that champions diversity.*** Our goal is to leverage our platform to help patients. To accomplish this goal, we aim to foster an entrepreneurial and inclusive culture for our diverse employee pool with expertise in biology, chemistry, bioinformatics software, drug discovery, development and commercialization.

Scientific Background

The burden of cancer

Cancer is the second leading cause of death globally and is estimated to become the world's leading killer. Based on a 2020 article by Angela B. Mariotto, et al. published in *Cancer Epidemiology, Biomarkers and Prevention*, it is estimated that $201 billion will be spent on cancer care in 2020 in the United States with some of the most costly treatments targeting late-stage cancer that remain highly challenging to cure. Given demographic shifts to an aging population, and rising costs of care, it is estimated that the costs of cancer care will reach $246 billion by 2030. The costs are projected to be highest at the end of life, and among those initially diagnosed with advanced disease.

A fundamental driver of cancer mortality is that most cancers are diagnosed too late, in advanced metastatic stages where outcomes are poor and cancer is incurable. In the U.S., only five cancers have guideline-recommended screening available. These cancers represent approximately 40% of the total cancer incidence in the U.S., yet only 15-20% of cancer diagnoses when test performance and compliance are accounted for, according to our own calculations based on 2006 to 2015 SEER data. While these screening programs have helped reduce cancer-specific mortality, 71% of all cancer deaths occur in cancers with no recommended screening, based on our own estimates using 2020 American Cancer Society Facts and Figures. The economic burden of cancer that results from years of life lost and lost productivity is estimated at $94 billion in earnings in the United States alone, based on a 2019 *Journal of the American Medical Association Oncology* study. Beyond the economic burden of cancer on society, the emotional burden on friends and family is immeasurable.

If cancer is detected early, when it is localized, it is more amenable to curative treatment. According to 2006 to 2015 SEER data, across all cancers, the five-year cancer-specific survival rate is approximately 89% when localized, compared to 21% when regional or distant spread has occurred. Based on population analysis using 2006 to 2015 SEER data, it was estimated that detecting cancers with distant metastases at earlier stages could potentially reduce cancer-related five-year mortality by at least 15-24%. The model was published in the AACR's *Cancer Epidemiology, Biomarkers and Prevention Journal* in March 2020.

Given the evidence of benefits from early cancer detection, it is well-recognized that early detection and intervention represents a significant opportunity to reduce cancer mortality. Since cancer is projected to become the world's leading killer, and currently screening interventions are unable to detect most cancers early, it is clear that we need a new war on cancer—a population-level multi-cancer screening test.

Requirements of a population level cancer screening test

We worked to develop Galleri with the following potential features, which we believe are essential to producing a cancer early detection test that is accepted as a broad-based screening test in an asymptomatic population:

- *Population-scale studies, robust data and rigorous analytics.* A screening test should account for non-cancer biological signals and the underlying heterogeneity of populations without cancer, which requires acquisition of large, diverse, well-characterized clinical sample sets, and world-class machine learning principles.
- *Accuracy: An analytically valid and locked assay is necessary to establish test performance.* In addition to identifying cancers, a screening test should also avoid over-diagnosis of indolent cancers to prevent potential overtreatment. Additionally, there are other common biologic processes and conditions, such as aging and inflammatory conditions, that may produce similar signals, or biological noise, that must be differentiated from a true cancer signal to enable a test with high enough specificity to be appropriate for screening.
- *Low false positive rate:* A multi-cancer early detection test that is being used in an asymptomatic population should have a low false positive rate across all cancers.
- *Localization of the cancer:* A screening test should assist in identifying the anatomic site or specific tissue of origin. We believe this requires interrogating the most information-rich alterations to cfNA across many cancer types, as well as including sufficiently large numbers of each cancer type, to develop machine learning classifiers that accurately detect cancer and localize the cancer.
- *Application to a diverse elevated risk population*: Because the risk of cancer increases significantly with age, the intended use of a multi-cancer early detection test should be an elevated risk population, such as those over the age of 50. In addition, the participants used to help validate the test should include broad populations, including diversity in age, gender, ethnicity, behaviors, non-cancer diseases, environmental exposures, confounding indications and other differences.
- *Complement to existing screening:* A multi-cancer early detection test should serve as a complement to conventional guideline-recommended screening, so as not to discourage adherence to current guideline-recommended screenings that have been proven to reduce cancer-specific mortality.
- *Reliable and reproducible results*: A screening test requires well-designed analytical and clinical validation studies that demonstrate reliable and reproducible results.
- *Simple and accessible*: A blood-based cancer detection test could significantly enhance patient access and compliance by reducing some of the barriers seen in individual cancer screening tests, including the time to schedule and obtain the screening test and access to specialists and equipment.

We believe Galleri could be the first product that meets each of these criteria, potentially unlocking substantial improvements in cancer care and mortality.

Detecting cancer in the blood

All cells contain DNA and RNA. These nucleic acids provide the genomic blueprint of an organism. The complete set of DNA for an organism is known as its genome. DNA is a double-stranded molecule composed of complementary pairs of nucleotide bases also known as base pairs. DNA is organized into long strands called chromosomes, and the DNA sequences encoded by these nucleotide bases within each chromosome constitute genes. A gene is “expressed” when the applicable coding portion of DNA is transcribed into messenger RNA, which is in turn translated into the corresponding protein. Proteins are integral components of the structure and function of the cell. A human cell contains tens of thousands of genes, each comprising thousands of DNA base pairs.

Changes to the genome are a hallmark of cancer, and the reason why cancer is often called a disease of the genome. Genomic sequencing can identify alterations in both DNA sequence and chromosomal structure that occur

with cancer and, therefore, distinguish between a cancerous cell and a healthy cell. Alterations to the DNA sequence in a cell, often referred to as mutations, can occur as a result of environmental exposure, defective processes in repair of damaged DNA, or errors during DNA replication. The types of changes that can result include alterations in nucleic acids (also referred to as single nucleotide variants, or single nucleotide variants), insertions of extra DNA sequences, deletions (loss) of DNA sequences, and structural changes to the DNA sequence (for example, large portions of DNA being joined to a DNA sequence located on another chromosome).

Each cell type in the body has a unique methylation pattern, or “fingerprint”, which enables evaluation of abnormal methylation patterns to identify the site of disease. Alterations to methylation patterns on a DNA strand can also occur. Methylation of our DNA plays a fundamental biological role. A methylation site is a location on the genome where a methyl group, made up of one carbon atom and three hydrogen atoms, is attached to a cytosine base along the DNA strand. Gene expression and cellular function are controlled by methylation patterns throughout segments of DNA. An abnormal methylation site is either hyper (normally not methylated but is methylated) or hypo (normally methylated but is not methylated). Modifications in methylation patterns can result in profound changes, including genes becoming overexpressed, resulting in excessive protein production, underexpressed resulting in reduced protein production, or silenced, sometimes triggering changes in cellular function leading to disease, including cancer. For example, hypermethylation of the regulatory region that activates a tumor suppressor gene can turn off expression and lead to tumor growth.

Nucleic acids can be shed from cells into the bloodstream. These short nucleic acid fragments are known as cfNA and come from nearly all cell types in the body, including normal cells, diseased cells, cancerous cells, and microbes such as parasites, bacteria, and viruses. The cfNA fragments shed into the blood can be sequenced using NGS approaches, and their exact sequences can be used to determine the location within the human genome they came from (or originated). When a person has cancer, the cancer cells’ DNA will be in circulation as part of the blood plasma in the form of cfNA. Cancerous tumor DNA in the blood is specifically referred to as circulating tumor DNA (ctDNA).

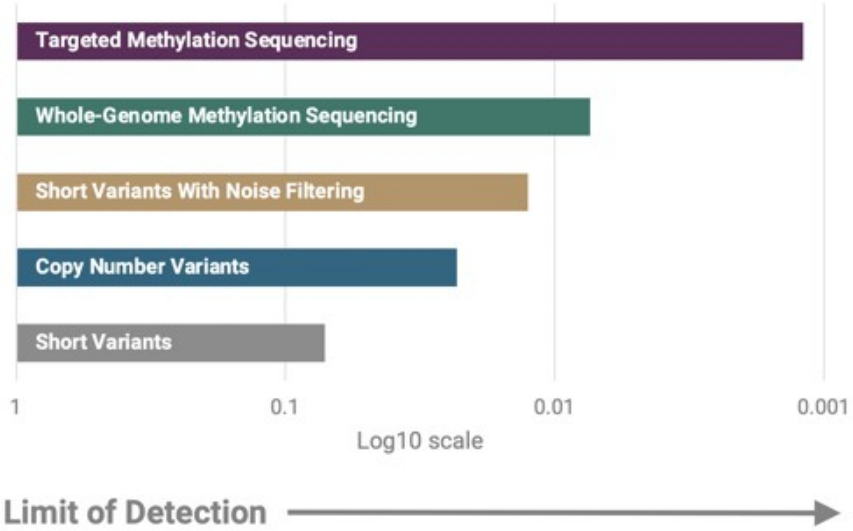
The ability to sequence cfNA isolated from blood allows for a direct interrogation of potential cancer, including methylation patterns, copy number variation, and single nucleotide variants. Sequencing cfNAs provides a direct measure of genomic changes, which are involved in virtually all cancers; therefore, the technology has great promise for development of a highly specific test for the early detection of multiple types of cancer in a single blood test. However, to successfully develop cfNA sequencing technology into an effective early detection test, a number of technical, biological, and clinical challenges must be overcome. Due to the very small amount of ctDNA present in a blood sample, the sequencing assay must achieve a sufficiently low limit of detection (LOD) to capture signals that are derived from a tumor and be able to distinguish this signal from noise in a population of asymptomatic individuals with other confounding conditions.

We invested heavily in our discovery study to select our methylation technology

In CCGA-1, the first sub-study of our foundational CCGA study, we took a multi-omic approach and investigated various NGS approaches for the detection of cancer in approximately 2,800 participants. The goals of CCGA include development and evaluation of models to distinguish cancer from non-cancer cfDNA and identification of classifiers for the cfDNA localization of cancer signals. By enrolling people who have cancer and people who do not, we are able to characterize cfDNA profiles by tumor type and tumor stage, and compare these signals to participants without cancer. The non-cancer participants included individuals with varied age, sex, ethnicity, cancer risk factors such as smoking status and body mass index and comorbid conditions, increasing the generalizability of this population.

In CCGA-1, we developed multiple prototype assays to identify and measure a wide variety of cancer genome signals that are reflected in cfNA. Our prototype assays included deep sequencing of large targeted panels to measure cancer detection through various approaches: single nucleotide variants and small variants to evaluate cancer-derived mutations; whole-genome sequencing to analyze somatic copy number alterations and fragment features such as length and endpoint; and whole-genome bisulfite sequencing (WGBS) to identify methylation patterns.

Data showed that whole-genome methylation patterns out-performed the other features. Additionally, the methylation assay performed better at localizing the cancer signal. After comprehensive analysis of whole-genome methylation patterns, we discovered highly informative and low noise methylation regions for cancer signal detection and localization. Based on these results, a more efficient version of our methylation technology was advanced into further development, using a targeted methylation approach that had superior performance and lower costs compared to whole-genome methylation. The graphic below shows that our target methylation assay had a LOD of approximately 0.1% which is significantly lower compared to other NGS approaches we assessed. LOD is the tumor fraction (or the estimated fraction of tumor genomes in a cfDNA sample) at which the probability of detecting the cancer is at least 50%.



We believe the performance advantage of ctDNA methylation is largely due to its biological characteristics, which make it more robust at low signal-to-noise ratios. In contrast to typical cancer mutations that only affect a handful of genomic locations, there are nearly 30 million methylation sites across the human genome, making them a ubiquitous and rich signal for detecting cancer. It is also less limited by biological noise or technical noise. When localizing tissue of origin, methylation signals inherently reflect tissue differentiation and malignant cancer states which makes it significantly more informative.

Data from CCGA-1 were shared in several oral and poster presentations at multiple major medical conferences in 2018, including the AACR Annual Meeting, the ASCO Annual Meeting, and the ESMO 2018 Congress.

Measuring the Effectiveness of Screening Tests: Benefits and Harms

The sensitivity, true positive rate, specificity, and true negative rate of a test, together with the prevalence of disease in the population, enable a calculation of PPV. PPV is the percentage of participants with a positive test result who truly have the disease, and is a more relevant metric in population-based screening approaches, as it is heavily affected by the prevalence of a disease. For any given test, as prevalence decreases, the PPV decreases because there will be more false positives for every true positive. We believe PPV is the most clinically relevant metric for a multi-cancer screening test, as physicians are unaware of a patient's cancer status when test results are returned.

Comparison of PPV to existing USPSTF-recommended screenings

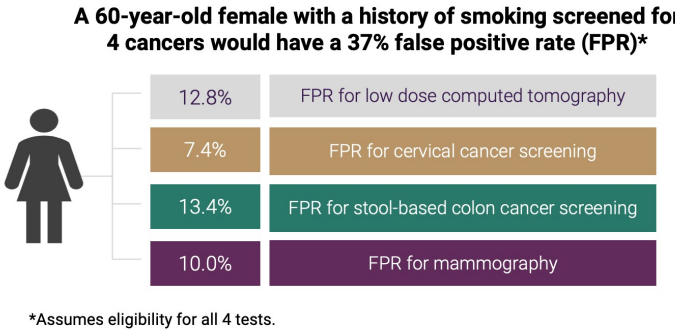
Based on performance of Galleri in CCGA-2, extrapolating to a population aged 50-79 representative of the 2006 to 2015 SEER data, we estimate PPV and the number of false positives associated with Galleri compared to the five USPSTF recommended screening tests as follows:

Cancer	Testing Method	Positive Predictive Value (%)	# of False Positives (per million tests)
Early version of GALLERI	Blood test	43%	7,000
Breast	Mammography	4.4%	100,000
Cervical	Cytology /HPV test	19%	74,000
Colorectal	Colonoscopy	Gold Standard	
	Stool-based screening (FIT)	1.2%	123,000
Prostate	Blood Test	30%	100,000
Lung	A low-dose CT scan	3.8%	128,000

A 1% change in specificity has a dramatic impact on PPV and the number of false positives a test generates. For example, based on data from CCGA-2 extrapolated to a general population based on the 2006 to 2015 SEER data, a 1% change in specificity from 99.3% to 98.3% would reduce the PPV from 43% to 24% and this change would create an additional 9,900 false positives in a screened population of 1 million people. This emphasizes the need to retain high specificity when developing a screening product. This problem of false positives is further compounded when several tests are needed to screen the patient for a disease.

We need to shift from screening for individual cancers one at a time to screening an individual for all cancers.

Using a multi-cancer early detection test could enable a substantive reduction in the cumulative false positive rate, potentially reducing the harm from screening. When an individual is screened for more than one type of cancer, that individual receives the potential benefit of earlier detection for each cancer, but the risks of false-positive results from each single screening modality are also independent, exposing the patient to additional risk. For example, based on data from numerous sources, including a 2018 *Journal of the American Medical Association* article by Joy Melnikow, et al. and a 2015 *Annals of Internal Medicine* article by Paul F. Pinsky, et al., a 60 year-old female with a smoking history has a 37% cumulative false positive risk from the currently indicated cancer screens, as depicted in the diagram below:



In CCGA-2, Galleri achieved high specificity (99.3%), or a single low false positive rate of less than 1%. We expect that Galleri would result in a substantially lower false-positive rate as compared to a basket of single-cancer tests, thus resulting in fewer unnecessary follow up procedures.

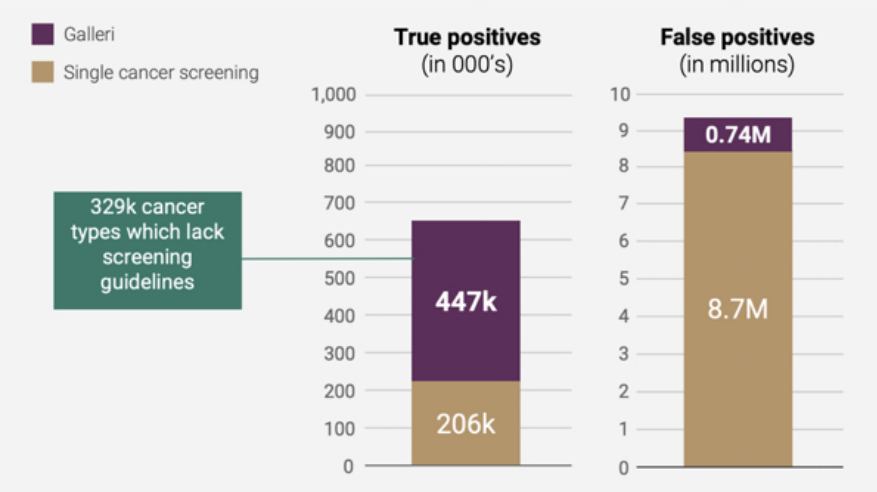
Modeled benefits of our multi-cancer early detection test

We have developed a cancer epidemiology forecast to estimate the potential impact of multi-cancer early detection testing on cancer stage shift and mortality reduction. Based on the performance of Galleri in our CCGA-2 study and using 2006 to 2015 SEER data, our model estimates that by adding Galleri to diagnosis by usual care, there is potential to lead to the detection of nearly 70% of cancers resulting in death within five years at an earlier stage.

The potential benefits of Galleri are evident from the heavy burden of Stage IV cancer diagnosed in the United States at present. We showed that the estimated reductions in absolute cancer-related deaths that could occur are large if cancers diagnosed at Stage IV were instead diagnosed at Stage III. In this scenario, after applying the corresponding survival rates for Stage III cancers from the 2006 to 2015 SEER data, 51 fewer cancer-related deaths would be expected per 100,000, a reduction of 15-24% of all cancer-related deaths. These data were published in the AACR's *Cancer Epidemiology, Biomarkers and Prevention* Journal in March 2020.

Cancers detected if our multi-cancer test is added to existing guideline screenings

Based on the performance of Galleri in our CCGA-2 study and 2006 to 2015 incidence data from SEER, our model estimates that in a population of 107 million, by adding Galleri to the five guideline-recommended screenings, an additional 447,000 cancers could be detected, of which 329,000 are in cancer types which lack recommended screening tests. Our model shows that Galleri could lead to the detection of many more cancers with only 8% more false positives. As data are available, this analysis includes compliance adjusted detection rates for the guideline-recommended screening tests, but not for the GRAIL test, as depicted in the diagram below:

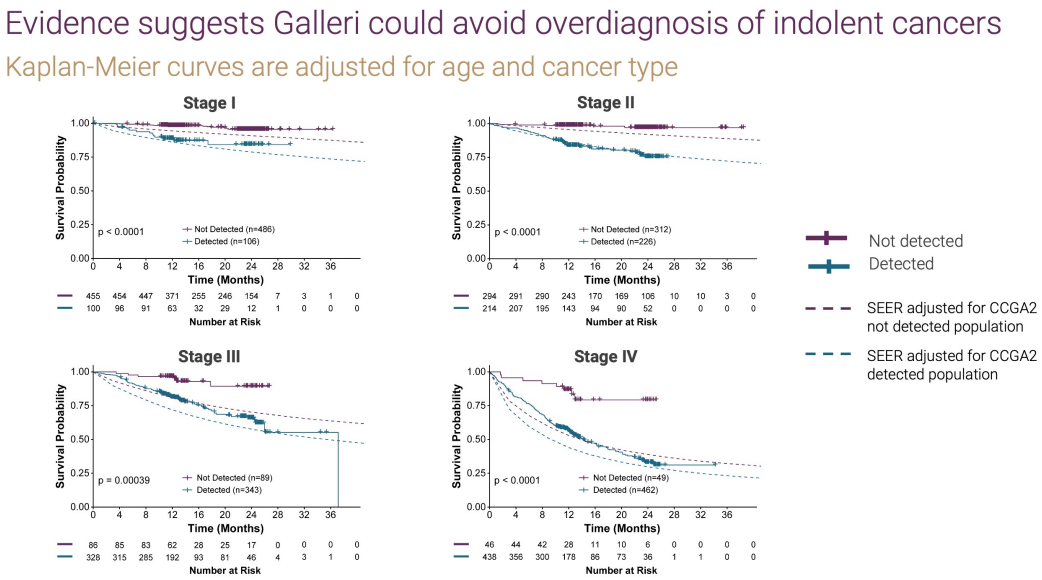


Assumes population of 107 million (number of individuals age 50-79 in the United States).

Mitigating concerns of treatment of over-diagnosing indolent cancers

Early data from our CCGA study presented at the 2019 American Society of Clinical Oncology (ASCO) Annual Meeting suggests an earlier version of Galleri detected the strongest signals for the most aggressive cancers, while detection of signals for indolent cancer types was low. Based on the Kaplan-Meier tables below, which show

survival over time, detected cancers appeared to have a similar prognosis to that expected based on 2006 to 2015 SEER data, whereas cancers not detected by Galleri had a more favorable prognosis than would be expected. At any given stage, survival was worse for cancers detected by Galleri, as shown in the figure below, where the blue curves, which represent the detected cancers, are steeper than the purple curves, which represent the undetected cancers. Because this effect could be influenced by the types of cancers being evaluated, we adjusted for the age and cancer type distribution reported in the 2006 to 2015 SEER data, and showed that this result is consistent if our detection rate were applied to the cancer and age distribution present in the 2006 to 2015 SEER data (represented by the dashed lines in the figure below). These findings were consistent across stages of cancer. This suggests that indolent cancers are unlikely to be detected by Galleri, and Galleri could potentially reduce the potential harms from treatment of over-diagnosed cancers. The p-value measures the likelihood that this result might be due to chance. The smaller the p-value, the less likely these results are due to chance (for example, a p-value = 0.001 means that there is a 0.1% probability that the result is purely due to chance). The small p-value reflects both the magnitude of the difference as well as the large sample size. Confirmatory data in larger datasets are needed, but these findings are biologically consistent with evidence suggesting that indolent, less aggressive cancers are less likely to shed DNA into the blood.



Our Products and Commercialization

Our multi-cancer early detection test – Galleri

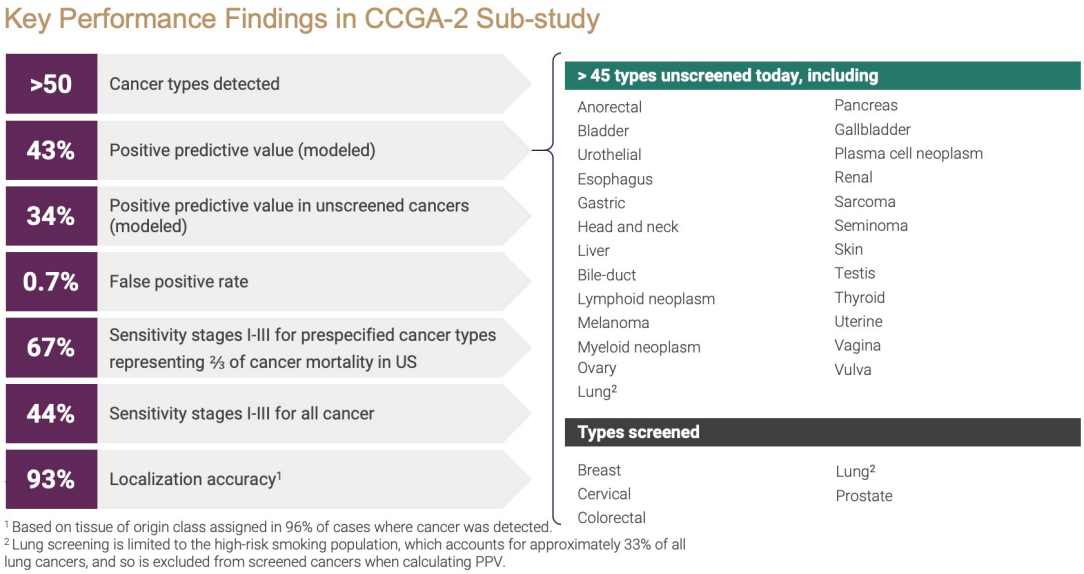
We believe our first anticipated commercially available product, Galleri, has the potential to transform cancer care and population health. We anticipate the commercial launch of Galleri as a laboratory developed test (LDT) in 2021.

The most pressing unmet need in cancer early detection is to identify cancers for which there are no existing recommended screening tests. Galleri is designed to detect unscreened cancers and to complement the USPSTF-recommended screenings (specifically, lung for high-risk smokers, breast, cervical, prostate, and colorectal cancers have recommended screenings) to improve overall population cancer detection. Lung cancer represents the most common killer among cancers, but recommendations for lung screening are limited to the high-risk smoking population, which accounts for approximately 33% of all lung cancers. Hence, there is no effective screening in place for the vast majority of lung cancer diagnoses. The Galleri test report would also report cancers that do have recommended screenings. Because the risk of cancer increases significantly after age 50, we expect the use of Galleri to be concentrated in an elevated risk population, for example, in individuals over the age of 50.

We expect the following potential features of Galleri will help demonstrate clinical utility and facilitate physician adoption of the product:

Performance Data

In calculating the performance data in the table below, we used performance of the version of Galleri in the CCGA-2 substudy, as published in the *Annals of Oncology* in March 2020, restricted to the 50 and over population. CCGA-2 included approximately 6,700 total participants across validation and training sets. For the calculations, we used a 99.3% specificity and observed sensitivity from CCGA-2 by cancer type. For the PPV of unscreened cancers, we included lung cancers as an unscreened cancer as lung cancer screening is only recommended in a high-risk smoking population, which accounts for approximately 33% of all lung cancers, and uptake is less than 15% in that population. We used the prevalence rate of cancer from 2006 to 2015 SEER data to calculate PPV. The pre-specified types of cancer that account for two-thirds of cancer mortality in the United States include anus, colon/rectum, esophagus, head and neck, liver/bile duct, lung, pancreas, gallbladder and stomach. Limitations in the performance findings include potential differences between the newly diagnosed cases in CCGA-2 and a pre-diagnosis population, and potential differences in the population electing screening from the population represented by 2006 to 2015 SEER data.



Galleri identified over 50 types of cancers, over 45 of which lack recommended screenings, and demonstrated a 66% detection rate of Stage II cancers for which there are no recommended screenings in those over the age of 50. Data showed that when our test detected a cancer, it was also able to localize the cancer signal with high accuracy. Early data also suggested that the test preferentially detected cancers requiring treatment, which could potentially reduce the problem of treatment of over-diagnosed cancers.

Robust evidence generation in an intended population

We have validated Galleri in a population that includes participants with confounding indications by enrolling in population-scale clinical studies to help detect cancer and non-cancer across broad populations, including diversity in age, gender, behaviors, non-cancer diseases, environmental exposures, and other differences. Understanding the signals associated with population diversity is important to our ability to account for biological noise and develop high-specificity tests. Our machine learning algorithms are trained to distinguish patterns of cancer from technical and biological noise. This approach is necessary to distinguish genetically heterogeneous cancer cfNA from other cfNA that are indicative of non-cancerous conditions. In March 2020, we published

validation data for an earlier-generation version of Galleri in the *Annals of Oncology*. The data showed performance of our test was consistent across training and validation sets, demonstrating the reliability and reproducibility of the test performance. In addition, as we develop enhanced versions of Galleri, we will validate the performance of these versions. For example, we are pursuing validation of a new version of Galleri in connection with, among other data, the PATHFINDER study and in CCGA-3.

Low false positive rate

In CCGA-2, Galleri achieved high specificity (99.3%), or fixed, single low false positive rate of less than 1%. Because the false-positive rate of each individual cancer screening test is typically independent of the false-positive rate of any other individual screening test, if a patient were to undergo multiple single-cancer screening tests, the false-positive rates could be additive. As Galleri is designed to test for multiple cancers all at once, we expect that it would have a substantially lower false-positive rate as compared to a basket of single-cancer tests, thus potentially reducing the number of unnecessary follow up procedures.

Highly accurate localization of cancer signals

In our CCGA-2 study, when a cancer was detected, Galleri provided the localization of the cancer signal for 96% of the samples, and of these, the test correctly localized the cancer signal in 93% of these cases. The ability to localize cancer signal to anatomic sites or specific tissues will support physician approaches to diagnostic resolution through existing workup pathways.

Early data suggest that Galleri may preferentially detect cancer requiring urgent treatment

Based on early data presented at the 2019 ASCO Annual Meeting, Galleri detected cancers appeared to have a similar prognosis to that expected based on 2006 to 2015 SEER data, whereas cancers not detected by Galleri had had a more favorable prognosis than would be expected based on 2006 to 2015 SEER data, controlling for age, cancer type and cancer stage. These findings were consistent across stages of cancer. This suggests that indolent cancers are unlikely to be detected by Galleri, and Galleri could potentially be an independent indicator of survival.

Simple blood draw

Our Galleri test is administered via a simple blood draw. We believe compliance with a blood-based screening test presents advantages as physicians would be able to order our Galleri with other tests as part of a routine physical examination or wellness examination. The ease of a simple blood test could enhance patient access and compliance by reducing some of the barriers seen in individual cancer screening tests, including the time to schedule and obtain the screening test and access to specialists and equipment.

Investment in enhanced versions of tests

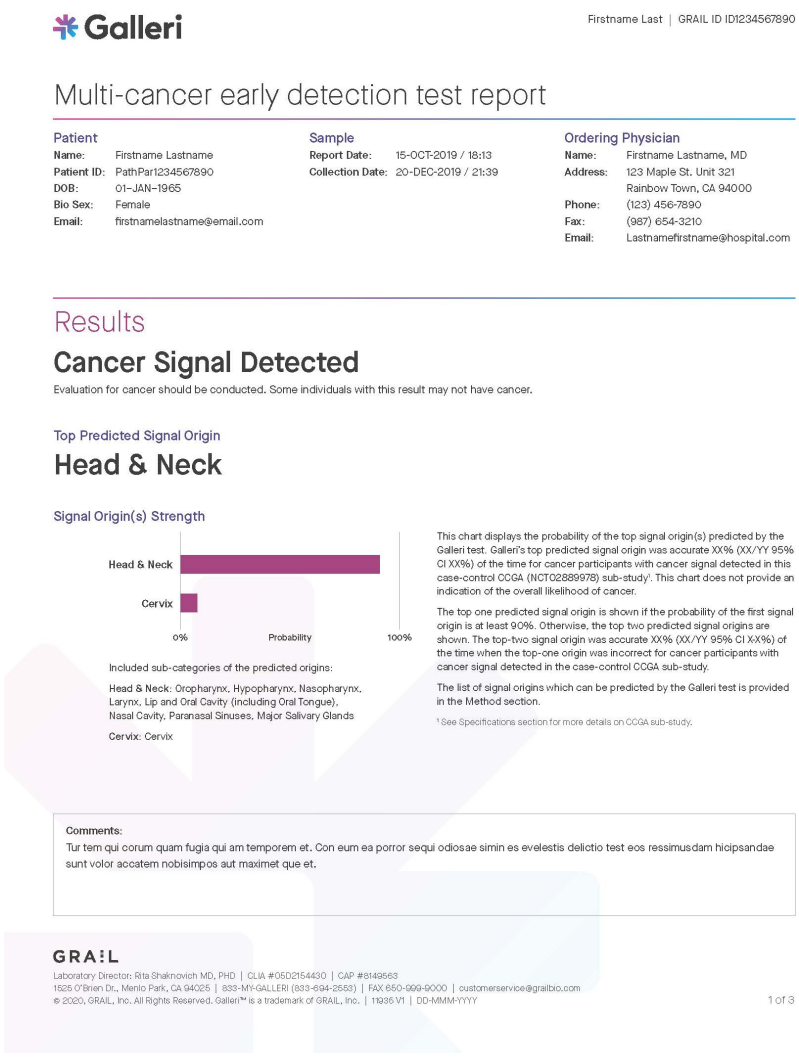
We seek to continually enhance the performance and features of Galleri. By further refining and selecting subsets of highly informative regions for cancer signal detection and localization to reduce panel size, we could achieve deeper coverage and lower sequencing costs. We also aim to further improve the sensitivity of our tests by obtaining deeper coverage and a better understanding of noise and leveraging even larger datasets to further develop our advanced biologically directed machine learning algorithms. We also continue to research and develop multi-omics technologies that have the potential to complement methylation through orthogonal biological information including additional analytes and biofluids such as RNA and urine. We believe RNA may provide an additional unique opportunity to detect cancer, predict the tumor tissue of origin, and determine the cancer subtype. As a result, we have developed a targeted cfRNA assay to study a panel of biomarkers for breast and lung cancers and evaluate their potential to complement methylation. In an early study, data suggested that cfRNA could help detect early stage HR-positive breast cancer and lung adenocarcinoma patients missed by methylation in a small cohort of commercially-sourced samples. We have developed an early platform for extraction of cfNA from urine that is compatible with processing through our targeted methylation platform. This will allow us to evaluate the potential of our technology to increase tumor fraction and improve sensitivity of certain urologic cancers.

Positive physician and patient experience

We are committed to optimizing the test experience for physicians and patients. We believe it is important that test-positive patients are supported as they navigate activities such as scheduling a confirmatory diagnostic procedure and considering therapeutic options.

Our product portal is designed to allow physicians to order our test and obtain patient consent electronically, which is efficient and also helps minimize errors and incomplete user information. Our software systems have the ability to integrate with third-party electronic medical record systems, helping to streamline the test ordering process.

We have developed a user-friendly test report that will be delivered through our secure web portal to licensed, ordering providers and will show whether or not a cancer is detected. If a cancer signal is detected, the test report will show the likely location of the cancer signal (including if multiple origins are detected, by probability of likelihood), as depicted in the sample test report below:


Galleri

Firstname Last | GRAIL ID ID1234567890

Multi-cancer early detection test report

Patient
Name: Firstname Lastname
Patient ID: PathPar1234567890
DOB: 01-JAN-1965
Bio Sex: Female
Email: firstnamelastname@email.com

Sample
Report Date: 15-OCT-2019 / 18:13
Collection Date: 20-DEC-2019 / 21:39

Ordering Physician
Name: Firstname Lastname, MD
Address: 123 Maple St. Unit 321
Rainbow Town, CA 94000
Phone: (123) 456-7890
Fax: (987) 654-3210
Email: Lastnamefirstname@hospital.com

Results

Cancer Signal Detected

Evaluation for cancer should be conducted. Some individuals with this result may not have cancer.

Top Predicted Signal Origin

Head & Neck

Signal Origin(s) Strength

Head & Neck
Cervix
0%
Probability
100%

This chart displays the probability of the top signal origin(s) predicted by the Galleri test. Galleri's top predicted signal origin was accurate XX% (XX/YY 95% CI XX%) of the time for cancer participants with cancer signal detected in this case-control CCGA (NCT02889978) sub-study[1]. This chart does not provide an indication of the overall likelihood of cancer.

The top one predicted signal origin is shown if the probability of the first signal origin is at least 90%. Otherwise, the top two predicted signal origins are shown. The top-two signal origin was accurate XX% (XX/YY 95% CI X-X%) of the time when the top-one origin was incorrect for cancer participants with cancer signal detected in the case-control CCGA sub-study.

The list of signal origins which can be predicted by the Galleri test is provided in the Method section.

[1] See Specifications section for more details on CCGA sub-study.

Included sub-categories of the predicted origins:

Head & Neck: Oropharynx, Hypopharynx, Nasopharynx, Larynx, Lip and Oral Cavity (including Oral Tongue), Nasal Cavity, Paranasal Sinuses, Major Salivary Glands

Cervix: Cervix

Comments:
Tur tem qui corum quam fugia qui am temporem et. Con eum ea porror sequi odiosae simin es evelestis delictio test eos ressimusdam hicipsandae sunt volor accatem nobisimpos aut maximet que et.

GRAIL

Laboratory Director: Rita Shaknovich MD, PHD | CLIA #05D2154430 | CAP #8149563
1525 O'Brien Dr., Menlo Park, CA 94025 | 833-MY-GALLERI (833-694-2553) | FAX 650-999-5000 | customerservice@grailbio.com
 | 11935 V1 | DD-MMM-YYYY

1 of 3

For patients who receive a “no cancer signal detected” result, our test report will remind individuals to continue with their standard-of-care cancer screening. For those with a “cancer signal detected” result, our methylation technology provides a predicted tissue localization, which is designed to help physicians determine the appropriate diagnostic workup. We are working with study investigators, key opinion leaders and clinical advisors to develop clear care pathways to help guide diagnostic workups. At commercialization, to support our large self-insured employers, we plan to have entered into agreements with a telemedicine provider that can order Galleri for employees when deemed medically appropriate by such provider and a phlebotomy partner to help support sample collection.

Commercialization

We intend for Galleri to be offered to patients at their existing standard-of-care cancer screening appointments. In those over age 50, Galleri demonstrated a 66% detection rate of Stage II cancers for which there are no recommended screenings. We believe Galleri has the potential to integrate directly into the healthcare delivered to individuals every year who are already going to a physician for their standard-of-care cancer screening. Over time, we expect adopting physicians to recommend our test to be ordered annually as part of an individual’s physical examination or wellness appointment, or when undertaking other screening examinations. Our market research indicates that based on our current test performance, there is a significant portion of the addressable market opportunity we can access even before approval under traditional fee-for-service Medicare reimbursement. While such approval would be needed for broad-based adoption, we expect such approval will take several years to obtain, if at all. We estimate there are 107 million individuals in the United States between the ages of 50-79, a significant segment of which is addressable in the channels we are targeting prior to achieving broad reimbursement.

Our goal is to achieve adoption of Galleri in the United States by:

- increasing market awareness of GRAIL, Galleri and the benefits of multi-cancer early detection;
- developing relationships with large self-insured employers and health systems to initiate early pilot programs and commercial relationships;
- marketing Galleri through concierge physician practices, executive health programs and wellness-based practices;
- pursuing coverage for Galleri with payors;
- implementing a comprehensive real-world evidence program for continued learning, evidence generation for clinical utility, patient outcomes and health economics, ongoing product improvement, and engagement with clinical leaders and partners; and
- partnering closely with the patient and provider advocacy communities to ensure we are taking the right approach to market development.

We have hired and are rapidly hiring additional personnel in our medical affairs and sales and marketing organizations, to engage with the scientific community to help drive awareness of Galleri and DAC as we anticipate commercial launch of these products as LDTs in 2021. Given that our tests could be the first of their kind to be offered in the United States, we believe physician and consumer education will be a key component of our strategy.

Reimbursement landscape for screening tests

Traditional fee-for-service Medicare does not generally cover screening tests, which are considered preventive services, that are performed in the absence of signs or symptoms of illness or injury except if there is a statutory provision that explicitly authorizes coverage of the test. The Medicare Improvements for Patients and Providers Act of 2008 authorizes CMS to cover additional preventive services that are not expressly covered by the statute if the service is (a) reasonable and necessary for the prevention or early detection of an illness or disability; (b) recommended with a grade of A or B by the USPSTF, an independent, volunteer panel of experts in the field of prevention, evidence-based medicine and primary care, and (c) appropriate for Medicare beneficiaries under Part A

or Part B. CMS establishes coverage through a national coverage determination (NCD) process. In its discretion, the USPSTF generally waits for FDA authorization before it considers undertaking review of novel technology.

Because multi-cancer early detection is not expressly authorized for coverage by the Medicare statute, a possible pathway for reimbursement is to first obtain FDA authorization, and then obtain a grade of A or B from USPSTF, to enable CMS to issue a NCD. The last cancer screening test to receive a recommendation from USPSTF with an A/B grade and obtain Medicare coverage was low-dose CT for high-risk smokers to screen for lung cancer in 2015.

We are exploring all reimbursement pathways to obtain broad Medicare coverage for Galleri, including working with payors, regulators and policy-makers to explore pathways for coverage and reimbursement. We plan to launch Galleri as an LDT. We plan to pursue approval by FDA of Galleri (or a subsequent, enhanced version of Galleri) by submitting a premarket approval application (PMA) as early as 2023, which we believe will be a requirement prior to certain significant payors, including Medicare, considering coverage of our test. All of these steps could take several years to complete. Accordingly, Galleri will likely not be covered or reimbursed by Medicare for a number of years because currently, coverage decisions for preventive services are not made prior to FDA approval.

Our commercial strategy prior to obtaining Medicare coverage and reimbursement

By demonstrating clinical and economic utility before obtaining broad coverage, we plan to facilitate adoption in the following key channels:

- **Large, self-insured employers (estimated total addressable U.S. market: 24 million people).** We are targeting self-insured employers with an estimated market of approximately 24 million people over the age of 50 in the United States. Many of these are companies known to offer compelling and innovative health care offerings as part of a way to attract and retain employees. Employers care about their employees and their dependents, and want them to be healthy, working, and productive. It is recognized that both absenteeism and presenteeism (ability to be productive while at work) are important drivers of a productive workforce. As healthcare costs continue to escalate, many employers are looking for greater value from their healthcare related expenditure. Moreover, health benefits have become increasingly important to employees in differentiating corporate benefits and are increasingly important to employers in recruiting and retaining employees. Cancer is one of the top healthcare expenditures for self-insured employers, thereby making early cancer detection a focus area given treating localized cancers are on average half the cost of treating late-staged cancers. We believe our test offering would lead to the detection of a number of early cancers and contribute to improved health outcomes for employees. Other companies, including those providing digital disease management offerings, by contracting with large employers, have been able to gain broad market acceptance and adoption despite lacking Medicare coverage and reimbursement by demonstrating overall healthcare cost reductions and improved clinical outcomes.

- **Progressive, integrated health systems (estimated total addressable U.S. market: 27 million people).** By helping detect signals for cancer early, Galleri has the potential to improve population health. Many of the nation’s premier healthcare institutions have robust programs in population health management and precision medicine. We believe these programs lend themselves to innovative partnerships with us. In addition, by leading to the detection of more cancers, we believe health systems would not only have the potential benefit of improved health for patients but could also gain revenue from diagnostic workup and treatment of the detected cancers. One of our planned strategies upon commercial launch is to offer Galleri at select certain regional health systems, which could help them to attract new patients by offering a comprehensive cancer screening service that is not available at competing health systems in the region.

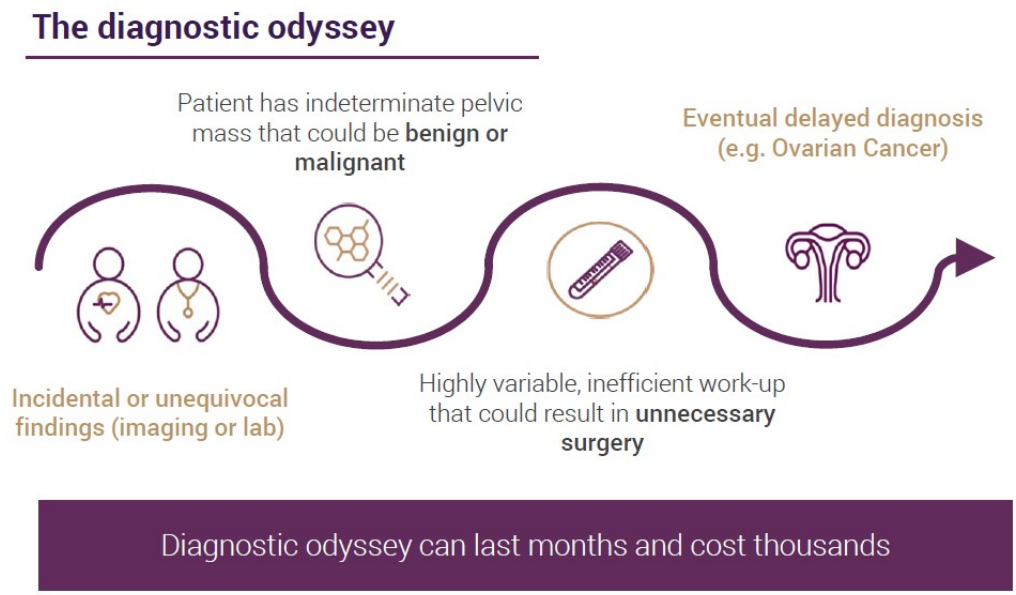
- **Physician-directed channels, including concierge practices and executive health programs (estimated total addressable U.S. market: 1 million people).** We believe Galleri could be compelling to physicians whose clients are focused on preventive health and wellness and have the financial means to enroll in these programs. In addition, with the growth of the oldest populations in the United States, there has been increased focus on cancer. The physician practices we are targeting are known to offer innovative, cutting-edge health offerings and market research suggests the members are willing to invest in differentiated and

leading healthcare. Through telemedicine, health conscious individuals will be able to ask their physician to order the test for them without necessitating a doctor's visit. We believe there are approximately 1 million people in the United States who have a concierge doctor or participate in an executive health program. Initial engagement with these practices has been positive, with several contracted practices in advance of our launch of Galleri.

We are also in discussions with health plans and insurance groups to engage in pilot programs to demonstrate the potential economic and clinical utility of Galleri. These plans include Medicare Advantage plans, which generally must cover all of the services that traditional Medicare covers, but they have the discretion to offer their enrollees additional or supplemental benefits not otherwise covered under traditional Medicare, including those enrollees may elect to pay extra to receive coverage. We believe a number of health economic studies we are conducting could also support the economic impact of Galleri in the long term as a way to reduce overall healthcare costs and overall spend in these plans and insurance groups.

Our initial commercial focus will be in the United States. However, we believe markets outside the United States could present significant market opportunity. For example, we believe countries with single national payors may be interested in our technology due to its potential to enable more efficient utilization of healthcare resources and potentially reduce cancer-specific mortality across the population.

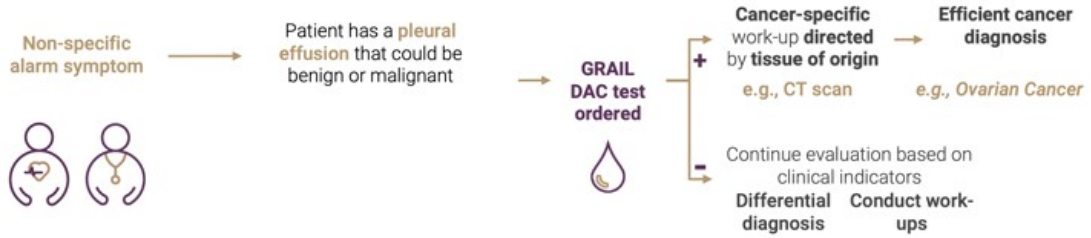
Diagnostic Aid for Cancer Test



Every year in the United States, more than 12 million patients are subject to potentially invasive and time- consuming diagnostic workups. We estimate 2.4 million of these patients are already referred to a specialist doctor for a cancer diagnostic workup, and this represents our initial addressable market for DAC in the United States. Many of these patients, particularly those with non-focal symptoms, undergo several months of tests before they receive a cancer diagnosis. Our engagement with physicians indicates they would value tools to help triage cases with non-localizing concerning signs and symptoms, equivocal imaging or lab findings, where biopsy may be challenging due to anatomy or concurrent medical conditions, or where there has been other failure to make a diagnosis. To accelerate diagnostic resolution for patients with a clinical suspicion of cancer, we are developing DAC to help physicians achieve resolution quickly and cost effectively. We will initially focus our commercial efforts on specialist physicians (such as pulmonologists, gastroenterologists, otolaryngologists, and hepatologists)

and suspicion of cancer clinics. We expect to launch DAC as an LDT in the second half of 2021 after our launch of Galleri.

In addition to helping physicians obtain a diagnosis more quickly when a cancer is detected, DAC is designed to provide more detailed information about the localization of the cancer signal, potentially reducing the scope, cost and length of time associated with diagnostic workups absent DAC. A hypothetical clinical scenario demonstrating how DAC might be used in this manner is shown below:



In the diagram below, we modeled the estimated performance of DAC based on results from the CCGA-2 clinical study in a hypothetical population of 1000 individuals. We assumed the distribution of cancers in this hypothetical population to be similar to data from the Multidisciplinary Diagnostic Centre pilot study conducted from 2016 through 2018 in the United Kingdom jointly funded by Cancer Research UK and the National Health Service, which pilot study population consisted of patients referred by their general practitioner because of non-specific but concerning symptoms that could indicate cancer. The estimated performance of DAC in the hypothetical population was based on results from the CCGA-2 clinical study in a sub-cohort of patients enrolled with clinically presenting cancers. We estimated PPV and NPV of DAC at three levels of cancer prevalence (3%, 30% and 50%). PPV is the probability that there is truly a cancer present when the test is positive, and the NPV is the probability that there is no cancer present when the test is negative. Both PPV and NPV vary with disease prevalence. In this model, we assumed a population size of 1,000 individuals at cancer prevalences of 3%, 20% and 50%. The “number needed to test” is the estimated number of tests needed to detect one cancer.

Pretest probability combined with DAC may enable clinicians to make better actionable decisions

Population with increased cancer prevalence

1,000

GRAIL DAC

99.3% specificity
59.3% sensitivity
Localization

	Results from CCGA2 study		
Pretest Probability	3%	20%	50%
Cancers	30	200	500
Diagnosed cancers (True positives)	18	119	297
False positives	7	6	3
PPV	72%	95%	99%
NPV	99%	91%	71%
# Needed to test to find one cancer	56	8	3

More than 10 million of the over 12 million patients that are subject to potentially invasive and time-consuming diagnostic workups present with non-specific signs and symptoms to primary care physicians. There are numerous causes for these symptoms, including cancer, and primary care physicians either initiate diagnostic odyssey while others may refer these individuals to specialists. We believe an enhanced version of DAC will be a useful aid to help primary care physicians better determine next steps. To support our launch of DAC as an LDT, we plan to validate

our test using samples from our CCGA study, which has completed enrollment and is in ongoing follow-up. We plan to conduct additional clinical studies in individuals with concerning non-specific symptoms, but who are not currently indicated for a cancer workup, in an effort to expand the adoption of DAC in this population. We anticipate initiating this study in the first half of 2021, and subject to favorable results, we expect potential uptake of DAC in this expanded patient population as early as 2023.

We believe that the health benefit of a targeted and faster diagnosis could support reimbursement and coverage of DAC as a medical benefit. DAC is intended to be a diagnostic product, and we believe we could obtain Medicare coverage and reimbursement in the next several years.

Future product opportunities

Our platform has provided us with insights into cancer biology that have helped us develop potential products for post-cancer diagnostic uses and could help fuel enhanced versions of Galleri and DAC. As we study additional analytes and grow our data sets with additional real-world data collected with use of our tests, we seek to develop additional applications of our platform.

Minimal residual disease and recurrence monitoring

We believe that our technology platform could address current challenges with MRD testing, which is used in pharmaceutical trials and clinical settings to detect the presence or absence of residual disease and inform treatment decisions, including identifying patients who may be eligible for adjuvant therapy. There are numerous companies that have commercialized MRD products. The majority of these currently available tests require tissue samples, and processing time can take over three weeks. These tests typically require development of patient-specific assays after tissue sequencing, which complicates the workflow, contributes to the long turnaround time and has the potential to delay treatment decisions.

We believe our technology could enable a blood-based MRD detection solution without the need for a personalized assay. Importantly, this would reduce operational complexity and enable delivery of results in approximately 10 days as compared to multiple weeks with current tissue-based approaches. Because sensitivity in this setting is critical, we are developing a flexible approach to perform personalized analysis that can be informed by a baseline plasma sample or tissue, if available. We believe that this approach could provide comparable sensitivity to current bespoke assay approaches and potentially provide us with a timing and complexity advantage. We have not validated our MRD test and will need to conduct clinical studies in order to do so. We are seeking to validate the performance of our test in MRD settings in collaboration with pharmaceutical partners and we anticipate reporting data from these initial studies in the first half of 2021.

We believe the MRD setting represents a significant opportunity with biopharmaceutical companies given the estimated 1,800 ongoing oncology studies as of July 31, 2020 and the significant need to identify residual disease or recurrence early to help inform treatment decisions.

Patients with cancer, primary or metastatic, following completion of therapy, often require monitoring for possible progression. Many metastatic patients may remain on maintenance therapy during the remainder of their lives or are routinely monitored for cancer recurrence. We believe our MRD test could also help monitor for early signs of cancer recurrence in cancer survivors. Recurrence monitoring can be used to identify signs of early progression as well as therapeutic response or non-response and to guide further workup of the patient. Often patients are monitored with imaging or other modalities that may not detect recurrence as efficiently as a blood test due to both imaging intervals and insensitivity for very small tumors. Following a potential launch of our MRD test, we plan to develop a recurrence monitoring and therapy response test to serve this market, which we estimate to include over 16.9 million cancer survivors in the United States.

Potential enhancements to Galleri and DAC

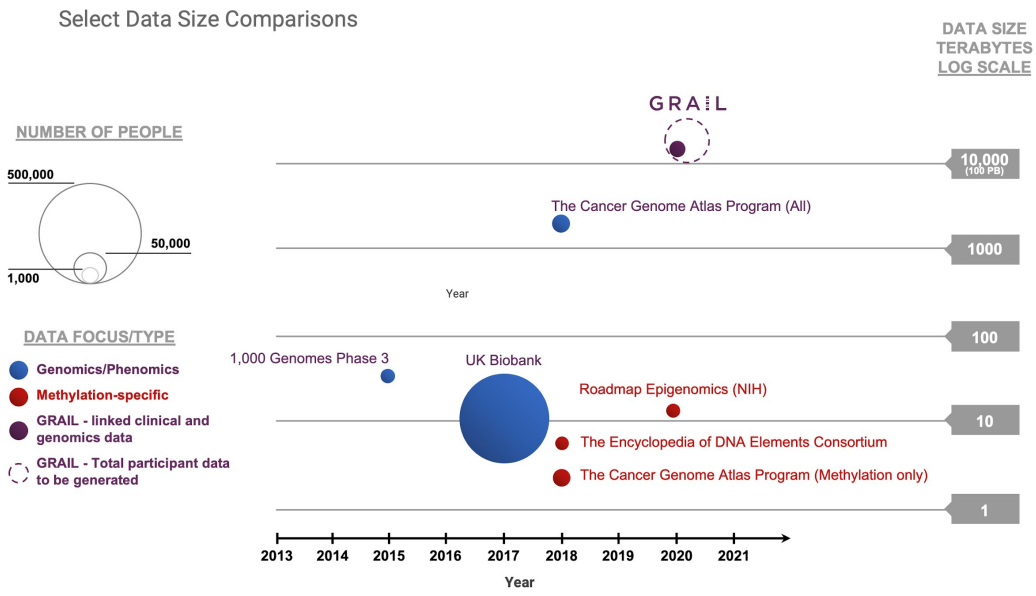
We seek to continually enhance the performance and features of our tests, and invest in enhancing our core targeted methylation platform through improvements designed to achieve higher efficiency and scalability. We also aim to further improve the sensitivity of our tests by obtaining deeper coverage and a better understanding of noise

and leveraging even larger datasets to further develop our advanced biologically directed machine learning algorithms.

Beyond improvements to our methylation technology, we also continue to research and develop multi-omics technologies that have the potential to complement methylation through orthogonal biological information including additional analytes and biofluids such as RNA and urine. We believe RNA may provide an additional unique opportunity to detect cancer, predict the tumor tissue of origin, and determine the cancer subtype. As a result, we have developed a targeted cfRNA assay to study a panel of biomarkers for breast and lung cancers and evaluate their potential to complement methylation. In an early study, data suggests that cfRNA could help detect early stage HR-positive breast cancer and lung adenocarcinoma patients missed by methylation in a small cohort of commercially-sourced samples. We have developed an early platform for extraction of cfNA from urine that is compatible with processing through our targeted methylation platform. This will allow us to evaluate the potential of our technology to increase tumor fraction and improve sensitivity of certain urologic cancers.

Capabilities and future research

With respect to product development, we believe we are only in the beginning of our journey. Our rigorous, comprehensive, and multi-omics discovery efforts have already enabled us to build unique technologies and develop a powerful platform for early detection. Moving forward, we will continue to research and develop technologies that have the potential to complement and enhance our capabilities. We believe that our multi-omics technology platforms, including, for example, our technology related to interrogating mutations, chromosomal alterations and RNA could generate additional product opportunities, including for diseases other than cancer. We have conducted early research and development in areas such as immunology. In addition, we have approximately 100,000 participant samples and longitudinal data from our STRIVE clinical study, the large proportion of which we may use for any type of research, including with collaboration partners. We plan to augment our existing data sets with additional clinical trials and studies over time as well as data obtained through commercial use of our tests and our patient registry. We believe these additional datasets could potentially drive improved performance and functionality of our technology platform. We also plan to leverage relationships, including with academic and industry partners, to help expedite bringing potential new applications of our technology to market. The diagram below represents the magnitude of our data—over 12.5 petabytes of unprocessed, high quality, genomics data:

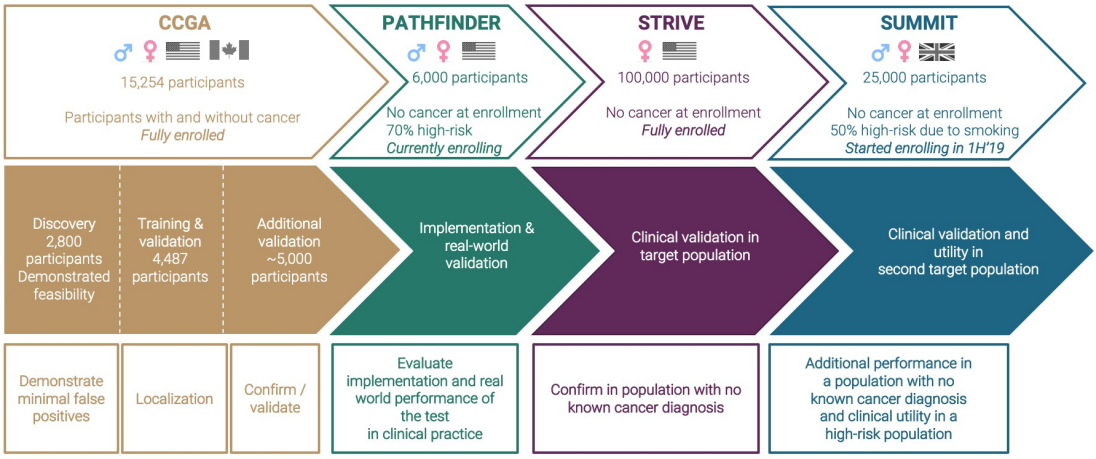


Our Clinical Studies

We believe we are building one of the largest data sets of linked demographic, clinical, and genomic information through our foundational clinical trials for which more than 115,000 subjects are already enrolled. As of August 31, 2020, we have reported clinical study data using samples from approximately 9,500 participants. Together with our partners at leading academic cancer institutions and large community networks, we have initiated large, prospective, multi-center clinical studies to support development of our technology platform which has led to Galleri and DAC.

Our studies include the collection of blood and, as available, tissue samples, demographic data, patient-reported data, and clinical medical data from participants. Clinical information, demographics, and medical data relevant to cancer status are collected from participants at time of enrollment and at regular intervals during a follow-up period. We integrate this information with the data created from sequencing the samples and utilize these data to both train and validate our early cancer detection tests with a pre-specified statistical analysis plan. Importantly, these are longitudinal studies and, in many cases, participant medical information will be kept current for a number of years.

Our clinical studies are summarized in the table below:



Importantly, these studies provide our assays and algorithms with inputs generalizable to the intended use population's diversity across multiple characteristics including age, gender, behaviors, non-cancer diseases, environmental exposures, and other differences. We believe understanding and cataloging this diversity will enable us to develop tests with high-specificity cancer signal identification.

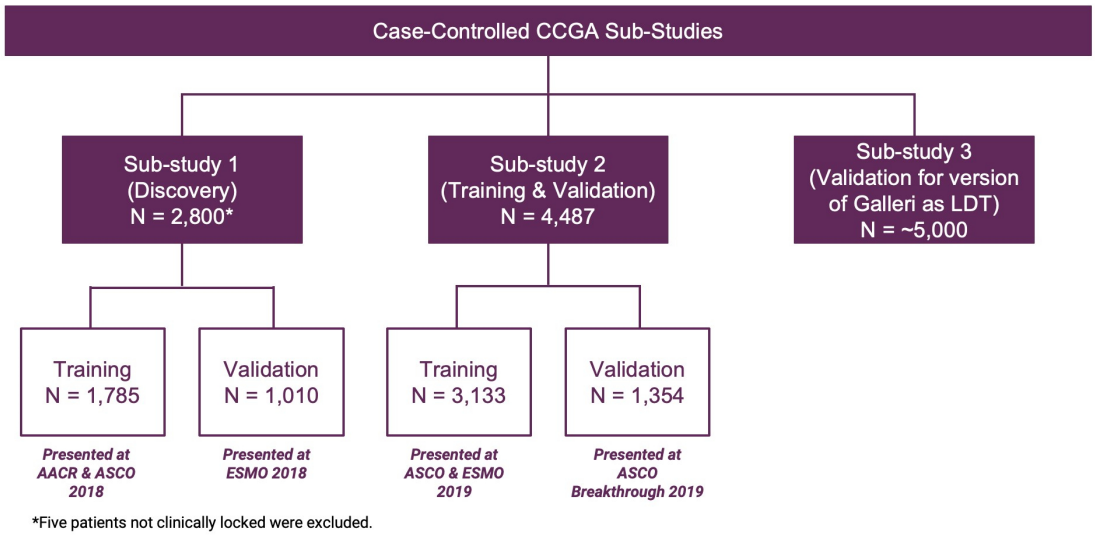
Circulating Cell-Free Genome Atlas Study

CCGA is an observational, case-controlled study with longitudinal follow-up that enrolled 15,254 participants, 56% with newly diagnosed cancer inclusive of both early- and late-stage disease, and 44% without a known diagnosis of cancer. The study is being used to discover, train, and validate Galleri and DAC, and to date we have used samples from approximately 7,287 participants for such purposes. We completed enrollment of our CCGA study in February 2019, and follow-up on participants is ongoing.

The goals of CCGA include development and evaluation of models to distinguish cancer from non-cancer cfDNA and identification of classifiers for the cfDNA localization of cancer signals. By enrolling people who have cancer and people who do not, we are able to characterize cfDNA profiles by tumor type and tumor stage, and compare these signals to participants without cancer. Understanding the signals associated with population diversity is important to our ability to account for biological noise and develop high-specificity tests. Our machine learning algorithms are trained to distinguish patterns of cancer from technical and biological noise. This approach is

necessary to distinguish genetically heterogeneous cancer cfNA from other cfNA that are indicative of non-cancerous conditions. As a result, we sought to enroll participants with confounding indications across broad populations, individuals with varied age, sex, cancer risk factors such as smoking status, body mass index and comorbid conditions, to increase the generalizability of this population.

We are evaluating data from the CCGA study in three sub-studies, each as described below.



CCGA-1

In CCGA-1, our first CCGA sub-study of approximately 2,800 participants, we investigated various approaches for the detection of cancer and the localization of cancer signals, including through interrogation of cancer-derived mutations (single nucleotide variants and small variants), chromosome alterations (copy number and fragment features such as length and endpoint analysis through whole-genome sequencing), and methylation patterns (through WGBS). The data showed that WGBS (the methylation-based assay studied) outperformed the other prototype assays. Additionally, the methylation-based assay performed better at localization of the cancer signal. After comprehensive analysis of whole-genome methylation patterns, we discovered highly informative and low noise methylation regions for cancer detection and signal localization. Based on these results, an enhanced version of our methylation technology was advanced into further development, using a targeted methylation approach that had superior performance and lower costs compared to whole-genome methylation. Data from this sub-study were shared in several oral and poster presentations at multiple major medical conferences in 2018, including the AACR Annual Meeting, the ASCO Annual Meeting, and the ESMO 2018 Congress. Many of the cancers detected with high sensitivity were associated with high mortality (greater than 50% five-year cancer-specific mortality).

CCGA-2

The primary objective of the CCGA-2 was to train and validate a classifier for cancer versus non-cancer and localization of cancer signal utilizing an improved version of our targeted methylation assay. The second pre-specified CCGA sub-study included approximately 6,700 total participants across validation and training sets, with 4,487 participants from CCGA and 2,202 from STRIVE. Of the total participants, 2,482 participants had previously untreated cancers and 4,207 participants did not have cancer). More than 50 primary cancer types across all clinical stages were represented.

Results of the CCGA-2 sub-study were published in the *Annals of Oncology* in March 2020 and demonstrated that Galleri could detect multiple types of cancer, including many cancers that lack recommended screenings, from a single blood draw with very high specificity. Data was evaluated in both training and test sets, and performance was

comparable across the two analyses. At greater than 99% specificity, Stage I-III sensitivity for a pre-specified set of 12 deadly cancer types, that together account for approximately 63% of U.S. cancer deaths annually, was approximately 67% and for all cancers was approximately 55%. The localization of the cancer signal was identified correctly in more than 90% of positive tests.

CCGA 3

CCGA-3, our third CCGA sub-study, is designed to further validate Galleri in a large cohort of participants with and without cancer. CCGA-3 is using samples obtained from the CCGA study, which is fully enrolled and in ongoing follow-up. We plan to utilize data from CCGA-3 to help validate the version of Galleri we expect to launch as an LDT in 2021. We have not processed any samples obtained from the CCGA-3 study and therefore have not reported any results from this study.

PATHFINDER

In December 2019, we initiated PATHFINDER, a prospective, interventional multi-center study evaluating an earlier version of Galleri in clinical practice. PATHFINDER is our first study that returns results to physicians and participants, and will evaluate how these test results affect diagnostic and care pathways in a screening population. PATHFINDER will enroll approximately 6,200 participants across several health systems. As of August 31, 2020, we have enrolled approximately 2,585 individuals and are returning test reports to these individuals on an earlier version of Galleri in accordance with the study protocol. We have not reported any results from the PATHFINDER study. PATHFINDER is being conducted pursuant to an FDA-approved investigational device exemption (IDE) application. We believe the real-world insight into the clinical use of our test is an important step on our path toward commercialization. We plan to utilize a subset of data from our PATHFINDER study to help validate the version of Galleri that, absent a further delay in enrollment due to the pandemic caused by the novel strain of coronavirus (COVID-19), we plan to launch as an LDT in 2021. We have not processed any samples obtained from the PATHFINDER study to validate the version of Galleri we plan to launch as an LDT.

STRIVE

STRIVE is a prospective, observational, longitudinal cohort study that enrolled 99,252 women, and samples from a subset of such women will be used to help validate Galleri in an asymptomatic and intended use population without a known cancer at the time of enrollment. This study was initiated in February 2017 and completed enrollment in November 2018. Each participant, at the time of their regular screening mammogram, had a blood draw at the time of their mammogram. Participants diagnosed with any type of cancer will have additional blood draws. Participants will be followed for 30 months and thereafter, if they develop cancer, through state and national cancer registries. We are collecting demographic information such as age, race, and ethnicity, in addition to clinical information including cancer diagnoses, treatment, cancer specific mortality, and overall survival. We have not reported any results from the STRIVE study. We estimate approximately 1,500 cancer events to develop in this population at one-year follow-up. Pending discussions with FDA that are ongoing regarding the data requirements for PMA submission, we anticipate using a subset of data from the STRIVE study, along with other data, in support of an application for PMA approval of a subsequent version of Galleri following the launch of Galleri as an LDT. We utilized 2,202 samples for validation of an earlier version of Galleri and used approximately 1,700 of these samples in a training set to support the version of Galleri we intend to launch as an LDT. See “Risk Factors—Our multi-cancer detection tests are a new approach to cancer screening, which present a number of novel and complex issues for FDA review. Because FDA has never cleared or approved a multi-cancer detection test, it is difficult to predict what information we will need to submit to obtain approval of a PMA from FDA for a proposed intended use, or if we will be able to obtain such approval on a timely basis or at all.”

SUMMIT

SUMMIT is a prospective, observational, longitudinal cohort study that is being conducted in London, United Kingdom. The study is designed to enroll approximately 25,000 men and women who do not have a cancer diagnosis at the time of enrollment. We initiated enrollment in our SUMMIT study in April 2019, have enrolled approximately 11,639 individuals to date and expect to complete enrollment as early as 2021, although this may be delayed as a result of a suspension of enrollment due to the COVID-19 pandemic. Participants are at high-risk of

lung and other cancers due to a significant smoking history. Participants will provide three serial (annual) blood draws and be followed annually for two years and thereafter be followed through national health registries for up to ten years from the last patient enrolled. The primary endpoint is cancer incidence, which will be used to assess the test performance for sensitivity, specificity, PPV, and negative predictive value. We plan to use a subset of data from the SUMMIT study to further validate Galleri in an additional intended use population.

Our SUMMIT study is also designed to demonstrate clinical utility in a high-risk population due to significant smoking history by comparing performance in detection of lung and other smoking-related cancers to that of LDCT. We hope to generate clinical utility data in this population, which may help support reimbursement of our product for certain uses from both public and private payors in this population.

Scalable Data Collection and Analysis Capabilities

Central to the development of our data platform is our ability to collect and manage high-quality demographic and clinical data and integrate those data with large genomic data sets. Our state-of-the-art machine learning algorithms analyze subtle and complex signals in data generated through our clinical studies. We believe our powerful data-computing platform is difficult for others to replicate, and will continue to drive performance improvements to our test as we accumulate more data over time. To process and analyze the substantial data sets produced by our population-scale, multi-center clinical studies, we engineered custom technology infrastructure and cloud-based tools for electronic data capture system, laboratory automation, data storage and retrieval, and distributed computing. We believe our cloud-based parallel computing approach could potentially reduce turnaround time in our product.

Our custom electronic data capture system enables flexible paperless workflows and utilizes application programming interfaces to collect electronic medical record data. In addition, we also built tools to automate laboratory workflows. These workflows significantly reduce manual transfers of data, allow for real-time monitoring of operational metrics improving overall quality, and automatically upload all trackable records from instruments to our cloud storage. The operational data collected enables us to maintain high-quality standards in our laboratories, and we believe our automated solutions enable reduction in errors and improve repeatability and consistency.

We automatically back up our clinical, operational, and genomic data in the cloud as well as on premises. Our data storage and retrieval approach also enables us to collate clinical, operational and genomic data more easily, as it minimizes errors resulting from data transfers. We use sophisticated methodologies designed to encrypt and store data securely and in compliance with applicable laws and regulations. Our quality assurance and risk management functions follow best practices that are designed to comply with various global data privacy and security regulations and address applicable regulatory requirements on an ongoing basis.

Competition

There are other companies, such as AnchorDx, ArcherDx, Inc., Burning Rock Biotech Limited, Exact Sciences Corporation, Freenome Inc., Guardant Health, Inc., Laboratory for Advanced Medicine, Singlera Genomics, Inc. and Thrive Earlier Detection Corp. that have stated that they are developing tests to detect cancer early, including some that will use cfNA analyses. Some of these companies may have substantially greater financial and other resources than we have, such as larger research and development staff and well-established marketing and sales forces, or may operate in jurisdictions where lower standards of evidence are required to bring products to market. For example, we are aware that some of our competitors have conducted large-scale clinical trials, including Guardant Health (10,000 in colon cancer), Exact Sciences (12,500 in colon cancer); Freenome (14,000 in colon cancer); Burning Rock Biotech (14,000 in cancer); and AnchorDX (10,500 in pulmonary nodules). In addition, other established diagnostic, medical technology, biotechnology, or pharmaceutical companies may decide in the future to invest heavily to accelerate discovery and development of similar tests that could make our tests less competitive. If any tests marketed or being developed by our competitors do not perform to expectations or cause harm or injury to patients, it may result in lower confidence in early cancer detection tests in general, which could potentially adversely affect confidence in our product.

Given the numerous and rigorous requirements for a successful cancer detection test, we do not believe many companies would have the financial resources to invest in population-scale clinical trials and rigorous analytics to

compete with our products. Further, among companies pursuing an early-detection product, we believe we are substantially differentiated by our robust intellectual property portfolio, extensive research, rigorous and objective approach, and multidisciplinary capabilities which leverage the power of next-generation sequencing, population-scale clinical studies, and state-of-the-art computer science and data science to disrupt the ordinary course of symptomatic, late-stage cancer diagnosis and treatment.

Additionally, DAC and MRD, if successfully developed, would compete against a number of companies that are working to leverage blood-based technologies to improve cancer care. Many companies currently provide or are developing technologies focused on improving cancer care after a diagnosis of cancer is made, including enabling selection of therapy, monitoring of therapy, or detection of relapsed disease. We believe DAC has the potential to be the first blood test in the diagnostic aid category and MRD test's ability to provide a blood-based detection solution without the need for a personalized assay and with or without tissue in a fast turnaround time compared to competitors could provide us with a competitive advantage.

Intellectual Property

Our success depends in part on our ability to obtain and maintain intellectual property protection for our products and technology, including by seeking and maintaining patent protection, protecting our trade secrets and other proprietary information, obtaining and maintaining our licenses to use intellectual property owned by third parties, and continually evaluating third-party technologies for further licensing opportunities. We also seek trademark protection where appropriate to protect the names that identify us as the source of our products and services.

We own certain patent applications and intellectual property and exclusively license certain patents, patent applications, and other intellectual property from third parties, including The Chinese University of Hong Kong. Our patent portfolio broadly relates to methods, techniques and chemistry used to generate and analyze data using our proprietary bioinformatics and classifiers, including, for example, cfNA sequencing, marker panels, methylation signatures, bioinformatics techniques and biologically directed machine learning classifiers, which are incorporated into Galleri and DAC. We have also entered into certain supply and commercial agreements with various vendors and suppliers under which we receive rights to their intellectual property for use in our products. Our material licenses and other agreements are described in more detail below.

As of August 31, 2020, we have exclusive licenses to more than 230 issued or granted patents and more than 200 pending patent applications globally, including 30 issued U.S. patents. We also own or co-own more than 170 pending patent applications globally, including more than 90 pending U.S. non-provisional and provisional patent applications. Our patent portfolio includes at least 40 patent families related to sequencing, library preparation and enrichment (4 patent families with none yet granted and 6 pending applications), marker panels (10 patent families with none yet granted and 12 pending applications), methylation profiling (7 patent families with 45 granted and 69 pending applications), and bioinformatic techniques and classifiers (19 patent families with none yet granted and 30 pending applications), many of which we believe cover, or will cover, various aspects of Galleri, DAC and MRD. Our patent portfolio also includes, granted patents and pending patent applications directed to other technologies, including, for example, error correction for identifying somatic variants and variant based assessment of cancer, sequencing based assessment of copy number aberrations in cancer, fragment length assessment in cancer detection, fragmentation based assessment of cancer and viral based assessment of cancer.

Our licensed patents and patent applications will begin to expire, at the earliest, in 2028. The patent applications that we own, if issued as patents, would be expected to expire at the earliest in 2037. The term of these patents depends upon the laws of the countries in which they are obtained, and is commonly 20 years from the earliest date of filing of a non-provisional patent application. A provisional patent application is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of the filing date of the provisional patent application. If we do not timely file non-provisional patent applications, we may lose our priority date with respect to our provisional patent applications and any patent protection on the inventions disclosed in our provisional patent applications. In the United States, patent term adjustments may be available depending upon the time the United States Patent and Trademark Office takes to examine and eventually issue a patent, and the patent term may be shorter than 20 years if the patent application claims the priority of an earlier application. The

protection of patents may vary on a country-by-country and claim-by-claim basis, which can vary the scope of protection afforded by such patents. In addition, we must generally pay fees to maintain our patents annually or at other specified intervals, or risk the patent lapsing. We cannot provide any assurance that any of our current or future owned or licensed patent applications will result in the issuance of patents, or that any of our current or future owned or licensed issued patents will effectively protect any of our products or technology or prevent others from commercializing competitive products or technology.

License Agreements with The Chinese University of Hong Kong

We have entered into five license agreements with The Chinese University of Hong Kong, each on substantially similar terms and with two dated April 7, 2016 and three dated May 29, 2017. Pursuant to these agreements, The Chinese University of Hong Kong has granted exclusive, worldwide intellectual property licenses to us for the use of certain nucleic acid sequencing and analysis technologies in all fields under one license and in all fields except prenatal diagnostics, prognostications, or analysis under four licenses. The Chinese University of Hong Kong reserves the right to use its technology for internal research and education purposes and for fulfilling governmental contractual obligations (to the extent they exist). Three of the licenses are subject to certain non-exclusive license rights granted by The Chinese University of Hong Kong to a certain third party, solely for such third party's internal research purposes in the field of cancer detection, cancer prognostication and other analysis for the screening and management of cancer.

We have paid The Chinese University of Hong Kong approximately $2.1 million pursuant to these license agreements. To the extent our products use the licensed technology, we are also required to pay The Chinese University of Hong Kong low single-digit royalties on net sales of such products, subject to minimum annual guarantees, which began in 2018. In addition, if we sublicense the licensed technology, we are obligated to pay The Chinese University of Hong Kong a specified portion of the revenue we receive from sublicensing. Our royalty and sublicense payment obligations with respect to each license for each product containing any licensed technology extends until the expiration or termination of such license, which shall be the later of a low double digit number of years from our payment of the license issue fee or expiration of the last-to-expire licensed patent. We are additionally obligated to reimburse The Chinese University of Hong Kong for all costs and expenses related to the filing, prosecution, maintenance, defense of the licensed patents and patent applications.

Under these license agreements, we are obligated to use specified efforts to reach milestones relating to the development and sale of products that use The Chinese University of Hong Kong's technology, and our failure to do so could result in termination of the license agreements. The Chinese University of Hong Kong may also terminate the agreement under certain other circumstances, such as our uncured material breach of the agreement or cessation of our business. We may terminate the agreement at any time at our convenience provided we give The Chinese University of Hong Kong a certain period of notice. We can also terminate the agreement for The Chinese University of Hong Kong's uncured material breach.

Trade Secrets

We also rely on trade secret protection for our confidential and proprietary information. Included in our trade secrets are the data from our genomics studies, various aspects of the operation of our laboratories, and various aspects of the algorithms used to process our data. Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees, contractors, and consultants, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology via unauthorized means, such as hacking by private or state actors. Although state and federal courts in the United States are generally willing to protect trade secrets, some courts inside and outside the United States are less willing or unwilling to protect trade secrets.

For further discussion of the risks relating to our intellectual property, see "Risk Factors—Risks Related to Intellectual Property."

Facilities

Our principal office and laboratory is approximately 74,300 square feet and located at 1525 O'Brien Drive, Menlo Park, California. We amended the related lease in June 2017 to add approximately 57,400 square feet at 1605 Adams Drive, Menlo Park, California. Our lease expires in 2026 and we have an option to extend the lease for an additional five years.

In June 2020, we entered into an agreement to lease approximately 200,000 square feet of a building in Durham, North Carolina. We will commence construction of a laboratory and office space at this location. Our lease expires in 2033 and we have three separate options to extend the lease, each for an additional five years.

In 2018, we received a Clinical Laboratory Improvement Amendments of 1988 (CLIA) Certificate of Registration from CMS for our laboratory in Menlo Park, California, to begin conducting moderate and high complexity testing, subject to inspection to determine compliance with the CLIA regulations. In 2019, we obtained College of American Pathologist (CAP) accreditation for our Menlo Park facility. Before we are able to offer Galleri, DAC or any other tests at our Durham, North Carolina laboratory, when and if we are able to complete construction, we will also be required to validate the tests and provide the required notifications to the regulatory and accrediting bodies that regulate our North Carolina laboratory.

We believe that our Menlo Park facility is sufficient to meet our current and anticipated near-term needs; however, we anticipate that as our products gain broader adoption and we develop additional products, we may need to utilize the Durham laboratory to meet commercial demand and internal research and development needs.

Key Relationships

Supply and Commercialization Agreement with Illumina

In January 2016, we entered into a supply and commercialization agreement with Illumina. The agreement was amended and restated in February 2017, and subsequently amended in September 2017 and December 2019. Under the terms of the agreement, we agreed to pay to Illumina a high single-digit royalty, subject to certain reductions, in perpetuity on net sales generated by our products or revenues otherwise generated or received by us regardless of whether these products incorporate any Illumina intellectual property, subject to certain exceptions, in the field of oncology.

Under the Illumina Agreement, Illumina granted us non-exclusive rights to use certain Illumina know-how and technology with Illumina products purchased under the agreement, and we granted Illumina an irrevocable, perpetual, worldwide, fully paid-up, and royalty-free license covering improvements to certain Illumina know-how and technology. Pursuant to the agreement, we were also required to develop a small-variant targeted plasma assay and deliver it to Illumina, which we have done. We retain ownership of the intellectual property generated by the development of this assay, and we have granted Illumina an irrevocable, perpetual, non-exclusive license to use any of the intellectual property embodied in this assay, with certain limitations on sublicensing.

The term of the Illumina Agreement is 10 years, subject to two-year automatic renewal periods unless one of the parties terminates prior to such renewal period; however, the term is limited to a maximum term of 20 years. The agreement may also be terminated by either party for uncured material breach or bankruptcy or insolvency of the other party. Illumina may terminate the agreement if it is notified by any regulatory authority that our performance under the agreement materially violates an applicable law or due to a change of control of GRAIL involving a competitor of Illumina. Upon the termination of the agreement for any reason, the licenses granted to us by Illumina under the agreement would terminate but our licenses to Illumina survive the termination of the agreement. Our royalty payment obligations also survive the termination of this agreement.

Relationship with The Chinese University of Hong Kong

In addition to the five license agreements described above under "—Intellectual Property," we have also entered into collaboration agreements with The Chinese University of Hong Kong.

In August 2017, we entered into a Contract Research Agreement with The Chinese University of Hong Kong, which replaced a Collaborative Research Agreement that we acquired in connection with our acquisition of Cirina Limited. Under the terms of the Contract Research Agreement, we agreed to collaborate with Professor Yuk Ming Dennis Lo's laboratory at The Chinese University of Hong Kong to develop novel approaches to the study of cfNA for screening, prognostication, or diagnosis of diseases or therapy selection. The Contract Research Agreement has a term of four years, over which we have agreed to pay up to $19.5 million. Under the agreement, The Chinese University of Hong Kong transferred and assigned full right, title, and interest in all current and future invention, discovery, algorithm, information or data, whether patentable or unpatentable, and any other intellectual property and proprietary rights conceived, created, or reduced to practice in performance of the research project to us (with exceptions to the extent there is an application to noninvasive prenatal testing, diagnosis, or screening). During the term of the agreement, The Chinese University of Hong Kong may not, without our prior written consent, conduct research for any other commercial party in the field of cfNA (other than prenatal) screening, prognostication, or diagnosis of diseases. In April 2019, we sublicensed to Take2 Health Limited, a company affiliated with Professor Lo, an exclusive, sublicensable, royalty-bearing, worldwide license to certain patents rights under our licenses with The Chinese University of Hong Kong solely in the field of screening, detection, prognostication and monitoring of nasopharyngeal cancer (NPC) and EBV-associated cancers.

Government Regulation

We are subject to complex and frequently changing national, state, and local laws and regulations that govern various aspects of our business. In many jurisdictions, including the United States, the clinical laboratory and medical device industries must operate in accordance with extensive and complex legal standards, including laws and regulations related to certification, licensing, development, research, testing, manufacturing, laboratory operations, distribution, ordering and billing practices, advertising, promotion, marketing, sales and pricing practices, anti-markup practices, health information privacy and security, and consumer protection and unfair trade practices.

In the United States, the laws and regulations governing the marketing of diagnostic products are evolving, extremely complex, and in many instances, there are no significant regulatory or judicial interpretations of these laws and regulations. Clinical laboratory tests are regulated under the CLIA, as well as by applicable state laws. In addition, the Federal Food, Drug and Cosmetic Act (FDC Act) defines a medical device to include any instrument, apparatus, implement, machine, contrivance, implant, *in vitro* reagent, or other similar or related article, including a component part, or accessory, intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals. The tests we are developing are considered by FDA to be subject to regulation as medical devices. Among other things, pursuant to the FDC Act and its implementing regulations, FDA regulates the research, testing, manufacturing, safety, labeling, storage, recordkeeping, premarket clearance or approval, marketing and promotion, and sales and distribution of medical devices in the United States to ensure that medical products distributed domestically are safe and effective for their intended uses. Although FDA has statutory authority to assure that medical devices are safe and effective for their intended uses, FDA has historically exercised its enforcement discretion and not enforced certain applicable provisions of the FDC Act and regulations with respect to LDTs.

U.S. Regulation

Clinical Laboratory Improvement Amendments of 1988 (CLIA)

We will be required to obtain and hold certain federal and state licenses, certificates, and permits to offer our products in the United States through our laboratory facility in Menlo Park, California, and when constructed, our Durham, North Carolina facility. In 1988, Congress passed CLIA, establishing rigorous quality standards for laboratories in the United States that perform testing on human specimens for the purpose of providing information for the diagnosis, prevention, or treatment of disease or impairment of, or the assessment of the health of, human beings. Such testing may also include procedures to determine, measure, or otherwise describe the presence or absence of various substances or organisms in the body.

CLIA requires such laboratories to be certified by the federal government and mandates compliance with ongoing requirements intended to ensure the accuracy, reliability, and timeliness of medical test results. CLIA certification is also a prerequisite to be eligible to bill federal and state healthcare programs, as well as many commercial third-party payors, for laboratory testing services. In 2018, we applied for and received a CLIA Certificate of Registration from the CMS for our Menlo Park, California laboratory to begin conducting moderate and/or high complexity testing, subject to inspection to determine compliance with the CLIA regulations, and a Clinical Laboratory Certificate of Deemed Status from the State of California Department of Public Health. Our CLIA certification could be revoked if we fail to meet compliance requirements. In 2019, our Menlo Park, California laboratory also received a Clinical and Public Health Laboratory License from the California Department of Public Health and accreditation from CAP. Our Durham, North Carolina laboratory is not CLIA-certified to offer any tests, and we will need to seek CLIA certification to conduct tests at this location. In order to obtain such certification, we must validate the test (ensure and document that the test provides accurate and reliable test results) and add the applicable specialty or subspecialty to our test menu. Before introducing and reporting patient results from an LDT, a laboratory is required to establish the specifications for a variety of performance characteristics, including accuracy, precision, analytical sensitivity, analytical specificity, reportable range, and reference interval. Such analytical validation is based on, among other things, the specific conditions, staff, and equipment of the particular laboratory.

Prior to offering a new test at our laboratory, we must also satisfy certain notification requirements to change our testing menu. For example, we will inform relevant regulatory and accrediting bodies, CMS, the California Department of Public Health Laboratory Field Services, and CAP that we are adding a new test to our menu. At their discretion, any of these entities may inspect our clinical laboratory at any time. In connection with CLIA certification, our laboratory is subject to routine survey and inspection every other year, as well as additional random or “for cause” inspections. Under CLIA, a survey is generally conducted every two years by CMS, a CMS agent (typically a state agency), or, if the laboratory holds a CLIA Certificate of Accreditation, a CMS-approved accreditation organization (for example, CAP). The routine biennial survey includes review of the laboratory’s analytical validation of any LDTs performed by the laboratory. Our CLIA certification for our products may be revoked if we fail to meet compliance requirements, such as those related to proficiency testing, facilities administration, quality, and personnel.

Penalties for non-compliance with CLIA requirements include a range of enforcement actions, including suspension, limitation or revocation of the laboratory’s CLIA certificate, as well as directed plan of correction, state on-site monitoring, civil monetary penalties, civil injunctive suit or criminal penalties.

CLIA provides that a state may adopt laboratory regulations that are more stringent than those under federal law, and a number of states have implemented their own more stringent laboratory regulatory requirements. State laws may require that laboratory personnel meet certain qualifications and obtain licenses, specify certain quality control procedures and facility requirements, or prescribe record maintenance requirements. For more information on state licensing and other requirements, see“—California Laboratory Licensing,” “—New York Laboratory Licensing,” and “—Other State Laboratory Licensing Laws.”

State Licensing Laws

In addition to the federal certification requirement for laboratories under CLIA, licensure is or will be required for our laboratories under state law. We have obtained from the State of California Department of Public Health a Clinical Laboratory Certificate of Deemed Status and Clinical and Public Health Laboratory License, which subjects our clinical laboratory to inspection and accreditation by CAP, for our Menlo Park laboratory. We will need to obtain a similar certificate from the North Carolina Department of Health for our Durham laboratory.

California State Laboratory Licensing Laws. We are required to maintain in-state licenses to conduct testing in California. The state laboratory licensure requirements establish standards for the day-to-day operation of a clinical laboratory, including the training and qualifications required of personnel, quality control, and proficiency testing. If our clinical laboratory is out of compliance with state requirements, the state Department of Public Health may suspend, restrict, or revoke our license to operate the clinical laboratory, assess substantial civil money penalties,

require onsite monitoring, or impose specific corrective action plans. Certain statutory or regulatory noncompliance may also result in misdemeanor charges under state law.

New York State Laboratory Licensing Laws. When we commercially offer our tests, we expect to receive specimens originating from New York State. New York State law requires that all clinical laboratories accepting specimens from New York State hold a New York State Department of Health clinical laboratory permit. Research testing, however, does not require licensure if patient-specific results are not generated for use in diagnosis or treatment purposes. We have applied for a New York State Department of Health clinical laboratory permit for our Menlo Park laboratory, and we intend to apply for a New York State Department of Health clinical laboratory permit for our Durham laboratory prior to accepting specimens from, and generating patient-specific results on specimens from, New York State. Applicable New York State requirements establish standards for day-to-day operation of a clinical laboratory, including training and qualifications required of laboratory personnel, physical requirements of a facility, equipment, and validation and quality control.

New York State law also requires the New York State Department of Health to approve certain tests, including certain tests that have not been cleared or approved by FDA (such as LDTs), through a premarket submission containing, among other information, documentation relating to device analytical and clinical performance data. We have applied for approval of Galleri from the New York State Department of Health. The New York State Department of Health also mandates proficiency testing for laboratories granted a permit under New York State law, regardless of whether or not such laboratories are located in New York. If a laboratory is out of compliance with New York statutory or regulatory standards, the New York State Department of Health may suspend, limit, revoke, or annul the laboratory's New York permit, censure the holder of the permit, or assess civil money penalties. Certain statutory or regulatory noncompliance may also result in misdemeanor charges under New York State law. We believe that relevant New York regulatory authorities may be experiencing delays as a result of COVID-19 related issues, and there can be no assurance that we will be able to obtain New York clinical laboratory permits, or licenses or permits from any other states where we believe we will be required to be licensed or hold a permit, prior to commercial launch our products, or at all.

Other State Laboratory Licensing Laws. In addition to New York, California and North Carolina, other states currently require licensing of out-of-state laboratories when specimens are collected or received from patients in such states, including Maryland, Pennsylvania, and Rhode Island, although state laws in this area can and recently have been changing. Clinical laboratory licensing laws in certain states, however, do not apply to laboratories operated for research purposes that do not return patient-specific results for the purpose of diagnosis or treatment. We intend to obtain licenses in additional states in the future as applicable. Other states may adopt similar licensure requirements in the future, which may require us to modify, delay or stop our operations in such jurisdictions. Complying with licensure requirements in new jurisdictions may be expensive, time-consuming, and subject us to significant and unanticipated delays. If we identify any other state with such requirements, or if we are contacted by any other state advising us of such requirements, we intend to follow instructions from the state regulators as to how we should comply with such requirements. Potential sanctions for violation of state statutes and regulations may include fines, the disapproval of licensure applications, and the suspension or loss of various licenses, certificates, and authorizations, which could harm our business. CLIA does not preempt state laws that have established laboratory quality standards that are at least as stringent as the federal law requirements under CLIA.

Other State Licensing Requirements. In addition to laboratory licensing, certain states, including California, impose registration and/or licensing requirements on companies that manufacture medical devices. These laws can apply to a manufacturer before its products are commercialized, including when a company is evaluating its product candidates in clinical trials. Violations of these laws may result in the denial, suspension, or revocation of the registration or license, as well as other fines and penalties, including imprisonment.

U.S. Food and Drug Administration

In the United States, products, such as Galleri and DAC, are subject to regulation by FDA under the FDC Act and its implementing regulations, and other federal and state statutes and regulations. The laws and regulations govern, among other things, medical device development, testing, manufacture, labeling, storage, premarket clearance or approval, advertising and promotion, export, import, and product sales and distribution.

Laboratory Developed Tests

Under FDA's regulatory framework, *in vitro* diagnostic devices (IVDs), such as Galleri and DAC, are a type of medical device, including tests that can be used in the diagnosis or detection of diseases, such as cancer, or other conditions. FDA considers LDTs to be a subset of IVDs that are intended for clinical use and are designed, manufactured, and used within a single laboratory. Although FDA has statutory authority to assure that medical devices, including IVDs, are safe and effective for their intended uses, FDA has historically exercised its enforcement discretion and not enforced certain applicable provisions of the FDC Act and regulations with respect to LDTs. On August 19, 2020, the U.S. Department of Health and Human Services (HHS) announced that FDA will not require premarket review of LDTs absent notice-and-comment rulemaking, as opposed to through guidance documents and other informal issuances. We plan to launch Galleri and DAC as LDTs.

Legislative and administrative proposals proposing to amend FDA's oversight of LDTs have been introduced in recent years and we expect that new legislative and administrative proposals will continue to be introduced from time to time. It is possible that legislation could be enacted into law or regulations or guidance could be issued by FDA that may result in new or increased regulatory requirements for us to continue to offer our LDTs or to develop and introduce new tests as LDTs. For example, key congressional committees with jurisdiction over FDA matters have indicated an interest in continuing negotiations on potential legislation regarding LDTs. In March 2020, the VALID Act was introduced in the House and an identical version of the bill was introduced in the U.S. Senate. If passed in its current form, the VALID Act would create a new category of medical products separate from medical devices called "*in vitro* clinical tests," or IVCTs. As proposed, the bill would establish a risk-based approach to imposing requirements related to premarket review, quality systems, and labeling requirements on all IVCTs, including LDTs, but would create exemptions for certain LDTs marketed before the effective date of the bill (though other regulatory requirements may apply, such as registration and adverse event reporting). It is unclear whether the VALID Act or any other legislative proposals (including any proposals to reduce FDA oversight of LDTs) would be passed by Congress or signed into law by the President. Depending on the approach adopted under any potential legislation, certain LDTs (likely those of higher risk) could become subject to some form of premarket review, potentially with a transition period for compliance and a grandfathering provision.

Even under its current enforcement discretion policy, FDA has issued warning letters to and safety communications about IVD manufacturers for commercializing laboratory tests that were purported to be LDTs but that FDA alleged failed to meet the definition of an LDT or otherwise were not subject to FDA's policy on enforcement discretion because they presented a potential safety risk. Additionally, FDA could change its policy of enforcement discretion for LDTs, even without legislation. In recent years, FDA has stated its intention to modify its enforcement discretion policy with respect to LDTs. Specifically, on July 31, 2014, FDA notified Congress of its intent to modify, in a risk-based manner, its policy of enforcement discretion with respect to LDTs. On October 3, 2014, FDA issued two draft guidance documents entitled "Framework for Regulatory Oversight of Laboratory Developed Tests (LDTs)," or the Framework Guidance, and "FDA Notification and Medical Device Reporting for Laboratory Developed Tests (LDTs)," or the Reporting Guidance. The Framework Guidance stated that FDA intended to modify its policy of enforcement discretion with respect to LDTs in a risk-based manner consistent with the classification of medical devices generally in Classes I through III. The Reporting Guidance would have further enabled FDA to collect information regarding the LDTs currently being offered for clinical use through a notification process, as well as to enforce its regulations for reporting safety issues and collecting information on any known or suspected adverse events related to the use of an LDT.

FDA halted finalization of the guidance in November 2016 to allow for further public discussion on an appropriate oversight approach for LDTs and to give congressional authorizing committees the opportunity to develop a legislative solution. FDA issued a discussion paper on possible approaches to LDT regulation in January 2017. If Congress does not take action in connection with the VALID Act or other LDT legislation, it is possible that FDA could change its regulatory policy governing LDTs in a way that could require that our products, including Galleri and DAC that we anticipate marketing as LDTs, comply with certain additional FDA requirements.

PMA Pathway

FDA categorizes medical devices into one of three classes—class I, II, or III—based on the risks presented by the device and the regulatory controls necessary to provide a reasonable assurance of the device's safety and effectiveness. Class I includes devices with the lowest risk to the patient and are those for which safety and effectiveness can be assured by adherence to FDA's General Controls for medical devices, which include compliance with the applicable portions of the Quality System Regulation, or QSR, facility registration and product listing, reporting of adverse medical events, and truthful and non-misleading labeling, advertising, and promotional materials. Class II devices are subject to FDA's General Controls, and special controls as deemed necessary by FDA to ensure the safety and effectiveness of the device. "Special controls are established by FDA for a specific device type and often include specific labeling provisions, performance metrics, and other types of controls that mitigate risks of the device (usually incorrect results for an IVD)." Devices deemed by FDA to pose the greatest risks, such as life sustaining, life supporting or some implantable devices, or devices that have a new intended use, or use advanced technology that is not substantially equivalent to that of a legally marketed device, are placed in Class III, requiring approval of a PMA. Some pre-amendment devices are unclassified, but are subject to FDA's premarket notification and clearance process in order to be commercially distributed.

Class III devices generally require PMA approval before they can be marketed. Obtaining PMA approval requires the submission of "valid scientific evidence" to FDA to support a finding of a reasonable assurance of the safety and effectiveness of the device. A PMA must provide complete analytical and clinical performance data and also information about the device and its components regarding, among other things, device design, manufacturing, and labeling. Following receipt of a PMA, FDA determines whether the application is sufficiently complete to permit a substantive review. If FDA accepts the application for review, it has 180 days under the FDC Act to complete its review of a PMA, although in practice, FDA's review often takes significantly longer, and can take up to several years. An advisory panel of experts from outside FDA may be convened to review and evaluate the application and provide recommendations to FDA as to the approvability of the device. FDA may or may not accept the panel's recommendation. As part of FDA's review of a PMA, FDA will typically inspect the manufacturer's facilities for compliance with Quality System Regulation (QSR) requirements, which impose requirements related to design controls, manufacturing controls, documentation, and other quality assurance procedures. The user fee costs and the length of FDA review time for obtaining PMA approval are significantly higher than for a 510(k) notification or a *de novo* classification.

FDA will approve the new device for commercial distribution if it determines that the data and information in the PMA constitute valid scientific evidence and that there is reasonable assurance that the device is safe and effective for its intended use(s). FDA may approve a PMA with post-approval conditions intended to ensure the safety and effectiveness of the device, including, among other things, restrictions on labeling, promotion, sale and distribution, and collection of long-term follow-up data from patients in the clinical study that supported PMA approval or requirements to conduct additional clinical studies post-approval. FDA may condition PMA approval on some form of post-market surveillance when deemed necessary to protect the public health or to provide additional safety and efficacy data for the device in a larger population or for a longer period of use. In such cases, the manufacturer might be required to follow certain patient groups for a number of years and to make periodic reports to FDA on the clinical status of those patients. Failure to comply with the conditions of approval can result in material adverse enforcement action, including withdrawal of the approval.

Certain changes to an approved device, such as changes in manufacturing facilities, methods, or quality control procedures, or changes in the design performance specifications, which affect the safety or effectiveness of the device, require submission of a PMA supplement. PMA supplements often require submission of the same type of information as a PMA, except that the supplement is limited to information needed to support any changes from the device covered by the original PMA and may not require as extensive clinical data or the convening of an advisory panel. Certain other changes to an approved device require the submission of a new PMA, such as when the design change causes a different intended use, mode of operation, and technical basis of operation, or when the design change is so significant that a new generation of the device will be developed, and the data that were submitted with the original PMA are not applicable for the change in demonstrating a reasonable assurance of safety and effectiveness.

We plan to launch Galleri as an LDT under FDA's policy of enforcement discretion. We plan to apply for PMA approval of a subsequent version of Galleri at a later date in order to support broader reimbursement, although there are no assurances that we will be successful in obtaining PMA approval or coverage and reimbursement with PMA approval. We may seek FDA premarket clearance or approval for DAC, including potentially PMA approval, in the future.

510(k) Notification Pathway. To obtain 510(k) clearance, a manufacturer must submit a premarket notification demonstrating to FDA's satisfaction that the proposed device is "substantially equivalent" to another legally marketed device that itself does not require PMA approval (a predicate device). A predicate device is a legally marketed device that is not subject to premarket approval, i.e., a device that was legally marketed prior to May 28, 1976 (pre-amendments device) and for which a PMA is not required, a device that has been reclassified from Class III to Class II or I, or a device that was found substantially equivalent through the 510(k) process. FDA's 510(k) clearance process usually takes from three to twelve months, but often takes longer. FDA may require additional information, including clinical data, to make a determination regarding substantial equivalence. In addition, FDA collects user fees for certain medical device submissions and annual fees and for medical device establishments.

If FDA agrees that the device is substantially equivalent to a lawfully marketed predicate device, it will grant 510(k) clearance to authorize the device for commercialization. If FDA determines that the device is "not substantially equivalent" to a previously cleared device, the device is automatically designated as a Class III device. The device sponsor must then fulfill more rigorous PMA requirements, or can request a risk-based classification determination for the device in accordance with the *de novo* process, which is a route to market for novel medical devices that are low to moderate risk and are not substantially equivalent to a predicate device. Once a *de novo* petition is reviewed and approved, it results in the device having a Class II status and future devices from the company or a competitor may use the company *de novo*-classified device as a 510(k) predicate.

After a device receives 510(k) clearance, any modification that could significantly affect its safety or effectiveness, or that would constitute a major change or modification in its intended use, will require a new 510(k) clearance or, depending on the modification, PMA approval. FDA requires each manufacturer to determine whether the proposed change requires submission of a 510(k) or a PMA in the first instance, but FDA can review any such decision and disagree with a manufacturer's determination. Many minor modifications today are accomplished by a "letter to file" in which the company documents the rationale for the change and why a new 510(k) is not required. However, if FDA disagrees with a manufacturer's determination, FDA can require the manufacturer to cease marketing and/or request the recall of the modified device until 510(k) marketing clearance or PMA approval is obtained. Also, in these circumstances, the manufacturer may be subject to significant regulatory fines or penalties.

Over the last several years, FDA has proposed reforms to its 510(k) clearance process, and such proposals could include increased requirements for clinical data and a longer review period, or could make it more difficult for manufacturers to utilize the 510(k) clearance process for their products. For example, in November 2018, FDA officials announced forthcoming steps that FDA intends to take to modernize the premarket notification pathway under Section 510(k) of the FDC Act. Among other things, FDA announced that it planned to develop proposals to drive manufacturers utilizing the 510(k) pathway toward the use of newer predicates. These proposals included plans to potentially sunset certain older devices that were used as predicates under the 510(k) clearance pathway, and to potentially publish a list of devices that have been cleared on the basis of demonstrated substantial equivalence to predicate devices that are more than 10 years old. FDA also announced that it intends to finalize guidance to establish a premarket review pathway for "manufacturers of certain well-understood device types" as an alternative to the 510(k) clearance pathway and that such premarket review pathway would allow manufacturers to rely on objective safety and performance criteria recognized by FDA to demonstrate substantial equivalence, obviating the need for manufacturers to compare the safety and performance of their medical devices to specific predicate devices in the clearance process.

In May 2019, FDA solicited public feedback on its plans to develop proposals to drive manufacturers utilizing the 510(k) pathway toward the use of newer predicates, including whether FDA should publish a list of devices that have been cleared on the basis of demonstrated substantial equivalence to predicate devices that are more than 10 years old. FDA requested public feedback on whether it should consider certain actions that might require new authority, such as whether to sunset certain older devices that were used as predicates under the 510(k) clearance

pathway. These proposals have not yet been finalized or adopted, and FDA may work with Congress to implement such proposals through legislation. More recently, in September 2019, FDA finalized the aforementioned guidance to describe an optional "safety and performance based" premarket review pathway for manufacturers of "certain, well-understood device types" to demonstrate substantial equivalence under the 510(k) clearance pathway, by demonstrating that such device meets objective safety and performance criteria established by FDA, obviating the need for manufacturers to compare the safety and performance of their medical devices to specific predicate devices in the clearance process. FDA intends to maintain a list of device types appropriate for the "safety and performance based pathway" and develop product-specific guidance documents that identify the performance criteria for each such device type, as well as the testing methods recommended in the guidance documents, where feasible.

We plan to initially market Galleri as an LDT. Because there are currently no marketed predicate devices for Galleri, we do not believe we could pursue 510(k) clearance for Galleri in the future and would be required to utilize the PMA pathway instead. We may seek FDA premarket clearance or approval for DAC, including potentially utilizing a 510(k) clearance pathway, in the future.

De Novo Classification Pathway. If no legally marketed predicate can be identified for a new device to enable use of the 510(k) pathway, the device is automatically classified under the FDC Act into class III, which generally requires PMA approval. However, FDA can reclassify or use "*de novo* classification" for a device that meets the FDC Act standards for a class I or class II device, permitting the device to be marketed without PMA approval. To grant such a reclassification, FDA must determine that the FDC Act's general controls alone, or general controls and special controls together, are sufficient to provide a reasonable assurance of the device's safety and effectiveness. The *de novo* classification route is generally less burdensome than the PMA approval process. We may seek FDA premarket clearance or approval for DAC, including potentially through a *de novo* classification, in the future.

Investigational Device Exemption Process. Clinical trials are almost always required to support a PMA and are sometimes required to support a 510(k) submission. All clinical investigations of investigational devices to determine safety and effectiveness must be conducted in accordance with FDA's investigational device exemption (IDE) regulations which govern investigational device labeling, prohibit promotion of the investigational device, and specify an array of recordkeeping, reporting and monitoring responsibilities of study sponsors and study investigators. If the device presents a "significant risk" to human health, as defined by FDA, FDA requires the device sponsor to submit an IDE application to FDA, which must become effective prior to commencing human clinical trials. A significant risk device is one that presents a potential for serious risk to the health, safety or welfare of a patient and either is implanted, used in supporting or sustaining human life, substantially important in diagnosing, curing, mitigating or treating disease or otherwise preventing impairment of human health, or otherwise presents a potential for serious risk to a subject. An IDE application must be supported by appropriate data, such as animal and laboratory test results, showing that it is safe to test the device in humans and that the testing protocol is scientifically sound. The IDE will automatically become effective 30 days after receipt by FDA unless FDA notifies the company that the investigation may not begin. If FDA determines that there are deficiencies or other concerns with an IDE for which it requires modification, FDA may permit a clinical trial to proceed under a conditional approval.

In addition, the study must be approved by, and conducted under the oversight of, an Institutional Review Board, or IRB, for each clinical site. The IRB is responsible for the initial and continuing review of the IDE, and may pose additional requirements for the conduct of the study. If an IDE application is approved by FDA and one or more IRBs, human clinical trials may begin at a specific number of investigational sites with a specific number of patients, as approved by FDA. If the device presents a non-significant risk to the patient, a sponsor may begin the clinical trial after obtaining approval for the trial by one or more IRBs without separate approval from FDA, but must still follow abbreviated IDE requirements, such as monitoring the investigation, ensuring that the investigators obtain informed consent, and labeling and record-keeping requirements. Acceptance of an IDE application for review does not guarantee that FDA will allow the IDE to become effective and, if it does become effective, FDA may or may not determine that the data derived from the trials support the safety and effectiveness of the device or warrant the continuation of clinical trials. An IDE supplement must be submitted to, and approved by, FDA before a sponsor or investigator may make a change to the investigational plan that may affect its scientific soundness, study plan or the rights, safety or welfare of human subjects.

During a study, the sponsor is required to comply with the applicable FDA requirements, including, for example, trial monitoring, selecting clinical investigators and providing them with the investigational plan, ensuring IRB review, adverse event reporting, record keeping, and prohibitions on the promotion of investigational devices or on making safety or effectiveness claims for them. The clinical investigators in the clinical study are also subject to FDA regulations and must obtain patient informed consent, rigorously follow the investigational plan and study protocol, control the disposition of the investigational device, and comply with all reporting and recordkeeping requirements. Additionally, after a trial begins, we, FDA or the IRB could suspend or terminate a clinical trial at any time for various reasons, including a belief that the risks to study subjects outweigh the anticipated benefits.

We are currently conducting our PATHFINDER study pursuant to an FDA-approved IDE.

Expedited Development and Review Programs. Through recent federal legislation, FDA has implemented a Breakthrough Devices Program, which is a voluntary program offering manufacturers of certain devices an opportunity to interact with FDA more frequently and efficiently as they develop their products with the goal of expediting commercialization of such products to help patients have more timely access. The program is available to medical devices that meet certain eligibility criteria, including that the device provides more effective treatment or diagnosis of life-threatening or irreversibly debilitating diseases or conditions, and constitutes a device (i) that represents a breakthrough technology, (ii) for which no approved or cleared alternatives exist, (iii) that offer significant advantages over existing approved or cleared alternatives, or (iv) the availability of which is in the best interest of patients. Devices granted Breakthrough Device designation are eligible to rely on certain features of the Breakthrough Device Program, including interactive and timely communications with FDA staff, use of post-market data collection, when scientifically appropriate, to facilitate expedited and efficient development and review of the device, opportunities for efficient and flexible clinical study design, and priority review of premarket submissions. In 2018, FDA granted Breakthrough Device Designation for Galleri.

Postmarket Regulation. After a device is cleared or approved by FDA for marketing, numerous and pervasive regulatory requirements continue to apply. These include:

- establishment registration and device listing with FDA;
- QSR requirements, which require manufacturers, including third-party manufacturers, to follow stringent design, testing, control, documentation and other quality assurance procedures during all aspects of the design and manufacturing process;
- labeling regulations and FDA prohibitions against the promotion of “off-label” uses of cleared or approved products;
- requirements related to promotional activities;
- clearance or approval of product modifications to 510(k)-cleared devices that could significantly affect safety or effectiveness or that would constitute a major change in intended use of one of our cleared devices, or approval of certain modifications to PMA-approved devices;
- medical device reporting regulations, which require that a manufacturer report to FDA if a device it markets may have caused or contributed to a death or serious injury, or has malfunctioned and the device or a similar device that it markets would be likely to cause or contribute to a death or serious injury, if the malfunction were to recur;
- correction, removal and recall reporting regulations, which require that manufacturers report to FDA field corrections and product recalls or removals if undertaken to reduce a risk to health posed by the device or to remedy a violation of the FDC Act that may present a risk to health;
- FDA’s recall authority, whereby the agency can order device manufacturers to recall from the market a product that is in violation of governing laws and regulations; and
- post-market surveillance activities and regulations, which apply when deemed by FDA to be necessary to protect the public health or to provide additional safety and effectiveness data for the device.

Device manufacturing processes subject to FDA oversight are required to comply with the applicable portions of the QSR, which cover the methods and the facilities and controls for the design, manufacture, testing, production, processes, controls, quality assurance, labeling, packaging, distribution, installation and servicing of finished devices intended for human use. The QSR also requires, among other things, maintenance of a device master file, device history file, and complaint files. Manufacturers are subject to periodic scheduled or unscheduled inspections by FDA. A failure to maintain compliance with the QSR requirements could result in the shut-down of, or restrictions on, manufacturing operations and the recall or seizure of products. The discovery of previously unknown problems with products, including unanticipated adverse events or adverse events of increasing severity or frequency, whether resulting from the use of the device within the scope of its clearance or off-label by a physician in the practice of medicine, could result in restrictions on the device, including the removal of the product from the market or voluntary or mandatory device recalls.

FDA Enforcement Powers. FDA has broad regulatory compliance and enforcement powers. If FDA determines that a manufacturer has failed to comply with applicable regulatory requirements, it can take a variety of compliance or enforcement actions, including the following:

- issuance of warning letters, untitled letters, fines, injunctions, consent decrees and civil penalties;
- requesting or requiring recalls, withdrawals, or administrative detention or seizure of our products;
- imposing operating restrictions or partial suspension or total shutdown of production;
- refusing or delaying requests for 510(k) marketing clearance or PMA approvals of new products or modified products;
- withdrawing 510(k) clearances or PMA approvals that have already been granted;
- refusal to grant export approvals for our products; or
- criminal prosecution.

Federal and State Physician Self-Referral Prohibitions

We are subject to the federal physician self-referral prohibitions, commonly known as the Stark Law. The Stark Law generally prohibits us from billing, presenting or causing to be presented a claim for any clinical laboratory services or other designated health services payable by the Medicare or Medicaid programs when the physician ordering the service, or any member of such physician's immediate family, has an ownership interest in, or compensation arrangement with, us, unless the arrangement meets an exception to the prohibition. The Stark Law contains several exceptions, including an exception for compensation paid to a physician for personal services rendered by the physician provided that several conditions are met, including that the payment is set at fair market value for the services furnished and the terms of the arrangement be set out in writing and signed by the parties. These prohibitions apply regardless of the reasons for the financial relationship and the referral. The Stark Law is a strict liability statute, and thus no finding of intent is required for a violation.

Sanctions for a violation of the Stark Law include the following:

- denial of payment for the services provided in violation of the prohibition;
- refunds of amounts collected by an entity in violation of the Stark Law;
- monetary penalties; and
- exclusion from federal healthcare programs, including Medicare and Medicaid.

In addition, violations of the Stark Law may also serve as the basis for liability under the Federal False Claims Act, which prohibits knowingly presenting, or causing to be presented, a false or fraudulent claim for payment to the federal government.

Many states, including California, also have laws restricting physicians from referring persons for certain services to entities in which the referring physician has a financial interest, which may apply regardless of whether the payor for such claims is Medicare or Medicaid. For example, we are subject to the California Physician Ownership and Referral Act of 1993 (PORA). PORA, which applies regardless of payor type, generally prohibits physicians from referring individuals for certain services, including laboratory or diagnostic services, if the physician or his or her immediate family has a financial interest in the entity receiving the referral. PORA would generally prohibit us from billing an individual or any governmental or private payor for any laboratory or diagnostic services when the physician ordering the service, or any member of such physician's immediate family, has an investment interest in, or compensation arrangement with, us, unless the arrangement falls under one of the statutory exceptions. Further, certain violations of PORA are a misdemeanor, and violations generally could result in civil penalties, criminal fines, and disciplinary action by the applicable governmental agency. Finally, other states have self-referral restrictions with which we have to comply, which may differ from those imposed by federal and California law.

Healthcare Fraud and Abuse

If and when we commercially launch a product in the United States, our business operations, including any relationship we may form with physicians, healthcare providers or other potential customers or business partners, will need to comply with various healthcare fraud and abuse laws.

The federal healthcare program Anti-Kickback Statute makes it a felony for a person or entity, including a laboratory, to knowingly and willfully offer, pay, solicit, or receive remuneration, directly or indirectly, in order to induce business that is reimbursable under any federal healthcare program, including the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. The Anti-Kickback Statute contains certain statutory exceptions and regulatory safe harbors that protect certain interactions if specific requirements are met. If an arrangement meets the provisions of a safe harbor, it is deemed not to violate the Anti-Kickback Statute. An arrangement must fully comply with each element of an applicable safe harbor in order to qualify for protection. The failure of a transaction or arrangement to fit within a specific safe harbor, however, does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued if the arrangement is determined by the government not to be abusive. A violation of the Anti-Kickback Statute may result in imprisonment, fines and possible exclusion from Medicare, Medicaid, and other federal healthcare programs. Actions that violate the Anti-Kickback Statute or any similar laws may also incur liability under the Federal False Claims Act.

Although the Anti-Kickback Statute applies only to federal healthcare programs, a number of states have passed statutes substantially similar to the Anti-Kickback Statute. For example, California has enacted the PORA (see "— Federal and State Physician Self-Referral Prohibitions" above) and a Medi-Cal Anti-Kickback Statute, Welfare and Institutions Code Section 14107.2, that prohibit conduct similar to that prohibited by the Anti- Kickback Statute. Violations of PORA and Section 14107.2 are both punishable by imprisonment and fines. Many other states have all-payor statutes that extend the provisions of the state anti-kickback statute to not only governmental payors, but also private payors and self-pay patients.

Federal and state law enforcement authorities scrutinize arrangements between healthcare providers and potential referral sources to ensure that the arrangements are not designed as a mechanism to induce healthcare referrals or induce the purchase, prescribing or ordering of particular products or services. Law enforcement authorities and the courts have also demonstrated a willingness to look behind the formalities of a transaction to determine the underlying purpose of any remuneration exchanged between healthcare providers and actual or potential referral sources. Generally, courts have taken a broad interpretation of the scope of the Anti-Kickback Statute, holding that the statute may be violated if merely one purpose of a payment arrangement is to induce referrals or purchases. Investigation or challenge under the federal Anti-Kickback Statute and analogous state laws of any relationship we may form with physicians, healthcare providers or other potential customers or business partners could lead to sanctions that could have a negative effect on our business.

In addition, other healthcare fraud and abuse laws could have an effect on our business. For example, in 2018, Congress enacted the Eliminating Kickbacks in Recovery Act of 2018 (EKRA), which establishes an all-payor anti-

kickback prohibition for, among other things, knowingly and willfully paying or offering any remuneration directly or indirectly to induce a referral of an individual to a clinical laboratory. Violations of EKRA may result in fines, imprisonment, or both.

The federal Civil Monetary Penalties law prohibits, among other things, offering or transferring remuneration to a federal healthcare program beneficiary that a person knows or should know is likely to influence the beneficiary's decision to order or receive items or services reimbursable by a federal healthcare program from a particular provider or supplier. Penalties for violating the Civil Monetary Penalties law may include exclusion from federal healthcare programs and substantial fines.

The Federal False Claims Act prohibits a person from knowingly submitting (or causing to be submitted) a claim, making a false record or statement in order to secure payment, or retaining an overpayment by the federal government. Moreover, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act. In addition to actions initiated by the government itself, the statute authorizes actions to be brought on behalf of the federal government by a private party known as the "relator" who has knowledge of the alleged fraud. These types of actions are also known as qui tam or "whistleblower" lawsuits. Because the complaint is initially filed under seal, the action may be pending for some time before the defendant is even aware of the action. If the government is ultimately successful in obtaining redress in the matter or if the plaintiff succeeds in obtaining redress without the government's involvement, then the plaintiff will receive a percentage of the recovery. It is not uncommon for qui tam lawsuits to be filed by employees, competitors, or consultants of healthcare providers, including clinical laboratories. Several states have also enacted similar false claims laws.

Further, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) created two federal crimes: healthcare fraud and false statements relating to healthcare matters, in addition to the privacy and security regulations described below under "—Privacy Regulation." The healthcare fraud statute prohibits knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private payors. A violation of this statute is a felony and may result in fines, imprisonment, or exclusion from government- sponsored programs. The false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact, or making any materially false, fictitious, or fraudulent statement in connection with the delivery of, or payment for, healthcare benefits, items, or services. Similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. A violation of this statute is a felony and may result in fines or imprisonment.

Similar foreign laws and regulations may apply to us if we offer our products in foreign jurisdictions in the future.

While we intend fully to comply with applicable federal and state fraud and abuse laws, and similar laws of other states and countries as we commercialize products, it is possible that some of our arrangements or arrangements we may enter into in the future could become subject to regulatory scrutiny, and we cannot provide assurance that we will be found to be in compliance with these laws following any such regulatory review.

Corporate Practice of Medicine and Fee-Splitting Prohibitions

A number of states, including California, do not allow business corporations to employ physicians to provide certain professional services. This prohibition against the "corporate practice of medicine" is aimed at preventing corporations such as us from exercising control over the medical judgments or decisions of licensed providers. In addition, several states also prohibit the sharing of professional services fees with non-professional or business interests. The state laws and regulations and agency and court decisions that enumerate the specific corporate practice and fee-splitting rules vary considerably from state to state and are enforced by both the courts and regulatory authorities, each with broad discretion. A violation of these laws may result in sanctions imposed against us and/or the professional through licensure proceedings, and we could be subject to civil and criminal penalties that could result in debarment, suspension or exclusion from state and federal healthcare programs.

Transparency Laws

The Sunshine Act was enacted by Congress in 2010 as part of the Affordable Care Act (ACA) and was amended in 2018 by the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act. The Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to CMS information related to the Sunshine Act requires us to collect and report annually certain data on payments and other transfers of value we make to U.S.-licensed physicians, teaching hospitals, and, for reporting beginning January 1, 2022, U.S.-licensed physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, and certified nurse-midwives. The data are sent to CMS for public disclosure on the Open Payments.

Additional International Regulation and Product Approval

We may have to obtain or submit approvals, markings, notifications, or satisfy other premarket requirements from regulatory authorities in non-U.S. jurisdictions prior to marketing our products in those countries and territories. The laws and regulations in other jurisdictions vary from those in the United States and may be easier or more difficult to satisfy, and they are subject to change, in some cases frequently. Certain regulatory authorities regulate LDTs and IVDs differently than the U.S., and our products may need to satisfy additional requirements to be offered commercially within the jurisdictions.

United Kingdom and European Union

Our SUMMIT clinical study is enrolling participants in multiple sites in the United Kingdom (UK). See "—Our Clinical Studies—SUMMIT." To the extent we commercially launch a product in the UK or the European Union (EU), we would be required to comply with the applicable regulations of those jurisdictions. In the EU, an IVD may be placed on the market only if it conforms to certain essential requirements set out in the *In Vitro* Diagnostic Medical Devices Directive 98/79/EC (IVD Directive) and bears the CE mark. IVDs intended to be used in performance evaluation studies do not need to be CE marked. For most IVDs, the manufacturer can perform its own conformity assessment and self-declare conformity, but for certain types of IVDs listed in an annex to the IVD Directive, a notified body must perform the assessment. Notified bodies are technical review bodies designated and supervised by the applicable national regulatory authorities in the EU. IVDs intended to be used in performance evaluation studies in the EU do not need to be CE marked, but other requirements apply, such as drafting a statement declaring that the IVD meets certain essential requirements. Such performance evaluation study requirements are not applicable to the SUMMIT clinical study, however, because our product is used only in our U.S. facility and will not be supplied to the UK.

In May 2017, the EU adopted a new *In Vitro* Diagnostic Medical Devices Regulation 2017/746 (IVDR), which will replace the IVD Directive in May 2022. Under the IVDR, many more IVDs will require the involvement of a notified body in their conformity assessment procedure. Under transitional provisions, IVDs with notified body certificates issued under the IVD Directive prior to May 2022 may continue to be placed on the market for the remaining validity of the certificate, until May 2024 at the latest. After the expiry of any applicable transitional period, only IVDs that have been CE marked under the IVDR may be placed on the market in the EU.

Coverage and Reimbursement

In the future, we will pursue payment for our products through a diverse and broad range of channels, including distribution partners and individual patients as well as, where available, through coverage and reimbursement by government health insurance programs and commercial third-party payors.

United States

In the United States, there is no uniform coverage for clinical laboratory tests. The extent of coverage and rate of payment for covered services varies from payor to payor. Obtaining coverage for tests like ours that involve genomic sequencing can be particularly challenging.

Medicare is the single largest healthcare payor in the United States, and a particularly significant payor for many cancer-related laboratory services given the demographics of the Medicare population, a large portion of which includes elderly individuals. Many other U.S. payors look to the Medicare policies as a benchmark and model for their own. Medicare provides two main forms of insurance coverage: traditional Medicare fee-for-service, administered by the federal government and its contractors, and Medicare Advantage, where coverage is provided by private insurers approved by CMS that must follow federal rules and guidelines. Secondary sources indicate that in 2019, approximately one-third of the Medicare population was enrolled in the Medicare Advantage program.

Generally, Medicare will not cover screening tests, which are considered preventive services, that are performed in the absence of signs or symptoms of illness or injury, except if explicitly authorized by statute. CMS, the agency responsible for administering the Medicare program, authorizes certain additional preventive services including certain screening tests that are not expressly covered by statute if the service is (a) reasonable and necessary for the prevention or early detection of an illness or disability, (b) recommended with a grade of A or B by the USPSTF, an independent, volunteer panel of experts in the field of prevention, evidence-based medicine and primary care, and (c) appropriate for Medicare beneficiaries under Part A or Part B. CMS establishes coverage through a NCD process. In making the NCD determination, CMS may also consider, among other things, the relationship between predicted outcomes and expenditures for such services, and take into account the results of such an assessment in making such determination None of our products have received such a grade or determination. In its discretion, the USPSTF generally waits for FDA authorization before it considers undertaking review of novel technology.

Galleri could be considered a screening test under Medicare and, accordingly, is unlikely to be covered by Medicare without pursuing the CMS NCD-related measures described above. These processes may take multiple years to complete as currently, coverage decisions for preventive services are not made prior to FDA authorization. Even if we pursue these processes, it is possible that Galleri will never become eligible for Medicare coverage and reimbursement. We are evaluating opportunities for nearer-term reimbursement through Medicare Advantage plans, while generating evidence to meet the requirements of the traditional Medicare path. Medicare Advantage plans generally must cover all of the services that traditional Medicare covers (except hospice care), but they have the discretion to offer their enrollees additional, or supplemental, benefits not otherwise covered under traditional Medicare, including those benefits referred to as optional supplemental benefits, for which enrollees may elect to pay extra to receive coverage. Obtaining such coverage may, however, involve lengthy negotiations with individual Medicare Advantage plans, and there is no guarantee that we will receive such coverage. We also intend to pursue coverage and reimbursement from private payors for our products. Many of these private payors must cover certain services required by federal and state laws, such as preventive health services that have received a rating of A or B by the USPSTF. Like Medicare Advantage plans, private payors have discretion to extend greater coverage than recognized under traditional Medicare but obtaining coverage from such payors may involve lengthy negotiations and there is no guarantee that we will receive such coverage. State Medicaid programs make individual coverage decisions for diagnostic tests and have taken steps to control the cost, utilization and delivery of healthcare services meaning that, even if Galleri receives coverage through private payors, there is no guarantee that it will be covered by individual state Medicaid programs.

DAC is intended to be a diagnostic product, and we believe we could obtain Medicare coverage and reimbursement of DAC as a medical benefit in the next several years, although there are no assurances that we will be successful in doing so. We may explore Medicare local coverage of DAC by Medicare Administrative Contractors, or MACs, by demonstrating utility of our product in a clinical study. MACs administer the Medicare program in their respective designated regions and have some discretion in determining coverage. We may seek FDA clearance or approval, which, if obtained, would help us obtain coverage and reimbursement for DAC.

If eligible for reimbursement, laboratory tests such as ours generally are classified for reimbursement purposes under CMS's Healthcare Common Procedure Coding System (HCPCS) and the American Medical Association's (AMA) Current Procedural Terminology (CPT) coding systems. We and payors must use those coding systems to bill and pay for our diagnostic tests, respectively. These HCPCS and CPT codes are associated with the particular product or service that is provided to the individual. Accordingly, without a HCPCS or CPT code applicable to our tests, the submission and payment of claims would be a significant challenge. Once CMS creates an HCPCS code or the AMA establishes a CPT code, CMS establishes payment rates and coverage rules under traditional Medicare, and private payors establish rates and coverage rules independently. Under Medicare, payment for laboratory tests is

generally made under the Clinical Laboratory Fee Schedule (CLFS) with payment amounts assigned to specific HCPCS and CPT codes.

In April 2014, Congress passed the Protecting Access to Medicare Act of 2014 (PAMA) which included substantial changes to the way in which clinical laboratory services are paid under Medicare. Under PAMA (as amended by the Further Consolidated Appropriations Act, 2020), laboratories that receive the majority of their Medicare revenue from payments made under the CLFS and Physician Fee Schedule and receive at least $12,500 in Medicare revenues for CLFS services during a data collection period are subject to certain reporting requirements. CMS uses the data reported, which includes certain private payor payment rates for each test the laboratory performs, the volume of tests paid at each rate, and the HCPCS code associated with the test, to calculate a weighted median payment rate for each test, which is used to establish revised Medicare CLFS reimbursement rates for clinical diagnostic laboratory tests (CDLTs). If the test is an advanced diagnostic laboratory test (ADLT), the test will be paid based on an actual list charge for an initial period of three quarters before being shifted to the weighted median private payor rate reported by the laboratory performing the ADLT. Laboratories offering ADLTs are subject to recoupment if the actual list charge exceeds the weighted median private payor rate by a certain amount. Accordingly, if our tests receive Medicare coverage in the future, the reimbursement rate we receive for such tests may be affected by payment rates made by private payors for such tests.

The revised reimbursement methodology described above generally results in relatively lower reimbursement amounts under Medicare for clinical laboratory services than has been historically reimbursed. Any reductions to reimbursement rates resulting from the new methodology are limited to 10% per test per year in each of 2018 through 2020 and to 15% per test per year in each of 2021 through 2023. The Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, suspended the scheduled payment in 2021 by one year.

In addition, PAMA codified Medicare coverage rules for laboratory tests by requiring any local coverage determination to be made following the local coverage determination process. PAMA also authorizes CMS to consolidate coverage policies for clinical laboratory tests among one to four laboratory-specific MACs. These same contractors may also be designated to process claims if CMS determines that such a model is appropriate. It is unclear whether CMS will proceed with contractor consolidation under this authorization.

General Reimbursement Considerations

Across jurisdictions, a decision to provide coverage for a product from a government payor, such as Medicare, or other third-party payor does not imply that an adequate reimbursement rate will be approved. Further, coverage and reimbursement for products, and services that utilize such products, can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance or at all.

Third party payors are increasingly challenging the price and examining the medical necessity and cost- effectiveness of medical products and services, including clinical laboratory tests, in addition to their safety and efficacy. In certain foreign markets, the government controls the coverage and pricing of many healthcare products, including clinical laboratory tests. In order to obtain coverage and reimbursement for any product that might be cleared or approved by regulators for sale, or for any procedure that utilizes such product, it may be necessary to conduct health economic studies in order to demonstrate the medical necessity and cost-effectiveness of the products. The cost of such studies would be in addition to the costs required to obtain regulatory approvals. If third-party payors do not consider a product to be cost-effective compared to other available products, they may not cover the product after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow a company to sell its products at a profit. Tests such as ours that will cover a large population and could potentially generate a significant number of false-positive results on an absolute basis may face incremental scrutiny in obtaining reimbursement from third-party payors given the additional costs of further diagnostic workup.

The marketability of Galleri and DAC may suffer if government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased, and we expect will continue to increase the pressure on medical products and services pricing. Coverage policies and third-

party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for our tests, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

In the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory changes to the healthcare system. Changes in healthcare policy could increase our costs and subject us to additional regulatory requirements that may interrupt commercialization of our products, decrease our revenue and adversely impact sales of, and pricing of and reimbursement for, our products. For example, in March 2010, the ACA was signed into law, which substantially changed the way healthcare is financed by both governmental and private insurers in the United States. The ACA contains a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement adjustments and fraud and abuse changes.

The implementation of the ACA in the United States, for example, has changed healthcare financing and delivery by both governmental and private insurers substantially, and affected medical device manufacturers significantly. The ACA imposed, among other things, a 2.3% federal excise tax on manufacturers of certain medical devices, which was suspended since 2016, and repealed in December 2019. The ACA also contains a number of other provisions, including provisions governing enrollment in federal and state healthcare programs, reimbursement matters, and fraud and abuse. There have been judicial and Congressional challenges to certain aspects of the ACA, and we expect additional challenges and amendments in the future. For example, the Tax Cuts and Jobs Act of 2017 includes a provision that entered into effect on January 1, 2019, that repeals the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." In December 2018, a U.S. district court held that the individual mandate was unconstitutional, which was upheld by the U.S. Court of Appeals for the Fifth Circuit. The Supreme Court of the United States granted *certiorari* on March 2, 2020, and the case is expected to be decided by mid-2021.

In addition, other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. For example, the Budget Control Act of 2011, among other things, resulted in reductions in payments to Medicare providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through December 31, 2020, unless additional Congressional action is taken. Additionally, the American Taxpayer Relief Act of 2012, among other things, reduced CMS payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover Medicare overpayments to providers from three to five years.

We believe that there will continue to be proposals by legislators at both the federal and state levels, regulators and third-party payors to reduce costs while expanding individual healthcare benefits. Certain of these proposals to further reform healthcare or reduce healthcare costs may limit coverage of or lower reimbursement for the procedures associated with the use of our products. Changes in healthcare policy could increase our costs, decrease our revenue and impact sales of and reimbursement for our products.

Privacy Regulation

U.S. Privacy Regulation

The privacy and security regulations under HIPAA, as amended by the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, collectively referred to herein as HIPAA, establish uniform standards governing the conduct of certain electronic healthcare transactions and require certain entities, called covered entities, to comply with standards that relate to the privacy and security of protected health information (PHI). HIPAA also sets forth certain rights that an individual may have with respect to his or her PHI maintained by a covered entity, including the right to access or amend certain records containing PHI, or to request restrictions on the use or disclosure of PHI. HIPAA's breach notification provisions require covered entities to report breaches of PHI that has not been encrypted or otherwise secured in accordance with guidance from the HHS Secretary. Required breach notices must be made as soon as is reasonably practicable, but no later than 60 days following discovery of the breach. Reports must be made to affected individuals and to the HHS Secretary and, in some cases

depending on the size of the breach, they must be reported through local and national media. HIPAA further requires that covered entities enter into agreements meeting certain regulatory requirements with their business associates, which are independent contractors or agents of covered entities that create, receive, maintain or transmit PHI in connection with providing a service on behalf of the covered entity. These agreements require business associates to safeguard the covered entity's PHI against improper use and disclosure. Certain of HIPAA's privacy and security standards are directly applicable to business associates. In the event we begin to bill health plans or health insurers for our multi-cancer test, we would become a covered entity subject to HIPAA. In the event we perform services on behalf of healthcare providers or health plans that require the receipt, creation, use or disclosure of PHI, we would become a business associate subject to certain provisions of HIPAA and the terms of any business associate agreements we enter into with such healthcare providers or health plans. Covered entities and business associates may be subject to significant civil and criminal penalties for noncompliance with HIPAA. Both the Office for Civil Rights within the U.S. Department of Health and Human Services and state attorneys general have authority to enforce HIPAA.

In addition, various states in the United States have laws and regulations governing the use and disclosure of health information, such as the California Confidentiality of Medical Information Act; these laws are not preempted by HIPAA to the extent they are more stringent than HIPAA. Many states have also implemented genetic testing and privacy laws imposing specific patient consent requirements and protecting test results by strictly limiting the disclosure of those results. Such laws may require that a specific form of consent be obtained from a patient to permit performance of Galleri and DAC. These laws frequently change, and we may not be able to maintain compliance in all jurisdictions in which we do business.

Additionally, the Federal Trade Commission (FTC) and many state attorneys general are interpreting existing federal and state consumer protection laws to impose evolving standards for the online collection, use, dissemination and security of health-related and other personal information. Courts may also adopt the standards for fair information practices promulgated by the FTC, which concern consumer notice, choice, security and access. Consumer protection laws require us to publish statements that describe how we handle personal information and choices individuals may have about the way we handle their personal information. If such information that we publish is considered untrue, we may be subject to government claims of unfair or deceptive trade practices, which could lead to significant liabilities and consequences. Furthermore, according to the FTC violating consumers' privacy rights or failing to take appropriate steps to keep consumers' personal information secure may constitute unfair acts or practices in or affecting commerce in violation of Section 5(a) of the FTC Act.

We seek to utilize biological samples and data from participants in our clinical trials in accordance with applicable law, IRB stipulations, and participant permissions (through consent forms and HIPAA authorizations). If we are unable or significantly restricted in using participant samples and data for secondary research purposes, our ability to develop additional products and/or improve or refine existing products will be limited, which may impact our business and prospects.

The California Consumer Privacy Act (CCPA) became effective in January 2020 and imposes many requirements on businesses that collect or process the personal information of California residents, including providing notice to data subjects regarding the information collected about them and providing data subjects the right to restrict the use of their personal information and to request access to or removal of such personal information. CCPA contains significant penalties for companies that violate its requirements. In addition, many states have enacted laws that impose fines on entities that experience a data breach involving certain types of personal data, permit consumers to bring private actions against parties that experience a breach involving their data or requiring notification of data subjects and state authorities in the event of a data breach. If we violate any of these laws applicable to our operations, we could face significant financial penalties and reputational damage.

There are also foreign privacy and security laws and regulations that impose restrictions on the access, use, and disclosure of personal information. As a business that operates both internationally and throughout the United States, any wrongful use or disclosure of personally identifiable information, even if it does not constitute PHI, by us or our third-party contractors, including disclosure due to data theft or unauthorized access to our or our third-party contractors' computer networks, could subject us to fines or penalties that could adversely affect our business or impose additional costs on our operations, including the cost of providing credit monitoring and identity theft

prevention services to affected consumers. In addition, CLIA regulations require that laboratories ensure the confidentiality of patient information throughout all phases of the total testing process that are under the laboratory's control.

European Union Privacy Regulation

We have employees in the United Kingdom. In addition, as part of our clinical study program, we collect certain personal data from study participants located in the European Economic Area (EEA), including certain health information. European Union (EU) data protection laws regulate the privacy and security of personal data of individuals in the EEA. Effective May 2018, the EU General Data Protection Regulation (GDPR) replaced the EU Data Protection Directive 95/46/EC. The GDPR strengthens the privacy and security protections afforded to the personal data of EEA patients, doctors, and other individuals, including requirements for how we, in the United States, collect, use, disclose, and protect such data if such data are collected in relation to us offering goods or services to, or monitoring the behavior of, individuals located in the EEA. The GDPR imposes a number of requirements on data controllers and processors, including us. The GDPR requires data controllers to be transparent and disclose to data subjects (in a concise, intelligible and easily accessible form) how their personal data are to be used, imposes limitations on retention of information, treats pseudonymized (key-coded data) as personal data subject to the regulation, and requires controllers to bind vendors that process personal data on their behalf to adhere to certain standards via contract. The GDPR expands the rights that individuals have to request access, correction, and deletion of their personal data, although certain exceptions exist for scientific research, and makes notification of data breaches to supervisory authorities and data subjects mandatory in certain circumstances. It also retains legal restrictions on the transfer of personal data outside of the EEA, which could frustrate our ability to access data for efficient processing in the United States. In addition, the GDPR provides that individual EEA member states may introduce further conditions on the processing of personal data, particularly in the realm of scientific research activities, which adds additional uncertainty regarding the application of the law and may require us to vary our data processing practices across Europe, which could increase our costs of compliance. If regulatory authorities or courts successfully assert that any of our practices fall short of applicable GDPR requirements, we could face penalties up to the greater of €20 million or 4% of worldwide revenue. Our brand and our ability to attract clinical study participants and in the future, patients, could also be adversely impacted if we do not properly protect personal data consistent with the GDPR.

Other International Privacy and Security Regulations

Our business is subject to a complex and evolving global web of laws and regulations governing data privacy, data security, cross-border data transfers, and data localization. Local, state, federal, and foreign governments are increasingly implementing or expanding their data protection regimes, resulting in additional compliance costs and risks. Many of these laws and regulations are subject to change and uncertain interpretation, and could result in regulatory or litigation claims or actions, changes to our business practices, monetary penalties, increased cost of operations, declines in clinical study participation or engagement, or otherwise harm our business.

We rely on information technology systems, including third-party hosted services, to support our business processes and activities and to store personal data (including employee and patient data). Consequently, we are at risk of a cybersecurity-related attack, intrusion, or disruption, including by criminal organizations, hackers, foreign governments, and terrorists. A cybersecurity incident could result in: some or all of our systems being unavailable; the loss, misuse, or unauthorized disclosure of genetic information or other personal data; negative publicity and reputational damage; exposure to risk of loss; and litigation and regulatory investigations. In the event we are a victim of a cyberattack, data breach notification laws may require us to notify regulators, affected individuals, and potentially other third parties in multiple jurisdictions. Cyber threats are constantly evolving, increasing the difficulty of detecting and successfully defending against them. Despite our security measures, we cannot guarantee that these measures will prevent all possible security breaches or attacks.

Employees

As of August 31, 2020, we had 436 employees, 239 of whom have advanced degrees. None of our employees are represented by a labor union or party to a collective bargaining agreement.

Research and Development

We are focused on developing and commercializing Galleri, DAC, and additional tests. Our research and development efforts are focused on our large-scale CCGA, STRIVE, SUMMIT and PATHFINDER clinical studies. In addition, we are leveraging the data we collect from these studies to advance our technology, including genomic assays, bioinformatics, and machine learning algorithms. Beyond our internal development work, we have also established a number of external collaborations that we believe may provide expertise and insights into our future product development and commercialization efforts.

Total research and development expenses were $223.2 million and $167.1 million for the years ended December 31, 2018 and 2019, respectively, and $87.2 million for the six months ended June 30, 2020. As of August 31, 2020, 327 employees were engaged in research and development activities.

Legal Proceedings

We are not currently a party to any material legal proceedings. From time to time, we may become involved in legal proceedings or investigations, which could have an adverse impact on our reputation, business, financial condition, results of operations, or cash flows, and could divert the attention of our management from the operation of our business.

Glossary of Selected Terms

AACR	American Association for Cancer Research
ADLT	advanced diagnostic laboratory test
AMA	American Medical Association
ASCO	American Society of Clinical Oncology
CAP	College of American Pathologists
CCGA	Circulating Cell-Free Genome Atlas clinical study
CDLT	clinical diagnostic laboratory test
cfNA	cell-free nucleic acid
cfRNA	cell-free RNA
CLFS	Clinical Laboratory Fee Schedule
CLIA	U.S. Clinical Laboratory Improvement Amendments of 1988
CMS	U.S. Centers for Medicare and Medicaid Services
CPT	Current Procedure Terminology
ctDNA	circulating tumor DNA
DNA	deoxyribonucleic acid
EDC	electronic data capture
EKRA	Eliminating Kickbacks in Recovery Act of 2018
ESMO	European Society for Medical Oncology
FDA	U.S. Food and Drug Administration
FDC Act	U.S. Federal Food, Drug, and Cosmetic Act
GDPR	General Data Protection Regulation
HCPCS	Healthcare Common Procedure Coding System
HHS	U.S. Department of Health and Human Services
HIPAA	U.S. Health Insurance Portability and Accountability Act of 1996
IDE	Investigational Device Exemption
IRB	Institutional Review Board
IVD	*in vitro* diagnostic device
IVDR	in Vitro Diagnostic Medical Devices Regulation 2017/746
LDCT	low-dose computed tomography
LDT	Laboratory Developed Test
NCD	national coverage determination
NGS	next-generation sequencing
PAMA	Protecting Access to Medicare Act of 2014
PHI	protected health information
PMA	premarket approval application
PORA	Physician Ownership and Referral Act of California
PPV	positive predictive value
RNA	ribonucleic acid
USPSTF	U.S. Preventive Services Task Force
USPTO	U.S. Patent and Trademark Office

MANAGEMENT

Executive Officers and Directors

The following table sets forth information regarding our executive officers and directors as of August 31, 2020:

Executive Officers	Age	Position
Hans E. Bishop	56	Chief Executive Officer and Director
Gautam K. Kollu	46	Chief Commercial Officer
Joshua J. Ofman, M.D., MSHS	56	Chief Medical Officer and External Affairs
Marissa Lee Song	45	General Counsel and Corporate Secretary
Matthew P. Young	51	Chief Financial Officer and Chief Operating Officer
Non-Employee Directors		
Catherine J. Friedman	60	Chairperson of the Board
Jeffrey T. Huber	52	Vice Chairperson of the Board
Hal V. Barron, M.D.	57	Director
Min Cui, Ph.D.	52	Director
Kaye Foster	60	Director
Maykin Ho, Ph.D.	67	Director
Richard Klausner, M.D.	68	Director
Robert Nelsen	57	Director
William Rastetter, Ph.D.	72	Director
Mostafa Ronaghi, Ph.D.	51	Director

Executive Officers

Hans E. Bishop has served as our Chief Executive Officer since June 2019 and a member of our board of directors since August 2018. Mr. Bishop has more than 30 years of experience in the biotechnology industry. Hans founded Juno Therapeutics in 2013 and served as its President and Chief Executive Officer until the company was acquired by Celgene in March of 2018. Prior to this, he served as an Executive in Residence at Warburg Pincus. Earlier in his career, Hans was the Executive Vice President and Chief Operating Officer for Dendreon, Inc. He also previously served as President of Specialty Medicine at Bayer Healthcare, Senior Vice President of Global Commercial Operations at Chiron Corporation, and Vice President and General Manager of European Biopharmaceuticals. He currently serves as the Executive Chair of the Sana board of directors and as a director of Agilent Technologies, Lyell Immunopharma, and JW Therapeutics. Mr. Bishop holds a B.A. in chemistry from Brunel University in London.

We believe that Mr. Bishop is qualified to serve on our board of directors because of his experience running GRAIL, extensive experience within the pharmaceutical industry, his executive experience at other companies in the biotechnology industry, his previous and current experience serving as a director of publicly-traded biopharmaceutical companies, and his extensive academic training.

Gautam K. Kollu has served as our Chief Commercial Officer since December 2019. From 2013 to November 2019, Mr. Kollu held various roles at Illumina, including most recently as Vice President, Global Market Development, and led the teams that drove the commercial adoption of genomics in multiple applications including noninvasive prenatal testing and liquid biopsy. Prior to that, Mr. Kollu was the Vice President of Marketing, Medical Affairs, and Business Development at Natera, Inc. Previously, Mr. Kollu was the Vice President of Commercial at Exelixis, Inc., and also worked at Genentech, Inc. where he held multiple marketing and commercial roles. Mr. Kollu began his career at Procter & Gamble, Inc. Mr. Kollu received a B. Tech. from the Indian Institute of Technology at Bombay and an MBA from the Wharton School at the University of Pennsylvania.

Joshua J. Ofman, M.D., MSHS has served as our Chief Medical Officer and External Affairs since January 2020 and served as our Chief of Corporate Strategy and External Affairs from June 2019 to January 2020. Dr. Ofman also serves on the Board of Directors of Cell BT, Inc., an immuno-therapy company focused on the discovery and development of innovative cancer therapeutics. From May 2003 to June 2019, Dr. Ofman held various roles at Amgen, where he most recently held the role of Senior Vice President, Global Health Policy. Prior to that, Dr. Ofman was a faculty member in the Department of Medicine and Health Services Research at University of California, Los Angeles (UCLA) School of Medicine, Cedars-Sinai Medical Center, as well as Senior Vice President of Zynx Health Inc., a subsidiary of Cerner Corp. Dr. Ofman holds a B.A. in history and philosophy of science from the University of California, Berkeley, and an M.D. from the University of California, Irvine, School of Medicine. Dr. Ofman also has an M.S.H.S. from the UCLA School of Public Health.

Marissa Lee Song has served as our General Counsel and Corporate Secretary since September 2019. From June 2005 to September 2019, Ms. Song held various roles at Gilead Sciences, Inc., where she most recently held the role of Vice President of Corporate Legal, where she led the corporate governance, SEC reporting and other groups. Prior to joining Gilead, Ms. Song was a Corporate Associate at Latham & Watkins LLP, Los Angeles. Ms. Song currently serves on the board of the Disability Rights Legal Center. Ms. Song holds a B.S. in Economics from the University of California, Berkeley and a J.D. from the University of Southern California.

Matthew P. Young has served as our Chief Financial Officer and Chief Operating Officer since October 2019. From April 2013 to October 2019, Mr. Young held various roles at Jazz Pharmaceuticals, where he most recently held the role of Executive Vice President and Chief Financial Officer. Prior to that, Mr. Young worked in investment banking for approximately 20 years at firms including Barclays Capital Inc., Citigroup Global Markets Inc., and Lehman Brothers, Inc. Mr. Young currently serves on the board of directors of PRA Health Sciences, Inc., a contract research company. He also serves as Lead Independent Director and Chairman of the audit committee of CytomX Therapeutics, Inc., a biopharmaceutical company. Mr. Young received a B.S. in Economics and an MBA from the Wharton School of the University of Pennsylvania.

Non-Employee Directors

Catherine J. Friedman has served as a member of our board of directors since August 2017 and as Chairperson of our board of directors since November 2018. Ms. Friedman has been an independent financial consultant serving public and private companies in the life sciences industry since 2006. Previously, Ms. Friedman held numerous executive positions during a 23-year investment banking career with Morgan Stanley, including Managing Director, Head of West Coast Healthcare and Co-Head of the Biotechnology Practice. Ms. Friedman currently serves as a director of Altaba Inc. (formerly Yahoo! Inc.), a publicly-traded management investment company, and Radius Health, Inc., a publicly-traded biopharmaceutical company. Ms. Friedman served as a director of Innoviva, Inc., a publicly-traded royalty management company, until April 2018. She previously served as a director of XenoPort, Inc., which was a publicly-traded pharmaceutical company, until July 2016, and as a director of ReShape Lifesciences, Inc., a publicly-traded medical device company formerly known as EnteroMedics, Inc., until May 2016. Before that, she served as a director of GSV Capital Corp., a publicly-traded investment fund, until March 2017. She is also a trustee of The Darden School Foundation at The University of Virginia. Ms. Friedman holds an MBA from The University of Virginia's Darden School of Business and a bachelor's degree in economics from Harvard College.

We believe that Ms. Friedman is qualified to serve on our board of directors because of her financial expertise, 23-year tenure as an investment banker, extensive experience serving as a member on other public company boards, and her extensive academic training.

Jeffrey T. Huber has served as a member of our board of directors since March 2016 and as Vice Chairperson of our board of directors since October 2017. He also served as our founding Chief Executive Officer from February 2016 to August 2017. From 2003 to 2016, Mr. Huber held various roles at Alphabet Inc., a publicly-traded holding company (formerly Google), most recently, Senior Vice President from 2008 to 2016. Prior to that, he served as Vice President of Architecture and Systems Development at eBay Inc.; as Senior Vice President of Engineering and Product Development at Excite@Home; and as a Technology Consultant at McKinsey & Company. Mr. Huber currently serves on the board of directors of Electronic Arts Inc., a publicly- traded electronic gaming company, and

previously served as a director of Illumina until 2016. Mr. Huber also serves on the board of trustees of the Exploratorium. Mr. Huber holds a masters of business administration degree with a focus on technology strategy and economics from Harvard University Graduate School of Business and a bachelor's degree in computer engineering from the University of Illinois at Urbana-Champaign.

We believe Mr. Huber is qualified to serve on our board of directors because of the perspective and experience he provides as one of our founders and his extensive experience in developing large-scale data platforms and consumer applications, as well as in strategic business development and his extensive academic training.

Hal V. Barron, M.D. has served as a member of our board of directors since August 2018. Dr. Barron is currently the Chief Scientific Officer and President of Research & Development and a member of the board of directors of GlaxoSmithKline plc, a publicly-traded pharmaceutical company, a role he has held since January 2018. Prior to that, he served as President, Research & Development at Calico (California Life Company), a subsidiary of Alphabet Inc., from November 2013 to December 2017. From 2010 to 2013, Dr. Barron served as the Chief Medical Officer and Executive Vice President, Head of Global Product Development at F. Hoffmann-La Roche Ltd., a publicly-traded healthcare company. Prior to that, Dr. Barron served as Senior Vice President, Development and Chief Medical Officer at Genentech. Dr. Barron previously served on the board of directors of Juno Therapeutics, Inc., which was a publicly-traded pharmaceutical company until its 2018 acquisition by Celgene Corporation. He is Associate Adjunct Professor, Epidemiology & Biostatistics, at the University of California, San Francisco. Dr. Barron holds a doctor of medicine degree from Yale University and a bachelor's degree in engineering physics from Washington University in St. Louis.

We believe that Dr. Barron is qualified to serve on our board of directors because of his extensive experience in research and development, including serving as the chief medical officer of several pharmaceutical companies, previous and current experience serving as a director of publicly-traded drug development companies, and his extensive academic training.

Min Cui, Ph.D. has served as a member of our board of directors since October 2017. Dr. Cui is the founder of Decheng Capital LLC, a venture capital firm, and has served as its Managing Director since 2011. Prior to that, he was an Investment Partner at Bay City Capital, an international life sciences venture capital firm, and previously, Director of Strategic Investment for the Southern Research Institute. Before that, Dr. Cui co-founded Pan Pacific Pharmaceuticals, Inc. and Hucon Biopharmaceuticals, focusing on the discovery and development of technologies in the fields of oncology, cardiology, and infectious and inflammatory diseases. Dr. Cui is a director of Alpine Immune Sciences, Inc., a publicly-traded biopharmaceutical company. Dr. Cui received a doctor of philosophy degree in cancer biology from Stanford University School of Medicine and master's and bachelor's degrees in molecular biology from Peking University.

We believe that Dr. Cui is qualified to serve on our board of directors because of his experience as a co-founder of life sciences and pharmaceutical companies, previous and current experience serving as a director of another publicly-traded life sciences company, and his extensive academic training in cancer biology.

Kaye Foster has served as a member of our board of directors since April 2017. Ms. Foster has been a Senior Advisor with Boston Consulting Group, a global management consulting firm, since 2014. From 2010 to 2014, she served as Senior Vice President, Global Human Resources at Onyx Pharmaceuticals, Inc., an Amgen, Inc. subsidiary and a biopharmaceutical company. Before that, Ms. Foster served as Global Vice President, Human Resources at Johnson & Johnson, a publicly-traded healthcare company. Previously, she has held several senior human resources executive positions with Pfizer Inc., a publicly-traded pharmaceutical company, supporting its pharmaceutical businesses in Japan, Asia, Africa, Middle East, and Latin America. Ms. Foster is currently a director of Agios Pharmaceuticals, Inc. (Agios Pharmaceuticals), a publicly-traded pharmaceutical company. Ms. Foster also serves as a director of Stanford Healthcare, a hospital and healthcare system, Spelman College, Glide Memorial Church, and Girls for a Change. Ms. Foster holds a masters of business administration degree from Columbia University Graduate School of Business and a bachelor's degree in business administration from Baruch College of the City University of New York.

We believe that Ms. Foster is qualified to serve on our board of directors because of her experience as a director of another publicly-traded life sciences company, her extensive background in management and human resources in the pharmaceutical industry, and her extensive academic training.

Maykin Ho, Ph.D. has served as a member of our board of directors since May 2019. Dr. Ho has served as a venture partner of Qiming Venture Partners since July 2015, and is a member of the Biotech Advisory Panel of the Stock Exchange of Hong Kong. Dr. Ho currently serves on the boards of directors for FibroGen, Agios Pharmaceuticals, Parexel International Corporation, the Aaron Diamond AIDS Research Center, and the Institute for Protein Innovation. Previously, Dr. Ho was a partner at Goldman Sachs & Co., where she served as senior biotechnology analyst, co-head of healthcare for global investment research, and advisory director for healthcare investment banking. Prior to Goldman Sachs, Dr. Ho held various managerial positions in licensing, strategic planning, marketing, and research at DuPont-Merck Pharmaceuticals and DuPont de Nemours & Company. Dr. Ho was a postdoctoral fellow at Harvard Medical School and a graduate of the Advanced Management Program at The Fuqua School of Business, Duke University. She holds a Ph.D. in Microbiology and Immunology and a B.S. from the State University of New York, Downstate Medical Center.

We believe that Dr. Ho is qualified to serve on our board of directors because of her experience as a director of several publicly-traded life sciences company, her extensive background in finance and expertise in the biotechnology and healthcare industries, and her extensive academic training.

Richard Klausner, M.D. has served as a member of our board of directors since January 2016. Dr. Klausner is currently founder and Chief Executive Officer of Lyell Immunopharma, Inc. From 2013 to 2016, Dr. Klausner served in various roles at Illumina, including Senior Vice President and Chief Medical Officer and Chief Opportunity Officer. Previously, he served as Managing Partner of the venture capital firm The Column Group and as Executive Director for Global Health of the Bill and Melinda Gates Foundation. Before that he was the Director of the U.S. National Cancer Institute; the Chief of the Cell Biology and Metabolism branch of the National Institute of Child Health and Human Development; as well as President of the American Society of Clinical Investigation. He currently chairs the Grand Challenges in Cancer program of Cancer Research UK and is a member of the National Academy of Sciences, the Institute of Medicine, and the American Academy of Arts and Sciences. He previously chaired the international advisory board for Samsung and the strategic oversight council of Sanofi. Dr. Klausner was co-founder and director of Juno Therapeutics, Inc., which was a publicly- traded pharmaceutical company until its 2018 acquisition by Celgene Corporation. Dr. Klausner currently serves as Chair of LifeMine, Medical Creations, Sonoma Biosciences and Wisdo. Dr. Klausner also serves as Executive Chairman of Mindstrong Health. Dr. Klausner received honorary degrees from Duke University, Queens University, Ohio State University, Mt. Sinai College of Medicine, and Ben Gurion University. Dr. Klausner holds a doctor of medicine degree from Duke University School of Medicine and a bachelor’s degree in molecular biophysics and biochemistry from Yale University.

We believe that Dr. Klausner is qualified to serve on our board of directors because of his extensive academic training and prior industry experience serving as the Director of the U.S. National Cancer Institute.

Robert Nelsen has served as a member of our board of directors since January 2016. Mr. Nelsen has served as Co-founder and Managing Director of ARCH Venture Partners, a venture capital firm focused on early-stage technology companies, or its affiliate entities, since 1986. Mr. Nelsen currently serves on the board of directors of Denali Therapeutics Inc., Hua Medicines, Karuna Therapeutics, Unity Biotechnology, Inc., and VIR Biotechnology. Mr. Nelsen previously served as a director of Sienna Biopharmaceuticals, Inc., Syros Pharmaceuticals, Agios Pharmaceuticals, Bellerophon Therapeutics, Fate Therapeutics, Juno Therapeutics, Kythera Biopharmaceuticals, Inc., NeurogesX, Inc., and Sage Therapeutics, Inc. He also previously served as Trustee of the Fred Hutchinson Cancer Research Center, Trustee of the Institute for Systems Biology, and as a director of the National Venture Capital Association. Mr. Nelsen holds a master of business administration from the University of Chicago Booth School of Business and a bachelor of science degree with majors in economics and biology from the University of Puget Sound.

We believe that Mr. Nelsen is qualified to serve on our board of directors because of his deep experience as a venture capitalist, building and serving on the boards of directors of many publicly-traded biotechnology companies, and his extensive academic training.

William Rastetter, Ph.D. has served as a member of our board of directors since January 2016 and served as Chairperson of our board of directors from November 2017 to November 2018. From August 2017 until January 2018, he also served as our interim Chief Executive Officer. From 2006 until 2013, he was a Partner in the venture capital firm Venrock. In 2009, Dr. Rastetter co-founded Receptos, Inc., a biopharmaceutical company, and served as its Chairman until it was sold to Celgene Corporation in 2015. Before that, Dr. Rastetter was the Chief Executive Officer of Idec Pharmaceuticals, Inc. from 1986 to 2003. Upon the merger of Idec Pharmaceuticals and Biogen, Inc. in 2003, Dr. Rastetter served as Chairman of Biogen Idec until the end of 2005. Previously, Dr. Rastetter served in various capacities at Genentech and held various faculty positions at Massachusetts Institute of Technology. He was also previously named an Alfred P. Sloan Fellow. Dr. Rastetter is the Chairman of Fate Therapeutics, Inc., Chairman of Neurocrine Biosciences, Inc., Chairman of Darè Bioscience, Inc., and a director of Regulus Therapeutics, Inc. He previously served a director of Illumina from 1998 to 2016 and as its Chairman from 2005 to 2016. He currently acts as a Strategic Advisor to Illumina Ventures, a genomics focused venture firm. Dr. Rastetter holds a doctor of philosophy degree and a master's degree in chemistry from Harvard University and a bachelor's degree in chemistry from MIT.

We believe Dr. Rastetter is qualified to serve on our board of directors because he was a co-founder of GRAIL, in addition to his extensive academic training and current and previous experience serving as a director and chairman of several life sciences companies, as well as his operating experience with several life sciences companies.

Mostafa Ronaghi, Ph.D. has served as a member of our board of directors since May 2020. Dr. Ronaghi is Illumina's Senior Vice President of Entrepreneurial Development, and previously served as the company's Senior Vice President and Chief Technology Officer. As Chief Technology Officer, Dr. Ronaghi was responsible for leading internal research and technology and was a co-founder of GRAIL. He was also a co-founder of Illumina Accelerator, the world's first business accelerator focused solely on creating an innovation ecosystem for the genomics industry. In 2008, Dr. Ronaghi co-founded Avantome, a privately held sequencing company that was acquired by Illumina in 2008. Before this, he co-founded NextBio, a search engine for life science data that was acquired by Illumina in 2013. In 2001, Dr. Ronaghi co-founded ParAllele Bioscience, which was eventually acquired by Affymetrix, Inc., and was involved in the development and commercialization of highly multiplexed technology for genetic testing. In 1997, he co-founded Pyrosequencing AB, which was renamed to Biotage in 2003.

Dr. Ronaghi was a principal investigator at Stanford University from 1999 until 2008 and focused on the development of novel tools for molecular diagnostic applications. He serves on the board of directors of BaseHealth and Clear Labs. Dr. Ronaghi earned his Ph.D. from the Royal Institute of Technology in Sweden.

We believe Dr. Ronaghi is qualified to serve on our board of directors because of his extensive academic training, his technical and scientific expertise as well as his operating experience in several genomic companies.

Board Structure and Composition

Upon completion of this offering, our board of directors will consist of members. Our board has determined that each of , , , , , and is independent under the applicable Nasdaq rules.

Our directors will be divided into three classes serving staggered three-year terms. Class I, Class II, and Class III directors will serve until our annual meetings of stockholders in 2021, 2022, and 2023, respectively. The Class I directors will consist of , , and . The Class II directors will consist of , , and . The Class III directors will consist of , , and . At each annual meeting of stockholders, directors will be elected to succeed the class of directors whose terms have expired. This classification of our board of directors could have the effect of increasing the length of time necessary to change the composition of a majority of the board of directors. In general, at least two annual meetings of stockholders will typically be necessary for stockholders to effect a change in a majority of the members of the board of directors.

Board Committees

Our board of directors has four standing committees: the audit committee; the compensation committee; the nominating and governance committee; and the science, medicine, and technology committee. Each committee is governed by a charter that will be available on our website following completion of this offering.

Audit Committee

Effective as of the date the registration statement of which this prospectus forms a part is declared effective by the SEC, the members of our audit committee will consist of , , and . will be the chairperson of our audit committee. The composition of our audit committee meets the requirements for independence under the current Nasdaq listing standards and Rule 10A-3 of the Exchange Act. Each member of our audit committee is financially literate. In addition, our board of directors has determined that is an "audit committee financial expert" within the meaning of the SEC rules. This designation does not impose on such directors any duties, obligations, or liabilities that are greater than are generally imposed on members of our audit committee and our board of directors. Our audit committee is directly responsible for, among other things:

- appointing, retaining, compensating, and overseeing the work of our independent registered public accounting firm;
- assessing the independence and performance of the independent registered public accounting firm;
- reviewing with our independent registered public accounting firm the scope and results of the firm's annual audit of our financial statements;
- overseeing the financial reporting process and discussing with management and our independent registered public accounting firm the financial statements that we will file with the SEC;
- pre-approving all audit and permissible non-audit services to be performed by our independent registered public accounting firm;
- reviewing policies and practices related to risk assessment and management;
- reviewing our accounting and financial reporting policies and practices and accounting controls, as well as compliance with legal and regulatory requirements;
- reviewing, overseeing, approving, or disapproving any related-person transactions;
- reviewing with our management the scope and results of management's evaluation of our disclosure controls and procedures and management's assessment of our internal control over financial reporting, including the related certifications to be included in the periodic reports we will file with the SEC; and
- establishing procedures for the confidential anonymous submission of concerns regarding questionable accounting, internal controls, or auditing matters, or other ethics or compliance issues.

Compensation Committee

Effective as of the date the registration statement of which this prospectus forms a part is declared effective by the SEC, the members of our compensation committee will consist of , , and . will be the chairperson of our compensation committee. Each of , , and is a non-employee director, as defined by Rule 16b-3 promulgated under the Exchange Act and meets the requirements for independence under the current Nasdaq listing standard. Our compensation committee is responsible for, among other things:

- reviewing and approving the compensation of our executive officers, including reviewing and approving corporate goals and objectives with respect to compensation;
- authority to act as an administrator of our equity incentive plans;

- reviewing and approving, or making recommendations to our board of directors with respect to, incentive compensation and equity plans;
- reviewing and recommending that our board of directors approve the compensation for our non-employee board members; and
- establishing and reviewing general policies relating to compensation and benefits of our employees.

Nominating and Governance Committee

Effective as of the date the registration statement of which this prospectus forms a part is declared effective by the SEC, the members of our nominating and governance committee will consist of , , and . will be the chairperson of our nominating and governance committee. , , and meet the requirements for independence under the current Nasdaq listing standards. Our nominating and governance committee is responsible for, among other things:

- identifying and recommending candidates for membership on our board of directors, including the consideration of nominees submitted by stockholders, and on each of the board's committees;
- reviewing and recommending our corporate governance guidelines and policies;
- reviewing proposed waivers of the code of business conduct and ethics for directors and executive officers;
- overseeing the process of evaluating the performance of our board of directors; and
- assisting our board of directors on corporate governance matters.

Science, Medicine, and Technology Committee

Effective as of the date the registration statement of which this prospectus forms a part is declared effective by the SEC, the members of our science, medicine, and technology committee will consist of , , and . will be the chairperson of our science, medicine, and technology committee. Our science, medicine, and technology committee is responsible for, among other things:

- advising our board of directors on key scientific, medical, and technological issues;
- reviewing, evaluating, and advising our board of directors regarding our performance in achieving long-term strategic goals and objectives and the quality and direction of our research and development programs; and
- assisting our board of directors with recruitment and retention of scientific and technological talent to advance our research and development programs.

Code of Business Conduct and Ethics

In connection with this offering, our board of directors will adopt a code of business conduct and ethics that applies to all of our employees, officers, and directors, including our Chief Executive Officer, Chief Financial Officer, and other executive and senior financial officers. Upon completion of this offering, the full text of our code of business conduct and ethics will be posted on the investor relations section of our website. We intend to disclose future amendments to our code of business conduct and ethics, or any waivers of such code, on our website or in public filings.

Compensation Committee Interlocks and Insider Participation

None of our executive officers has served as a member of a compensation committee (or if no committee performs that function, the board of directors) of any other entity that has an executive officer serving as a member of our board of directors.

EXECUTIVE COMPENSATION

This section discusses the material components of the executive compensation program for our named executive officers (NEOs) who are named in the "—2019 Summary Compensation Table" below. In 2019, our NEOs and their positions were as follows:

- Hans E. Bishop, *Chief Executive Officer*;
- Jennifer E. Cook, *Former Chief Executive Officer*;
- Matthew P. Young, *Chief Financial Officer and Chief Operating Officer*; and
- Gautam K. Kollu, *Chief Commercial Officer.*

This discussion may contain forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding future compensation programs. Actual compensation programs and policies that we implement following the completion of this offering may differ materially from the currently planned programs summarized in this discussion.

Summary Compensation Table

The following table sets forth information concerning the compensation awarded to or earned by our NEOs during our fiscal year ended December 31, 2019.

2019 SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Salary ($)	Bonus ($)[1]	Stock Awards ($)[2]	Option Awards ($)[2]	Non-Equity Incentive Plan Compensation ($)	All Other Compensation ($)	Total ($)
Hans E. Bishop *Chief Executive Officer*	2019	371,747 (3)	3,000,000	48,217,862	9,827,031	3,946,628 (4)	18,982 (5)	65,382,250
Jennifer E. Cook *Former Chief Executive Officer*[6]	2019	310,000	—	—	3,776,549	—	2,009,280 (7)	6,095,829
Matthew P. Young *Chief Financial Officer and Chief Operating Officer*[8]	2019	84,808	2,000,000	10,931,118	13,270,308	— (8)	—	26,286,234
Gautam K. Kollu *Chief Commercial Officer*[9]	2019	16,438	140,000	—	10,953,967	— (9)	—	11,110,405

(1) The amounts shown represent the sign-on cash bonuses paid to each of Messrs. Bishop, Young and Kollu in 2019, paid in accordance with the executives' offer letters with the company, as discussed further under the section titled "—Executive Compensation Arrangements—Offer Letters and Separation and General Release Agreement" below.

(2) The amounts shown represent the grant date fair values of restricted stock unit and option awards granted or modified in 2019 as computed in accordance with Financial Accounting Standards Board (FASB) Accounting Standard Codification (ASC) Topic 718, rather than the amounts paid to or realized by the named individual, plus, in the case of Ms. Cook, the incremental expense we incurred under ASC Topic 718 in connection with the treatment of Ms. Cook's option awards, as modified pursuant to a separation and general release agreement (as described further under the section titled "—Executive Compensation Arrangements—Equity Incentive Plans" below). For a discussion of the assumptions used to determine the grant date fair values of the equity awards made to our NEOs in 2019, see Note 10 to our audited consolidated financial statements included elsewhere in this prospectus.

(3) Includes $29,247 in compensation Mr. Bishop received for the periods he served as a non-employee director during 2019 and $342,500 in base salary for the portion of the year that he was an employee of the company. Mr. Bishop's employment commenced with us on June 6, 2019, at which time he ceased to receive compensation for his services as a director of our board.

(4) This amount represents (i) a cash payment of $3,500,000 paid upon achievement of certain pre-established performance objectives pursuant to Mr. Bishop's offer letter with the company and (ii) a pro-rated cash bonus of $446,628 earned under the 2019 performance period under our Variable Compensation Plan (each as described further under the section titled "—Executive Compensation Arrangements—Variable Compensation Program" below).

(5) This represents the cost of air travel related to travel to our offices prior to Mr. Bishop's relocation.

(6) Ms. Cook's employment with us terminated on June 6, 2019.

(7) Represents the aggregate value of severance benefits paid to Ms. Cook in 2019 pursuant to a separation and general release agreement between Ms. Cook and the Company.

(8) Mr. Young's employment commenced with us on October 28, 2019. Given his start date, he was not eligible for an annual cash bonus under our Variable Compensation Program, as described further under the section titled "—Executive Compensation Arrangements" below.

(9) Mr. Kollu's employment commenced with us on December 16, 2019. Given his start date, he was not eligible for an annual cash bonus under our Variable Compensation Program, as described further under the section titled "—Executive Compensation Arrangements" below.

Narrative to Summary Compensation Table

2019 Salaries

The annual base salaries for Messrs. Bishop, Young, and Kollu and Ms. Cook for 2019 were $650,000, $630,000, $400,000 and $650,000, respectively, which salaries were pro-rated in 2019 to reflect partial years of service. For fiscal year 2020, the annual base salary of Messrs. Young and Kollu remained the same and the annual base salary of Mr. Bishop was increased by 3% to $669,500.

2019 Bonuses

For a discussion of 2019 bonuses, see the section titled "—Executive Compensation Arrangements" below.

Equity Compensation

Certain of our named executive officers currently hold stock option awards and awards of restricted stock units (RSUs), in each case, covering shares of our Class A common stock. Specifically, in 2019, Messrs. Bishop, Young and Kollu were granted stock options and Messrs. Bishop and Young were granted RSUs, in the amounts set forth in the table below. For additional information about these awards, including their respective vesting terms and conditions, please see the sections titled, "—Outstanding Equity Awards at Fiscal Year End" and "—Executive Compensation Arrangements" below.

Named Executive Officer	Number of Shares Subject to Options Granted in 2019	Number of RSUs Granted in 2019
Hans E. Bishop	8,371,157	25,113,470
Matthew P. Young	8,716,800	5,230,200
Gautam K. Kollu	7,404,273	—

We intend to adopt a 2020 Incentive Award Plan, referred to below as the 2020 Plan, in order to facilitate the grant of cash and equity incentives to directors, employees (including our named executive officers) and consultants of our company and certain of our affiliates and to enable our company and certain of our affiliates to obtain and retain services of these individuals following this offering, which we view as essential to our long-term success. We expect that the 2020 Plan will be effective on the date on which it is adopted by our board of directors, subject to approval of such plan by our stockholders. For additional information about the 2020 Plan, please see the section titled "—Executive Compensation Arrangements— Equity Incentive Plans—2020 Incentive Award Plan" below.

Other Elements of Compensation

Retirement Plans

We maintain a tax-qualified 401(k) retirement savings plan for our employees, including our named executive officers, who satisfy certain eligibility requirements. Our named executive officers are eligible to participate in the 401(k) plan on the same terms generally as other eligible, full-time employees. The Code allows eligible employees to defer a portion of their compensation, within prescribed limits, on a pre-tax basis through contributions to the 401(k) plan. We believe that providing a vehicle for tax-deferred retirement savings though our 401(k) plan adds to the overall desirability of our executive compensation package and further incentivizes our employees, including our named executive officers, in accordance with our compensation policies. We did not make any employer contributions in 2019 under our 401(k) plan.

Employee Benefits and Perquisites

Health/Welfare Plans. All of our full-time employees, including our named executive officers, are eligible to participate in our health and welfare plans, including:

- medical, dental and vision benefits;
- medical and dependent care flexible spending accounts;
- short-term and long-term disability insurance; and
- life insurance.

We believe the perquisites described above are necessary and appropriate to provide a competitive compensation package to our named executive officers.

No Tax Gross-Ups

We do not make gross-up payments to cover our named executive officers' personal income taxes that may pertain to any of the compensation or perquisites paid or provided by our company.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth information concerning the number of shares of common stock underlying outstanding equity incentive awards for each named executive officer as of December 31, 2019.

	Option Awards					Stock Awards	
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable[1]	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)[2]	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)[3]
Hans E. Bishop	08/20/2019[4]	8,371,157	—	1.92	8/19/2029	—	—
	08/20/2019[5]	—	—	—	—	25,113,470	52,487,152
	08/07/2018[6]	—	—	1.74	08/06/2028	46,667	97,534
Jennifer E. Cook	01/02/2018[7]	7,852,891	—	0.42	01/01/2028		—
Matthew P. Young	12/18/2019[8]	—	—	—	—	5,230,200	10,931,118
	12/18/2019[9]	5,230,200	—	2.09	12/17/2029	—	—
	12/18/2019[10]	—	1,743,300	2.09	—	—	—
	12/18/2019[11]	—	1,743,300	2.09	—	—	—
Gautam K. Kollu	12/18/2019[9]	5,641,351	—	2.09	12/17/2029	—	—
	12/18/2019[11]	—	1,762,922	2.09	—	—	—

(1) Amounts in this column include options to purchase our Class A common stock that are early-exercisable, meaning that they can be exercised before they vest for restricted shares of our common stock subject to the same vesting provisions as the underlying options, or, with respect to Ms. Cook, that have vested pursuant to their terms. Accordingly, the options in this column represent both vested and unvested options.
(2) The exercise price per share of each option granted was equal to the fair value of our Class A common stock on the applicable grant date.
(3) Amounts in this column reflect the fair value of a Class A share of our common stock as of December 31, 2019 (or $2.09) multiplied by the number of unvested restricted shares or restricted stock units (as applicable) subject to the award.
(4) Represents Mr. Bishop's stock option award, which vested in full on June 6, 2020 in accordance with its terms.
(5) Represents (i) an award of 11,285,902 restricted stock units granted to Mr. Bishop under our 2016 Plan and (ii) an award of 13,827,568 restricted stock units granted to Mr. Bishop outside of the 2016 Plan pursuant to a non-plan award agreement; each such award is subject to the same or substantially similar terms and conditions and, as of December 31, 2019, each such award was unvested. Subject to Mr. Bishop's continued service with the company through the applicable vesting date, the restricted stock units subject to each such award vest over a three-year period, with two-thirds of the restricted stock units vesting on the second anniversary of his employment start date (*i.e.*, vesting on June 6, 2021) and one-third of the restricted stock units vesting on the third anniversary of his employment start date (*i.e.*, vesting on June 6, 2022).

(6) Represents unvested shares of restricted stock issued to Mr. Bishop following his early exercise of an option to purchase 70,000 shares of our common stock (which was granted to Mr. Bishop, prior to the start of his employment with us as Chief Executive Officer, in connection with his service as a non-employee director of the board). Subject to Mr. Bishop's continued service with the company through the applicable vesting date, the shares vest over a four-year period, with 25% of such shares vesting on the vesting commencing date (August 7, 2018) and 1/48th of the remaining shares vesting on each monthly anniversary of the vesting commencing date thereafter. The other 23,333 shares subject to this award vested prior to December 31, 2019.

(7) Represents the outstanding and vested shares subject to Ms. Cook's option awards as of December 31, 2019 (49,583 of which were granted under the 2016 Plan and 7,803,308 of which were granted outside of the 2016 Plan). Ms. Cook's employment terminated on June 6, 2019. As of her termination date, pursuant to the Cook Separation Agreement, (i) Ms. Cook vested into an additional 2,449,562 shares underlying the unvested portion of her time-based option award; (ii) the remaining portion of such option award, together with any other unvested equity award then-held by Ms. Cook, was cancelled and terminated; and (iii) such vested options were revised to remain outstanding and exercisable until the 24-month anniversary of such termination date (i.e., until June 6, 2021).

(8) Subject to Mr. Young's continued service with the company through the applicable vesting date, the restricted stock units vest over a four-year period, with 25% of such restricted stock units vesting on the first anniversary of his vesting start date (*i.e.*, vesting on October 28, 2020) and 1/16th of the remaining restricted stock units vesting on each quarterly anniversary of the vesting date thereafter.

(9) Subject to the applicable executive's continued service with the company through the applicable vesting date, each option vests over a four-year period, with 25% of the shares underlying the applicable option vesting on the first anniversary of the applicable vesting start date (*i.e.*,vesting on October 28, 2020, for Mr. Young, and December 16, 2020, for Mr. Kollu) and with 1/48th of the remaining shares underlying the options vesting on each monthly anniversary thereafter.

(10) Subject to Mr. Young's continued service with the company through the applicable vesting date, the option will vest over a four-year period commencing upon the date of the consummation of this offering, with 1/48th of the shares underlying the option vesting on each monthly anniversary of such consummation date.

(11) Subject to the applicable executive's continued service with the company, these options will vest over a three-year period, commencing upon the determination by our board that we achieved certain commercial use objectives relating to cancer early detection tests, as specified in the executives' respective offer letters, with 1/36th of the shares underlying the options vesting on each monthly anniversary of such determination date thereafter.

EXECUTIVE COMPENSATION ARRANGEMENTS

Below is a description of the material terms of each employment contract, agreement, plan or arrangement that provides for the employment of and payments to our NEOs (including such payments to be made at, following or in connection with the resignation, retirement or other termination of an NEO, or following a change in control).

Offer Letters and Separation and General Release Agreement

Mr. Bishop Offer Letter

On June 6, 2019, we entered into an offer letter with Mr. Bishop to serve as Chief Executive Officer, with an employment start date of June 6, 2019. Mr. Bishop's employment under the offer letter is at-will and will continue until terminated by either party. Pursuant to the offer letter, Mr. Bishop is entitled to a base salary of $650,000 per year and reimbursement of up to $35,000 in legal fees related to the negotiation of the offer letter, though Mr. Bishop did not seek or accept reimbursement of these legal fees. In addition, Mr. Bishop is eligible to participate in the company's benefit plans and programs maintained by us for the benefit of our employees.

Under the offer letter, Mr. Bishop is eligible to earn an annual cash bonus under our Variable Compensation Plan based on the attainment of performance objectives mutually agreed upon by our Compensation Committee and Mr. Bishop. Mr. Bishop's target annual bonus opportunity is 100% of his annual base salary. The payment of any annual bonus, to the extent any annual bonus becomes payable, will be contingent upon Mr. Bishop's continued service with the company through the applicable payment date. Additional information on Mr. Bishop's 2019 bonus can be found under the section titled "—Executive Compensation Arrangements—Variable Compensation Program" below.

In addition, in connection with the commencement of his employment with us, Mr. Bishop was paid a cash sign-on bonus of $3,000,000, in a lump-sum payment on the company's first payroll date following his employment start date. In the event that Mr. Bishop voluntarily terminates his employment with us without "good reason" or is terminated by the company for "cause" (each as defined in his offer letter), in either case, within the first 12 months of his employment, he will be required to repay to the company 50% of the net after-tax sign-on bonus amount. The offer letter also provides that, subject to his continued employment with the company through the applicable payment date, Mr. Bishop is eligible to receive: (i) a $3,500,000 cash performance bonus upon the board's approval of a strategic plan for the company, which was paid in January 2020 and (ii) a $3,500,000 cash performance bonus upon the achievement of to-be-determined performance goals, which the board in 2019 set as the attainment of certain commercial use objectives relating to cancer early detection tests.

Pursuant to the offer letter and applicable award agreement, on August 20, 2019, we granted Mr. Bishop (i) options to purchase 8,371,157 shares of our Class A common stock at an exercise price equal to the fair market value of the underlying shares of our Class A common stock on the date of grant and (ii) restricted stock units covering 25,113,470 shares of our Class A common stock. The options vested in full, according to the offer letter, on June 6, 2020, the first anniversary of Mr. Bishop's employment start date. Subject to Mr. Bishop's continued service through the applicable vesting date, two-thirds (or 16,742,314) of the restricted stock units will vest on June 6, 2021, the second anniversary of his employment start date, and the remaining one-third (or 8,371,156) of the restricted stock units will vest on June 6, 2022, the third anniversary of his employment start date. Under the terms of Mr. Bishop's restricted stock unit agreements, his restricted stock units will vest on an accelerated basis (A) as to those restricted stock units that would have vested during the one-year period following Mr. Bishop's termination of employment without cause, for good reason or due to his death or disability, in any case, had he remained employed through such one-year period, and (B) as to all of the restricted stock units if Mr. Bishop's employment is terminated without cause or for good reason, in either case, within three months prior to or two years after the occurrence of a change in control of the company.

The offer letter provides that if Mr. Bishop's employment is terminated by us without cause or by Mr. Bishop for good reason then, in either case, subject to the executive's execution and non-revocation of a separation and

general release of claims agreement in a form provided by the company, he will receive the following from the company, subject to applicable withholding:

i. a lump-sum cash payment, payable on the 61st day following termination, equal to 12 months of the executive's annual base salary plus executive's target bonus, in each case, as in effect on the date of such termination;

ii. a lump-sum cash payment, payable on the 61st day following termination, equal to the executive's target bonus, as in effect on the date of such termination (pro-rated for the number of days the executive was employed by the company during the year of such termination);

iii. for up to 12 months following the date of such termination, company-paid continued health care benefits under COBRA; and

iv. an additional 12 months of accelerated time-vesting for all then-outstanding and unvested equity awards (which, in accordance with Mr. Bishop's applicable award agreements, includes any performance-based option awards to the extent applicable performance criteria was achieved prior to such termination); *provided*, *that*, pursuant to the applicable award agreements, if Mr. Bishop's service with the company continues (either as a member of the board, advisor or consultant) after any such termination of employment, he will continue to vest in his restricted stock units over such service period in accordance with the original vesting schedule.

If such termination without cause or resignation for good reason occurs within 24 months after, or within the three-months before, the completion of a change of control, then, in any case, subject to the executive's execution and non-revocation of a separation and general release of claims agreement in a form provided by the company, Mr. Bishop will receive the following from the company (in lieu of the amounts described above):

i. a lump-sum cash payment, payable on the 61st day following termination, equal to 24 months of the executive's annual base salary plus 200% of the executive's target bonus, in each case, as in effect on the date of such termination;

ii. a lump-sum cash payment, payable on the 61st day following termination, equal to the executive's target bonus, as in effect on the date of such termination (pro-rated for the number of days the executive was employed by the company during the year of such termination);

iii. for up to 24 months following the date of such termination, company-paid continued health care benefits under COBRA; and

iv. full, accelerated vesting for all then-outstanding and unvested equity awards; *provided*, *that* if any such equity award expires or terminates within the three-month period prior to the change of control, then, upon such change of control, the company will pay to Mr. Bishop a cash amount equal to the value of the portion of the award that accelerated or would have otherwise accelerated in accordance with the forgoing.

Following a termination of Mr. Bishop's employment due to his death or disability, he will receive an additional 12 months of accelerated time-vesting for all then-outstanding and unvested restricted stock unit awards, unless Mr. Bishop's service with the company continues (either as a member of the board, advisor or consultant) after any such termination of employment, in which case he will continue to vest in his restricted stock units over such service period in accordance with the original vesting schedule.

In addition to the severance benefits described above, upon a termination of Mr. Bishop's service with us for any reason other than for cause: (i) any then-vested options shall remain outstanding and exercisable until the five-year anniversary of the date of such termination (or, if earlier, the date in which such options expire in accordance with their terms); and (ii) if such termination occurs on or following the second anniversary of Mr. Bishop's employment start date (*i.e.*, on or after June 6, 2021), (A) Mr. Bishop will have the opportunity to continue providing services to the company (either as a member of the board, advisor or consultant) for up to 12 months following the date of such termination, (B) during the 12-month service period, any outstanding and unvested equity

awards held by Mr. Bishop as of such termination will continue to vest in accordance with their terms, and (C) pursuant to the applicable award agreements, if, during the 12-month service period, Mr. Bishop's service is terminated by the Company without "cause" (as defined in the applicable award agreement), any then-outstanding and unvested restricted stock units that would have vested had Mr. Bishop continued to provide service during the 12-month service period will accelerate and vest.

The offer letter also requires that the executive enter into the company's standard form of invention assignment and nondisclosure of confidential information agreement.

Ms. Cook Offer Letter and Separation and General Release Agreement

On November 24, 2017, we entered into an offer letter with Jennifer Cook to serve as Chief Executive Officer, with an employment start date of January 2, 2018. As discussed further below, we entered into a separation and general release agreement with Ms. Cook, dated June 6, 2019 (Cook Separation Agreement), pursuant to which her employment with the company and her service as a board member were each terminated effective as of June 6, 2019.

Pursuant to her offer letter, Ms. Cook was entitled to receive an annual base salary of $650,000 per year and she was eligible to participate in the benefit plans and programs maintained by us for the benefit of our employees. Under the offer letter, Ms. Cook was also eligible to earn an annual cash bonus under our Variable Compensation Plan, targeted at 50% of her annual base salary and contingent upon her continued employment with the company through the applicable payment date. In addition, Ms. Cook was paid a cash sign-on bonus of $1,000,000, in a lump sum payment on the company's first payroll date following her employment start date. In the event that Ms. Cook voluntarily terminated her employment with us or was terminated by the company for "cause" (as defined in her offer letter), in either case, within the first 24 months of her employment, Ms. Cook was required to repay to the company 50% of the sign-on bonus (net of applicable taxes withheld); however, Ms. Cook was not required to repay such amount in connection with her separation.

In connection with her offer letter, Ms. Cook was granted a stock option to purchase 16,797,000 shares of our Class A common stock, subject to applicable service-vesting conditions, at an exercise price equal to the fair market value of the underlying shares of such common stock on the date of grant. Pursuant to the Cook Separation Agreement, as of the separation date, (i) 2,449,562 shares underlying the unvested portion of the time-based option award accelerated and vested; (ii) the remaining, unvested shares underlying the time-based option award, together with any other unvested equity award then-held by Ms. Cook was cancelled and terminated; and (iii) her then-vested options (after taking into account the acceleration described in "(i)") were modified to remain outstanding and exercisable (to the extent then-unexercised) until the 24-month anniversary of her separation date (*i.e.*, June 6, 2021).

In addition, under the Cook Separation Agreement, we paid or provided Ms. Cook with the following severance benefits: (i) a lump-sum cash payment equal to the sum of (A) $1,137,500, representing 21 months of her annual base salary and (B) $853,125, representing 1.75 times the amount of her 2019 target bonus opportunity; and (ii) company-paid continued health care benefits under COBRA for up to 18 months following the separation date. In consideration for the benefits provided under the Cook Separation Agreement, Ms. Cook executed an effective general release of claims in favor of us.

In connection with her offer letter, Ms. Cook entered into the company's standard form of invention assignment and nondisclosure of confidential information agreement. The Cook Separation Agreement further includes standard non-disclosure and non-disparagement restrictions, as well as employee/customer non-solicitation restrictions effective for 21 months following the termination date.

Mr. Young Offer Letter

On October 2, 2019, we entered into an offer letter with Mr. Young to serve as our Chief Operating Officer and Chief Financial Officer, with an employment start date of October 28, 2019. Mr. Young's employment under the offer letter is at-will and will continue until terminated by either party. Pursuant to the offer letter, Mr. Young is

entitled to an annual base salary of $630,000 per year. In addition, Mr. Young is eligible to participate in the company's benefit plans and programs maintained by us for the benefit of our employees.

Under the offer letter, Mr. Young is eligible to earn an annual cash bonus under our Variable Compensation Plan, with a target annual bonus opportunity equal to 50% his annual base salary. The payment of any annual bonus, to the extent any annual bonus becomes payable, will be contingent upon Mr. Young's continued employment with the company through the applicable payment date. In addition, in connection with the commencement of his employment with us, Mr. Young was paid a cash sign-on bonus of $2,000,000, in a lump-sum payment within 45 days following his employment start date. In the event that Mr. Young voluntarily terminates his employment with us without "good reason" or is terminated by the company for "cause" (each, as defined in his offer letter), in either case, within the first 12 months of his employment, Mr. Young will be required to repay to the company a pro-rated portion of the sign-on bonus equal to the number of months remaining in such 12-month period that he is not employed with the company.

Pursuant to the offer letter and applicable award agreements, we granted Mr. Young the following equity awards under our 2016 Plan:

- An option to purchase 5,230,200 shares of our Class A common stock at an exercise price equal to the fair market value of the underlying shares of our Class A common stock on the date of grant, which, subject to Mr. Young's continued service through the applicable vesting date, will vest over a four-year period, with twenty-five percent (25%) of the shares underlying the option vesting on the first anniversary of his employment start date and 1/48th of the remaining shares underlying the option vesting on each monthly anniversary thereafter;

- An option to purchase 1,743,300 shares of our Class A common stock at an exercise price equal to the fair market value of the underlying shares of our Class A common stock on the date of grant, which, subject to Mr. Young's continued service through the applicable vesting date, will vest over a four-year period commencing upon the date that an initial public offering of the company is consummated (which includes this offering), with 1/48th of the shares underlying the option vesting on each monthly anniversary of such consummation date until fully vested;

- An option to purchase 1,743,300 shares of our Class A common stock at an exercise price equal to the fair market value of the underlying shares of our Class A common stock on the date of grant, which, subject to Mr. Young's continued service through the applicable vesting date, will vest over a three-year period, commencing on the date that our board determines we have achieved certain commercial use objectives relating to cancer early detection tests as specified in the offer letter, with 1/36th of the shares underlying the option vesting on each monthly anniversary of such determination date thereafter; and

- An award of restricted stock units covering 5,230,200 shares of our Class A common stock, which, subject to Mr. Young's continued service through the applicable vesting date, will vest over a four-year period, with twenty-five percent (25%) of the restricted stock units vesting on the first anniversary of his employment start date and 1/16th of the remaining restricted stock units vesting on each quarterly anniversary of the start date thereafter.

The vesting of the options and RSUs may also be accelerated in certain circumstances, as set forth below; Mr. Young's option awards may be exercised at any time following the date of grant in accordance with their terms.

The offer letter provides that if Mr. Young's employment is terminated by us without cause or by Mr. Young for good reason then, in either case, subject to his execution and non-revocation of a separation and general release of claims agreement, he will receive the following from the company, subject to applicable withholding: (i) a lump-sum cash payment, payable on the 61st day following termination, equal to 12 months of his annual base salary plus target bonus, in each case, as in effect on the date of such termination; (ii) for up to 12 months following the date of such termination, company-paid continued health care benefits under COBRA; and (iii) an additional 12 months of accelerated vesting for all then-outstanding and unvested equity awards (which includes any performance-based equity awards to the extent applicable performance criteria was achieved prior to such termination); *provided*, *that*, if such termination occurs on or within 12 months after (or within three months before) the closing of a change of

control, in addition to the severance benefits described in (i)-(ii) above, Mr. Young's then-outstanding and unvested equity awards will be subject to full, accelerated vesting (assuming, with respect to any performance-based equity awards, that applicable performance-based criteria was achieved at target levels).

In addition to the severance benefits described above, upon any such termination of Mr. Young's service prior to the consummation of this offering, any then-vested options shall remain outstanding and exercisable until the 24-month anniversary of the date of such termination (or, if earlier, the date on which such options expire in accordance with their terms). If such termination occurs at any time following the consummation of this offering, pursuant to Mr. Young's applicable award agreements, any then-vested options shall remain outstanding and exercisable until the three-month anniversary of the termination date (or, if earlier, the date in which such options expire in accordance with their terms).

In connection with his offer letter, Mr. Young also entered into the company's standard form of invention assignment and nondisclosure of confidential information agreement.

Mr. Kollu Offer Letter

We entered into an offer letter with Mr. Kollu, dated November 15, 2019 (as amended and restated on August 27, 2020), to serve as our Chief Commercial Officer, with an employment start date of December 16, 2019. Mr. Kollu's employment under the offer letter is at-will and will continue until terminated by either party. Pursuant to the offer letter, Mr. Kollu is entitled to an annual base salary of $400,000 per year. In addition, Mr. Kollu is eligible to participate in the company's benefit plans and programs maintained by us for the benefit of our employees.

Under the offer letter, Mr. Kollu is eligible to earn an annual cash bonus under our Variable Compensation Plan, with a target annual bonus opportunity equal to 50% his annual base salary. The payment of any annual bonus, to the extent any annual bonus becomes payable, will be contingent upon Mr. Kollu's continued employment with the company through the applicable payment date. In addition, in connection with the commencement of his employment with us, Mr. Kollu was paid a cash sign-on bonus of $140,000, in a lump-sum payment within 45 days following his employment start date. In the event that Mr. Kollu's employment with us is terminated by the company for "cause" (as defined in his offer letter) within the first 12 months of his employment, Mr. Kollu will be required to repay to the company a pro-rated portion of the sign-on bonus equal to the number of months remaining in such 12-month period that the executive is not employed with the company.

Pursuant to the offer letter and applicable award agreements, we granted Mr. Kollu the following equity awards under our 2016 Plan:

i. An option to purchase 5,641,351 shares of our Class A common stock at an exercise price equal to the fair market value of the underlying shares of our Class A common stock on the date of grant, which, subject to Mr. Kollu's continued service through the applicable vesting date, will vest over a four-year period, with twenty-five percent (25%) of the shares underlying the option vesting on the first anniversary of his employment start date and 1/48th of the remaining shares underling the option vesting on each monthly anniversary thereafter; and

ii. An option to purchase 1,762,922 shares of our Class A common stock at an exercise price equal to the fair market value of the underlying shares of our Class A common stock on the date of grant, which, subject to Mr. Kollu's continued service through the applicable vesting date, will vest over a three-year period, commencing on the date that our board determines we have achieved certain commercial use objectives relating to cancer early detection tests as specified in the offer letter, with $1/36^{th}$ of the shares underlying the option vesting on each monthly anniversary of such determination date thereafter.

The vesting of the options may also be accelerated in certain circumstances as set forth below. Mr. Kollu's option awards may be exercised at any time following the date of grant in accordance with their terms.

The offer letter provides that if Mr. Kollu's employment is terminated by us without cause or by Mr. Kollu for "good reason" (as defined in his offer letter) then, in either case, subject to his execution and non-revocation of a

separation and general release of claims agreement, Mr. Kollu will receive the following from the company, subject to applicable withholding: (i) a lump-sum cash payment, payable on the 61st day following termination, equal to 12 months of Mr. Kollu's annual base salary plus target bonus, in each case, as in effect on the date of such termination; (ii) for up to 12 months following the date of such termination, company-paid continued health care benefits under COBRA; and (iii) an additional 12 months of accelerated vesting for all then-outstanding and unvested equity awards (which includes any performance-based equity awards to the extent applicable performance criteria were achieved prior to such termination); *provided*, *that*, if such termination occurs on or within 12 months after (or within three months before) the closing of a change of control, in addition to the severance benefits described in (i)-(ii) above, Mr. Kollu's then-outstanding and unvested equity awards will be subject to full accelerated vesting (assuming, with respect to any performance-based equity awards, that applicable performance-based criteria was achieved at target levels).

In addition to the severance benefits described above, upon any such termination of Mr. Kollu's service prior to the consummation of this offering, any then-vested options shall remain outstanding and exercisable until the 24-month anniversary of the date of such termination (or, if earlier, the date on which such options expire or are terminated in accordance with their terms). If such termination occurs at any time following the consummation of this offering, pursuant to Mr. Kollu's applicable award agreements, any then-vested options shall remain outstanding and exercisable until the three-month anniversary of the termination date (or, if earlier, the date in which such options expire in accordance with their terms).

In connection with his offer letter, Mr. Kollu also entered into the company's standard form of invention assignment and nondisclosure of confidential information agreement.

Equity Incentive Plans

The following summarizes the material terms of the long-term incentive compensation plan in which certain of our employees, including our NEOs, will be eligible to participate following the consummation of this offering and the 2016 Plan, under which we have previously made periodic grants of equity and equity-based awards to our NEOs and other key employees.

2020 Incentive Award Plan

In connection with this offering, we intend to adopt a new omnibus incentive equity plan, subject to approval by our stockholders, the terms of which will be described in an amendment to the registration statement of which this prospectus forms a part. Following the adoption of this new plan, we expect that no further grants will be made under the 2016 Plan.

2020 Employee Stock Purchase Plan

In connection with this offering, we intend to adopt an employee stock purchase plan, the terms of which will be described in an amendment to the registration statement of which this prospectus forms a part.

2016 Equity Incentive Plan

On January 8, 2016, our board of directors adopted, and our stockholders approved, our 2016 Equity Incentive Plan, or the 2016 Plan (as amended on May 7, 2020).

Share Reserve. As of June 30, 2020, the aggregate number of shares of our Class A and Class B common stock reserved for grant or issuance under our 2016 Plan was 116,828,025 in the aggregate, subject to adjustment by the plan administrator in the event of certain changes in our corporate structure, as described below. The maximum number of shares that may be granted with respect to incentive stock option awards under the 2016 Plan is 116,828,025. In addition, the overall share reserve automatically increases on January 1 of each calendar year, such that the unallocated portion of the overall share reserve is equal to 4% of the company's fully-diluted capitalization as of the December 31 of the preceding calendar year. Following the effectiveness of the 2020 Plan, the 2016 Plan will terminate and we will not have any further share increases or make any further awards thereunder. However, any outstanding awards granted under the 2016 Plan will remain outstanding, subject to the terms of the 2016 Plan

and applicable award agreement. We expect that shares of common stock subject to awards granted under the 2016 Plan that expire, lapse or are terminated, exchanged for or settled in cash, surrendered, repurchased, canceled without having been fully exercised or forfeited following the effective date of the 2020 Plan will become available for issuance under the 2020 Plan in accordance with its terms.

Administration. Our board of directors acts as the plan administrator of our 2016 Plan. The plan administrator has full authority to take all actions and to make all determinations required or provided for under the 2016 Plan and any award granted thereunder. The plan administrator also has full authority to determine who may receive awards under the 2016 Plan, the type, terms, and conditions of an award, the number of shares of common stock subject to the award or to which an award relates, and to make any other determination and take any other action that the plan administrator deems necessary or desirable for the administration of the plan.

Types of Awards; Eligibility. Our 2016 Plan allows for the grant of awards in the form of: (i) incentive stock options (ISOs); (ii) non-qualified stock options (NSOs); (iii) stock appreciation rights (SARs); (iv) restricted stock; (v) RSUs; and (vi) unrestricted stock. Directors, employees, and consultants are eligible to participate in the 2016 Plan, however, incentive stock options may only be granted to employees. To date, only stock options, RSUs and restricted stock have been granted (and remain outstanding) under the 2016 Plan; each such award is set forth in a separate agreement with the person receiving the award and such agreement indicates the type, terms and conditions of the award.

- *Stock Options and SARs.* The plan administrator may determine the number of shares to be covered by each option and/or SAR, the exercise price and such other terms, conditions, and limitations applicable to the vesting, exercise, term and forfeiture of each option and/or SAR as it deems necessary or advisable. Options granted under the 2016 Plan may be either ISOs or NSOs. Stock options provide for the purchase of shares of our common stock in the future at an exercise price set on the grant date. ISOs, in contrast to NSOs, may provide tax deferral beyond exercise and favorable capital gains tax treatment to their holders if certain holding period and other requirements of the Code are satisfied. SARs entitle their holder, upon exercise, to receive from us an amount equal to the appreciation of the shares subject to the award between the grant date and the exercise date. The exercise price of an option or SAR is determined by the plan administrator at the time of grant but shall not be less than 100% of the fair market value, or in the case of an ISO granted to an employee who owns more than 10% of the company, 110% of the fair market value on the day of such grant. Stock options and SARs may have a maximum term of ten years, or, in the case of ISOs granted to an employee who owns more than 10% of the company, five years from the date of grant.

- *Restricted Stock.* Restricted stock is an award of nontransferable shares of our common stock that are subject to certain vesting conditions and other restrictions. The plan administrator may determine the terms and conditions of restricted stock awards, including the number of shares awarded, the purchase price, if any, to be paid by the recipient, the time, if any, at which such restricted stock may be subject to forfeiture, the vesting schedule, if any, and any rights to acceleration thereof.

- *RSUs.* RSUs are contractual promises to deliver cash or shares of our common stock in the future, which may also remain forfeitable unless and until specified conditions are met. The terms and conditions applicable to RSUs are determined by the plan administrator, subject to the conditions and limitations contained in the plan.

Adjustments; Corporate Transactions. In the event of certain changes in our corporate structure, including any stock split, reverse stock split, stock dividend, combination or reclassification of shares, recapitalization or other change in capital structure, or any extraordinary cash dividend, the plan administrator will make appropriate adjustments to outstanding awards in such manner as the plan administrator may determine. In the event of a "corporate transaction" (as defined below), the plan administrator may provide for, among other things: (i) any or all outstanding options and SARs to vest and become immediately exercisable; (ii) any or all outstanding restricted stock or restricted stock units to become non-forfeitable; (iii) the cancellation of any award in exchange for cash or other substitute consideration equal to the fair market value of the award; and (iv) the issuance of substitute stock awards that will substantially preserve the otherwise applicable terms of any affected stock award. A "corporate transaction" generally means (i) any person (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange

Act, other than any person who currently owns more than a majority of the combined voting power of our outstanding common stock), becoming the beneficial owner (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 50% of the combined voting power of our then outstanding voting securities, except that any change in the ownership of our stock as a result of a private financing of the company that is approved by the board will not be considered a Corporate Transaction; (ii) our consolidation or merger with or into another entity, unless our stockholders immediately before such consolidation or merger own, directly or indirectly, a majority of the combined voting power of the outstanding voting securities of the corporation or other entity resulting from such consolidation or merger; (iii) the sale, lease, or other disposition of all or substantially all of our assets; or (iv) the liquidation, dissolution, or winding up of the entity.

Amendment and Termination. The 2016 Plan will expire in 2026. However, the plan administrator may amend, suspend, or earlier terminate the 2016 Plan (and intends to terminate the 2016 Plan in connection with this offering), provided that the plan administrator may not adversely impair the existing rights of any participant without such participant's consent and may not increase the aggregate number of shares of common stock that may be issued under the 2016 Plan (other than due to adjustments for corporate transactions) without stockholder consent.

Variable Compensation Program

Our annual Variable Compensation Program (VCP) provides the opportunity to eligible employees, including our named executive officers, to earn annual cash bonuses based on the achievement of pre-established corporate and individual performance goals for the applicable fiscal year. The VCP is a cash-based program, and individual VCP targets are determined by salary grade and expressed as a percentage of base pay. The payment of any annual bonus, if earned, is contingent upon the applicable participant's (i) continued employment or service with the company through the applicable payment date, (ii) employment start date commencing on or prior to October 1 of the applicable fiscal year, and (iii) continued compliance company policy and applicable law.

During 2019, Messrs. Bishop, Young, and Kollu and Ms. Cook had annual bonus opportunities targeted at 100%, 50%, 50% and 75%, respectively, of their annual base salaries, pro-rated for partial years of service. The 2019 VCP payout to Mr. Bishop was based on company and individual performance and is set forth above in the Summary Compensation Table in the column entitled "Non-Equity Incentive Plan Compensation." Our other NEOs were not eligible to earn annual bonuses under the VCP for 2019.

DIRECTOR COMPENSATION

2019 Director Compensation Program

In 2019, our non-employee and non-investor directors were eligible in 2019 to receive compensation for their service on our board of directors, as follows: (i) a $40,000 annual cash retainer; (ii) a $10,000 additional cash retainer for service as a non-chair member of a board committee; and (iii) a $10,000 additional cash retainer for service as a committee chair of a board committee. All cash payments to non-employee and non-investor directors were paid quarterly in arrears and pro-rated for any partial periods of service. Upon initial appointment to the board, certain non-employee and non-investor directors were also eligible to receive an option grant to purchase 70,000 shares of our Class A common stock, pursuant to the 2016 Plan and form of award agreement. Directors who, at any time during their service on the board, were also full-time officers or employees of our company, received no additional compensation or benefits for their board service.

The following table contains information concerning the compensation of our non-employee and non-investor directors in 2019:

Name[1][2]	Fees Earned or Paid in Cash ($)	Stock Awards ($)[3]	Option Awards ($)[3][4]	All Other Compensation ($)	Total ($)
Hal V. Barron, M.D.	40,000	—	—	—	40,000
Brook Byers[5]	13,973	—	—	—	13,973
Min Cui, Ph.D[6]	—	—	—	—	—
Kaye Foster	61,890	—	—	—	61,890
Catherine J. Friedman	105,000 [7]	—	543,958	—	648,958
Maykin Ho, Ph.D.	41,329 [8]	—	79,232	—	120,561
Jeffrey Huber[6]	—	—	—	—	—
Richard Klausner, M.D[9]	56,438	—	—	—	56,438
Robert Nelsen[6]	—	—	—	—	—
William Rastetter, Ph.D	60,000	—	—	—	60,000
Mostafa Ronaghi, Ph.D[10]	—	—	—	—	—

(1) In addition to compensation received for their service on our board of directors, Messrs. Bishop and Nelsen and Drs. Barron, Cui, Ho and Klausner have each been involved in certain related-party transactions with the Company. For a discussion of these transactions, see “Certain Relationships and Related-Party Transactions” and Note 12 to our 2019 audited consolidated financial statements.

(2) Hans E. Bishop, our current Chief Executive Officer, is not included in this table as he became an employee of the company in June 2019, after which time he did not receive compensation for his services as a director. Jennifer Cook, our former Chief Executive Officer, is also not included in this table as she was an employee of the company in 2019 (through her separation date of June 6, 2019) and did not receive compensation for her services as a director. All compensation paid to Mr. Bishop for the period he served as a non-employee director during 2019 is reflected in the section titled “Summary Compensation Table” above.

(3) The amounts shown represent the grant date fair values of option awards granted in 2019 as computed in accordance with FASB ASC Topic 718. For a discussion of the assumptions used to determine the grant date fair values of equity awards made to our non-employee directors in 2019, see Note 10 to our audited consolidated financial statements included elsewhere in this prospectus.

(4) As of December 31, 2019, our non-employee directors held outstanding option awards to purchase shares of our Class A common stock (and/or restricted shares issued in connection with an early exercise of such options), with respect to the following number of shares: Dr. Barron, 90,000 (all of which were early exercised into restricted shares); Mr. Byers, 220,000 (all of which were early exercised into restricted shares and 186,459 of which were repurchased by the company in 2020 in connection with Mr. Byers’ termination of service in 2019); Ms. Foster, 220,000 (70,000 of which were early exercised into restricted shares); Ms. Friedman, 660,000 (70,000 of which were early exercised into restricted shares); Ms. Ho, 70,000; Dr. Klausner, 2,060,000 (876,000 of which were granted in connection with Dr. Klausner’s consulting agreement with the company and 450,000 of which were granted for board services (see Note 12 to our 2019 audited consolidated financial statements)); and Dr. Rastetter, 1,109,000 (350,000 of which were granted in connection with Dr. Rastetter’s prior service as our chief executive officer and all of which were early exercised into restricted shares).

(5) Mr. Byers resigned as a member of our board of directors effective March 27, 2019; therefore, the cash compensation paid to him was pro-rated for his partial year of service.

(6) As investor directors, Dr. Cui and Messrs. Huber and Nelsen did not receive compensation for serving on our board of directors in 2019. Mr. Huber provides services to our board as a non-employee director pursuant to a written agreement with the company, dated October 12, 2017 and amended on August 27, 2020. Mr. Huber’s services may be terminated at any time with or without notice by the company. Pursuant to his agreement, Mr. Huber is eligible to receive certain incentive awards upon the company’s attainment of specified net revenue targets, subject to his continued board service. These awards are payable in cash or shares of our common stock at the company’s election.

For additional information on Mr. Huber's transition agreement, see the section below titled, "Certain Relationships and Related Party Transactions—"Mr. Huber Transition Agreement."

(7) Amount reflects cash fees paid to Ms. Friedman during 2019 for her services as a director, which includes a one-time, discretionary payment of $35,000 for her services as chairman of the board in 2019.

(8) Dr. Ho's service on our board of directors commenced on May 10, 2019; therefore, her cash compensation was pro-rated for her partial year of service.

(9) In addition to his service as a non-employee director of the board, Dr. Klausner provides consulting services to the company from time to time pursuant to a written agreement with the company, dated May 10, 2016 and amended on August 7, 2020. Pursuant to his agreement (as amended), Dr. Klausner was granted three stock option awards, each of which vest over four years from the grant date, subject to his continued service. The agreement is terminable at any time by any party, subject to 10-day written notice from the company to Dr. Klausner. The agreement contains standard confidentiality, nondisclosure and assignment of inventions restrictions, as well as non-solicitation of personnel restrictions, effective during the term and for one year thereafter. For additional information on Dr. Klausner consulting agreement, see the section below titled, "Certain Relationships and Related Party Transactions—"Dr. Klausner Consulting Agreement."

(10) Dr. Ronaghi's service on the board commenced on May 4, 2020; therefore, he did not receive any compensation for services provided in 2019.

Post-IPO Director Compensation Program

We intend to approve and implement a compensation program for our non-employee directors that we expect will consist of annual retainer fees and long-term equity awards. Directors who are also full-time officers or employees of our company will receive no additional compensation for serving as directors.

CERTAIN RELATIONSHIPS AND RELATED-PARTY TRANSACTIONS

The following is a description of transactions since our inception to which we have been a party, in which the amounts involved exceeded or will exceed $120,000, and in which any of our directors, executive officers, or beneficial owners of more than 5% of our capital stock, or an affiliate or immediate family member thereof, had or will have a direct or indirect material interest.

Other than as described below, there have not been, nor are there any currently proposed, transactions or series of similar transactions meeting this criteria to which we have been or will be a party other than compensation arrangements, which are described where required under "Management—Board Structure and Compensation of Directors" and "Executive Compensation."

Preferred Stock Financings and Repurchases

We were formed in September 2015 as a wholly-owned subsidiary of Illumina, Inc. Illumina is a current holder of more than 10% of our outstanding capital stock. In January and February 2016, we completed our initial and additional closings of our Series A financing, whereby we issued an aggregate of 120,000,000 shares of Series A redeemable convertible preferred stock to 13 investors, including Illumina, for an aggregate purchase price of $120 million, or $1.00 per share.

In June 2016, we entered into a stock exchange agreement and plan of reorganization with Illumina, pursuant to which Illumina purchased 97,500,000 shares of our Series A-1 redeemable convertible preferred stock, in exchange for an equivalent number of shares of Class B Common Stock.

In February 2017, we entered into a stock repurchase and conversion agreement with Illumina and repurchased a total of 35,000,000 shares of our Series A redeemable convertible preferred stock and 34,394,121 shares of our Series A-1 redeemable convertible preferred stock from Illumina for an aggregate purchase price of $278.2 million, or $4.0085 per share. Pursuant to this agreement, Illumina elected pursuant to the terms of our amended and restated certificate of incorporation as then in effect to convert all of its remaining 63,105,879 shares of Series A-1 redeemable convertible preferred stock into 63,105,879 shares of Class B Common Stock, which were then, together with the existing shareholding of 15,000,000 shares of Class B common stock, converted into 78,105,879 shares of Class A common stock.

In February, April, May and December 2017, we completed our initial and additional closings of our Series B financing, whereby we issued an aggregate of 271,836,114 shares of our Series B redeemable convertible preferred stock to 50 investors, including Illumina, Memorial Sloan Kettering Cancer Center (MSK), entities affiliated with ARCH Ventures, and trusts affiliated with Jeffrey T. Huber, for an aggregate purchase price of $1.1 billion, or $4.0085 per share. From February 2017 to February 2018, José Baselga, M.D., Ph.D., former Physician-in-Chief and Chief Medical Officer at MSK, was a member of our board of directors. Entities affiliated with ARCH Ventures are beneficial owners of more than 5% of our outstanding common stock, and one of our directors, Mr. Nelsen, is Managing Director of ARCH Ventures. Mr. Huber also serves as one of our directors and is the beneficial owner of more than 5% of our outstanding common stock.

In November and December 2019, and January, April and May 2020, we completed our initial and additional closings of our Series D financing, whereby we issued an aggregate of 76,743,836 shares of our Series D redeemable convertible preferred stock to 14 investors, including Illumina and Milky Way Investments Group Limited (Milky Way), for an aggregate purchase price of approximately $392.0 million, or $5.1080 per share. Dr. Klausner, a member of our board of directors, is a founding partner of Milky Way.

In 2016, ARCH Venture Fund VIII, L.P. transferred 100,000 shares of our Series A redeemable convertible preferred stock to George Golumbeski, Ph.D. Dr. Golumbeski is a venture partner at ARCH Venture Partners and also served as our President and as one of our directors from August 2018 to August 2019.

In connection with these financings, we also entered into a voting agreement, a right of first refusal and co-sale agreement, and an investors' rights agreement with certain holders of our then-outstanding redeemable convertible preferred stock, including Illumina. These agreements were subsequently amended and restated in connection with

our Series A-1 stock exchange and our Series B, Series C and Series D redeemable convertible preferred stock financings. The voting agreement and right of first refusal and co-sale agreement will each terminate immediately prior to the completion of this offering. The investors' rights agreement (IRA) provides holders of our redeemable convertible preferred stock with certain registration rights. It also provides each stockholder who, together with their affiliates, holds at least 5,000,000 shares of registrable securities, certain preemptive rights, which will terminate upon the closing of this offering. The IRA also provides these stockholders with information rights, which will terminate upon the closing of this offering. The parties to these agreements, as amended and restated, include Illumina; Johnson & Johnson UK Treasury Company Limited, a beneficial owner of more than 5% of our outstanding common stock; entities affiliated with ARCH Ventures; entities affiliated with Mr. Huber; entities affiliated with Dr. Rastetter, one of our directors and our prior chief executive officer; entities affiliated with Dr. Cui, one of our directors; an entity affiliated with Dr. Klausner, one of our directors; Mr. Bishop, our current chief executive officer and one of our current directors; Ms. Cook, our former chief executive officer and one of our former directors, and entities affiliated with Ms. Cook; and entities affiliated with Mr. Byers, one of our former directors. See "Description of Capital Stock—Registration Rights."

The following table summarizes purchases of our redeemable convertible preferred stock in these transactions by holders of more than five percent of our capital stock and their affiliated entities and our directors. None of our executive officers purchased shares of redeemable convertible preferred stock.

Name	Series A Preferred Stock	Series A-1 Preferred Stock	Series B Preferred Stock	Series D Preferred Stock	Aggregate Purchase Price (in thousands)
Illumina, Inc.	40,000,000	97,500,000	3,458,550	11,746,280	$ 113,864
Johnson & Johnson UK Treasury Company Limited[1]	—	—	56,130,722	—	$ 225,000
Entities affiliated with ARCH Ventures[2]	45,100,000	—	18,710,240	—	$ 120,100
Trusts affiliated with Jeffrey Huber[3]	7,500,000	—	997,879	—	$ 11,500
Trusts affiliated with William Rastetter, Ph.D.[4]	2,000,000	—	997,879	—	$ 6,000
Milky Way Investments Group Limited[5]	—	—	—	24,471,417	$ 125,000

(1) Includes 5,262,051 shares of Series B redeemable convertible preferred stock that were subsequently transferred from Johnson & Johnson UK Treasury Company Limited to other investors.
(2) Represents 45,100,000 shares of our Series A redeemable convertible preferred stock purchased by ARCH Venture Fund VIII, L.P. and 18,710,240 shares of our Series B redeemable convertible preferred stock purchased by ARCH Venture Fund IX Overage, L.P. Includes 100,000 shares of Series A redeemable convertible preferred stock that were subsequently transferred from ARCH Venture Partners to a former executive.
(3) Represents 7,500,000 shares of our Series A redeemable convertible preferred stock and 997,879 shares of our Series B redeemable convertible preferred stock purchased by Huber Family QTIP Trust U/A/D 09/19/2012. Includes 578,825 shares of Series B redeemable convertible preferred stock that were subsequently transferred from Mr. Huber to three members of our board of directors.
(4) Represents 2,000,000 shares of Series A redeemable convertible preferred stock held by the Rastetter Family Trust DTD, dated September 2, 2010 and 997,879 shares of Series B redeemable convertible stock held by the Investment 2002 Trust, dated November 11, 2002.
(5) Dr. Klausner, a member of our board of directors, is a founding partner of Milky Way.

Illumina Commercial Agreements

Amended and Restated Supply and Commercialization Agreement

In January 2016, we entered into a supply and commercialization agreement with Illumina. The agreement was amended and restated in February 2017, and amended in September 2017 and December 2019. We refer to this agreement, as amended, as the Amended and Restated Supply and Commercialization Agreement. For a detailed description of certain terms of this agreement, see "Business—Key Relationships—Supply and Commercialization Agreement with Illumina" and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Contractual Obligations and Commitments."

In March 2016, we entered into a 48-month system lease agreement with De Lage Financial Services, Inc., through a program affiliated with Illumina, to lease eight HiSeqX instrument systems for $0.1 million per month, for a total payment of $4.9 million.

In September 2016, we entered into a 48-month system lease agreement with De Lage Financial Services, Inc., through a program affiliated with Illumina, to lease three HiSeqX instrument systems for less than $0.1 million per month, for a total payment of $1.6 million.

In August 2018, we entered into an agreement with Illumina to sell them certain equipment for $0.3 million. In January 2019, we paid Illumina $15.0 million related to fulfilling our data delivery obligations under the Amended and Restated Supply and Commercialization Agreement.

In February 2019, pursuant to the terms of our Amended and Restated Supply and Commercialization Agreement with Illumina, we entered into two separate non-exclusive and non-sublicensable license agreements with Illumina. Under these agreements, we sublicensed to Illumina rights to certain patents and technology in-licensed to us. Pursuant to the terms and conditions of these agreements, Illumina is required to pay us a low single-digit royalty payment based on Illumina's net sales of a product covered by certain patents. In addition to these royalty payments, Illumina has paid initial aggregate licensing fees of $50,000 and is obligated to pay us aggregate annual minimum royalties of $50,000. These agreements also include a milestone payment from Illumina to us of $50,000 tied to the first commercial sale of a product covered by certain patents. In one of the agreements, there is an annual royalty cap of $5.0 million, and an option to reduce the annual royalty cap to $2.0 million by making a one-time up-front payment to us of $10.0 million. Illumina may terminate these agreements at any time by providing prior written notice to us.

Beginning May 4, 2020, Mostafa Ronaghi, Ph.D. has served as a member of our board of directors. Mr. Ronaghi was also the Chief Technology officer of Illumina through May 2020 and is the Senior Vice President of Entrepreneurial Development of Illumina.

Issuance of Series B Preferred Stock to Affiliates of Decheng Capital, LLC

In May 2017, in connection with our acquisition of Cirina Limited, we issued to certain entities affiliated with Decheng Capital, LLC aggregate consideration in the amount of $97.9 million, which includes cash consideration, contingent consideration, and the fair value of 13,207,228 shares of Series B redeemable convertible preferred stock. Min Cui, Ph.D., a member of our board of directors since October 2017, is the founder and Managing Director of Decheng Capital.

Sale of Equipment to HELIX

In June 2018, we entered into an agreement with Helix OpCo LLC to sell them laboratory equipment for $0.4 million. Helix OpCo LLC is a consolidated entity of Illumina.

Reimbursement of ARCH Legal Expenses

In February 2017, in connection with the closing of our Series B financing, we reimbursed certain expenses incurred by legal counsel to the purchasers of our Series B redeemable convertible preferred stock of $0.1 million. The purchasers in the Series B financing included entities affiliated with ARCH Ventures for which Mr. Nelsen, a member of our board of directors, served as a Managing Director.

Collaboration Agreement with Memorial Sloan Kettering Cancer Center

From February 2017 to February 2018, José Baselga, M.D., Ph.D., former Physician-in-Chief and Chief Medical Officer at MSK, was a member of our board of directors. In February 2017, we entered into collaboration and research agreements with MSK pursuant to which MSK received 500,000 shares of our Class A common stock,

and we incurred expenses totaling $2.7 million and $3.4 million through December 2017 and December 2018, respectively.

Collaboration Agreement with Janssen Biotech, Inc.

Johnson & Johnson UK Treasury Company Limited (J&J UK Treasury) and Janssen Biotech, Inc. (Janssen) are subsidiaries of Johnson & Johnson Inc. (J&J). As of December 31, 2017 and December 31, 2018, J&J UK Treasury was a minority stockholder of the Company. In November 2017, we entered into a research and development agreement with Janssen. Research services performed by the Company in 2018 totaled $0.7 million, which were paid by Janssen during 2018. In December 2019, we entered into a testing resources and collaboration agreement with Janssen. No research services were performed in 2019. In January 2020, we received $2.5 million from Janssen as prepayment for services to be performed pursuant to the testing resources and collaboration agreement.

Dr. Klausner Consulting Agreement

We entered into a consulting agreement with Richard Klausner, M.D., dated as of May 10, 2016 and amended as of August 7, 2020, pursuant to which Dr. Klausner provides consulting services to us on certain technical, business and strategic matters (in addition to Dr. Klausner serving as a non-employee member of our board of directors). The consulting agreement may be terminated at any time by any party, subject to our providing Dr. Klausner with 10-days' written notice. Pursuant to his consulting agreement (as amended), Dr. Klausner was granted three options to purchase shares of our Class A common stock at an exercise price equal to the fair market value of a share of common stock on the applicable date of grant covering 876,000 shares, 1,400,000 shares and 584,000 shares, respectively.

Subject to Dr. Klausner's continuous service through the applicable vesting date: (i) the option covering 876,000 shares of our Class A common stock vests over four years in substantially equal installments on each monthly anniversary of February 6, 2016; (ii) the option covering 1,400,000 shares of our Class A common stock vests over four years with 25% of the shares vesting on August 7, 2021 and 1/48 of the remaining shares vesting on each monthly anniversary of August 7 thereafter; and (iii) the option covering 584,000 shares of our Class A common stock vests over four years in substantially equal installments on each monthly anniversary of February 6, 2016.

The consulting agreement prohibits Dr. Klausner's solicitation of personnel during the term and for one year thereafter, and additionally contains customary confidentiality, nondisclosure and intellectual property covenants.

In addition to the option grants under Dr. Klausner's consulting agreement, in May 2018, Dr. Klausner was granted an option to purchase 450,000 shares of Class A common stock at an exercise price of $1.74 per share in connection with consulting services. Subject to Dr. Klausner's continuous service to the Company through the applicable vesting date, the option vests over four years, with 25% cliff-vesting on the one-year anniversary of the vesting commencement date, and 1/48th of the shares vesting monthly thereafter.

Scientific Advisory Board Consulting Agreements

Hal V. Barron, M.D. served as a member of our Scientific Advisory Board (SAB) from May 2016 to August 2018. The compensation under the SAB consulting agreement consisted of $35,000 per year, reimbursement of certain out-of-pocket expenses, and an option to purchase 20,000 shares of Class A common stock at an exercise price of $0.25 per share that vests over four years, with 25% vesting on the first anniversary of the vesting commencement date and the remainder vesting in equal monthly installments thereafter. Dr. Barron became a member of our board of directors in August 2018.

José Baselga, M.D., Ph.D. served as Chairman of our SAB from February 2016 to September 2018. The compensation under the SAB consulting agreement consisted of $100,000 per year, reimbursement of certain out-of-pocket expenses, and an option to purchase 250,000 shares of Class A common stock at an exercise price of $0.23 per share that vests over four years, with 25% vesting on the first anniversary of the vesting commencement date and remainder vesting in equal monthly installments thereafter. Dr. Baselga served as a member of our board of directors from February 2017 to February 2018.

Agilent Arrangements

Since August 2018, Hans E. Bishop has served as a member of our board of directors. During June 2019, Mr. Bishop was appointed as our chief executive officer. Mr. Bishop is also on the board of directors of Agilent Technologies, Inc. (Agilent). Agilent is one of our suppliers. During the year ended December 31, 2019, we incurred $0.5 million in research and development expenses in connection with purchase orders with Agilent. In addition, as of December 31, 2019, we purchased $0.2 million in property and equipment from Agilent.

PAREXEL Agreement

Since May 10, 2019, Maykin Ho, Ph.D. has served as a member of the board of directors. Dr. Ho is also on the board of directors of PAREXEL International Corporation (PAREXEL). PAREXEL is a global biopharmaceutical services provider. During January 2019, we entered into a service agreement with PAREXEL for certain enrollment and sample collection services to which the company incurred research and development expenses of $0.7 million during the year ended December 31, 2019.

Twist Bioscience Relationship

Mr. Nelsen, a member of our board of directors, serves as managing director of ARCH Venture Partners. Entities affiliated with ARCH Ventures Partners are a greater than 10% stockholder in Twist Bioscience Corporation. We currently rely on Twist Bioscience as our supplier of our DNA panels. We placed purchase orders with Twist Bioscience throughout 2019 pursuant to which we incurred research and development expenses of $3.3 million as of December 31, 2019.

Mr. Huber Transition Agreement

We entered into a transition agreement with Jeffrey T. Huber on October 12, 2017, which was amended on August 27, 2020 that provided the terms of Mr. Huber's severance as well as his service on our board of directors following his termination of employment. The transition agreement provided for the following severance payments and benefits (subject to Mr. Huber's execution of a release): (i) a pro rata portion of Mr. Huber's annual bonus for 2017 at the actual achievement level through his separation date (i.e., October 12, 2017), (ii) a severance payment equal to $1,312,500, payable in equal monthly installments over a period of 18 months, (iii) company-paid healthcare coverage under COBRA for a period of 18 months following the separation date; (iv) 12 months' (25%) accelerated vesting on a total of 11,428,571 restricted shares of Class B common stock (*i.e.*, accelerated vesting of 2,857,143 shares) that were previously purchased by Mr. Huber (the Huber Time-Based Award), and (v) the value of any accrued but unused paid time off.

The transition agreement further sets forth the terms and conditions of Mr. Huber's continued service as a member of the Board. Under the transition agreement, Mr. Huber serves as vice chairman of the Board and is entitled in connection with such service to the same level of compensation paid generally to our other non-employee directors serving as non-chair members of the board. In addition, Mr. Huber also continued during his Board service to vest monthly in the unvested portion of the Huber Time-Based Award (which vested as to its last tranche in May 2018).

Prior to his separation date, Mr. Huber acquired a milestone-based equity award consisting of 5,714,286 restricted shares of our Class B common stock (the Milestone Award), which was eligible to vest upon the earlier to occur of the consummation of one or more qualifying events or February 29, 2020, subject to Mr. Huber's continued service on our board of directors; the Milestone Award vested in full on February 29, 2020.

In addition, under the transition agreement, Mr. Huber is eligible to receive an incentive award with a total value of up to $78 million, which may be earned in four equal installments of $19.5 million based on our attainment of specified net revenue targets, subject to Mr. Huber's continued service on our board of directors through the applicable vesting date. The incentive award installments, to the extent earned, are payable in cash or in shares of our common stock at our election. If Mr. Huber's service on our board of directors is terminated without "cause" (as defined in the transition agreement) or due to Mr. Huber's death, disability or inability to stand for re-election to the board of directors, in any case, the incentive award will remain outstanding and eligible to vest until August 27,

2030. If Mr. Huber's service on our board of directors is terminated for any other reason, Mr. Huber will forfeit any then-unearned portion of the incentive award.

Under the transition agreement, in the event there is a financing resulting in excess investor demand, we may offer Mr. Huber, in our discretion, a one-time right to sell to us all or a portion of Mr. Huber's 7,500,000 shares of Series A redeemable convertible preferred stock and/or the 997,879 shares of Series B redeemable convertible preferred stock at a price equal to the then-current fair market value (to be determined in mutual agreement), up to $15 million in the aggregate.

Mr. Huber's Sale of Shares to Other Directors

In August 2018, Mr. Huber, one of our directors and the beneficial owner of more than 5% of our outstanding common stock, transferred a total of 578,825 shares of Series B redeemable convertible preferred stock to Dr. Barron (210,482 shares), Mr. Bishop (210,482 shares), and Ms. Friedman (157,861 shares) at a price of $4.751 per share, for total consideration of $2,749,998, representing a $429,778 gain from the $2,320,220 consideration that Mr. Huber paid to purchase these shares in our Series B preferred financing in 2017. We waived our right of first refusal in connection with these sales.

Equity Grants to Executive Officers and Directors

We have granted restricted stock units and stock options to certain of our executive officers and non-employee directors, as more fully described in "Executive Compensation."

Directed Share Program

At our request, the underwriters have reserved % of the common stock offered by this prospectus, at the initial public offering price, to certain of our directors, officers, employees, business associates and related persons through a directed share program. If these persons purchase reserved shares, this will reduce the number of shares available for sale to the general public. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same terms as other shares offered by this prospectus. Morgan Stanley & Co. LLC, an underwriter in this offering, will administer our directed share program. See the section titled "Underwriting" for additional information.

Director and Officer Indemnification

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us or will require us to indemnify each director (and in certain cases their related venture capital funds) and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that we will indemnify each of our directors and officers to the fullest extent permitted by Delaware law. Further, we will have purchased a policy of directors' and officers' liability insurance that insures our directors and officers against the cost of defense, settlement or payment of a judgment under certain circumstances.

Related Person Transaction Policy

We have a written related-person transaction policy, to be effective upon the closing of this offering, that applies to our executive officers, directors, director nominees, holders of more than five percent of any class of our voting securities, and any member of the immediate family of, and any entity affiliated with, any of the foregoing persons. Such persons will not be permitted to enter into a related person transaction with us without the prior consent of our audit committee, or other independent members of our board of directors in the event it is inappropriate for our audit committee to review such transaction due to a conflict of interest. Any request for us to enter into a transaction with an executive officer, director, director nominee, principal stockholder, or any of their immediate family members or affiliates, in which the amount involved exceeds $120,000 must first be presented to

our audit committee for review, consideration, and approval. In approving or rejecting any such proposal, our audit committee will consider the relevant facts and circumstances available and deemed relevant to our audit committee, including, but not limited to, the commercial reasonableness of the terms of the transaction and the materiality and character of the related person's direct or indirect interest in the transaction. All of the transactions described in this section occurred prior to the adoption of this policy.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding beneficial ownership of our common stock as of August 31, 2020 by:

- each person whom we know to beneficially own more than 5% of our common stock;
- each of the directors and named executive officers individually; and
- all directors and executive officers as a group.

In accordance with the rules of the SEC, beneficial ownership includes voting or investment power with respect to securities and includes the shares issuable pursuant to stock options that are exercisable within 60 days of August 31, 2020. Shares issuable pursuant to stock options are deemed outstanding for computing the percentage of the person holding such options but are not outstanding for computing the percentage of any other person.

We have based our calculation of the percentage of beneficial ownership prior to this offering on 672,529,127 shares of our common stock outstanding and held of record by approximately 443 stockholders as of August 31, 2020, which gives effect to (i) the filing and effectiveness of our amended and restated certification of incorporation; (ii) the conversion of shares of all outstanding redeemable convertible preferred stock into common stock; (iii) the conversion of all outstanding Class B common stock into Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock; and (iv) the reclassification of our Class A and Class B common stock into a single class of common stock, in each case outstanding as of August 31, 2020, as if such filing, effectiveness, reclassification, and conversion had taken place as of August 31, 2020. We have based our calculation of the percentage of beneficial ownership after this offering on shares of our common stock outstanding as of August 31, 2020, which gives effect to the adjustments described in the prior sentence and further reflects the issuance of shares of common stock in this offering, assuming that the underwriters will not exercise their over-allotment option to purchase up to an additional shares of our common stock. The following table does not reflect any shares of common stock that may be purchased pursuant to our directed share program described in “Underwriting.”

Unless otherwise indicated, the address for each listed stockholder is: c/o GRAIL, Inc., 1525 O'Brien Drive, Menlo Park, California 94025. To our knowledge, except as indicated in the footnotes to this table and pursuant to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all shares of common stock.

	Shares Beneficially Owned Before the Offering		Shares Beneficially Owned After the Offering[1]	
Name and Address of Beneficial Owner	Number	Percent	Number	Percent
Illumina, Inc.[2]	98,310,709	14.6 %		
Entities affiliated with ARCH Venture Partners[3]	63,710,240	9.5 %		
Johnson & Johnson UK Treasury Company Limited[4]	50,868,671	7.6 %		
Hal V. Barron, M.D.[5]	450,482	*		
Hans E. Bishop[6]	8,651,639	1.3 %		
Jennifer Cook[7]	8,398,498	1.2 %		
Min Cui, Ph.D.[8]	17,609,637	2.6 %		
Catherine J. Friedman[9]	817,861	*		
Kaye Foster[10]	220,000	*		
Maykin Ho, Ph.D.[11]	70,000	*		
Jeffrey T. Huber[12]	34,098,422	5.1 %		
Richard Klausner, M.D.[13]	27,753,292	4.1 %		
Gautam K. Kollu[14]	7,404,273	1.1 %		
Robert Nelsen[3]	63,710,240	9.5 %		
William Rastetter, Ph.D.[15]	3,931,879	*		
Mostafa Ronaghi, Ph.D.[16]	70,000	*		
Matthew P. Young[17]	10,024,350	1.5 %		
All directors and executive officers as a group (15 persons)[18]	185,742,475	26.0 %		

* Less than 1%.

(1) Assumes no exercise of the underwriters' over-allotment option. See "Underwriting."

(2) Consists of (i) 5,000,000 shares of Series A redeemable convertible preferred stock, (ii) 3,458,550 shares of Series B redeemable convertible preferred stock, (iii) 11,746,280 shares of Series D redeemable convertible preferred stock, and (iv) 78,105,879 shares of Class A common stock. Illumina, Inc. is a publicly-traded company.

(3) Consists of (i) 45,000,000 shares of Series A redeemable convertible preferred stock held by ARCH Venture Fund VIII, L.P. (ARCH Venture Fund VIII) and (ii) 18,710,240 shares of Series B redeemable convertible preferred stock held by ARCH Venture Fund IX Overage, L.P. (ARCH Overage). ARCH Venture Fund VIII is the record owner of shares of Series A redeemable convertible preferred stock (the Series A Record Shares). ARCH Venture Partners VIII, L.P. (AVP VIII LP), as the sole general partner of ARCH Venture Fund VIII, may be deemed to beneficially own the Series A Record Shares. ARCH Venture Partners VIII, LLC (AVP VIII LLC), as the sole general partner of AVP VIII LP, may be deemed to beneficially own the Series A Record Shares. AVP VIII LP and AVP VIII LLC disclaim beneficial ownership except to the extent of any pecuniary interest therein. As managing directors of AVP VIII LLC, each of Keith Crandell, Clinton Bybee, and Robert Nelsen (the Managing Directors) may also be deemed to share the power to direct the disposition and vote of the Series A Record Shares. Each Managing Director disclaims beneficial ownership except to any pecuniary interest therein. ARCH Overage is the record owner of shares of Series B redeemable convertible preferred stock (the Series B Record Shares). ARCH Venture Partners IX Overage, L.P. (AVP IX Overage), as the sole general partner of ARCH Overage, may be deemed to beneficially own the Series B Record Shares. ARCH Venture Partners IX, LLC (AVP IX LLC), as the sole general partner of AVP IX Overage, may be deemed to beneficially own the Series B Record Shares. AVP IX Overage and AVP IX LLC disclaim beneficial ownership except to the extent of any pecuniary interest therein. As managing directors of AVP IX LLC, each of the Managing Directors may also be deemed to share the power to direct the disposition and vote of the Series B Record Shares. Each Managing Director disclaims beneficial ownership except to the extent of any pecuniary interest therein.

(4) Consists of 50,868,671 shares of Series B redeemable convertible preferred stock. Johnson & Johnson UK Treasury Company Limited is indirectly wholly owned and controlled by Johnson & Johnson, a New Jersey corporation. No natural person controls Johnson & Johnson UK Treasury Company Limited.

(5) Consists of (i) 210,482 shares of Series B redeemable convertible preferred stock, and (ii) 240,000 shares of Class A common stock, 185,000 of which are subject to our right of repurchase as of August 31, 2020.

(6) Consists of (i) 210,482 shares of Series B redeemable convertible preferred stock, (ii) 70,000 shares of Class A common stock, 35,000 of which are subject to our right of repurchase as of August 31, 2020, and (iii) 8,371,157 shares of Class A common stock issuable to Mr. Bishop pursuant to options exercisable within 60 days of August 31, 2020, of which all are fully vested as of such date.

(7) Consists of (i) 120,091 shares of Class A common stock held by the Larry Michael Randal, Jr. 2019 Annuity Trust A U/A/D 03/12/2019, (ii) 120,091 shares of Class A common stock held by the Jennifer E. Cook 2019 Annuity Trust A U/A/D 03/12/2019, (iii) 159,818 shares of Class A common stock held by the Cook/Randal Family Trust dated October 11, 2007 (iii) 145,607 shares of Class A common stock held by Ms. Cook and (ii) 7,852,891 shares of Class A common stock issuable to Ms. Cook pursuant to options exercisable within 60 days of August 31, 2020, of which all are fully vested as of such date.

(8) Consists of (i) 7,337,349 shares of Series B redeemable convertible preferred stock held by Decheng Capital China Life Sciences USD Fund II, L.P., (ii) 5,869,879 shares of Series B redeemable convertible preferred stock held by Decheng Capital China Life Sciences USD Fund I, L.P., and (iii) 4,402,409 shares of Series B redeemable convertible preferred stock, for which Decheng Capital China Life Sciences USD Fund II, L.P. has been granted the right to vote or consent on all matters submitted to a vote of stockholders. These voting and consent rights terminate upon the consummation of the offering contemplated hereby.

(9) Consists of (i) 157,861 shares of Series B redeemable convertible preferred stock held by the Duane Family Trust, (ii) 20,417 shares of Class A common stock held by Ms. Friedman, 17,500 of which are subject to our right of repurchase as of August 31, 2020, (iii) 93,301 shares of Class A common stock held by relatives of Ms. Friedman and (iv) 546,282 shares of Class A common stock issuable to Ms. Friedman pursuant to options exercisable within 60 days of August 31, 2020, of which 166,073 are fully vested as of such date.

(10) Consists of (i) 70,000 shares of Class A common stock, 11,667 of which are subject to our right of repurchase as of August 31, 2020, and (ii) 150,000 shares of Class A common stock issuable to Ms. Foster pursuant to options exercisable within 60 days of August 31, 2020, of which 90,625 shares are fully vested as of such date.

(11) Consists of 70,000 shares of Class A common stock issuable to Ms. Ho pursuant to options exercisable within 60 days of August 31, 2020, of which 24,791 are fully vested as of such date.

(12) Consists of (i) 7,500,000 shares of Series A redeemable convertible preferred stock held by the Huber Family QTIP Trust U/A/D 09/19/2012, (ii) 419,054 shares of Series B redeemable convertible preferred stock held by the Huber Family QTIP Trust U/A/D 09/19/2012, (iii) 8,000,000 shares of Class B common stock held by Huber Vossough 2020 GRAT U/A/D 08/18/2020, (iv) 15,185,206 shares of Class B common stock held by Maywood Trust U/A/D 09/19/2012, and (v) 1,804,191 shares of Class B common stock held by The Jeffrey T. Huber 2018 Grantor Retained Annuity Trust U/A/D 3/12/2018.

(13) Consists of (i) 3,281,875 shares of Class A common stock issuable to Dr. Klausner pursuant to options exercisable within 60 days of August 31, 2020, of which 1,822,500 are fully vested as of such date, and (ii) 24,471,417 shares of Series D redeemable convertible preferred stock held by Milky Way Investments Group Limited.

(14) Consists of 7,404,273 shares of Class A common stock issuable to Mr. Kollu pursuant to options exercisable within 60 days of August 31, 2020, of which no shares are fully vested.

(15) Consists of (i) 2,000,000 shares of Series A redeemable convertible preferred stock held by the Rastetter Family Trust DTD, dated September 2, 2010, (ii) 997,879 shares of Series B redeemable convertible preferred stock held by the Investment 2002 Trust, dated November 11, 2002, and (iii) 934,000 shares of Class A common stock held by Dr. Rastetter, 76,563 of which are subject to our right of repurchase as of August 31, 2020.

(16) Consists of 70,000 shares of Class A common stock issuable to Dr. Ronaghi pursuant to options exercisable within 60 days of August 31, 2020, of which no shares are fully vested.

(17) Consists of (i) 8,716,800 shares of Class A common stock issuable to Mr. Young pursuant to options exercisable within 60 days of August 31, 2020, of which 1,307,550 shares are fully vested, and (ii) 1,307,550 shares of Class A common stock issuable to Mr. Young pursuant to the settlement of restricted stock units vesting within 60 days of August 31, 2020, of which all are fully vested as of such date.

(18) Consists of (i) 185,742,475 shares beneficially owned by our executive officers and directors, 325,730 of which are subject to our right of repurchase as of August 31, 2020, (ii) 39,540,787 shares subject to options exercisable within 60 days of August 31, 2020, of which 13,332,195 are fully vested as of such date, and (iii) 1,307,550 shares issuable pursuant to the settlement of restricted stock units vesting within 60 days of August 31, 2020, of which all are fully vested as of such date..

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the closing of this offering, as well as certain contractual rights under agreements between us and certain of our stockholders that will remain in place following the closing of this offering. Reference is made to the more detailed provisions of, and the descriptions are qualified in their entirety by reference to, these documents, copies of which are filed with the SEC as exhibits to the registration statement of which this prospectus is a part, and applicable law.

Reclassification and Conversion of Class A Common Stock, Class B Common Stock, and Redeemable Convertible Preferred Stock

Prior to the completion of this offering, all outstanding Class B common stock will be converted into Class A common stock, we will amend our certificate of incorporation to provide for the reclassification of our Class A common stock and Class B common stock into a single class of common stock, and our outstanding redeemable convertible preferred stock will be converted into common stock, which is the same class as the shares of common stock to be issued in this offering. In addition, we will further amend our certificate of incorporation and bylaws to include the provisions described below.

Authorized and Outstanding Capital Stock

Upon the closing of this offering, our authorized capital stock will consist of shares of common stock, par value $0.001 per share, and shares of preferred stock, par value $0.001 per share.

Upon the closing of this offering, after giving effect to the sale of the shares of common stock offered hereby, there will be shares of common stock outstanding, assuming no exercise of the underwriters' over-allotment option and no exercise of outstanding options to purchase 98,033,707 shares of common stock and no issuance of 30,343,670 shares of common stock issuable upon the vesting and settlement of RSUs. There will be no shares of preferred stock outstanding.

Common Stock

The rights of the holders of the common stock are as described below:

Voting Rights. Each share of common stock is entitled to one vote upon any matter submitted to a vote of our stockholders, including the election of directors. Holders of the common stock will vote as a single class on all matters submitted to a stockholder vote, subject to any voting rights granted to holders of any preferred stock. Holders of the common stock are not entitled to any cumulative voting rights.

Dividend Rights. Subject to preferences that may be applicable to any outstanding preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the board of directors out of funds legally available therefor. See "Dividend Policy."

Rights upon Liquidation. In the event of our liquidation, dissolution, or winding up, the holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding.

Other Rights. The holders of our common stock have no preemptive rights or other subscription rights.

There are no redemption or sinking fund provisions applicable to the common stock.

Preferred Stock

Our board of directors has the authority to issue the preferred stock in one or more series and to fix the rights, preferences, privileges, and restrictions thereof, including dividend rights, dividend rates, conversion rights, voting rights, terms of redemption, redemption prices, liquidation preferences, and the number of shares constituting any series or the designation of such series, without further vote or action by the stockholders.

The issuance of preferred stock may have the effect of delaying, deterring, or preventing a change in control of our company without further action by the stockholders and may adversely affect the voting and other rights of the holders of common stock. At present, we have no plans to issue any of the preferred stock.

Election and Removal of Directors; Vacancies

Our board of directors will consist of between five and fifteen directors. The exact number of directors will be fixed from time to time by resolution of the board. Directors will be elected by a plurality of the votes of the shares of our capital stock present in person or represented by proxy at the meeting and entitled to vote on the election of directors.

No director may be removed except for cause, and directors may be removed for cause only by an affirmative vote of shares representing not less than a majority of the shares then entitled to vote at an election of directors.

Any vacancy occurring on the board of directors and any newly created directorship may be filled only by a majority of the remaining directors in office.

Staggered Board

Upon the closing of this offering, our board of directors will be divided into three classes serving staggered three-year terms. Class I, Class II, and Class III directors will serve until our annual meetings of stockholders in 2021, 2022, and 2023, respectively. At each annual meeting of stockholders, directors will be elected to succeed the class of directors whose terms have expired. This classification of our board of directors could have the effect of increasing the length of time necessary to change the composition of a majority of the board of directors. In general, at least two annual meetings of stockholders will typically be necessary for stockholders to effect a change in a majority of the members of the board of directors.

Limitation on Action by Written Consent

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that holders of our common stock will not be able to act by written consent without a meeting.

Stockholder Meetings

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that special meetings of our stockholders may be called only by a majority of the directors. Our amended and restated certificate of incorporation and our amended and restated bylaws specifically deny any power of any other person to call a special meeting.

Amendment of Certificate of Incorporation

The provisions of our amended and restated certificate of incorporation described under "—Election and Removal of Directors; Vacancies," "—Stockholder Meetings," "—Limitation on Action by Written Consent," "—Limitation of Liability of Directors and Officers," "—Common Stock—Voting Rights," and "—Forum Selection" and provisions relating to amendments to our amended and restated certificate of incorporation may be amended only by the affirmative vote of holders of at least 66 2/3% of the voting power of our outstanding shares of voting stock. The affirmative vote of holders of at least a majority of the voting power of our outstanding shares of stock will generally be required to amend other provisions of our amended and restated certificate of incorporation.

Amendment of Bylaws

Certain provisions of our amended and restated bylaws may generally be altered, amended, or repealed, and new bylaws may be adopted, with the affirmative vote of a majority of directors present at any regular or special meeting of the board of directors called for that purpose, provided that any alteration, amendment, or repeal of, or adoption of any bylaw inconsistent with specified provisions of the bylaws, including those related to special and annual meetings of stockholders, action of stockholders by written consent, nomination of directors, transfers of capital stock and dividends requires the affirmative vote of at least 66-2/3% of all directors in office at a meeting called for that purpose.

All other provisions of our amended and restated bylaws may generally be altered, amended, or repealed, and new bylaws may be adopted, with the affirmative vote of holders of 66-2/3 % of the voting power of our outstanding shares of voting stock.

Other Limitations on Stockholder Actions

Our amended and restated bylaws impose some procedural requirements on stockholders who wish to:

- make nominations in the election of directors;
- propose that a director be removed;
- propose any repeal or change in our amended and restated bylaws; or
- propose any other business to be brought before an annual or special meeting of stockholders.

Under these procedural requirements, in order to bring a proposal before a meeting of stockholders, a stockholder must deliver timely notice of a proposal pertaining to a proper subject for presentation at the meeting to our corporate secretary along with the following:

- a description of the business or nomination to be brought before the meeting and the reasons for conducting such business at the meeting;
- the stockholder’s name and address;
- any material interest of the stockholder in the proposal;
- the number of shares beneficially owned by the stockholder and evidence of such ownership; and
- the names and addresses of all persons with whom the stockholder is acting in concert and a description of all arrangements and understandings with those persons, and the number of shares such persons beneficially own.

To be timely, a stockholder must generally deliver notice:

- in connection with an annual meeting of stockholders, not less than 120 nor more than 150 days prior to the date on which the annual meeting of stockholders was held in the immediately preceding year, but in the event that the date of the annual meeting is more than 30 days before or more than 70 days after the anniversary date of the preceding annual meeting of stockholders, a stockholder notice will be timely if received by us not later than the close of business on the later of (1) not less than 70 nor more than 120 days prior to the date of the annual meeting and (2) the 10th day following the day on which we first publicly announce the date of the annual meeting; or
- in connection with the election of a director at a special meeting of stockholders, during the period not less than 120 nor more than 150 days prior to the date of the special meeting, or the 10th day following the day on which a notice of the date of the special meeting was mailed to the stockholders or the public disclosure of that date was made.

In order to submit a nomination for our board of directors, a stockholder must also submit all information with respect to the nominee that would be required to be included in a proxy statement, as well as other information. If a stockholder fails to follow the required procedures, the stockholder's proposal or nominee will be ineligible and will not be voted on by our stockholders.

Limitation of Liability of Directors and Officers

Our amended and restated certificate of incorporation provides that no director will be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except as required by applicable law, as in effect from time to time. Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to our company or our stockholders;
- any act or omission not in good faith or which involved intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; and
- any transaction from which the director derived an improper personal benefit.

As a result, neither we nor our stockholders have the right, through stockholders' derivative suits on our behalf, to recover monetary damages against a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior, except in the situations described above.

Our amended and restated certificate of incorporation also provides that, to the fullest extent permitted by law, we will indemnify any officer or director of our company against all damages, claims, and liabilities arising out of the fact that the person is or was our director or officer, or served any other enterprise at our request as a director or officer. Amending this provision will not reduce our indemnification obligations relating to actions taken before an amendment.

Forum Selection

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on behalf of us; (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer, or other employee of our company to us or our stockholders; (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law or our amended and restated certificate of incorporation and bylaws; or (iv) any action asserting a claim governed by the internal affairs doctrine. This provision would not apply to claims brought to enforce a duty or liability created by the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction. Furthermore, our amended and restated certificate of incorporation will also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended. Any person or entity purchasing or otherwise acquiring any interest in our shares of capital stock shall be deemed to have notice of and consented to the foregoing forum selection provisions.

Our exclusive forum provision will not relieve us of our duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations.

The enforceability of similar federal court choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find this type of

provision to be inapplicable or unenforceable. If a court were to find either of the choice of forum provisions contained in our amended and restated certificate of incorporation or amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

The choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with the company or its directors, officers or other employees, which may discourage such lawsuits against the company and its directors, officers and other employees and result in increased costs for investors to bring a claim.

Delaware Business Combination Statute

We have elected to be subject to Section 203 of the Delaware General Corporation Law. Section 203 prevents an "interested stockholder," which is defined generally as a person owning 15% or more of a corporation's voting stock, or any affiliate or associate of that person, from engaging in a broad range of "business combinations" with the corporation for three years after becoming an interested stockholder unless:

- the board of directors of the corporation had previously approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, that person owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, other than statutorily excluded shares; or
- following the transaction in which that person became an interested stockholder, the business combination is approved by the board of directors of the corporation and holders of at least two-thirds of the outstanding voting stock not owned by the interested stockholder.

Under Section 203, the restrictions described above also do not apply to specific business combinations proposed by an interested stockholder following the announcement or notification of designated extraordinary transactions involving the corporation and a person who had not been an interested stockholder during the previous three years or who became an interested stockholder with the approval of a majority of the corporation's directors, if such extraordinary transaction is approved or not opposed by a majority of the directors who were directors prior to any person becoming an interested stockholder during the previous three years or were recommended for election or elected to succeed such directors by a majority of such directors.

Section 203 may make it more difficult for a person who would be an interested stockholder to effect various business combinations with a corporation for a three-year period. Section 203 also may have the effect of preventing changes in our management and could make it more difficult to accomplish transactions that our stockholders may otherwise deem to be in their best interests.

Anti-Takeover Effects of Some Provisions

Certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws could make the following more difficult:

- acquisition of control of us by means of a proxy contest, tender offer, or otherwise; or
- removal of our incumbent officers and directors.

These provisions, as well as our ability to issue preferred stock, are designed to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection give us the potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us, and that the benefits of this increased protection outweigh the disadvantages of discouraging those proposals, because negotiation of those proposals could result in an improvement of their terms.

Registration Rights

After the closing of this offering, certain holders of our common stock will be entitled to rights with respect to the registration of their shares under the Securities Act. These registration rights are contained in the IRA, and generally apply to the shares of common stock issued in connection with the reclassification of our outstanding redeemable convertible preferred stock prior to this offering. We refer to these shares as registrable securities. With respect to any particular stockholder, when such stockholder is able to sell all of its registrable securities pursuant to Rule 144 of the Securities Act without restriction (including any volume limitations), these registration rights will expire. We are generally obligated under the IRA to pay the registration expenses (other than underwriting discounts and selling commissions) of the holders of the shares registered pursuant to the registrations described below. In an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares such holders may include. The demand, piggyback, and S-3 registration rights described below will expire five years after the effective date of the registration statement of which this prospectus forms a part.

Certain stockholders who are party to the IRA have waived their registration rights and the registration rights of the other stockholders who are party to the IRA, in each case, with respect to this offering and have entered into contractual lock-up agreements with the underwriters. See “Shares Available for Future Sale” and “Underwriting.”

Demand Registration Rights

Beginning 180 days following this offering, the holders of registrable securities will be entitled to certain demand registration rights. The holders of at least 40% of these securities have the right to require us, on not more than two occasions, to file a registration statement under the Securities Act in order to register the resale of their registrable securities having an anticipated aggregate offering price of at least $5 million. If we determine that it would be seriously detrimental to us and our stockholders to effect such a registration, we have the right to defer such registration, not more than once in any 12-month period, for a period of up to 60 days. The managing underwriters of the offering also have the right, subject to certain limitations, to limit the number of shares included in such registrations.

S-3 Registration Rights

After the closing of this offering, the holders of registrable securities may make a written request that we register the offer and sale of their shares on Form S-3 if we are eligible to file a registration statement on Form S-3 so long as the request covers at least that number of shares with an anticipated aggregate offering price of at least $5 million (after deducting underwriting discounts and selling commissions). These stockholders may make an unlimited number of requests for registration on Form S-3; however, we will not be required to effect a registration on Form S-3 if we have effected two such registrations in a given 12-month period. Additionally, if we determine that it would be seriously detrimental to us and our stockholders to effect such a registration, we have the right to defer such registration, not more than once in any 12-month period, for a period of up to 60 days. The managing underwriters of the offering also have the right, subject to certain limitations, to limit the number of shares included in such registrations.

Piggyback Registration Rights

Our Investors’ Rights Agreement grants the parties thereto certain registration rights in respect of the “registrable securities” held by them. After the closing of this offering, if we propose to register the offer and sale of any of our securities under the Securities Act, in connection with the public offering of such securities the holders of registrable securities will be entitled to certain “piggyback” registration rights allowing the holders to include their registrable securities in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to a registration related to a company stock plan or on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the registrable securities or a registration in which the only equity securities registered are shares of common stock issuable upon conversion of debt securities also included in such registration, the holders of these shares are entitled to notice of the registration and have the right to include their registrable securities in the registration. This right is subject to limitations that the managing underwriters may impose on the number of shares included in the registration, but in no event can the number of

registrable securities to be included in the offering be reduced by the managing underwriters below 20% of the total shares registered.

Listing

We have applied to list our common stock on the Nasdaq Global Select Market under the symbol “GRAL.”

Transfer Agent and Registrar

The transfer agent and registrar for the common stock is Computershare Trust Company, N.A.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES FOR NON-U.S. HOLDERS OF COMMON STOCK

The following are the material U.S. federal income consequences of the ownership and disposition of our common stock acquired in this offering by a "Non-U.S. Holder" that does not own, and has not owned, actually or constructively, more than 5% of our common stock. You are a Non-U.S. Holder if for U.S. federal income tax purposes you are a beneficial owner of our common stock that is:

- a nonresident alien individual;
- a foreign corporation; or
- a foreign estate or trust.

You are not a Non-U.S. Holder if you are a nonresident alien individual present in the United States for 183 days or more in the taxable year of disposition, or if you are a former citizen or former resident of the United States for U.S. federal income tax purposes. If you are such a person, you should consult your tax adviser regarding the U.S. federal income tax consequences of the ownership and disposition of our common stock.

If you are a partnership for U.S. federal income tax purposes, the U.S. federal income tax treatment of a partner will generally depend on the status of the partner and your activities.

This discussion is based on the Internal Revenue Code of 1986, as amended to the date hereof (the Code), administrative pronouncements, judicial decisions and final, temporary and proposed Treasury regulations, changes to any of which subsequent to the date of this prospectus may affect the tax consequences described herein, possibly with retroactive effect. This discussion does not describe all of the U.S. tax consequences that may be relevant to you in light of your particular circumstances, including alternative minimum tax and Medicare contribution tax consequences and does not address any aspect of state, local, or non-U.S. taxation, estate or gift tax laws, or any taxes other than income taxes. You should consult your tax adviser with regard to the application of the U.S. federal tax laws to your particular situation, as well as any tax consequences arising under the laws of any state, local, or non-U.S. taxing jurisdiction.

Dividends

As discussed under "Dividend Policy" above, we do not currently expect to make distributions on our common stock. In the event that we do make distributions of cash or other property, those distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent those distributions exceed our current and accumulated earnings and profits, they will constitute a return of capital, which will first reduce your adjusted tax basis in our common stock, but not below zero, and then will be treated as gain from the sale of our common stock, as described below under "—Gain on Disposition of Our Common Stock."

Dividends paid to you generally will be subject to withholding tax at a 30% rate or a reduced rate specified by an applicable income tax treaty. In order to obtain a reduced rate of withholding, you will be required to provide a properly executed applicable Internal Revenue Service (IRS) Form W-8 certifying your entitlement to benefits under a treaty.

If dividends paid to you are effectively connected with your conduct of a trade or business in the United States (and, if required by an applicable income tax treaty, are attributable to a permanent establishment or fixed base maintained by you in the United States), you will generally be taxed on the dividends on a net income basis in the same manner as a U.S. person as defined under the Code. In this case, you will be exempt from the withholding tax discussed in the preceding paragraph, although you will be required to provide a properly executed IRS Form W-8ECI in order to claim an exemption from withholding. You should consult your tax adviser with respect to other U.S. tax consequences of the ownership and disposition of our common stock, including the possible imposition of a branch profits tax at a rate of 30% (or a lower treaty rate) if you are a corporation.

Gain on Disposition of Our Common Stock

Subject to the discussions below under "—Information Reporting and Backup Withholding" and "—FATCA," you generally will not be subject to U.S. federal income or withholding tax on gain realized on a sale or other taxable disposition of our common stock unless:

- the gain is effectively connected with your conduct of a trade or business in the United States (and, if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by you in the United States); or
- we are or have been a "United States real property holding corporation," as defined in the Code, at any time within the five-year period preceding the disposition or your holding period, whichever period is shorter, and our common stock has ceased to be regularly traded on an established securities market prior to the beginning of the calendar year in which the sale or disposition occurs.

Generally, a corporation is a "United States real property holding corporation" if the fair market value of its United States real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests and its other assets used or held for use in a trade or business (all as determined for U.S. federal income tax purposes). We believe that we are not, and do not anticipate becoming, a United States real property holding corporation.

If you recognize gain on a sale or other disposition of our common stock that is effectively connected with your conduct of a trade or business in the United States (and if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by you in the United States), you will generally be taxed on such gain in the same manner as a U.S. person. You should consult your tax adviser with respect to other U.S. tax consequences of the ownership and disposition of our common stock, including the possible imposition of a branch profits tax at a rate of 30% (or a lower treaty rate) if you are a corporation.

Information Reporting and Backup Withholding

Information returns are required to be filed with the IRS in connection with payments of dividends on our common stock. Unless you comply with certification procedures to establish that you are not a U.S. person, information returns may also be filed with the IRS in connection with the proceeds from a sale or other disposition of our common stock. You may be subject to backup withholding on payments on our common stock or on the proceeds from a sale or other disposition of our common stock unless you comply with certification procedures to establish that you are not a U.S. person or otherwise establish an exemption. Your provision of a properly executed applicable IRS Form W-8 certifying your non-U.S. status will permit you to avoid backup withholding. Amounts withheld under the backup withholding rules are not additional taxes and may be refunded or credited against your U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

FATCA

Provisions of the Code commonly referred to as "FATCA" require withholding of 30% on payments of dividends on our common stock, as well as payments of gross proceeds of dispositions of our common stock, to "foreign financial institutions" (which is broadly defined for this purpose and in general includes investment vehicles) and certain other non-U.S. entities unless various U.S. information reporting and due diligence requirements (generally relating to ownership by U.S. persons of interests in or accounts with those entities) have been satisfied, or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. In addition, regulations proposed by the U.S. Treasury Department would eliminate the requirement under FATCA of withholding on gross proceeds of disposition of our common stock. The U.S. Treasury Department has stated that taxpayers may rely on these proposed regulations pending their finalization. If FATCA withholding is imposed, a beneficial owner that is not a foreign financial institution generally may obtain a refund of any amounts withheld by filing a U.S. federal income tax return (which may entail significant administrative burden). You should consult your tax adviser regarding the effects of FATCA on your investment in our common stock.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. Future sales of substantial amounts of our common stock in the public market could adversely affect market prices prevailing from time to time. Furthermore, because only a limited number of shares will be available for sale shortly after this offering due to existing contractual and legal restrictions on resale as described below, there may be sales of substantial amounts of our common stock in the public market after the restrictions lapse. This may adversely affect the prevailing market price and our ability to raise equity capital in the future.

Based on the number of shares of our common stock outstanding as of June 30, 2020, upon completion of this offering, we will have shares of common stock outstanding, assuming no exercise of the underwriters' over-allotment option and no exercise of any options or vesting and settlement of RSUs after June 30, 2020. Of these shares, , or shares of our common stock if the underwriters exercise their over- allotment option in full, sold in this offering will be freely transferable without restriction or registration under the Securities Act, except for any shares purchased by one of our existing "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining shares of common stock outstanding will bear "restricted shares" as defined in Rule 144. Restricted shares and the shares of common stock into which such securities are convertible may be sold in the public market only if registered or if they qualify for an exemption from registration under Rules 144 or 701 of the Securities Act, which rules are summarized below. As a result of the contractual lock-up period ending 180 days after the date of this prospectus described below and the provisions of Rules 144 and 701, these shares will be available for sale in the public market as follows:

Number of Shares	Date
	On the date of this prospectus
	After 90 days from the date of this prospectus
	After 180 days from the date of this prospectus (subject, in some cases, to volume limitations)
	At various times after 180 days from the date of this prospectus (subject, in some cases, to volume limitations)

Rule 144

In general, a person who has beneficially owned restricted shares of our common stock for at least six months would be entitled to sell such securities, provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale; and (ii) we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Persons who have beneficially owned restricted shares of our common stock for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering, assuming no exercise of the underwriters' over-allotment option to purchase additional shares; or
- the average weekly trading volume of shares of our common stock on the Nasdaq Global Select Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information, and notice provisions of Rule 144 to the extent applicable.

Rule 701

In general, under Rule 701, any of our employees, directors, officers, consultants, or advisors who purchases shares from us in connection with a compensatory stock or option plan or other written agreement before the effective date of this offering is entitled to resell such shares 90 days after the effective date of this offering in reliance on Rule 144, without having to comply with the holding period requirements or other restrictions contained in Rule 701.

The SEC has indicated that Rule 701 will apply to typical stock options granted by an issuer before it becomes subject to the reporting requirements of the Exchange Act, along with the shares acquired upon exercise of such options, including exercises after the date of this prospectus. Securities issued in reliance on Rule 701 are restricted securities and, subject to the contractual restrictions described above, beginning 90 days after the date of this prospectus, may be sold by persons other than "affiliates," as defined in Rule 144, subject only to the manner of sale provisions of Rule 144 and by "affiliates" under Rule 144 without compliance with its one-year minimum holding period requirement.

Registration Rights

Upon completion of this offering, the holders of shares of common stock, including 98,033,707 shares of common stock issuable upon the exercise of outstanding options or their transferees, and 30,343,670 shares of common stock issuable upon the vesting and settlement of RSUs outstanding, will be entitled to various rights with respect to the registration of these shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration, except for shares purchased by affiliates. See "Description of Capital Stock—Registration Rights."

Stock Options and Restricted Stock Units

As of June 30, 2020, options to purchase a total of 98,033,707 shares of common stock and 30,343,670 shares of common stock issuable upon the vesting and settlement of RSUs were outstanding. All of the shares subject to options are subject to lock-up agreements. An additional 14,975,649 shares of common stock were available for future grants under our stock plan at such date. We intend to adopt our 2020 Plan prior to the closing of this offering.

Upon completion of this offering, we intend to file a registration statement under the Securities Act covering all shares of common stock subject to outstanding options or issuable pursuant to our 2016 Plan. Subject to Rule 144 volume limitations applicable to affiliates, shares registered under any registration statements will be available for sale in the open market, beginning 90 days after the date of the prospectus, except to the extent that the shares are subject to vesting restrictions with us or the contractual lock-up restrictions described below.

Lock-up Agreements

All of our directors, executive officers, and the holders of substantially all of our outstanding shares of common stock have agreed, subject to certain exceptions, not to offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right, or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock for a period ending 180 days after the date of this prospectus, without the prior written consent of the representatives of the underwriters. See "Underwriting."

UNDERWRITING

Under the terms and subject to the conditions in an underwriting agreement dated the date of this prospectus, the underwriters named below, for whom Morgan Stanley & Co. LLC, Goldman Sachs & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and Evercore Group L.L.C. are acting as representatives, have severally agreed to purchase, and we have agreed to sell to them, severally, the number of shares of our common stock indicated below:

Name	Number of Shares
Morgan Stanley & Co. LLC	
Goldman Sachs & Co. LLC	
BofA Securities, Inc.	
Cowen and Company, LLC	
Evercore Group L.L.C.	
Total:	

The underwriters and the representatives are collectively referred to as the "underwriters" and the "representatives," respectively. The underwriters are offering the shares of common stock subject to their acceptance of the shares from us and subject to prior sale. The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the shares of common stock offered by this prospectus are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the shares of common stock offered by this prospectus if any such shares are taken. However, the underwriters are not required to take or pay for the shares covered by the underwriters' over-allotment option described below.

The underwriters initially propose to offer part of the shares of common stock directly to the public at the offering price listed on the cover page of this prospectus and part to certain dealers. After the initial offering of the shares of common stock, the offering price and other selling terms may from time to time be varied by the representatives.

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares of common stock at the public offering price listed on the cover page of this prospectus, less underwriting discounts and commissions. The underwriters may exercise this option solely for the purpose of covering over-allotments, if any, made in connection with the offering of the shares of common stock offered by this prospectus. To the extent the option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase about the same percentage of the additional shares of common stock as the number listed next to the underwriter's name in the preceding table bears to the total number of shares of common stock listed next to the names of all underwriters in the preceding table.

The following table shows the per share and total public offering price, underwriting discounts and commissions, and proceeds before expenses to us. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase up to an additional shares of common stock.

	Per Share	No Exercise	Full Exercise
Public offering price	$	$	$
Underwriting discounts and commissions to be paid by us	$	$	$
Proceeds, before expenses, to us	$	$	$

The estimated offering expenses payable by us, exclusive of the underwriting discounts and commissions, are approximately $. We have agreed to reimburse the underwriters for certain expenses relating to our initial public offering up to $.

The underwriters have informed us that they do not intend sales to discretionary accounts to exceed 5% of the total number of shares of common stock offered by them.

We have applied to list our common stock on the Nasdaq Global Select Market under the trading symbol “GRAL.”

We and all directors, executive officers, and the holders of substantially all of our outstanding shares of common stock have agreed that, without the prior written consent of the representatives on behalf of the underwriters, we and they will not, during the period ending 180 days after the date of this prospectus (the restricted period):

- offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock;
- file any registration statement with the Securities and Exchange Commission relating to the offering of any shares of common stock or any securities convertible into or exercisable or exchangeable for common stock; or
- enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock,

whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise. In addition, we and each such person agree that, without the prior written consent of the representatives on behalf of the underwriters, we or such other person will not, during the restricted period, make any demand for, or exercise any right with respect to, the registration of any shares of common stock or any security convertible into or exercisable or exchangeable for common stock.

The restrictions described in the immediately preceding paragraph do not apply to, among other circumstances:

- the sale of shares to the underwriters; or
- the issuance by the Company of shares of common stock upon the exercise of an option or a warrant or the conversion of a security outstanding on the date of this prospectus;
- transactions by any person other than us relating to shares of common stock or other securities acquired in open market transactions after the completion of the offering of the shares; provided that no filing under Section 16(a) of the Securities Exchange Act of 1934, as amended (the Exchange Act), is required or voluntarily made in connection with subsequent sales of the common stock or other securities acquired in such open market transactions; or
- the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of common stock, provided that (i) such plan does not provide for the transfer of common stock during the restricted period and (ii) to the extent a public announcement or filing under the Exchange Act, if any, is required or voluntarily made regarding the establishment of such plan, such announcement or filing shall include a statement to the effect that no transfer of common stock may be made under such plan during the restricted period.

The representatives, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time.

In order to facilitate the offering of the common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if the short position is no greater than the number of shares available for purchase by the underwriters under the over-allotment option. The underwriters can close out a covered short sale by exercising the over-allotment option or purchasing shares in the open market. In determining the source of shares to close out a covered short sale, the underwriters will consider, among other things, the open market price of shares compared to the price available under the over-allotment option. The underwriters may also sell shares in excess of the over-allotment

option, creating a naked short position. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering. As an additional means of facilitating this offering, the underwriters may bid for, and purchase, shares of common stock in the open market to stabilize the price of the common stock. These activities may raise or maintain the market price of the common stock above independent market levels or prevent or retard a decline in the market price of the common stock. The underwriters are not required to engage in these activities and may end any of these activities at any time.

We and the underwriters have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act.

A prospectus in electronic format may be made available on websites maintained by one or more underwriters, or selling group members, if any, participating in this offering. The representatives may agree to allocate a number of shares of common stock to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters that may make Internet distributions on the same basis as other allocations.

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Certain of the underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In addition, in the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve our securities and instruments. The underwriters and their respective affiliates may also make investment recommendations or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long or short positions in such securities and instruments.

Pricing of the Offering

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representatives. Among the factors to be considered in determining the initial public offering price will be our future prospects and those of our industry in general, our sales, earnings and certain other financial and operating information in recent periods, and the price-earnings ratios, price-sales ratios, market prices of securities, and certain financial and operating information of companies engaged in activities similar to ours.

Directed Share Program

At our request, the underwriters have reserved % of the common stock offered by this prospectus, at the initial public offering price, to certain of our directors, officers, employees, business associates and related persons through a directed share program. Any reserve shares purchased by our directors, officers, employees, business associates or related persons will be subject to the lock-up provisions described in “Lock-up Agreements”. If these persons purchase reserved shares, this will reduce the number of shares available for sale to the general public. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same terms as other shares offered by this prospectus. Morgan Stanley & Co. LLC, an underwriter in this offering, will

administer our directed share program. We have agreed to indemnify the underwriters against certain liabilities and to reimburse the underwriters for certain fees and expenses in connection with the directed share program.

Selling Restrictions

European Economic Area

The shares are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area (EEA). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, MiFID II); or (ii) a customer within the meaning of Directive EU 2016/97 (as amended or superseded, the Insurance Distribution Directive), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in Directive 2003/71/EC (as amended or superseded, the Prospectus Directive). Consequently no key information document required by Regulation (EU) No 1286/2014 (as amended, the PRIIPs Regulation) for offering or selling the shares or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the shares or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation. This prospectus has been prepared on the basis that any offer of shares in any member state of the EEA will be made pursuant to an exemption under the Prospectus Directive from the requirement to publish a prospectus for offers of shares. This prospectus is not a prospectus for the purposes of the Prospectus Directive.

United Kingdom

In the United Kingdom, this prospectus is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19 (5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order, or (iii) persons to whom it would otherwise be lawful to distribute it, (all such persons together being referred to as relevant persons). The shares are only available to, and any invitation, offer or agreement to subscribe, purchase, or otherwise acquire such shares will be engaged in only with, Relevant Persons. This prospectus and its contents should not be distributed, published or reproduced (in whole or in part) or disclosed by any recipients to any other person in the United Kingdom. Any person in the United Kingdom that is not a Relevant Person should not act or rely on this prospectus or its contents.

Canada

The shares of common stock may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares of common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Japan

No registration pursuant to Article 4, paragraph 1 of the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended), or the FIEL, has been made or will be made with respect to the solicitation of the application for the acquisition of the shares of common stock.

Accordingly, the shares of common stock have not been, directly or indirectly, offered or sold and will not be, directly or indirectly, offered or sold in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements, and otherwise in compliance with, the FIEL and the other applicable laws and regulations of Japan.

For Qualified Institutional Investors, or QII

Please note that the solicitation for newly issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the shares of common stock constitutes either a “QII only private placement” or a “QII only secondary distribution” (each as described in Paragraph 1, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the shares of common stock. The shares of common stock may only be transferred to QIIs.

For Non-QII Investors

Please note that the solicitation for newly issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the shares of common stock constitutes either a “small number private placement” or a “small number private secondary distribution” (each as is described in Paragraph 4, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the shares of common stock. The shares of common stock may only be transferred en bloc without subdivision to a single investor.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore (MAS). Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the SFA), (ii) to a relevant person, or any person pursuant to Section 275(1A) and in accordance with the conditions, specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 by a relevant person which is: (a) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor, shares, debentures and units of shares and debentures of that corporation or the beneficiaries’ rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the shares under Section 275, except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person, or any person pursuant to Section 275(1A) and in accordance with the conditions, specified in Section 275 of the SFA; (2) where no consideration is given for the transfer; or (3) by operation of law.

Solely for the purposes of its obligations pursuant to Sections 309B(1)(a) and 309B(1)(c) of the SFA, we have determined, and hereby notify all relevant persons (as defined in Section 309A of the SFA) that the shares are “prescribed capital markets products” (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issuance, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

The contents of this document have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to the offer. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

China

This prospectus does not constitute a public offer of shares, whether by sale or subscription, in the People's Republic of China, or the PRC. The shares are not being offered or sold directly or indirectly in the PRC to or for the benefit of, legal or natural persons of the PRC.

Further, no legal or natural persons of the PRC may directly or indirectly purchase any of the shares without obtaining all prior PRC's governmental approvals that are required, whether statutorily or otherwise. Persons who come into possession of this document are required by the issuer and its representatives to observe these restrictions.

Korea

The shares have not been and will not be registered under the Financial Investments Services and Capital Markets Act of Korea and the decrees and regulations thereunder, or the FSCMA, and the shares have been and will be offered in Korea as a private placement under the FSCMA. None of the shares may be offered, sold or delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the FSCMA and the Foreign Exchange Transaction Law of Korea and the decrees and regulations thereunder, or the FETL. The shares have not been listed on the Korea Exchange in Korea. Furthermore, the purchaser of the shares shall comply with all applicable regulatory requirements (including but not limited to requirements under the FETL) in connection with the purchase of the shares. By the purchase of the shares, the relevant holder thereof will be deemed to represent and warrant that if it is in Korea or is a resident of Korea, it purchased the shares pursuant to the applicable laws and regulations of Korea.

Taiwan

The shares have not been and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the shares in Taiwan.

LEGAL MATTERS

The validity of the issuance of the shares of common stock offered hereby will be passed upon for GRAIL, Inc. by Latham & Watkins LLP. Simpson Thacher & Bartlett LLP, Palo Alto, California, is representing the underwriters.

EXPERTS

The financial statements as of December 31, 2019 and 2018 and for the years then ended included in this Prospectus have been so included in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the common stock offered hereby. This prospectus does not contain all of the information set forth in the registration statement and the exhibits and schedules thereto. For further information with respect to the Company and its common stock, reference is made to the registration statement and the exhibits and any schedules filed therewith. Statements contained in this prospectus as to the contents of any contract or other document referred to are not necessarily complete and in each instance, if such contract or document is filed as an exhibit, reference is made to the copy of such contract or other document filed as an exhibit to the registration statement, each statement being qualified in all respects by such reference. The SEC maintains a website at www.sec.gov, from which interested persons can electronically access the registration statement, including the exhibits and any schedules thereto.

As a result of the offering, we will be required to file periodic reports and other information with the SEC. We also maintain a website at https://grail.com, at which, following this offering, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with or furnished to the SEC. Our website and the information contained therein or connected thereto shall not be deemed to be incorporated into this prospectus or the registration statement of which it forms a part.

GRAIL, INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of GRAIL, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of GRAIL, Inc. and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, of comprehensive loss, of redeemable convertible preferred stock and stockholders' deficit and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 2 to the financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these consolidated financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP
San Jose, California
April 21, 2020

We have served as the Company's auditor since 2017.

GRAIL, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	As of December 31,	
	2018	2019
Assets		
Current assets:		
Cash and cash equivalents	$ 95,094	$ 143,189
Short-term marketable securities	546,256	401,155
Prepaid expenses and other current assets	6,539	12,585
Prepaid expenses and other current assets—related party	1,342	584
Total current assets	649,231	557,513
Property and equipment, net	29,604	23,078
Property and equipment, net—related parties	3,435	1,347
Operating lease right-of-use assets	—	35,036
Long-term marketable securities	—	13,933
Restricted cash	1,630	1,228
Other non-current assets	2,945	3,384
Total assets	$ 686,845	$ 635,519
Liabilities, redeemable convertible preferred stock, and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 12,390	$ 5,880
Accounts payable—related parties	361	207
Accrued liabilities	36,961	31,584
Accrued liabilities—related parties	21,209	—
Liability for early exercise of unvested stock options, current portion	1,451	1,855
Operating lease liabilities	—	4,604
Other current liabilities	1,785	800
Total current liabilities	74,157	44,930
Finance lease payable, net of current portion	800	—
Deferred rent, net of current portion	6,909	—
Operating lease liabilities, net of current portion	—	36,638
Liability for early exercise of unvested stock options, net of current portion	2,251	349
Other non-current liabilities	2,356	3,075
Total liabilities	86,473	84,992
Commitments and contingencies (Note 7)		

	As of December 31,	
	2018	2019
Redeemable convertible preferred stock:		
Series A redeemable convertible preferred stock, $0.001 par value, 85,000,000 shares authorized as of December 31, 2018 and 2019; 85,000,000 shares issued and outstanding as of December 31, 2018 and 2019; aggregate liquidation preference of $85,000 as of December 31, 2018 and 2019	68,263	68,263
Series B redeemable convertible preferred stock, $0.001 par value, 309,256,591 shares authorized as of December 31, 2018 and 2019; 309,256,591 shares issued and outstanding as of December 31, 2018 and 2019; aggregate liquidation preference of $1,239,655 as of December 31, 2018 and 2019	1,235,404	1,235,404
Series C redeemable convertible preferred stock, $0.001 par value, 63,144,601 shares and 63,144,600 shares authorized as of December 31, 2018 and 2019, respectively; 63,144,600 shares issued and outstanding as of December 31, 2018 and 2019; aggregate liquidation preference of $300,000 as of December 31, 2018 and 2019	299,557	299,557
Series D redeemable convertible preferred stock, $0.001 par value, no shares authorized as of December 31, 2018, 48,942,833 shares authorized as of December 31,2019; no shares issued and outstanding as of December 31, 2018, 31,323,413 shares issued and outstanding as of December 31,2019; aggregate liquidation preference of $0 as of December 31, 2018 and $160,000 as of December 31, 2019	—	159,836
Total redeemable convertible preferred stock	1,603,224	1,763,060
Stockholders' deficit:		
Common stock, $0.001 par value; 715,179,000 (Class A—685,179,000 and Class B—30,000,000) shares and 863,943,220 (Class A—833,943,220 and Class B—30,000,000) shares authorized as of December 31, 2018 and 2019, respectively; 130,361,960 (Class A—105,372,563 and Class B—24,989,397) and 134,663,097 (Class A—109,673,700 and Class B—24,989,397) shares issued and outstanding as of December 31, 2018 and 2019, respectively	129	138
Additional paid-in capital	57,667	90,495
Accumulated other comprehensive income	128	2,465
Accumulated deficit	(1,060,776)	(1,305,631)
Total stockholders' deficit	(1,002,852)	(1,212,533)
Total liabilities, redeemable convertible preferred stock, and stockholders' deficit	$ 686,845	$ 635,519

The accompanying notes are an integral part of these consolidated financial statements.

GRAIL, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share data)

	Year Ended December 31,	
	2018	**2019**
Operating expenses:		
Research and development	$ 190,205	$ 158,886
Research and development—related parties	32,955	8,202
Marketing	6,107	7,679
General and administrative	58,229	80,896
Total operating expenses	287,496	255,663
Loss from operations	287,496	255,663
Interest income, net	(12,550)	(12,430)
Other expense, net	287	1,817
Loss before provision for (benefit from) income taxes	275,233	245,050
Provision for (Benefit from) income taxes	485	(195)
Net loss	$ 275,718	$ 244,855
Net loss attributable to Class A and Class B common stockholders		
Basic and diluted	$ 275,718	$ 244,855
Net loss per share attributable to Class A and Class B common stockholders		
Basic and diluted	$ (2.42)	$ (1.99)
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders		
Basic and diluted	114,138,912	123,188,351
Pro forma net loss per share attributable to common stockholders (unaudited)		
Basic and diluted		$ (0.42)
Weighted-average shares of common stock used in computing pro forma net loss per share attributable to common stockholders (unaudited)		
Basic and diluted		587,035,445

The accompanying notes are an integral part of these consolidated financial statements.

GRAIL, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Year Ended December 31,	
	2018	2019
Net loss	$ 275,718	$ 244,855
Other comprehensive income:		
Net unrealized gain on marketable securities	(371)	(589)
Foreign currency translation adjustment	(483)	(1,748)
Comprehensive loss	$ 274,864	$ 242,518

The accompanying notes are an integral part of these consolidated financial statements.

GRAIL, INC.
CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share data)

	Redeemable Convertible Preferred Stock								Common Stock						
	Preferred Series A		Preferred Series B		Preferred Series C		Preferred Series D		Class A		Class B		Additional Paid-In Capital	Accumulated Other Compre-hensive (Loss) Income	Accumulated Deficit	Total Stock-holders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at January 1, 2018	85,000,000	$ 68,263	309,256,591	$ 1,235,404	—	$ —	—	$ —	100,503,548	$ 95	24,989,397	$ 25	$ 43,468	$ (726)	$ (785,058)	$ (742,196)
Issuance of shares upon exercise of options	—	—	—	—	—	—	—	—	5,734,164	4	—	—	1,549	—	—	1,553
Repurchases of early exercised stock options	—	—	—	—	—	—	—	—	(865,149)	—	—	—	—	—	—	—
Vesting of early exercised stock options	—	—	—	—	—	—	—	—	—	3	—	2	1,609	—	—	1,614
Issuance of Series C redeemable convertible preferred stock, net of issuance costs of $443	—	—	—	—	63,144,600	299,557	—	—	—	—	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	11,041	—	—	11,041
Other comprehensive income	—	—	—	—	—	—	—	—	—	—	—	—	—	854	—	854
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(275,718)	(275,718)
Balance at December 31, 2018	85,000,000	$ 68,263	309,256,591	$ 1,235,404	63,144,600	$ 299,557	—	$ —	105,372,563	$ 102	24,989,397	$ 27	$ 57,667	$ 128	$ (1,060,776)	$ (1,002,852)
Issuance of shares upon exercise of options	—	—	—	—	—	—	—	—	5,158,613	5	—	—	3,042	—	—	3,047
Repurchases of early exercised stock options	—	—	—	—	—	—	—	—	(857,476)	—	—	—	—	—	—	—
Vesting of early exercised stock options	—	—	—	—	—	—	—	—	—	3	—	1	1,395	—	—	1,399
Issuance of Series D redeemable convertible preferred stock, net of issuance costs of $164	—	—	—	—	—	—	31,323,413	159,836	—	—	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	28,391	—	—	28,391
Other comprehensive income	—	—	—	—	—	—	—	—	—	—	—	—	—	2,337	—	2,337
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(244,855)	(244,855)
Balance at December 31, 2019	85,000,000	$ 68,263	309,256,591	$ 1,235,404	63,144,600	$ 299,557	31,323,413	$ 159,836	109,673,700	$ 110	24,989,397	$ 28	$ 90,495	$ 2,465	$ (1,305,631)	$ (1,212,533)

The accompanying notes are an integral part of these consolidated financial statements.

GRAIL, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,	
	2018	**2019**
Cash flows from operating activities		
Net loss	$ (275,718)	$ (244,855)
Adjustments to reconcile net loss to net cash used by operating activities:		
Depreciation and amortization	14,080	10,307
Stock-based compensation expense	11,041	28,391
Loss on disposal of property and equipment	214	334
Loss on foreign currency	—	1,624
Impairment of property and equipment and other long-term assets	5,657	2,219
Amortization of premium (discount) on marketable securities	(4,209)	(4,530)
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	1,478	(5,553)
Prepaid expenses and other assets—related party	458	758
Accounts payable	3,276	(6,393)
Accounts payable—related parties	(3,614)	(154)
Accrued and other liabilities	16,868	(4,507)
Accrued and other liabilities—related parties	21,209	(21,209)
Operating lease right-of-use assets	—	4,025
Operating lease liabilities	—	(6,251)
Net cash used by operating activities	(209,260)	(245,794)
Cash flows from investing activities		
Purchases of property and equipment	(15,812)	(3,332)
Purchases of property and equipment—related parties	(177)	—
Proceeds from the sale of property and equipment	476	82
Purchases of marketable securities	(681,130)	(551,519)
Proceeds from maturities of marketable securities	603,253	687,806
Net cash provided by (used by) investing activities	(93,390)	133,037
Cash flows from financing activities		
Proceeds from exercise of stock options	1,553	3,047
Proceeds from early exercise of unvested stock options	1,300	195
Repurchases of early exercised stock options	(282)	(261)
Proceeds from issuance of Series C redeemable convertible preferred stock, net	299,557	—
Proceeds from issuance of Series D redeemable convertible preferred stock, net	—	159,836
Payment of deferred offering costs	—	(932)
Repayments of borrowings from finance lease	(1,510)	(1,559)
Net cash provided by financing activities.	300,618	160,326
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	483	124
Net increase (decrease) in cash, cash equivalents, and restricted cash	(1,549)	47,693
Cash, cash equivalents and restricted cash—beginning of year	98,273	96,724
Cash, cash equivalents and restricted cash—end of year	$ 96,724	$ 144,417
Represented by:		
Cash and cash equivalents	$ 95,094	$ 143,189
Restricted cash	1,630	1,228
Total	$ 96,724	$ 144,417
Supplemental cash flow information:		
Cash paid for interest	$ 164	$ 85
Supplemental disclosure of non-cash investing and financing activities:		
Vesting of early exercised stock options	1,614	1,399
Property and equipment included in accounts payable and accrued liabilities	3,914	138
Deferred offering costs included in accrued liabilities	—	994

The accompanying notes are an integral part of these consolidated financial statements.

GRAIL, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION AND DESCRIPTION OF BUSINESS

GRAIL, Inc. (GRAIL or the Company) was incorporated in the State of Delaware in September 2015 and began operations as a stand-alone entity in February 2016. GRAIL is a healthcare company focused on developing technologies for early cancer detection. The Company is headquartered in Menlo Park, California.

Since inception, the Company has incurred losses from operations. The Company incurred losses from operations of $287.5 million and $255.7 million during 2018 and 2019, respectively. The Company had an accumulated deficit of $1.3 billion as of December 31, 2019. The Company has not yet launched a commercial product and may never develop a product that will generate revenues, including in amounts that will be sufficient to fund operations. Accordingly, the Company has been dependent on its ability to raise capital through equity issuances.

The Company had $558.3 million of cash, cash equivalents, and marketable securities at December 31, 2019. Based on the Company's business plans, management believes that this is sufficient to meet its obligations for at least 12 months from the issuance date of these consolidated financial statements.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Principles of Consolidation

The consolidated financial statements for 2018 and 2019 include the accounts of GRAIL, Inc. and its wholly-owned subsidiaries. The consolidated financial statements are prepared in accordance with United States Generally Accepted Accounting Principles (U.S. GAAP). All intercompany balances and transactions have been eliminated on consolidation.

Use of Estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts of assets and liabilities, disclosure of contingent assets and liabilities, and the reported amounts of expenses in the consolidated financial statements and accompanying notes. On an ongoing basis, management evaluates its estimates, including those related to accrued clinical studies and research and development expenses, stock-based compensation expense, useful lives of intangible assets and property and equipment, determination of incremental borrowing rate for operating leases, and the provision (benefit) for income taxes. Actual results could differ from these estimates, and such differences could be material to the consolidated financial statements.

Unaudited Pro Forma Net Loss per Share

The unaudited pro forma net loss per share for 2019 was computed using the weighted-average number of shares of common stock outstanding, adjusted to reflect the following prior to, or upon the closing of, an initial public offering (IPO) as if such reclassifications or issuances had occurred at the beginning of the period, or their issuance dates if later: (i) the conversion of all outstanding redeemable convertible preferred stock into common stock; (ii) the assumed vesting of restricted stock awards; (iii) the conversion of all outstanding Class B common stock into Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock; and (iv) the reclassification of Class A and Class B common stock into a single class of common stock.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents, and marketable securities.

Substantially all the Company's cash and cash equivalents are deposited in accounts with four accredited financial institutions that management believes are of high-credit quality. Such deposits have and will continue to exceed federally insured limits. The Company has not experienced any losses on its cash deposits.

The Company's investment policy limits investments to certain types of securities issued by the U.S. government and its agencies and institutions with investment-grade credit ratings and places restrictions on maturities and concentration by type and issuer. The Company is exposed to credit risk in the event of a default by the financial institutions holding its cash, cash equivalents, and marketable securities, and by issuers of marketable securities to the extent recorded on the consolidated balance sheets. As of December 31, 2019, the Company had no off-balance sheet concentrations of credit risk.

Risks and Uncertainties

The Company is in the research and discovery stage and may never develop a product that will generate revenues, including in amounts sufficient to fund operations. The market for which the Company is developing products is highly competitive and rapidly changing. Difficulties or delays in the Company's clinical studies, delays in planned commercial launch of the Company's products, potential complications with the Company's sole suppliers, complex regulatory regimes, regulatory issues and other factors could negatively impact the Company's operating results.

In December 2019, a novel strain of coronavirus (COVID-19) was first reported in Wuhan, China and has since become a global pandemic. The extent of the impact of the coronavirus outbreak on the Company's business will depend on certain developments, including the duration and spread of the outbreak and the extent and severity of the impact on the Company's research activities at its primary operations and the operations of its suppliers as well as any further delay on clinical trial activities, all of which are uncertain and cannot be predicted. As of the date of issuance of these consolidated financial statements, the extent to which the coronavirus outbreak may materially impact the Company's financial condition, liquidity, or results of operations is uncertain.

The Company may need to raise additional equity or debt financing to fund future operations that may not be available at terms acceptable to the Company, if at all. If the Company does not successfully commercialize its products in development, it will be unable to generate revenue from product sales or achieve profitability.

Segments

The Company operates and manages its business as one reportable operating segment. The Company's chief operating decision maker reviews financial information on an aggregate basis for the purposes of evaluating financial performance and allocating the Company's resources. 95% and 100% of the Company's long-lived assets were located in the United States as of December 31, 2018 and 2019, respectively.

Fair Value of Financial Instruments

The Company determines the fair value of financial assets and liabilities using the fair value hierarchy established in Accounting Standards Codification (ASC) Topic 820, *Fair Value Measurement* (ASC 820). ASC 820 identifies fair value as the exchange price, or exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. The hierarchy describes three levels of inputs that may be used to measure fair value, as follows:

Level 1 —Observable inputs, such as quoted prices in active markets for identical assets and liabilities.

Level 2 —Observable inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 —Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The Company has not elected the fair value option as prescribed by ASC Topic 825, *Financial Instruments*, for its financial assets and liabilities that are not otherwise required to be carried at fair value. Under ASC 820, material financial assets and liabilities not carried at fair value are reported at their carrying values.

The carrying amounts for financial instruments such as prepaid expenses and other current assets, prepaid expenses and other current assets—related party, accounts payable, accounts payable—related parties, accrued liabilities and accrued liabilities—related parties approximate fair value due to their short-term maturities.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with original maturities of three months or less to be cash equivalents. Cash and cash equivalents consist of cash on deposit with banks denominated in U.S. Dollars, Hong Kong Dollars and British Pounds and marketable securities, as described below.

Marketable Securities

The Company generally invests its excess cash in money market funds and investment-grade short- to intermediate-term fixed income securities. Such investments are included in cash and cash equivalents, short-term marketable securities, or long-term marketable securities on the consolidated balance sheets, are considered available-for-sale, and reported at fair value with unrealized gains and losses included as a component of other comprehensive loss (income). The amortized cost of debt securities is adjusted for the amortization of premiums and accretion of discounts to maturity, which is included in interest expense (income), net, respectively, on the consolidated statements of operations. Realized gains and losses and declines in value judged to be other-than-temporary, if any, on marketable securities are included in other expense (income), net. The cost of securities sold is determined using specific identification.

The Company periodically evaluates whether declines in fair values of its marketable securities below their book value are other-than-temporary. The Company considers factors such as the duration, the severity and the reason for the decline in value, the potential recovery period and the Company's intent to sell. For debt securities, the Company also considers whether (i) it is more likely than not that the Company will be required to sell the debt securities before recovery of their amortized cost basis, and (ii) the amortized cost basis cannot be recovered as a result of credit losses.

Restricted Cash

Restricted cash is comprised of cash and cash equivalents that are restricted as to withdrawal or use under the terms of certain contractual agreements.

Property and Equipment, Net

Property and equipment, net is stated at cost less accumulated depreciation and amortization. Depreciation is calculated using the straight-line method, and the cost is amortized over the estimated useful lives of the assets. The Company estimates the useful lives of property and equipment by asset classification as described in Note 3, Balance Sheet Components. Leasehold improvements are amortized using the straight-line method over the shorter of the term of the lease agreement or the useful life of the improvements. The Company expenses repairs and maintenance costs as incurred. When an item is sold or disposed of, the cost and related accumulated depreciation or amortization is eliminated and the resulting gain or loss, if any, is recorded in the consolidated statements of operations.

Impairment of Long-Lived Assets

The Company evaluates its long-lived assets, including property and equipment and right-of-use assets, for indications of possible impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparison of the carrying amounts to the future

undiscounted cash flows attributable to these assets. Should impairment exist, the impairment would be measured as the amount by which the carrying amount of the assets exceeds the fair value of those assets. The Company recorded $5.7 million in impairment charges during 2018 and $2.2 million in impairment charges during 2019. Refer to Note 3 for further details.

Leases

The Company adopted ASU 2016-02, *Leases* (Topic 842) as of January 1, 2019. The Company classifies leases as either operating or finance leases at inception and as necessary at modification. Leased assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. The Company does not obtain and control its right to use the identified asset until the lease commencement date. Although it may have a right and an obligation to exchange lease payments for a leased asset from the date of inception, the Company is unlikely to have an obligation to make lease payments before the asset is made available for use; therefore, lease classification, recognition, and measurement are determined at the lease commencement date.

Operating leases are included in operating lease right-of-use (ROU) assets, and operating lease liabilities on the Company's consolidated balance sheets. Operating lease ROU assets and liabilities are recognized at lease commencement date based on the present value of lease payments over the lease term. When readily determinable, the Company uses the rate implicit in the lease to discount lease payments; however, when the rate is not readily determinable, the Company uses the incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The incremental borrowing rate is the rate of interest that the Company would have to pay to borrow an amount equal to the lease payments on a collateralized basis over a similar term and in a similar economic environment. The operating lease ROU asset also includes any initial direct costs, lease payments made prior to lease commencement, and lease incentives received. Variable lease payments are expensed as incurred and are not included within the ROU asset and lease liability calculation. Variable lease payments primarily include reimbursements of costs incurred by lessors for common area maintenance and utilities. The Company's lease terms are the noncancelable period including any rent-free periods provided by the lessor and may include options to extend or terminate the lease when it is reasonably certain that it will exercise that option. At lease inception, and upon modification or remeasurement, the Company estimates the lease term based on its assessment of extension and termination options that are reasonably certain to be exercised. Lease cost for lease payments is recognized on a straight-line basis over the lease term. The Company has certain lease agreements with lease and non-lease components, which are accounted for separately. For these agreements, lease payments are allocated between the lease- and non-lease components based on the relative stand-alone price of these components.

Finance leases are included in property and equipment, other current liabilities, and other long-term liabilities on the Company's consolidated balance sheets. Property and equipment under finance leases is generally amortized over the lease term and is included in depreciation expense. The interest on the finance lease liabilities is included in interest expense.

The Company does not recognize ROU assets and lease liabilities for short-term leases, which have a lease term of twelve months or less and do not include an option to purchase the underlying asset that the Company is reasonably certain to exercise. Lease cost for short-term leases is recognized on a straight-line basis over the lease term.

Accrued Clinical Studies and Research and Development Expenses

The Company accrues for the estimated costs of research and development activities conducted by third-party service providers that are conducting clinical studies. The Company records the estimated costs of research and development activities based upon the estimated amount of services provided and includes these costs in accrued liabilities and accrued liabilities—related parties in the consolidated balance sheets and within research and development and research and development—related parties expenses in the consolidated statements of operations. These costs are a significant component of research and development expenses. The Company accrues for these costs based on factors such as estimates of the work completed and in accordance with agreements established with

third-party service providers. The Company makes judgments and estimates in determining the accrued liabilities balance in each reporting period.

Research and Development and Research and Development—Related Parties

Research and development and research and development—related parties expenses include costs incurred to develop the Company's technology (prior to establishing technological feasibility), collect clinical samples, and conduct clinical studies to develop and support the Company's investigational multi-cancer test. These costs consist of personnel costs, including salaries, benefits, and stock-based compensation expense associated with the Company's research and development personnel, laboratory supplies, consulting costs, costs associated with setting up and conducting clinical studies at domestic and international sites, and allocated overhead expenses including rent, information technology, and equipment depreciation. The Company expenses both internal and external research and development costs in the periods in which they are incurred. Research and development—related parties expenses are further discussed in Note 12, Related-Party Transactions. Nonrefundable advance payments for goods and services that will be used or rendered in future research and development activities are deferred and recognized as expense in the period in which the related goods are delivered or services are performed.

Redeemable Convertible Preferred Stock

The Company records the redeemable convertible preferred stock at fair value on the dates of issuance, net of issuance costs. The Company classifies its redeemable convertible preferred stock outside of stockholders' deficit on the consolidated balance sheets because, in the event of certain "liquidation events" that are not solely within the Company's control, the shares would become redeemable at the option of the holders. The Company did not adjust the carrying values of the redeemable convertible preferred stock to the deemed liquidation values of such shares since a liquidation event was not probable at either of the balance sheet dates. Subsequent adjustments to increase or decrease the carrying values to the ultimate liquidation values will be made only if and when it becomes probable that such a liquidation event will occur.

Stock-Based Compensation Expense

Employee stock-based compensation expense is measured at the grant date based on the fair value of the award. For awards with service-based vesting conditions, the portion of the award that is ultimately expected to vest is recognized as an expense on a straight-line basis over the requisite service period, which is generally the vesting period. The vesting period is generally four years.

The Company determines the fair value of equity awards as follows:

Stock Options: In determining the fair value of the stock-based compensation expense for awards granted under the 2016 Equity Incentive Plan and non-plan incentive awards, the Company uses the Black-Scholes option-pricing model and a Monte Carlo simulation model, which require the input of subjective assumptions. These assumptions include: the fair value of common stock, the estimated length of time employees will retain their vested stock options before exercising them (expected term), the estimated volatility of the Company's common stock price over the expected term (expected volatility), the risk-free interest rate, and expected dividends. Changes in the following assumptions can materially affect the estimate of stock-based compensation expense:

Expected Term—For awards with service-based vesting conditions, the expected term of stock options represents the period the stock options are expected to remain outstanding and is calculated using the simplified method, due to limited history, which calculates the expected term as the midpoint of the contractual term of the awards and the vesting period. For awards with performance-based vesting conditions, the Company evaluates the award's service period, contractual term, and its expectations of the projected timing of achievement of milestones in estimating the expected term.

Expected Volatility—As there has been no public market for the Company's common stock to date, and thus the Company does not have any trading history of its common stock, the expected volatility is estimated based on the average volatility for comparable publicly-traded companies over a period equal to the expected term of

the stock option grants. The comparable companies are chosen based on their similar size, stage in the life cycle, or area of specialty.

Risk-Free Interest Rate—The risk-free interest rate is based on the implied yield currently available on U.S. Treasury zero-coupon issues with a remaining term equivalent to the expected term of a stock award.

Expected Dividends—The Company has not paid dividends on its common stock and does not anticipate paying any dividends on its common stock in the near future.

Fair Value of Common Stock—Given the absence of a public trading market, the Company's board of directors consider numerous objective and subjective factors to determine the fair value of the common stock at each grant date. These factors include, but are not limited to: (i) the most recently available valuations of the common stock performed at periodic intervals by an independent third-party valuation firm; (ii) the prices for the redeemable convertible preferred stock sold to outside investors; (iii) the Company's capital structure, including the rights and preferences of the Company's various classes of equity, including the redeemable convertible preferred stock relative to the common stock; (iv) the Company's stage of development and commercialization as well as developments in the business; (v) the lack of marketability of the common stock for a privately-held company; (vi) the likelihood of achieving a liquidity event for the Company's shares of common stock, such as an IPO or sale of the Company, given prevailing market conditions; (vii) the Company's historical operating results; and (viii) valuations of comparable public companies.

The Company accounts for stock-based compensation arrangements with non-employees using a fair value approach. The Company believes that for stock options issued to non-employees, the fair value of the stock option is more reliably measurable than the fair value of the services rendered. Therefore, the Company estimates the fair value of non-employee stock options using a Black-Scholes option-pricing model with appropriate inputs. Prior to the early adoption of ASU No. 2018-07, *Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*, on January 1, 2018, the estimated fair value of non-employee stock options was remeasured over the vesting period as earned. Subsequent to the early adoption of ASU No. 2018-07, stock-based compensation arrangements with non-employees are accounted for in the same manner as stock-based compensation arrangements with employees, and are no longer remeasured every reporting period.

The Company recognizes stock-based compensation expense for awards that contain performance-based and performance- and market-based conditions using the accelerated attribution method when management determines it is probable that the performance condition will be satisfied. For awards with performance- and market-based conditions, the Company uses a Monte Carlo simulation to determine the fair value at the grant date and recognizes stock-based compensation expense over the derived service period when it becomes probable that the performance-based condition will be met. Under the Monte Carlo simulation, stock returns are simulated for the Company to estimate the payouts established by the vesting conditions of the awards and an estimated time that the awards will vest. The assumptions used in the Monte Carlo simulation include: the fair value of common stock, estimating the length of time employees will retain their vested stock options before exercising them (expected term), the estimated volatility of the Company's common stock price over the expected term (expected volatility), the risk-free interest rate and expected dividends.

The Company grants certain awards that may be settled in fully vested shares of common stock or in cash, at the Company's election. These awards are accounted for as liability-classified awards because the dollar value of the awards is fixed and the number of shares is variable and is based on the per-share common stock value at the time the underlying performance- and market-based conditions are satisfied. For these awards, once the performance condition is deemed probable, the liability is remeasured on each reporting date using the Monte Carlo simulation until the awards vest. If the Company issues common stock, the liability is remeasured and then reclassified to additional paid-in capital, with a corresponding charge (or credit) to stock-based compensation expense.

Restricted Stock Units (RSUs) and Restricted Stock Awards (RSAs): The fair values of the RSUs and RSAs were determined based on the fair value of the Company's common stock on the grant date.

Beginning in 2019, the Company granted RSUs that generally vest upon the completion of service-based conditions. The Company recognizes stock-based compensation expense over the requisite service period.

Provision for (Benefit from) Income Taxes

The Company records income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or tax returns. Deferred tax assets and liabilities are measured using enacted tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled.

The Company reduces deferred tax assets, if necessary, by a valuation allowance if it is more likely than not that the Company will not realize some or all of the deferred tax assets. In making such a determination, the Company considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and recent results of operations.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The Company recognizes interest and penalties related to uncertain tax positions within the provision (benefit) for income taxes.

Foreign Currency

The functional currencies of the Company's foreign subsidiaries are the U.S. Dollar, British Pound, and the Hong Kong Dollar. Adjustments resulting from translating the financial statements of the United Kingdom and Hong Kong subsidiaries into U.S. Dollars are recorded as a component of other comprehensive loss in the consolidated statements of comprehensive loss. Monetary assets and liabilities denominated in a foreign currency are translated into U.S. Dollars at the exchange rate on the balance sheet date. Expenses are translated at the weighted-average exchange rates during the period. Equity transactions are translated using historical exchange rates.

Comprehensive Loss

Comprehensive loss includes net loss and certain changes in stockholders' deficit that are excluded from net loss, primarily unrealized losses (gains) on the Company's marketable securities and foreign currency translation adjustments.

Net Loss Per Share Attributable to Class A and Class B Common Stockholders

Basic and diluted net loss per share attributable to Class A and Class B common stockholders are presented in conformity with the two-class method required for participating securities. The Company considers all series of its redeemable convertible preferred stock and early exercised stock options and restricted stock awards to be participating securities. Under the two-class method, the net loss attributable to Class A and Class B common stockholders is not allocated to the redeemable convertible preferred stock as the holders of the Company's redeemable convertible preferred stock do not have a contractual obligation to share in losses. Basic net loss per share attributable to Class A and Class B common stockholders is calculated by dividing the net loss adjusted to include deemed dividends paid to the Company's preferred stockholders and accretion to redemption value of the redeemable common stock awards, to the extent both impact accumulated deficit, by the weighted-average number of shares of Class A and Class B common stock outstanding during the period, less shares subject to repurchase. Diluted net loss per share attributable to Class A and Class B common stockholders is the same as basic net loss per share, since the effects of potentially dilutive securities are antidilutive given the net loss attributable to Class A and Class B common stockholders for each period presented.

Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board (FASB) issued ASU 2016-02, *Leases* (Topic 842), and subsequent amendments, to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet for those leases classified as operating leases under previous U.S. GAAP. ASU 2016-02 requires a lessee to recognize a liability to make lease payments (the lease liability) and a

right-of-use asset representing its right to use the underlying asset for the lease term on the balance sheet. ASU 2016-02 is effective for financial years beginning after December 15, 2018 (including interim periods within those periods) using a modified retrospective approach, and early adoption is permitted.

On January 1, 2019, the Company adopted Topic 842, as amended, under the modified retrospective transition approach, with no cumulative-effect adjustment on the opening balance of accumulated deficit as of the effective date (the effective date method). Under the effective date method, financial results reported in periods prior to January 1, 2019 are unchanged. The Company elected the following as part of the adoption:

- the package of practical expedients which allows for not reassessing (1) whether existing contracts contain leases, (2) the lease classification for existing leases, and (3) whether existing initial direct costs meet the new definition;
- not to recognize ROU assets and lease liabilities for short-term leases, which have a lease term of twelve months or less and do not include an option to purchase the underlying asset that the Company is reasonably certain to exercise.

The cumulative effect of the adjustments made to the Company's consolidated balance sheet as of the adoption date was primarily is detailed as follows:

	December 31, 2018	Effect of the Adoption of Topic 842	January 1, 2019
		(in thousands)	
Assets:			
Operating lease right-of-use assets	$ —	$ 40,389	$ 40,389
Total assets	$ 686,845	$ 40,389	$ 727,234
Liabilities:			
Operating lease liabilities, current portion	$ —	$ 4,935	$ 4,935
Other current liabilities	1,785	(195)	1,590
Deferred rent, net of current portion	6,909	(6,909)	—
Operating lease liabilities, net of current portion	—	42,558	42,558
Total liabilities	$ 86,473	$ 40,389	$ 126,862

The adoption of the standard did not result in a material impact on the Company's consolidated statements of operations and had no impact on the Company's consolidated statements of cash flows. The most significant impact was the recognition of ROU assets and lease liabilities for operating leases and the related disclosures included in Note 6 to the financial statements, while the Company's accounting for finance leases remained substantially unchanged.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, as well as a further amendment in ASU 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients.* ASU 2014-09 establishes a principle for recognizing revenue upon the transfer of promised goods or services to customers, in an amount that reflects the expected consideration received in exchange for those goods or services. It also provides guidance on the recognition of costs related to obtaining and fulfilling customer contracts. This guidance is effective for annual reporting periods (including interim periods within those years) beginning after December 15, 2017. The new revenue standard may be applied retrospectively to each prior period presented or retrospectively with the cumulative effect recognized as of the date of adoption. The Company adopted this ASU on January 1, 2018. There was no material impact to the consolidated financial statements upon adoption.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments–Credit Losses (Topic 326).* ASU 2016-13 requires measurement and recognition of expected credit losses for financial assets. This guidance will become effective for the Company beginning in the first quarter of 2020 and must be adopted using a modified retrospective

approach, with certain exceptions. The Company does not anticipate that the adoption of this standard will have a material effect on its consolidated financial statements.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230)*, which requires amounts generally described as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling the total beginning and ending amounts for the periods shown on the consolidated statements of cash flows. ASU 2016-08 is effective for financial years beginning after December 15, 2017 (including interim periods within those periods) using a retrospective transition method for each period presented. The Company adopted this standard on January 1, 2018 using a retrospective transition method. There was no material impact to the consolidated financial statements upon adoption.

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718)*: *Scope of Modification Accounting*, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. ASU 2017-09 is effective for annual and interim periods beginning after December 15, 2017. The Company adopted this standard on January 1, 2018. There was no material impact to the consolidated financial statements upon adoption.

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share (Topic 260): Distinguishing Liabilities from Equity (Topic 480); Derivatives and Hedging (Topic 815)*, which changes the classification analysis of certain equity-linked financial instruments with down round features. Under historical U.S. GAAP, an equity-linked financial instrument with a down round feature that otherwise was not required to be classified as a liability under ASC 480 was evaluated under the ASC 815, *Derivatives and Hedging*, to determine whether it met the definition of a derivative (and was therefore measured at fair value at each reporting period). Under ASU 2017-11, a down round feature no longer precludes equity classification when assessing whether the instrument is indexed to an entity's own stock under ASC 815. Accordingly, these financial instruments are no longer measured at fair value at each reporting period. ASU 2017-11 also requires entities that calculate earnings per share to recognize the effect of the down round feature when it is triggered (at this time, the effect is treated as a dividend and as a reduction of income available to common stockholders in basic earnings per share). It is effective for annual and interim periods beginning after December 15, 2018 and early adoption is permitted. The Company adopted this standard on January 1, 2019. The impact of the adoption of this ASU did not have a material impact on its consolidated financial statements.

In June 2018, the FASB issued ASU 2018-07, *Stock Compensation (Topic 718)*: *Improvements to Nonemployee Share-Based Payment Accounting*. The ASU is intended to reduce the cost and complexity and to improve financial reporting for nonemployee share-based payments. The ASU expands the scope of Topic 718, *Compensation—Stock Compensation*, which currently only includes share-based payments for employees, to include share-based payments issued to nonemployees for goods or services. Consequently, the accounting for share-based payments to nonemployees and employees will be substantially aligned. This ASU is effective for annual and interim periods beginning after December 15, 2018. Early adoption is permitted but may take place no earlier than a company's adoption date of Topic 606, *Revenue from Contracts with Customers*. The Company early adopted this standard on January 1, 2018. There was no material impact to the consolidated financial statements upon adoption.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement.* The ASU improves the effectiveness of fair value measurements disclosures and modifies the disclosure requirements on fair value measurements in Topic 820, *Fair Value Measurement, based on the concepts in the FASB Concepts Statement, Conceptual Framework for Financial Reporting—Chapter 8: Notes to Financial Statements*, including the consideration of costs and benefits. This ASU is effective for annual and interim periods beginning after December 15, 2019. Early adoption is permitted. The Company does not anticipate that the adoption of this ASU will have a material impact on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, *Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40), Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement*

That Is a Service Contract. ASU 2018-15 amends current guidance to align the accounting for costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing costs associated with developing or obtaining internal-use software. Capitalized implementation costs must be expensed over the term of the hosting arrangement and presented in the same line item in the statement of income as the fees associated with the hosting element (service) of the arrangement. ASU 2018-15 is effective for fiscal years beginning after December 15, 2019, with early adoption permitted. The Company is planning to adopt the standard using the prospective transition method and will begin capitalizing implementation costs as of January 1, 2020.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*. ASU 2019-12 modifies ASC 740 to simplify the accounting for income taxes. The Company has elected to early adopt the amendments effective January 1, 2019. The impact to the consolidated financial statements upon adoption was immaterial.

NOTE 3. BALANCE SHEET COMPONENTS

Property and Equipment, Net

Property and equipment, net consisted of the following:

	Useful Life (in Years)	As of December 31,	
		2018	2019
		(in thousands)	
Laboratory equipment	3 to 5	$ 23,124	$ 23,157
Computer hardware	3 to 5	4,363	4,994
Computer software	3 to 5	257	257
Furniture and fixtures	5	2,026	2,021
Leasehold improvements	Lease term	23,295	21,931
Construction-in-process		241	215
Property and equipment, gross		53,306	52,575
Less accumulated depreciation and amortization		(20,267)	(28,150)
Total property and equipment, net		$ 33,039	$ 24,425

Included within property and equipment, net is $3.4 million and $1.3 million of laboratory equipment purchased from related parties as of December 31, 2018 and 2019, respectively.

In June 2018, the Company concluded that certain laboratory equipment (some of which were subsequently disposed of) did not have remaining utility due to ongoing business changes and accordingly recorded an impairment charge of $4.0 million in research and development expenses on the consolidated statements of operations. In addition, effective December 31, 2018, the Company changed its estimate of the useful life of the leasehold improvements in its Hong Kong facilities. In connection with the decision to exit the Hong Kong facility, the Company recorded an impairment charge of $1.7 million, primarily in research and development expenses, in connection with leasehold improvements in its Hong Kong facilities.

During 2019, primarily in connection with the decision to end the Company’s lease in Hong Kong, the Company recorded an impairment charge of $0.9 million relating to laboratory equipment, computer hardware and furniture and fixtures, in research and development expenses.

The Company recorded $14.1 million and $10.3 million of depreciation expense during 2018 and 2019 respectively, of which $1.6 million and $0, respectively, related to assets under capital leases. For more information on the capital leases, see Note 7, Commitments and Contingencies.

Accrued Liabilities and Accrued Liabilities—Related Parties

Accrued liabilities and accrued liabilities–related parties consist primarily of amounts owed to vendors, employees, and professional service firms and are based on the Company's best estimate. Accrued liabilities and accrued liabilities–related parties consisted of the following:

	As of December 31,	
	2018	2019
	(in thousands)	
Accrued compensation expenses	$ 14,502	$ 14,889
Accrued legal and professional expenses	3,051	4,306
Accrued clinical studies expenses	12,219	5,119
Accrued research and development expenses	2,210	3,494
Accrued construction-in-process	207	23
Accrued research and development expenses—related parties	21,209	—
Accrued other expenses	4,772	3,753
Total accrued liabilities and accrued liabilities—related parties	$ 58,170	$ 31,584

NOTE 4. FAIR VALUE MEASUREMENTS

The following table represents the fair value hierarchy for the Company's financial assets measured at fair value on a recurring basis as of December 31, 2018 and December 31, 2019:

	As of December 31, 2018			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash equivalents:				
Money market funds	$ 33,853	$ —	$ —	$ 33,853
Corporate debt securities	—	5,999	—	5,999
Commercial paper	—	3,983	—	3,983
Short-term marketable securities:				
U.S. government treasuries	49,879	—	—	49,879
U.S. government agency securities	—	14,873	—	14,873
Corporate debt securities	—	266,872	—	266,872
Commercial paper	—	214,632	—	214,632
Total marketable securities	49,879	496,377	—	546,256
Total	$ 83,732	$ 506,359	$ —	$ 590,091

	As of December 31, 2019			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash equivalents:				
Money market funds	$ 58,291	$ —	$ —	$ 58,291
Corporate debt securities	—	21,001	—	21,001
Commercial paper	—	4,988	—	4,988
Short-term marketable securities:				
U.S. government treasuries	37,533	—	—	37,533
U.S. government agency securities	—	7,504	—	7,504
Corporate debt securities	—	236,234	—	236,234
Commercial paper	—	119,884	—	119,884
Long-term marketable securities:				
Corporate debt securities	—	5,435	—	5,435
U.S. government agency securities	—	8,498	—	8,498
Total marketable securities	37,533	377,555	—	415,088
Total	$ 95,824	$ 403,544	$ —	$ 499,368

There were no transfers between the fair value measurement levels during 2018 and 2019.

NOTE 5. MARKETABLE SECURITIES

All marketable securities as of December 31, 2018 and 2019 are considered available-for-sale, and the amortized costs, unrealized holding gains or losses, and the fair values of the Company's marketable securities by major security type are summarized in the table below:

	As of December 31, 2018			
	Amortized Cost	Unrealized Holding Gains	Unrealized Holding Losses	Aggregate Fair Value
	(in thousands)			
Cash equivalents:				
Money market funds	$ 33,853	$ —	$ —	$ 33,853
Corporate debt securities	5,999	—	—	5,999
Commercial paper	3,983	—	—	3,983
Total cash equivalents	43,835	—	—	43,835
Short-term marketable securities:				
U.S. government treasuries	$ 49,891	$ —	$ (12)	$ 49,879
U.S. government agency securities	14,899	—	(26)	14,873
Corporate debt securities	267,165	16	(309)	266,872
Commercial paper	214,632	—	—	214,632
Total short-term marketable securities	546,587	16	(347)	546,256
Total marketable securities	$ 590,422	$ 16	$ (347)	$ 590,091

	As of December 31, 2019			
	Amortized Cost	Unrealized Holding Gains	Unrealized Holding Losses	Aggregate Fair Value
	(in thousands)			
Cash equivalents:				
Money market funds	$ 58,291	$ —	$ —	$ 58,291
Corporate debt securities	21,001	—	—	21,001
Commercial paper	4,988	—	—	4,988
Total cash equivalents	84,280	—	—	84,280
Short-term marketable securities:				
U.S. government treasuries	$ 37,497	$ 37	$ (1)	$ 37,533
U.S. government agency securities	7,499	5	—	7,504
Corporate debt securities	236,012	259	(37)	236,234
Commercial paper	119,884	—	—	119,884
Total short-term marketable securities	400,892	301	(38)	401,155
Long-term marketable securities:				
Corporate debt securities	5,439	—	(4)	5,435
U.S. government agency securities	8,500	—	(2)	8,498
Total long-term marketable securities	13,939	—	(6)	13,933
Total marketable securities	$ 499,111	$ 301	$ (44)	$ 499,368

Interest income related to the Company's cash equivalents and available-for-sale investments included in interest income, net, was $12.3 million and $11.7 million during 2018 and 2019, respectively.

The following table summarizes the maturities of the Company's available-for-sale securities, by contractual maturity, as of December 31, 2019.

	As of December 31, 2019	
	Amortized Cost	Aggregate Fair Value
	(in thousands)	
Mature in less than one year	$ 485,172	$ 485,435
Mature in one to two years	13,939	13,933
Total	$ 499,111	$ 499,368

The following table summarizes the Company's available-for-sale securities that were in a continuous unrealized loss position for less than 12 months, but were not deemed to be other-than-temporarily impaired, as of December 31, 2018 and 2019.

	As of December 31,			
	2018		2019	
	Aggregate Fair Value	Aggregate Unrealized Losses	Aggregate Fair Value	Aggregate Unrealized Losses
	(in thousands)			
U.S. government treasuries	$ 39,898	$ (12)	$ 7,542	$ (1)
U.S. government agency securities	14,874	(26)	8,498	(2)
Corporate debt securities	238,750	(309)	62,395	(41)
Total	$ 293,522	$ (347)	$ 78,435	$ (44)

As of December 31, 2018 and 2019, some of the Company's marketable securities were in an unrealized loss position. The Company held a total of 84 and 23 positions that were in an unrealized loss position as of December 31, 2018 and 2019, respectively. The Company determined that the gross unrealized losses were temporary in nature and related primarily to interest rate shifts rather than significant changes in the underlying credit quality of the securities that the Company holds. The Company has the ability to hold all marketable securities that have been in a continuous loss position until maturity or recovery, thus there has been no recognition of any other-than-temporary impairment during 2018 and 2019.

The Company's short-term marketable securities have an effective maturity date of less than 12 months, and the long-term marketable securities have an effective maturity of greater than 12 months and less than 16 months.

NOTE 6. LEASES

The Company has entered into operating and finance leases for facilities and research and development equipment. Both operating and finance leases have remaining lease terms which range from 1 year to 7 years, and often include one or more options to renew. These renewal terms can extend the lease term from 1 to 5 years and are included in the lease term when it is reasonably certain that the Company will exercise the option. One lease provides the option to terminate the lease under certain conditions with three months' notice. The Company does not expect to exercise this termination option. The exercise of lease renewal and termination options is at the Company's sole discretion. The Company also has variable lease payments that are primarily comprised of common area maintenance and utility charges.

During the twelve months ended December 31, 2019, in connection with the decision to exit its Hong Kong facility, the Company recorded an impairment charge of $1.3 million in research and development expenses relating to operating lease right-of-use assets. In November 2019, the Company entered into a surrender agreement to terminate the operating lease of the Hong Kong facility, which released the Company of its residual value guarantees, which amounted to $0.6 million and was recognized as an offset to general and administrative expenses.

Supplemental balance sheet information related to leases was as follows:

	As of December 31, 2019 (in thousands)
Operating leases:	
Operating lease right-of-use assets	$ 35,036
Operating lease liabilities, current portion	$ 4,604
Operating lease liabilities, net of current portion	36,638
Total operating lease liabilities	$ 41,242
Finance leases:	
Property and equipment, gross	4,920
Accumulated depreciation	(4,920)
Property and equipment, net	$ —
Other current liabilities	$ 800
Finance lease payable, net of current portion	—
Total finance lease liabilities	$ 800

Supplemental cash flow information related to leases was as follows:

	Year Ended December 31, 2019 (in thousands)
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 7,981
Financing cash flows from finance leases	1,559

The components of lease expense were as follows:

	Year Ended December 31, 2019 (in thousands)
Operating leases cost	$ 7,215
Finance leases cost:	
Amortization of leased assets	32
Interest on lease liabilities	107
Short-term leases cost	—
Variable leases cost	3,234
Total leases cost	$ 10,588
Weighted-average remaining lease term (years):	
Operating lease	6.87
Finance lease	0.50
Weighted-average discount rate:	
Operating leases	7.0%
Finance leases	5.1%

As of December 31, 2019, no assets were obtained in exchange for lease obligations related to operating leases or finance leases.

As of December 31, 2019, undiscounted future lease payments for each of the next five years and thereafter are as follows:

Year Ending December 31,	Operating Leases	Finance Leases	Total
		(in thousands)	
2020	$ 6,780	$ 812	$ 7,592
2021	7,544	—	7,544
2022	7,705	—	7,705
2023	7,706	—	7,706
2024	7,889	—	7,889
Thereafter	14,359	—	14,359
Total lease payments	51,983	812	52,795
Less: interest	(10,741)	(12)	(10,753)
Total	$ 41,242	$ 800	$ 42,042

As of December 31, 2019, the Company does not have additional operating and finance leases that have not yet commenced.

ASC 840 Disclosures

The Company elected modified retrospective transition approach and is required to present previously disclosed information under the prior accounting standards for leases. Total minimum lease payments as of December 31, 2018 are as follows:

Year Ending December 31,	Operating Leases	Finance Leases	Total
		(in thousands)	
2019	$ 7,798	$ 1,675	$ 9,473
2020	7,802	850	8,652
2021	7,228	—	7,228
2022	7,447	—	7,447
2023	7,672	—	7,672
Thereafter	22,066	—	22,066
Total	$ 60,013	$ 2,525	$ 62,538

Total rent expense was $6.6 million and $7.2 million during 2018 and 2019, respectively.

The Company leased lab equipment totaling $6.0 million in 2016 and did not enter into any additional capital leases in 2018 or 2019.

NOTE 7. COMMITMENTS AND CONTINGENCIES

As of December 31, 2019, the Company's future non-lease commitments over the next five years and thereafter were as follows:

	Minimum Royalties	Purchase Commitments	Total
		(in thousands)	
2020	$ 565	$ 845	$ 1,410
2021	570	—	570
2022	575	—	575
2023	1,075	—	1,075
2024	1,075	—	1,075
Thereafter	6,750	—	6,750
Total commitments	$ 10,610	$ 845	$ 11,455

Minimum Royalty Commitments

The Company has certain minimum royalty commitments associated under licensing agreements related to its research efforts.

Purchase Commitments

The Company has open purchase orders primarily related to the purchase of laboratory supplies in the normal course of business.

Contingencies

The Company responds to claims arising in the ordinary course of business. If necessary, the Company will accrue estimates of the amounts it expects to pay upon resolution of such matters, and such amounts will be included in other current liabilities. Should the Company not be able to secure the terms it expects, these estimates may change and will be recognized in the period in which they are identified.

Legal Matters

The Company is subject to various claims, complaints, and legal actions that arise from time to time. The Company does not believe it is a party to any currently pending or threatened legal proceedings that will result in a material adverse effect on its business. There can be no assurance that existing or future legal proceedings arising in the ordinary course of business or otherwise will not have a material adverse effect on the Company's business, financial position, results of operations, or cash flows.

Indemnification

The Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at the Company's request in such capacity. The indemnification period covers all pertinent events and occurrences during the director's or officer's service. The maximum potential amount of future payments the Company could be required to make under the applicable indemnification agreements is not specified in the agreements; however, the Company has director and officer insurance coverage that reduces its exposure and enables the Company to recover a portion of any future amounts paid. The Company believes the estimated fair value of these indemnification agreements in excess of applicable insurance coverage is minimal.

The Company enters into standard indemnification arrangements in the ordinary course of business. Pursuant to these arrangements, the Company indemnifies, holds harmless, and agrees to reimburse the indemnified parties for losses suffered or incurred by the indemnified party, in connection with any trade secret, copyright, patent or other intellectual property infringement claim by any third party with respect to the Company's technology. The term of

these indemnification agreements is generally perpetual after the execution of the agreement. The maximum potential amount of future payments the Company could be required to make under these arrangements is not determinable. The Company has not incurred costs to defend lawsuits or settle claims related to these indemnification agreements. As a result, the Company believes the estimated fair value of these agreements is minimal.

NOTE 8. COMMON STOCK

The Company has two classes of common stock: Class A and Class B. The voting rights per share of Class A and Class B are 1:1 and 10:1, respectively. Common stockholders are entitled to dividends when and if declared by the board of directors subject to the prior rights of the preferred stockholders. As of December 31, 2019, no dividends have been declared. The shares of Class B common stock are convertible into shares of Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock.

As of December 31, 2019, the Company has reserved shares of Class A common stock for issuance upon conversion of the redeemable convertible preferred stock and exercise of options. No shares of Class B common stock have been reserved. The Company has reserved shares of Class A common stock, on an as converted basis, for issuance as follows:

	Class A Shares (in thousands)
Conversion of Series A redeemable convertible preferred stock	85,000
Conversion of Series B redeemable convertible preferred stock	309,257
Conversion of Series C redeemable convertible preferred stock	63,145
Conversion of Series D redeemable convertible preferred stock	31,323
Conversion of Class B common stock	26,179
Options and awards outstanding for the 2016 Equity Incentive Plan	94,300
Non-Plan Incentive Awards	26,525
Reserved for future grants	23,717
Total	659,446

NOTE 9. REDEEMABLE CONVERTIBLE PREFERRED STOCK

The following tables represent the redeemable convertible preferred stock as of December 31, 2018 and 2019:

	As of December 31, 2018				
	Shares Authorized	Original Issuance Price	Shares Issued and Outstanding	Net Proceeds	Liquidation Value
	(in thousands, except share and per share data)				
Series A	85,000,000	1.0000	85,000,000	$ 120,000	$ 85,000
Series B	309,256,591	4.0085	309,256,591	1,085,404	1,239,655
Series C	63,144,601	4.7510	63,144,600	299,557	300,000
Total	457,401,192		457,401,191	$ 1,504,961	$ 1,624,655

	As of December 31, 2019				
	Shares Authorized	Original Issuance Price	Shares Issued and Outstanding	Net Proceeds	Liquidation Value
	(in thousands, except share and per share data)				
Series A	85,000,000	1.0000	85,000,000	$ 120,000	$ 85,000
Series B	309,256,591	4.0085	309,256,591	1,085,404	1,239,655
Series C	63,144,600	4.7510	63,144,600	299,557	300,000
Series D	48,942,833	5.1080	31,323,413	159,836	160,000
Total	506,344,024		488,724,604	$ 1,664,797	$ 1,784,655

During 2018, the Company issued 63,144,600 shares of Series C redeemable convertible preferred stock for gross proceeds of $300.0 million, less $0.4 million of issuance costs. The Series C redeemable convertible preferred stock has substantially similar terms as the Company's Series A and B redeemable convertible preferred stock except that it has a liquidation preference of $4.751 per share.

During 2019, the Company issued 31,323,413 shares of Series D redeemable convertible preferred stock for gross proceeds of $160.0 million, less $0.2 million of issuance costs. The Series D redeemable convertible preferred stock has substantially similar terms as the Company's Series A, B, and C redeemable convertible preferred stock except that it has a liquidation preference of $5.1080 per share.

Redemption

As of December 31, 2018 and December 31, 2019, the Company classified the convertible preferred stock as redeemable on the consolidated balance sheets. Upon the occurrence of certain change-in-control events that may be outside the Company's control, including liquidation, sale, or transfer of the Company, holders of the convertible preferred stock could cause a redemption of their stock for cash. The preferred stock does not have a mandatory redemption date.

Conversion

Each share of preferred stock is convertible, at the option of the holder, according to a conversion ratio, which is subject to adjustment for dilutive share issuances as described in the next paragraph. The total number of shares of common stock into which the preferred stock may be converted is determined by dividing the then-applicable conversion price by the initial conversion price. The preferred stock automatically converts into shares of Class A common stock at the then-applicable conversion price in the event of an underwritten public offering of shares of common stock with aggregate gross proceeds of no less than $150 million (Qualifying IPO), provided that, prior to November 27, 2021 (24 months after the initial closing date of November 27, 2019), such automatic conversion shall also require either (i) the per share price of the Qualifying IPO to be at least $5.1080 per share (i.e., the Series D preferred stock original issue price) or (ii) the vote of the holders of a majority of the combined Series C and D preferred stock. The preferred stock also automatically converts into shares of Class A common stock at the then-applicable conversion price upon the vote of a majority of the holders of preferred stock and, if prior to November 27, 2021, the vote of the holders of two-thirds of the combined Series C and D preferred stock shall also be required. As of December 31, 2019, each share of Series A, B, C, and D preferred stock was convertible into one share of Class A common stock.

Subject to certain exceptions, including issuances of shares to employees or consultants pursuant to a stock option plan approved by the board of directors and issuances of shares to lenders or strategic partners or in connection with the acquisition of a company or technology, in each case approved by the board of directors, the conversion price of each applicable series of preferred stock is subject to adjustment to prevent dilution in the event that the Company issues additional shares at a purchase price less than the then-applicable conversion price.

Dividends

Any dividends paid in any fiscal year will be paid among the holders of redeemable convertible preferred stock and common stock then outstanding based on preferences and on an if-converted basis. Dividends are noncumulative, and none were declared as of December 31, 2018 or December 31, 2019.

Voting

Each share of redeemable convertible preferred stock is entitled to the number of votes equal to the number of shares of Class A common stock into which such shares could be converted. Holders of redeemable convertible preferred stock and common stock vote as a single class.

Liquidation Preference

In the event of any liquidation, dissolution or winding up of the Company, either voluntary or involuntary, including a merger, acquisition, or sale of assets where the holders of common stock and preferred stock own less than a majority of the resulting voting power of the surviving entity (Liquidation Transaction), the holders of preferred stock will receive in preference to the holders of common stock, an amount per share equal to the liquidation preference, plus any accrued but unpaid dividends. After payment of the liquidation preference to the holders of the preferred stock, the remaining assets of the Company are available for distribution to the holders of common stock on a pro rata basis. The vote of a majority of the holders the preferred stock can waive the liquidation preference; provided that, prior to November 27, 2021, the vote of the holders of two-thirds of the combined Series C and D preferred stock shall also be required to waive such liquidation preference. These liquidation features cause the Series A, B, C, and D preferred stock to be classified as mezzanine equity rather than as a component of stockholders' deficit.

NOTE 10. STOCK INCENTIVE AWARDS

The Company grants awards under the 2016 Equity Incentive Plan (2016 Plan) as well as incentive awards not under the 2016 Plan (Non-Plan Equity Incentive Awards).

2016 Equity Incentive Plan

The Company's board of directors adopted, and its stockholders approved, the Company's 2016 Plan in January 2016. The 2016 Plan was amended on February 6, 2017, February 27, 2017, September 18, 2019, November 21, 2019, and November 25, 2019.

As of December 31, 2019, the Company had granted options or rights to purchase 134,890,768 shares of its Class A common stock and 24,989,397 shares of its Class B common stock under the Company's 2016 Plan, of which options or rights to purchase 94,299,675 shares of Class A common stock and no shares of Class B common stock were outstanding. As of December 31, 2019, 23,717,119 shares of Class A common stock and no shares of Class B common stock remained available for future grants. The maximum contractual term of options is generally ten years.

The Company's 2016 Plan allows for the grant of awards in the form of: (i) incentive stock options, (ii) non-qualified stock options; (iii) stock appreciation rights; (iv) RSAs; (v) RSUs; and (vi) unrestricted stock. Directors, employees, and consultants are eligible to participate in the 2016 Plan.

Stock Option Activity—A summary of all stock option activity for the 2016 Plan during 2018 and 2019 is as follows:

		Class A				
	Number of Shares Available for Grant	Number of Shares Underlying Outstanding Options	Weighted-Average Exercise Price Per Share	Weighted-Average Grant Date Fair Value Per Share	Weighted-Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
	(in thousands, except years and per share data)					
Balance as of January 1, 2018	25,572	21,567	$ 0.39		9.24	$ 732
Granted	(28,135)	28,135	1.09	$ 0.71		
Exercised	—	(5,258)	0.50			
Repurchased	864	—	—			
Forfeited	3,250	(3,250)	0.42			
Balance as of December 31, 2018	1,551	41,194	0.85		8.99	36,708
Award Authorized	63,058					
Granted	(52,377)	52,377	1.96	1.30		
Exercised	—	(5,159)	0.63			
Repurchased	857	—	—			
Forfeited	10,628	(10,628)	1.55			
Balance as of December 31, 2019	23,717	77,784	1.52		9.07	44,677
Options vested and expected to vest as of December 31, 2019	—	67,284	1.56		9.07	35,910
Options vested and exercisable as of December 31, 2019	—	15,662	0.71		7.67	21,673

Restricted Stock Unit Activity—A summary of all restricted stock unit activity for the 2016 Plan during 2019 was as follows:

	Class A Restricted Stock Units	
	Restricted Stock Units Outstanding	Weighted-Average Grant Date Fair Value Per Share
	(in thousands, except per share data)	
Unvested balance as of January 1, 2019	—	—
Granted	16,516	$ 1.97
Vested	—	—
Forfeited	—	—
Unvested balance as of December 31, 2019	16,516	1.97

As of December 31, 2019, there was $29.5 million of total unrecognized compensation cost related to restricted stock units granted under the Company's 2016 Plan. That cost is expected to be recognized over a weighted-average period of 2.94 years.

Awards with Service-Based Vesting Conditions Granted under the 2016 Plan

During 2018 and 2019, the Company granted 21,751,430 and 62,593,918 awards with service-based vesting conditions, respectively.

During 2018 and 2019, the Company granted 21,751,430 and 46,077,816 options of Class A common stock under the 2016 Plan with only service-based vesting conditions, respectively. The fair value of these options granted

during 2018 and 2019 was estimated using the Black-Scholes option-pricing model with the following weighted-average assumptions:

	Year Ended December 31,	
	2018	2019
Expected term (in years)	6.01	5.94
Expected volatility	68.0 %	73.5%
Risk-free interest rate	2.76 %	1.69%
Expected dividend rate	— %	— %

The total grant date fair value of options that vested during 2018 and 2019 was $2.6 million and $7.0 million, respectively. The aggregate intrinsic value of options exercised during 2018 and 2019 was $3.2 million and $3.5 million, respectively. During 2019, the Company modified 3,271,768 options with service-based vesting conditions from the 2016 Plan. See “Modification of Stock Options.”

During 2019, of the 62,593,918 awards granted, 16,516,102 were RSUs of Class A common stock under the 2016 Plan. These RSUs have an expiration term of 10 years. 11,285,902 RSUs vest over a period of 3 years with two-thirds vesting upon the second anniversary of the vesting start date and the remaining one-third vesting at the third anniversary of the vesting start date. 5,230,200 RSUs vest over a period of 4 years with 25% vesting upon the first anniversary of the vesting start date and 1/16th vesting quarterly thereafter. The weighted-average grant date fair value per share for these RSUs was $1.97 and the aggregate grant date fair value was $32.6 million. None of these units vested during 2019.

Awards with Performance-Based Vesting Conditions Granted under the 2016 Plan

During 2016, the Company granted restricted stock awards of 5,714,286 shares of Class B common stock that vest upon satisfaction of performance or service-based conditions. Vesting, if achieved, will be based on the timing of certain transactions, including a qualified IPO, or upon completion of requisite service, whichever is earlier, provided, however, that a single transaction cannot result in vesting of more than 50% of the total restricted stock awards. The grant date fair value per share of these awards was $0.15 and the aggregate grant date fair value was $0.9 million. None of these awards vested during 2018 or 2019. Stock-based compensation expense of $0.2 million and $0.2 million was recognized during 2018 and 2019 respectively, for these awards.

During 2017, the Company granted options to purchase 4,180,021 shares of Class A common stock to the founders of Cirina Limited that vest upon satisfaction of performance- and service-based conditions. The options vest over a period of 4 years with 25% vesting upon the first anniversary of the grant date and 1/48th vesting at the end of each month thereafter. During 2017, a performance-based condition was satisfied upon a successful patent claim and as a result, vesting of one-third of these options was accelerated. During 2019, a second performance-based condition was satisfied upon a subsequent successful patent claim and as a result, vesting of the remaining options was accelerated. The grant date fair value per share of these options was $0.32 and the aggregate grant date fair value was $1.3 million. The total grant date fair value of options that vested during 2018 and 2019 was $0.5 million and $0.4 million, respectively. The aggregate intrinsic value of options exercised during, 2018 and 2019 was, $3.3 million and $2.3 million, respectively. Stock-based compensation expense of $0.4 million and $0.1 million was recognized during 2018 and 2019, respectively, for these options.

During 2018, the Company granted options to purchase 1,500,000 shares of Class A common stock that vest upon satisfaction of performance-based conditions. During 2018, 500,000 shares vested after the related performance-based condition was met, and stock-based compensation expense of $0.1 million was recognized for these vested options. In addition, 500,000 shares were forfeited due to the related performance-based condition not being met by December 31, 2018. The remaining 500,000 shares vest upon satisfaction of other performance-based conditions that are not yet considered probable of being met. The grant date fair value per share of these options was $0.26 and the aggregate grant date fair value was $0.4 million. The total grant date fair value of options that vested during 2018 and 2019 was $0.1 million and $0 respectively. None of these options were exercised in 2018 or 2019.

During 2019, the Company granted options to purchase 1,050,000 shares of Class A common stock that vest upon satisfaction of performance-based conditions. The grant date fair value per share of these options was $1.10 per share and the aggregate grant date fair value was $1.2 million. As of December 31, 2019, those shares were forfeited.

During 2019, the Company granted options to purchase 1,743,300 of Class A common stock to one of the Company's executives. The options will commence vesting upon the consummation of the Company's IPO, provided such IPO is consummated within 10 years from the grant date, over a period of four years, with 1/48th vesting upon each monthly anniversary of such vesting commencement date. The grant date fair value per share of these options was $1.69 and the aggregate grant date fair value was $3.0 million. As of December 31, 2019, no options have been exercised, no options have vested, and no stock-based compensation expense has been recognized for these awards as the performance-based conditions are not yet considered probable of being met.

During 2019, the Company granted options to purchase 3,506,222 of Class A common stock to two of the Company's executives. The options will commence vesting upon the achievement of certain performance targets, provided such performance targets are met within 10 years from the grant date, over a period of three years, with 1/36th vesting upon each monthly anniversary of such vesting commencement date. The grant date fair value per share of these options was $1.69 and the aggregate grant date fair value was $5.9 million. As of December 31, 2019, no options have been exercised, no options have vested, and no stock-based compensation expense has been recognized for these awards as the performance-based conditions are not yet considered probable of being met.

The fair value of the Company's awards with performance-based conditions granted under the 2016 Plan during 2018 and 2019 was estimated using the Black-Scholes option-pricing model with the following weighted-average assumptions:

	Year Ended December 31,	
	2018	2019
Expected term (in years)	5.57	9.45
Expected volatility	68.1 %	78.1 %
Risk-free interest rate	2.65 %	2.01 %
Expected dividend rate	— %	— %

Awards with Performance- and Market-Based Vesting Conditions Granted under the 2016 Plan

During 2018, the Company granted options to purchase 4,883,947 shares of Class A common stock that vest upon satisfaction of performance- and market-based conditions. The performance-based condition is satisfied upon the Company successfully executing an IPO of the Company's common stock and achieving certain performance targets. The market-based condition is satisfied upon the Company maintaining certain market capitalization levels after the IPO. For these options, the Company uses a Monte Carlo simulation to determine the fair value at the grant date and the implied service period. The weighted-average grant date fair value per share for these options was $0.22 and the aggregate grant date fair value was $1.1 million. None of these options vested in 2018 or 2019. In 2018 and 2019, the Company did not recognize any stock-based compensation expense associated with these options as the achievement of the performance-based condition was not deemed to be probable. Of the 4,883,947 options, 4,400,000 options were modified and accounted for under the modification guidance. See "Modification of Stock Options."

The fair value of the Company's awards with performance- and market-based conditions granted under the 2016 Plan during 2018 was estimated using the Monte Carlo simulation with the following weighted-average assumptions:

	Year Ended December 31, 2018
Expected term (in years)	6.25
Expected volatility	70.0 %
Risk-free interest rate	2.30 %
Expected dividend rate	— %

Awards Granted to Non-Employees under the 2016 Plan

Prior to the adoption of ASU No. 2018-07, Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting, on January 1, 2018, for awards granted to non-employees (other than non-employee directors of the Company), the Company determined the fair value of the award at each balance sheet date and recorded additional compensation expense, if necessary, each period until the award was exercised or cancelled. Subsequent to the early adoption of ASU No. 2018-07, awards granted to non-employees are accounted for in the same manner as awards for employees and are no longer remeasured every reporting period. The Company recorded stock-based compensation expense of $1.3 million and $0.4 million related to awards granted to non-employees during 2018 and 2019, respectively.

Non-Plan Equity Incentive Awards

During 2016, the Company granted restricted stock awards of 1,125,000 shares of Class A common stock outside of the 2016 Plan. These awards have an expiration term of 10 years. Of these awards, 1,000,000 will vest over a period of 4 years with 1/48th vesting on the monthly anniversary of the grant date with the exception of accelerating events relating to certain successful patent claims. The remaining 125,000 of these awards vest over a period of 4 years with 25% vesting upon the first anniversary of the grant date and 1/48th vesting at the end of each month thereafter. During 2018 and 2019, 281,250 and 281,250, respectively, of these awards vested. As of December 31, 2018 and 2019, 416,667 and 135,417, respectively, of these awards remained unvested. The weighted-average grant date fair value per share for these awards was $0.25 and the aggregate grant date fair value was $0.3 million. The total grant date fair value of awards that vested during 2018 and 2019 was, $0.1 million and $0.1 million, respectively. Stock-based compensation expense of $0.2 million and $0.1 million was recognized during 2018 and 2019, respectively, for these awards.

During 2018, the Company granted 28,683,500 options of Class A common stock outside of the 2016 Plan to two of the Company's executives, of which 476,191 were exercised.

Of these options, 21,453,125 have an expiration term of 10 years and vest over a period of 4 years with 25% vesting upon the first anniversary of the grant date and 1/48th vesting at the end of each month thereafter. The weighted-average grant date fair value per share was $0.45 and the aggregate grant date fair value was $9.7 million.

The fair value of these options was estimated using the Black-Scholes option-pricing model with the following weighted-average assumptions:

	Year Ended December 31, 2018
Expected term (in years)	6.07
Expected volatility	67.8%
Risk-free interest rate	2.43%
Expected dividend rate	—%

As of December 31, 2019, 476,191 of these options had been exercised. The aggregate intrinsic value of non-2016 Plan incentive awards exercised during 2018 and 2019 was $0.6 million and $0, respectively. During 2019, 8,279,501 of these options were forfeited. The total grant date fair value of awards that vested during 2018 and 2019 was $0 and $4.0 million, respectively. Stock-based compensation expense of $1.6 million and $1.2 million was recognized during 2018 and 2019, respectively, for these awards.

The remaining 7,230,375 options granted in 2018 vest upon satisfaction of performance- and market-based conditions. The performance-based condition is satisfied upon the Company successfully executing an IPO of the Company's common stock and achieving certain performance targets. The market-based condition is satisfied upon the Company maintaining certain market capitalization levels after the IPO. For these options, the Company uses a Monte Carlo simulation to determine the fair value at the grant date and the implied service period. The weighted-average grant date fair value per share for these options was $0.38 per share, and the aggregate grant date fair value was $2.8 million. In 2018 and 2019, the Company did not recognize any stock-based compensation expense associated with these options as the achievement of the performance-based condition was not deemed to be probable.

The fair value of the Company's options with performance- and market-based conditions not granted under the 2016 Plan during 2018 was estimated using the Monte Carlo simulation with the following weighted-average assumptions:

	Year Ended December 31, 2018
Expected term (in years)	6.25
Expected volatility	70.0 %
Risk-free interest rate	2.48 %
Expected dividend rate	— %

None of the Non-Plan Equity Incentive Awards using the Monte Carlo simulation vested in 2018 or 2019 and none were exercised in 2018 or 2019. During 2019, all of these options were forfeited.

During 2019, the Company granted restricted stock units of 13,827,568 shares of Class A common stock outside of the 2016 Plan. These units vest over a period of 3 years with 67% vesting upon the second anniversary of the vesting start date and the remaining 33% vesting on the third anniversary of the vesting start date. The weighted-average grant date fair value per share for these units was $1.92 per share and the aggregate grant date fair value was $26.5 million. None of these units have vested as of December 31, 2019.

During 2019, the Company modified 10,658,214 options granted outside of the 2016 Plan with service-based conditions and 1,631,375 options granted outside of the 2016 Plan with performance- and market-based conditions. See "Modification of Stock Options". All remaining options, which were neither modified nor exercised, were forfeited as of December 31, 2019.

The Non-Plan Incentive Awards outstanding as of December 31, 2019 had a weighted-average exercise price of $0.93 per share.

Early Exercise of Stock Options

Certain options granted under the 2016 Plan and Non-Plan Incentive Awards have been early exercised. The unvested shares are subject to a repurchase right held by the Company at the original purchase price. The proceeds initially are recorded as a liability for early exercise of unvested options and reclassified to additional paid-in capital as the repurchase right lapses. The Company issued 1,855,800 and 164,981 shares of common stock upon the early exercise of options during 2018 and 2019, respectively, for total exercise proceeds of $1.3 million and $0.2 million, respectively. During 2018 and 2019, the Company repurchased 865,149 and 857,476 shares, respectively, of unvested common stock related to early exercised options at the original purchase price due to the termination of employees.

Shares Subject to Repurchase

As of December 31, 2018 and 2019, 12,109,959 and 7,145,211 shares, respectively, held by employees and directors were subject to the Company's right of repurchase at an aggregate price of $3.7 million and $2.2 million, respectively.

Modification of Stock Options

In the second quarter of 2018, the Company entered into a separation arrangement with a senior executive, as a result of which certain of his service-based stock options to purchase shares of Class A common stock were modified. As a result of this modification, the vesting of 1,200,000 options was accelerated as of the date of the separation agreement. In consideration for consulting services, the remaining unvested service-based awards continue to vest on a monthly basis during the consulting period. As a result of this modification, the fair value of his service-based stock options increased by $4.5 million, which was recorded as an incremental expense during 2018. In addition, the fair values of his performance-based and performance- and market-based conditions were increased by $3.7 million due to the modification. The Company did not account for the increase in fair value as the related performance-based conditions were not deemed to be probable. As of December 31, 2019, the related performance-based conditions continued to not be deemed probable.

In the first quarter of 2019, the Company modified an employee's options to purchase 1,631,375 shares of Class A common stock with performance- and market-based conditions. As a result of this modification, the performance-based conditions were changed, and the market-based conditions were eliminated. The Company accounted for the changes to the awards as a modification, and the fair value of these awards was increased by $0.3 million with no impacts recorded in the financial statements. As of December 31, 2019, the awards have been cancelled.

In the third quarter of 2019, the Company entered into a consulting agreement with an employee, as a result of which 1,631,375 of his unvested service-based options to purchase shares of Class A common stock continue to vest on a monthly basis during the consulting period and 2,854,906 options had their exercise period extended. The Company accounted for the changes to the awards as a modification, and the fair value of his service-based stock options increased by $3.0 million which was recorded as an incremental expense during 2019.

During 2019, the Company entered into agreements with 10 employees, as a result of which the terms of certain of their service-based options to purchase shares of Class A common stock were modified. As a result of these modifications, the vesting of 4,716,504 options were accelerated as of the date of the agreements, and 10,896,983 of the vested options had their exercise period extended. The Company accounted for the changes to the options as modifications, and the fair value of their service-based options was increased by $6.1 million, which was recorded as an incremental expense during 2019.

Stock-Based Compensation Expense

The following table is a summary of stock-based compensation expense recognized during 2018 and 2019 for employees and non-employees for both the 2016 Plan and non-2016 Plan equity incentive awards:

	Year Ended December 31,	
	2018	2019
	(in thousands)	
Research and development	$ 937	$ 3,913
Research and development—related parties	778	135
Marketing	123	202
General and administrative	9,203	24,141
Total stock-based compensation expense	$ 11,041	$ 28,391

As of December 31, 2019, the total unrecognized stock-based compensation expense for awards that contain service-based conditions for both the 2016 Plan and Non-Plan Equity Incentive Awards was $105.4 million, which is expected to be recognized over a weighted-average period of approximately 2.98 years. As of December 31, 2019,

the total unrecognized stock-based compensation expense for awards that contain only performance-based or performance- and market-based conditions for both the 2016 Plan and Non-Plan Equity Incentive Awards was $13.8 million.

Liability-Classified Awards with Performance- and Market-Based Vesting Conditions Granted under the 2016 Plan

In February 2016, the Company entered into an agreement with a current executive officer pursuant to which he is eligible to receive $10.0 million in incentive awards.

In October 2017, the Company entered into a transition agreement with the vice chairperson of the board of directors. Under the transition agreement, the individual is eligible to receive up to $130.0 million in incentive awards.

In June 2018, the Company entered into a separation agreement with a former executive. Under the agreement, the individual is eligible to receive up to $8 million in incentive awards. The award is subject to the respective individual's continued service to the Company which terminates in June 2020, and will be earned, if and when, the board, in its sole discretion, has determined the completion of a transformative deal.

The above incentive awards are granted subject to the respective individual's continued service to the Company. Generally, the awards are earned upon the satisfaction of certain performance- and market-based conditions, including upon achievement of certain milestones related to the Company's products or the closing of one or more qualifying events at specified per-share valuations, provided the qualifying events occur within a specified time period, the last of which ends in March 2026. The qualifying events vary depending on individual and generally include (i) certain financing events, including minimum public trading valuations and (ii) a change in control. The determination of whether certain qualifying events have occurred are subject to approval by the board of directors.

All the above incentive awards will be paid, at the Company's election, in fully vested shares of common stock or in cash. The dollar value of these incentive awards is based on the achievement of the performance- and market-based conditions described above. The number of shares is variable based on the per-share valuation at the time of the respective qualifying event. Accordingly, these awards are accounted for as liability-classified awards, and, once the related performance-based conditions are deemed to be probable, the liability will be remeasured at fair value on each reporting date until the awards vest.

As of December 31, 2019, the Company had not recognized any compensation expense associated with these awards as the achievement of the performance-based condition was not deemed to be probable.

NOTE 11. INCOME TAXES

The components of the loss before provision for (benefit from) income taxes during 2018 and 2019 are as follows:

	Year Ended December 31,	
	2018	2019
	(in thousands)	
United States	$ 278,198	$ 245,430
Foreign	(2,965)	(380)
Loss before provision for (benefit from) income taxes	$ 275,233	$ 245,050

The components of income tax expense (benefit) consist of the following:

	Year Ended December 31,	
	2018	2019
	(in thousands)	
Current taxes:		
Federal	$ —	$ —
State	—	—
Foreign	834	(544)
Total current income tax expense/(benefit)	$ 834	$ (544)
Deferred taxes:		
Federal	—	—
State	—	—
Foreign	(349)	349
Total deferred income tax expense/(benefit)	$ (349)	$ 349
Provision for (benefit from) income taxes	485	(195)

The following is a reconciliation of the statutory federal income tax rate to the Company's effective tax rate:

	Year Ended December 31,	
	2018	2019
Federal statutory rate	21.00%	21.00%
State income taxes	6.98	6.98
Change in tax status	29.94	—
Other permanent items	(0.96)	(0.73)
Research and development credit	3.03	3.54
Change in valuation allowance	(60.17)	(30.70)
Other	—	(0.01)
Effective tax rate	(0.18)%	0.08%

The Company's effective tax rate differs from the federal statutory rate primarily due to the valuation allowance recorded to offset deferred tax assets resulting from the Company's U.S. operating losses. During 2018, the Company changed the tax status of one of its foreign subsidiaries, which resulted in a tax benefit.

The significant components of the Company's net deferred tax assets as of December 31, 2018 and 2019, are as follows:

	Year Ended December 31,	
	2018	2019
	(in thousands)	
Deferred tax assets:		
Net operating loss carryforwards	$ 53,701	$ 61,259
Research and development credits	20,975	29,292
Amortization	150,648	203,098
Depreciation	8,147	8,057
Accruals and reserves	12,857	15,853
Lease liabilities	—	11,541
Total deferred tax assets	246,328	329,100
Valuation allowance	(245,979)	(319,224)
Net deferred tax assets	349	9,876
Deferred tax liabilities		
Right-of-use assets	—	(9,804)
Other	—	(72)
Net deferred tax assets (liabilities)	$ 349	$ —

As of December 31, 2019, the Company had established a valuation allowance of $319.2 million against its gross deferred tax assets due to the uncertainty surrounding the realization of such assets. The valuation allowance increased by $170.5 million and $73.2 million during 2018 and 2019, respectively. As a result of a foreign subsidiary's change in tax status in 2018, the Company recorded $82.4 million of deferred tax assets. These deferred tax assets represent the U.S. tax basis of the intangible asset acquired in the 2017 acquisition of Cirina Limited. The remaining change in the valuation allowance for both years was primarily due to the addition of current year loss carryforwards and the capitalization of start-up expenditures.

On December 22, 2017, the Tax Cuts and Jobs Act (P.L. 115-97) (the Act) was signed into law. The Act includes certain anti-deferral and anti-abuse erosion provisions, including a new minimum tax on global intangible low-taxed income (GILTI) and base erosion and anti-abuse tax (BEAT). The Act subjects the Company to current tax on GILTI of its controlled foreign corporations. At December 31, 2019, the Company recognized no GILTI inclusion. The BEAT limits the ability of multinational corporations with gross receipts of more than $500 million (averaged over the prior three years) to shift profits from the United States by making deductible payments to their affiliates in low-tax countries. In 2019, the Company's gross receipts were less than the reporting threshold.

As of December 31, 2019, the Company had $202.5 million of federal net operating loss (NOL) carryforwards. The federal NOL carryforwards generated prior to December 31, 2016 begin expiring in 2036 if not utilized. Federal NOLs generated after December 31, 2017 have an indefinite carryforward period subject to the 80% deduction limitation based upon pre-NOL deduction taxable income.

At December 31, 2019, the Company had $279.4 million of state net operating loss carryforwards. The state net operating loss carryforwards begin expiring in 2036, if not utilized.

In addition, the Company has federal research and development tax credits carryforwards of $22.2 million and state research and development tax credit carryforwards of $18.2 million. The federal credit carryforwards begin expiring in 2036 and the state credits carry forward indefinitely. The Internal Revenue Code contains provisions which limit the amount of NOL and research credit carryforwards that can be used in any given year if a significant change in ownership has occurred. The Company has not performed a detailed analysis on the changes in the

ownership of its shares. It is possible that there might be a limitation to the amount of its NOL carryforwards and/or research and development carryforwards that might be used to offset its future taxable income.

As of December 31, 2019, the Company had $9.1 million in unrecognized tax benefits.

The beginning and ending unrecognized tax benefits amounts were as follows (in thousands):

	Year Ended December 31,	
	2018	2019
	(in thousands)	
Gross amount of unrecognized tax benefits as of the beginning of the period	$ 3,590	$ 5,916
Increase related to prior year tax provisions	—	740
Increase related to current year tax provisions	2,326	2,414
Gross amount of unrecognized tax benefits as of the end of the period	$ 5,916	$ 9,070

It is the Company's policy to include penalties and interest expense related to income taxes as a component of income tax expense as necessary. Management determined that no accrual for interest and penalties was required as of December 31, 2019.

The Company's major tax jurisdictions are the United States and California. The Company's tax years since inception will remain open for examination by the federal and state tax authorities due to historical losses. The Company is not currently subject to income tax examinations by any authority.

NOTE 12. RELATED-PARTY TRANSACTIONS

Illumina Agreements

From January 2016 to February 2017, Jay Flatley was the Company's chairman of the board of directors. Mr. Flatley was and is also the executive chairman of the board of directors of Illumina, Inc. (Illumina). Illumina (i) is a major supplier of the Company's reagents and capital equipment, (ii) was a sub-lessee of laboratory and office space through February 2017, and (iii) owned more than 50% of the Company until February 2017, at which time the Company repurchased shares to bring Illumina to a minority ownership.

In January 2019, pursuant to the Company's supply and commercialization with Illumina, which was entered into in January 2016 and subsequently amended in September 2017, the Company paid Illumina $15.0 million related to its data delivery requirements under a supply and commercialization agreement with Illumina. This amount was accrued as of December 31, 2018. In February 2019, pursuant to the terms of the Company's supply and commercialization agreement with Illumina, the Company entered into two separate non-exclusive and non-sublicensable license agreements with Illumina. Under these license agreements, the Company sublicensed to Illumina rights to patents and technology in-licensed from other collaboration partners. Under these license agreements, Illumina is required to pay the Company (i) initial aggregate licensing fees of $50,000, (ii) annual minimum aggregate royalties of $50,000, increasing by $10,000 annually to a max of $100,000, and (iii) running royalties in the low single-digit percentages of net sales of products utilizing in-licensed technology. In addition, one of the license agreements includes a milestone of $50,000 tied to the first commercial sale of a product covered by a licensed patent. During 2019, Illumina paid the Company $0.2 million associated with licensing fees, minimum royalties, and achievement of the milestone.

Transactions with Illumina under a supply and commercialization agreement as well as for limited services rendered by Illumina on the Company's behalf that have been reflected in the consolidated financial statements are as follows:

	As of December 31,	
	2018	2019
	(in thousands)	
Prepaid service arrangements	$ 1,342	$ 567
Property and equipment, net	3,323	1,252
Accounts payable	51	151
Accrued liabilities	20,439	—

	Year Ended December 31,	
	2018	2019
	(in thousands)	
Research and development	$ 29,442	$ 7,520

Dr. Klausner Consulting Agreement

Effective May 2016, the Company entered into a consulting agreement with Richard Klausner, M.D. Dr. Klausner is: (i) a member of the board of directors of the Company; and (ii) has performed advisory consulting services. The compensation under the consulting agreement consists of options to purchase 876,000 shares of Class A common stock at an exercise price of $0.23 per share that were granted in 2016 and reimbursement of certain out of pocket expenses. In May 2018, in connection with Dr. Klausner's board service, the Company granted him additional options to purchase 450,000 shares of Class A common stock at an exercise price of $1.74 per share.

Collaboration Agreement with Memorial Sloan Kettering Cancer Center

From February 2017 to February 2018, José Baselga, M.D., Ph.D., Physician-in-Chief and Chief Medical Officer at Memorial Sloan Kettering Cancer Center (MSK) was a member of the board of directors of the Company. In February 2017, the Company entered into collaboration and research agreements with MSK pursuant to which the Company incurred expenses totaling $3.4 million during 2018. As of December 31, 2018, the Company recorded $0.8 million in accrued liabilities—related parties and $0.3 million in accounts payable—related parties. As of January 1, 2019, MSK was no longer considered a related party.

Collaboration Agreement with Janssen Biotech, Inc.

Johnson & Johnson UK Treasury Company Limited (J&J UK Treasury) and Janssen Biotech, Inc. (Janssen) are subsidiaries of Johnson & Johnson Inc. (J&J). As of December 31, 2018 and December 31, 2019, J&J UK Treasury was a minority stockholder of the Company. In November 2017, the Company entered into a collaboration agreement with Janssen. Research services performed by the Company in 2018 totaled $0.7 million, which were paid by Janssen during 2018. In December 2019, the Company entered into a testing resources and collaboration agreement with Janssen. No research services were performed in 2019.

Agilent Arrangements

Since August 2018, Hans Bishop has served as a member of the Company's board of directors. In June 2019, Mr. Bishop was appointed as the Company's chief executive officer. Mr. Bishop is also on the board of directors of Agilent Technologies, Inc. (Agilent). Agilent is a supplier to the Company. Research and development expenses incurred during 2018 were immaterial. During 2019, the Company incurred $0.5 million in research and development expenses in connection with purchase orders with Agilent. As of December 31, 2019, $0.1 million is reflected in accounts payable—related parties. As of December 31, 2018 and 2019, $0.1 million of property and equipment that the Company purchased from Agilent is reflected in the consolidated balance sheets.

NOTE 13. NET LOSS PER SHARE ATTRIBUTABLE TO COMMON STOCKHOLDERS

The following table presents the calculation of basic and diluted net loss per share attributable to Class A and Class B common stockholders:

	Year Ended December 31,			
	2018		2019	
	Class A	Class B	Class A	Class B
	(in thousands, except share and per share data)			
Numerator				
Net loss	$ (236,032)	$ (39,686)	$ (208,871)	$ (35,984)
Net loss attributable to Class A and Class B common stockholders				
Basic and diluted	$ (236,032)	$ (39,686)	$ (208,871)	$ (35,984)
Denominator				
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders				
Basic and diluted	97,709,944	16,428,968	105,084,506	18,103,845
Net loss per share attributable to Class A and Class B common stockholders				
Basic	$ (2.42)	$ (2.42)	$ (1.99)	$ (1.99)
Diluted	$ (2.42)	$ (2.42)	$ (1.99)	$ (1.99)

As the Company was in a net loss position for all periods presented, basic net loss per share is the same as diluted net loss per share because the inclusion of potential shares of common stock would have been anti-dilutive. The following common stock equivalents were therefore excluded from the computation of diluted net loss per share for the periods presented:

	Year Ended December 31,	
	2018	2019
Redeemable convertible preferred stock (on an if-converted basis)	457,401,191	488,724,604
Options to purchase common stock and restricted stock units	69,401,567	120,824,676
Shares subject to repurchase	12,109,959	7,145,211
Total	538,912,717	616,694,491

Unaudited Pro Forma Net Loss Per Share Attributable to Common Stockholders

The following table presents the calculation of unaudited pro forma basic and diluted net loss per share attributable to common stockholders:

	Year Ended December 31, 2019		
	Class A	Class B	Common
	(in thousands, except share and per share data)		
Numerator			
Net loss attributable to Class A and Class B common stockholders			
Basic and diluted	$ (208,871)	$ (35,984)	$ —
Reallocation of net loss due to pro forma adjustments	$ 208,871	$ 35,984	$ (244,855)
Pro forma net loss attributable to common stockholders			
Basic and diluted	$ —	$ —	$ (244,855)
Denominator			
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders			
Basic and diluted	105,084,506	18,103,844	—
Pro forma adjustment to reflect assumed conversion of all outstanding shares of redeemable convertible preferred stock	—	—	459,991,809
Pro forma adjustment to reflect assumed vesting of restricted stock awards upon an IPO	—	2,857,143	—
Pro forma adjustment to reflect conversion of Class B shares to Class A shares	21,959,129	(20,960,987)	—
Pro forma adjustment to reflect reclassification of Class A shares	(127,043,636)	—	127,043,636
Pro forma adjustment to reflect reclassification of Class B shares	—	—	—
Weighted-average shares of common stock used in computing pro forma net loss per share	—	—	587,035,445
Pro forma net loss per share attributable to common stockholders			
Basic and diluted	$ —	$ —	$ (0.42)

NOTE 14. DEFINED CONTRIBUTION PLAN

The Company sponsors a defined contribution plan under Section 401(k) of the Internal Revenue Code covering eligible employees. Contributions made by the Company are voluntary and are determined annually by the board of directors on an individual basis subject to the maximum allowable amount under federal tax regulations. The Company has made no contributions to the plan since its inception.

NOTE 15. SUBSEQUENT EVENTS

The Company has reviewed and evaluated subsequent events through April 21, 2020, the date the consolidated financial statements were available to be issued.

Subsequent to December 31, 2019, the Company granted options to purchase 18,860,550 shares of Class A common stock at a weighted-average exercise price of $2.09 per share.

In January 2020, the Company issued 4,894,283 additional shares of Series D redeemable convertible preferred stock for gross proceeds of $25 million.

In April 2020, the Company increased its authorized shares of Series D redeemable convertible preferred stock to 83,202,813. The Company issued 36,660,075 additional shares of Series D redeemable convertible preferred stock for gross proceeds of $187 million.

GRAIL, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)
(unaudited)

	As of December 31, 2019	As of June 30, 2020	Pro Forma As of June 30, 2020
Assets			
Current assets:			
Cash and cash equivalents	$ 143,189	$ 341,341	
Short-term marketable securities	401,155	327,058	
Prepaid expenses and other current assets	12,585	8,238	
Prepaid expenses and other current assets—related party	584	191	
Total current assets	557,513	676,828	
Property and equipment, net	23,078	21,710	
Property and equipment, net—related parties	1,347	420	
Operating lease right-of-use assets	35,036	33,814	
Long-term marketable securities	13,933	17,172	
Restricted cash	1,228	4,577	
Other non-current assets	3,384	1,906	
Total assets	$ 635,519	$ 756,427	
Liabilities, redeemable convertible preferred stock, and stockholders' (deficit) equity			
Current liabilities:			
Accounts payable	$ 5,880	$ 8,867	
Accounts payable—related parties	207	312	
Accrued liabilities	31,584	26,141	
Liability for early exercise of unvested stock options, current portion	1,855	311	
Operating lease liabilities, current portion	4,604	4,948	
Other current liabilities	800	76	
Other current liabilities—related parties	—	2,520	
Total current liabilities	44,930	43,175	
Operating lease liabilities, net of current portion	36,638	34,927	
Liability for early exercise of unvested stock options, net of current portion	349	202	
Other non-current liabilities	3,075	3,724	
Total liabilities	84,992	82,028	
Commitments and contingencies (Note 7)			
Redeemable convertible preferred stock:			
Series A redeemable convertible preferred stock, $0.001 par value, 85,000,000 shares authorized as of December 31, 2019 and June 30, 2020; 85,000,000 shares issued and outstanding as of December 31, 2019 and June 30, 2020; aggregate liquidation preference of $85,000 as of December 31, 2019 and June 30, 2020; no shares issued and outstanding, pro forma	$ 68,263	$ 68,263	

Series B redeemable convertible preferred stock, $0.001 par value, 309,256,591 shares authorized as of December 31, 2019 and June 30, 2020, respectively; 309,256,591 shares issued and outstanding as of December 31, 2019 and June 30, 2020; aggregate liquidation preference of $1,239,655 as of December 31, 2019 and June 30, 2020; no shares issued and outstanding, pro forma	1,235,404	1,235,404	—
Series C redeemable convertible preferred stock, $0.001 par value, 63,144,600 shares authorized as of December 31, 2019 and June 30, 2020; 63,144,600 shares issued and outstanding as of December 31, 2019 and June 30, 2020; aggregate liquidation preference of $300,000 as of December 31, 2019 and June 30, 2020; no shares issued and outstanding, pro forma	299,557	299,557	—
Series D redeemable convertible preferred stock, $0.001 par value, 48,942,833 and 76,743,836 shares authorized as of December 31, 2019 and June 30, 2020; 31,323,413 and 76,743,836 shares issued and outstanding as of December 31, 2019 and June 30, 2020, respectively; aggregate liquidation preference of $160,000 and $392,008 as of December 31, 2019 and June 30, 2020, respectively; no shares issued and outstanding, pro forma	159,836	391,697	—
Total redeemable convertible preferred stock	1,763,060	1,994,921	—
Stockholders' (deficit) equity:			
Common stock, $0.001 par value; 863,943,220 (Class A—833,943,220 and Class B—30,000,000) shares and 898,203,200 (Class A—868,203,200 and Class B—30,000,000) shares authorized as of December 31, 2019 and June 30, 2020 respectively; 134,663,097 (Class A—109,673,700 and Class B—24,989,397) and 135,851,866 (Class A—110,862,469 and Class B—24,989,397) shares issued and outstanding as of December 31, 2019 and June 30, 2020 respectively; 671,186,864 shares of common stock issued and outstanding, pro forma	138	146	681
Additional paid-in capital	90,495	116,960	2,111,346
Accumulated other comprehensive income (loss)	2,465	4,419	4,419
Accumulated deficit	(1,305,631)	(1,442,047)	(1,442,047)
Total stockholders' (deficit) equity	(1,212,533)	(1,320,522)	674,399
Total liabilities, redeemable convertible preferred stock, and stockholders' (deficit) equity	$ 635,519	$ 756,427	$ 756,427

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

GRAIL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share data)
(unaudited)

	Six Months Ended June 30,	
	2019	2020
Operating expenses:		
Research and development	$ 83,230	$ 83,009
Research and development—related parties	4,493	4,190
Marketing	4,080	4,690
General and administrative	31,612	47,304
Total operating expenses	123,415	139,193
Loss from operations	123,415	139,193
Interest income, net	$ (6,995)	$ (4,128)
Other expense, net	$ 714	$ 1,335
Loss before provision for income taxes	$ 117,134	$ 136,400
Provision for income taxes	66	16
Net loss	$ 117,200	$ 136,416
Net loss attributable to Class A and Class B common stockholders		
Basic and diluted	$ 117,200	$ 136,416
Net loss per share attributable to Class A and Class B common stockholders		
Basic and diluted	$ (0.97)	$ (1.03)
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders		
Basic and diluted	120,748,150	132,864,532
Pro forma net loss per share attributable to common stockholders		
Basic and diluted		$ (0.21)
Weighted-average shares of common stock used in computing pro forma net loss per share attributable to common stockholders		
Basic and diluted		643,637,763

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

GRAIL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)
(unaudited)

	Six Months Ended June 30,	
	2019	**2020**
Net loss	$ 117,200	$ 136,416
Other comprehensive income:		
Net unrealized gain on marketable securities	(717)	(535)
Foreign currency translation adjustment	(696)	(1,419)
Comprehensive loss	$ 115,787	$ 134,462

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

GRAIL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share data)
(unaudited)

	Redeemable Convertible Preferred Stock						Common Stock						
	Preferred Series A		Preferred Series B		Preferred Series C		Class A		Class B		Additional Paid-In Capital	Accumulated Other Comprehensive (Loss) Income	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at December 31, 2018	85,000,000	$ 68,263	309,256,591	$ 1,235,404	63,144,600	$ 299,557	105,372,563	$ 102	24,989,397	$ 27	$ 57,667	$ 128	$ (1,060,776)	$ (1,002,852)
Issuance of shares upon exercise of options	—	—	—	—	—	—	3,604,119	3	—	—	1,469	—	—	1,472
Repurchases of restricted stock awards	—	—	—	—	—	—	(405,097)	—	—	—	—	—	—	—
Vesting of early exercised stock options	—	—	—	—	—	—	—	2	—	1	840	—	—	843
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	—	7,679	—	—	7,679
Other comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	1,413	—	1,413
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	(117,200)	(117,200)
Balance at June 30, 2019	85,000,000	$ 68,263	309,256,591	$ 1,235,404	63,144,600	$ 299,557	108,571,585	$ 107	24,989,397	$ 28	$ 67,655	$ 1,541	$ (1,177,976)	$ (1,108,645)

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

GRAIL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share data)
(unaudited)

	Redeemable Convertible Preferred Stock								Common Stock							
	Preferred Series A		Preferred Series B		Preferred Series C		Preferred Series D		Class A		Class B		Additional Paid-In Capital	Accumulated Other Comprehensive (Loss) Income	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at December 31, 2019	85,000,000	$ 68,263	309,256,591	$ 1,235,404	63,144,600	$ 299,557	31,323,413	$ 159,836	109,673,700	$ 110	24,989,397	$ 28	$ 90,495	$ 2,465	$ (1,305,631)	$ (1,212,533)
Issuance of shares upon exercise of options	—	—	—	—	—	—	—	—	1,245,480	1	—	—	1,310	—	—	1,311
Repurchases of early exercised stock options	—	—	—	—	—	—	—	—	(56,711)	—	—	—	—	—	—	—
Vesting of early exercised stock options	—	—	—	—	—	—	—	—	—	1	—	6	1,208	—	—	1,215
Issuance of Series D redeemable convertible preferred stock, net of issuance costs of $147	—	—	—	—	—	—	45,420,423	231,861	—	—	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	23,947	—	—	23,947
Other comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	—	—	1,954	—	1,954
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(136,416)	(136,416)
Balance at June 30, 2020	85,000,000	$ 68,263	309,256,591	$ 1,235,404	63,144,600	$ 299,557	76,743,836	$ 391,697	110,862,469	$ 112	24,989,397	$ 34	$ 116,960	$ 4,419	$ (1,442,047)	$ (1,320,522)

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

GRAIL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Six Months Ended June 30,	
	2019	**2020**
Cash flows from operating activities		
Net loss	$ (117,200)	$ (136,416)
Adjustments to reconcile net loss to net cash used by operating activities:		
Depreciation and amortization	5,373	4,326
Stock-based compensation expense	7,679	23,947
Loss on disposal of property and equipment	228	—
Loss on foreign currency	659	1,369
Impairment of property and equipment and other long-term assets	2,093	120
Amortization of discount on marketable securities	(2,986)	(295)
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	1,354	5,825
Prepaid expenses and other assets—related party	396	393
Accounts payable	(2,574)	2,532
Accounts payable—related parties	264	105
Accrued and other liabilities	(7,927)	(5,794)
Accrued liabilities—related parties	(21,209)	—
Other current liabilities—related parties	—	2,520
Operating lease right-of-use assets	2,043	1,222
Operating lease liabilities	(2,969)	(1,367)
Net cash used by operating activities	(134,776)	(101,513)
Cash flows from investing activities		
Purchases of property and equipment	(2,221)	(1,213)
Purchases of marketable securities	(295,670)	(202,263)
Proceeds from maturities of marketable securities	461,166	273,951
Net cash provided by investing activities	163,275	70,475
Cash flows from financing activities		
Proceeds from exercise of stock options	1,472	1,311
Proceeds from early exercise of unvested stock options	190	—
Repurchases of early exercised stock options	(109)	(23)
Proceeds from issuance of Series D redeemable convertible preferred stock, net	—	231,861
Repayments of borrowings from finance lease	(700)	(660)
Payment of deferred offering costs	(704)	—
Net cash provided by financing activities	149	232,489
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	37	50
Net increase in cash, cash equivalents, and restricted cash	28,685	201,501
Cash, cash equivalents and restricted cash—beginning of year	96,724	144,417
Cash, cash equivalents and restricted cash—end of year	$ 125,409	$ 345,918
Represented by:		
Cash and cash equivalents	$ 124,181	$ 341,341
Restricted cash	1,228	4,577
Total	$ 125,409	$ 345,918
Supplemental cash flow information:		
Cash paid for interest	$ 53	$ 11
Supplemental disclosure of non-cash investing and financing activities:		
Property and equipment included in accounts payable and accrued liabilities	330	1,076
Vesting of early exercised stock options	843	1,215
Deferred offering costs included in accrued liabilities	920	—

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

GRAIL, INC.

NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION AND DESCRIPTION OF BUSINESS

GRAIL, Inc. (GRAIL or the Company) was incorporated in the State of Delaware in September 2015 and began operations as a stand-alone entity in February 2016. GRAIL is a healthcare company focused on developing technologies for early cancer detection. The Company is headquartered in Menlo Park, California.

Since inception, the Company has incurred losses from operations. The Company incurred losses from operations of $123.4 million and $139.2 million for the six months ended June 30, 2019 and 2020, respectively. The Company had an accumulated deficit of $1.4 billion as of June 30, 2020. The Company has not yet launched a commercial product and may never develop a product that will generate revenues, including in amounts that will be sufficient to fund operations. Accordingly, the Company has been dependent on its ability to raise capital through equity issuances.

The Company had $685.6 million of cash, cash equivalents, and marketable securities at June 30, 2020. Based on the Company's business plans, management believes that this is sufficient to meet its obligations for at least 12 months from the issuance date of these unaudited condensed consolidated financial statements.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Principles of Consolidation

The condensed consolidated financial statements as of December 31, 2019 and June 30, 2020 and for the six months ended June 30, 2019 and 2020 include the accounts of GRAIL, Inc. and its wholly-owned subsidiaries. The condensed consolidated financial statements are prepared in accordance with United States Generally Accepted Accounting Principles (U.S. GAAP). All intercompany balances and transactions have been eliminated on consolidation.

Unaudited Condensed Consolidated Financial Statements

The condensed consolidated balance sheet as of June 30, 2020 and the condensed consolidated statements of operations, of comprehensive loss, of cash flows, and of redeemable convertible preferred stock and stockholders' deficit for the six months ended June 30, 2019 and 2020 are unaudited. The unaudited condensed consolidated financial statements have been prepared on the same basis as the annual consolidated financial statements and reflect, in the opinion of management, all adjustments of a normal and recurring nature that are necessary for the fair statement of the Company's financial position as of June 30, 2020 and its results of operations and cash flows for the six months ended June 30, 2019 and 2020. The financial data and the other financial information disclosed in these notes to the condensed consolidated financial statements related to the six months ended June 30, 2019 and 2020 are also unaudited. The condensed consolidated results of operations for the six months ended June 30, 2020 are not necessarily indicative of the results to be expected for the year ending December 31, 2020 or for any other future annual or interim period. The condensed consolidated balance sheet as of December 31, 2019 included herein was derived from the audited consolidated financial statements as of that date, but does not include all disclosures required by U.S. GAAP. These condensed consolidated financial statements should be read in conjunction with the Company's audited consolidated financial statements and the related notes thereto as of and for the year ended December 31, 2019, which are included elsewhere in this Registration Statement.

Use of Estimates

The preparation of the condensed consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts of assets and liabilities, disclosure of contingent assets and liabilities, and the reported amounts of expenses in the condensed consolidated financial statements and accompanying notes. On an ongoing basis, management evaluates its estimates, including those related to accrued clinical studies and research and development expenses, stock-based compensation expense,

useful lives of intangible assets and property and equipment, determination of incremental borrowing rate for operating leases, and the provision (benefit) for income taxes.

Unaudited Pro Forma Information

The unaudited pro forma information as of June 30, 2020 has been prepared on a basis to reflect the following prior to, or upon the closing of, an initial public offering (IPO): (i) the conversion of all outstanding redeemable convertible preferred stock into common stock; (ii) the conversion of all outstanding Class B common stock into Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock; and (iii) the reclassification of Class A and Class B common stock into a single class of common stock. The shares of common stock issuable and the proceeds expected to be received upon the IPO are excluded from such pro forma financial information. Compensation expense related to certain awards with performance- and market-based conditions, for which the performance-based condition will be satisfied upon the IPO, is excluded from the pro forma adjustments because the Company is unable to quantify this amount as of June 30, 2020 and will remain unable to quantify the amount until the performance-based condition is satisfied as the expense will be based on the fair value of these awards at such date.

The unaudited pro forma net loss per share for the six months ended June 30, 2020 was computed using the weighted-average number of shares of common stock outstanding, adjusted to reflect the following prior to, or upon the closing of, an IPO as if such reclassifications or issuances had occurred at the beginning of the period, or their issuance dates if later: (i) the conversion of all outstanding redeemable convertible preferred stock into common stock; (ii) the conversion of all outstanding Class B common stock into Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock; and (iii) the reclassification of Class A and Class B common stock into a single class of common stock.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents, and marketable securities.

Substantially all the Company's cash and cash equivalents are deposited in accounts with four accredited financial institutions that management believes are of high-credit quality. Such deposits have and will continue to exceed federally insured limits. The Company has not experienced any losses on its cash deposits.

The Company's investment policy limits investments to certain types of securities issued by the U.S. government and its agencies and institutions with investment-grade credit ratings and places restrictions on maturities and concentration by type and issuer. The Company is exposed to credit risk in the event of a default by the financial institutions holding its cash, cash equivalents, and marketable securities, and by issuers of marketable securities to the extent recorded on the consolidated balance sheets. As of June 30, 2020, the Company had no off-balance sheet concentrations of credit risk.

Risks and Uncertainties

The Company is in the research and discovery stage and may never develop a product that will generate revenues, including in amounts that will be sufficient to fund operations. The market for which the Company is developing products is highly competitive and rapidly changing. Difficulties or delays in the Company's clinical studies, delays in planned commercial launch of the Company's products, potential complications with the Company's sole suppliers, complex regulatory regimes, regulatory issues and other factors could negatively impact the Company's operating results.

The Company may need to raise additional equity or debt financing to fund future operations that may not be available at terms acceptable to the Company, if at all. If the Company does not successfully commercialize its products in development, it will be unable to generate revenue from product sales or achieve profitability.

In December 2019, a novel strain of coronavirus (COVID-19) was reported in Wuhan, China and has since become a global pandemic. The COVID-19 pandemic poses the risk that the Company, its personnel and other

partners may be prevented from conducting business activities for an indefinite period of time, including due to spread of the disease within these groups or due to shutdowns that may be requested or mandated by governmental authorities. The ongoing COVID-19 pandemic has delayed anticipated completion of the Company's clinical studies, as the Company had to suspend enrollment of the studies during the six months ended June 30, 2020. As of the date of issuance of these unaudited condensed consolidated financial statements, the Company is not aware of any specific event or circumstance related to COVID-19 that would require it to update its estimates or judgments or adjust the carrying value of its assets or liabilities. Actual results could differ from those estimates and any such differences may be material to the consolidated financial statements.

The Coronavirus Aid, Relief, and Economic Security Act (the CARES Act) was enacted by the United States on March 27, 2020. The Company is continuing to analyze the impact of the CARES Act. The CARES Act did not have a material impact on the Company's provision for income taxes for the six months ended June 30, 2020.

Significant Accounting Policies

Deferred offering costs, consisting of legal, accounting and other fees and costs relating to the Company's planned IPO, are capitalized and recorded on the consolidated balance sheet as incurred. The deferred offering costs will be offset against the proceeds received upon the closing of the planned IPO. In the event that the Company's plans for an IPO are terminated, all of the deferred offering costs will be written off within operating expenses in the Company's consolidated statements of operations.

There have been no material changes in the Company's accounting policies from those disclosed in the audited consolidated financial statements and related notes, which are included elsewhere in this Registration Statement.

Recent Accounting Pronouncements

Accounting Standards Update (ASU) 2016-13 and 2020-03, collectively implemented as Financial Accounting Standards Board (FASB) Accounting Standards Codification 326, *Financial Instruments – Credit Losses* (*Topic 326*), provides amended guidance for measuring current expected credit loss. In June 2016, FASB issued ASU 2016-13, *Financial Instruments–Credit Losses (Topic 326).* ASU 2016-13 requires measurement and recognition of expected credit losses for financial assets. On January 1, 2020, the Company adopted Topic 326 using a modified retrospective approach, which had no material impact on the Company's condensed consolidated financial statements. In March 2020, the FASB issued ASU 2020-03, *Codification Improvements to Financial Instruments*, which makes improvements to financial instruments guidance. The adoption of this ASU did not have a material impact on the Company's condensed consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*. The ASU improves the effectiveness of fair value measurements disclosures and modifies the disclosure requirements on fair value measurements in Topic 820, *Fair Value Measurement*, based on the concepts in the FASB Concepts Statement, *Conceptual Framework for Financial Reporting—Chapter 8: Notes to Financial Statements*, including the consideration of costs and benefits. On January 1, 2020, the Company adopted Topic 820 on January 1, 2020. The adoption of this ASU did not have a material impact on the Company's condensed consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, *Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40), Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. ASU 2018-15 amended guidance to align the accounting for costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing costs associated with developing or obtaining internal-use software. Capitalized implementation costs must be expensed over the term of the hosting arrangement and presented in the same line item in the statement of income as the fees associated with the hosting element (service) of the arrangement. The Company adopted ASU 2018-15 as of January 1, 2020 on a prospective basis, and the adoption of this ASU did not have a material impact on the Company's condensed consolidated financial statements.

NOTE 3. BALANCE SHEET COMPONENTS

Property and Equipment, Net

Property and equipment, net consisted of the following:

	Useful Life (In Years)	As of December 31, 2019	As of June 30, 2020
		(in thousands)	
Laboratory equipment	3 to 5	$ 23,157	$ 23,448
Computer hardware	3 to 5	4,994	5,500
Computer software	3 to 5	257	257
Furniture and fixtures	5	2,021	2,246
Leasehold improvements	Lease term	21,931	22,049
Construction-in-process		215	1,108
Property and equipment, gross		52,575	54,608
Less accumulated depreciation and amortization		(28,150)	(32,478)
Total property and equipment, net		$ 24,425	$ 22,130

Included within property and equipment, net is $1.3 million and $0.4 million of laboratory equipment purchased from related parties as of December 31, 2019 and June 30, 2020, respectively.

During the six months ended June 30, 2019, primarily in connection with the decision to exit the Hong Kong facility, the Company recorded an impairment charge of $0.8 million relating to laboratory equipment, computer hardware and furniture and fixtures, in research and development expenses. During the six months ended June 30, 2020, the Company recorded an impairment charge of $0.1 million relating to laboratory equipment, in research and development expenses.

The Company recorded $5.4 million and $4.3 million of depreciation expense for the six months ended June 30, 2019 and 2020, respectively. For more information on the finance leases, see Note 6, Leases.

Accrued Liabilities

Accrued liabilities consist primarily of amounts owed to vendors, employees, and professional service firms. Accrued liabilities consisted of the following:

	As of	
	December 31, 2019	June 30, 2020
	(in thousands)	
Accrued compensation expenses	$ 14,889	$ 10,630
Accrued legal and professional expenses	4,306	3,131
Accrued clinical studies expenses	5,119	4,228
Accrued research and development expenses	3,494	4,199
Accrued construction-in-process	23	570
Accrued other expenses	3,753	3,383
Total accrued liabilities	$ 31,584	$ 26,141

NOTE 4. FAIR VALUE MEASUREMENTS

The following table represents the fair value hierarchy for the Company's financial assets measured at fair value on a recurring basis as of December 31, 2019 and June 30, 2020:

	As of December 31, 2019			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash equivalents:				
Money market funds	$ 58,291	$ —	$ —	$ 58,291
Corporate debt securities	—	21,001	—	21,001
Commercial paper	—	4,988	—	4,988
Short-term marketable securities:				
U.S. government treasuries	37,533	—	—	37,533
U.S. government agency securities	—	7,504	—	7,504
Corporate debt securities	—	236,234	—	236,234
Commercial paper	—	119,884	—	119,884
Long-term marketable securities:				
Corporate debt securities	—	5,435	—	5,435
U.S. government agency securities	—	8,498	—	8,498
Total marketable securities	37,533	377,555	—	415,088
Total	$ 95,824	$ 403,544	$ —	$ 499,368

	As of June 30, 2020			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash equivalents:				
Money market funds	$ 263,370	$ —	$ —	$ 263,370
Corporate debt securities	—	21,302	—	21,302
Commercial paper	—	19,996	—	19,996
U.S. government agency securities	—	9,999	—	9,999
Short-term marketable securities:				
U.S. government treasuries	67,826	—	—	67,826
U.S. government agency securities	—	15,986	—	15,986
Corporate debt securities	—	155,539	—	155,539
Commercial paper	—	87,707	—	87,707
Long-term marketable securities:				
U.S. government agency securities	—	8,995	—	8,995
U.S. government treasuries	—	8,177	—	8,177
Total marketable securities	67,826	276,404	—	344,230
Total	$ 331,196	$ 327,701	$ —	$ 658,897

NOTE 5. MARKETABLE SECURITIES

All marketable securities as of December 31, 2019 and June 30, 2020 are considered available-for-sale, and the amortized costs, unrealized holding gains or losses, and the fair values of the Company's marketable securities by major security type are summarized in the table below:

	As of December 31, 2019			
	Amortized Cost	Unrealized Holding Gains	Unrealized Holding Losses	Aggregate Fair Value
	(in thousands)			
Cash equivalents:				
Money market funds	$ 58,291	$ —	$ —	$ 58,291
Corporate debt securities	21,001	—	—	21,001
Commercial paper	4,988	—	—	4,988
Total cash equivalents	84,280	—	—	84,280
Short-term marketable securities:				
U.S. government treasuries	37,497	37	(1)	37,533
U.S. government agency securities	7,499	5	—	7,504
Corporate debt securities	236,012	259	(37)	236,234
Commercial paper	119,884	—	—	119,884
Total short-term marketable securities	400,892	301	(38)	401,155
Long-term marketable securities:				
Corporate debt securities	5,439	—	(4)	5,435
U.S. government agency securities	8,500	—	(2)	8,498
Total long-term marketable securities	13,939	—	(6)	13,933
Total marketable securities	$ 499,111	$ 301	$ (44)	$ 499,368

	As of June 30, 2020			
	Amortized Cost	Unrealized Holding Gains	Unrealized Holding Losses	Aggregate Fair Value
	(in thousands)			
Cash equivalents:				
Money market funds	$ 263,370	$ —	$ —	$ 263,370
Corporate debt securities	21,306	—	(4)	21,302
Commercial paper	19,996	—	—	19,996
U.S. government agency securities	9,999	—	—	9,999
Total cash equivalents	314,671	—	(4)	314,667
Short-term marketable securities:				
U.S. government treasuries	67,709	117	—	67,826
U.S. government agency securities	15,984	3	(1)	15,986
Corporate debt securities	154,856	690	(7)	155,539
Commercial paper	87,707	—	—	87,707
Total short-term marketable securities	326,256	810	(8)	327,058
Long-term marketable securities:				
U.S. government agency securities	8,999	—	(4)	8,995
U.S. government treasuries	8,178	—	(1)	8,177
Total long-term marketable securities	17,177	—	(5)	17,172
Total marketable securities	$ 658,104	$ 810	$ (17)	$ 658,897

Interest income related to the Company's cash equivalents and available-for-sale investments included in interest income, net, was $6.6 million and $3.9 million for the six months ended June 30, 2019 and 2020, respectively.

The following table summarizes the maturities of the Company's available for sale securities, excluding cash equivalents, by contractual maturity, as of June 30, 2020.

	As of June 30, 2020	
	Amortized Cost	Aggregate Fair Value
(in thousands)		
Mature in less than one year	$ 326,256	$ 327,058
Mature in one to two years	17,177	17,172
Total	$ 343,433	$ 344,230

The following table summarizes the Company's available-for-sale securities that were in a continuous unrealized loss position for less than 12 months as of December 31, 2019 and June 30, 2020.

	As of			
	December 31, 2019		June 30, 2020	
	Aggregate Fair Value	Aggregate Unrealized Losses	Aggregate Fair Value	Aggregate Unrealized Losses
(in thousands)				
U.S. government treasuries	$ 7,542	$ (1)	$ 18,343	$ (1)
U.S. government agency securities	8,498	(2)	16,992	(5)
Corporate debt securities	62,395	(41)	5,208	(7)
Total	$ 78,435	$ (44)	$ 40,543	$ (13)

As of December 31, 2019 and June 30, 2020, some of the Company's marketable securities were in an unrealized loss position. The Company held a total of 23 and 11 positions, which were in an unrealized loss position as of December 31, 2019 and June 30, 2020, respectively. The Company determined that no credit losses exist as of December 31, 2019 and June 30, 2020 because the change in market value for those securities related primarily to interest rate shifts rather than significant changes in the underlying credit quality of the securities that it holds. The Company has the ability to hold all marketable securities that have been in a continuous loss position until maturity or recovery.

The Company's short-term marketable securities have an effective maturity date of less than 12 months, and the long-term marketable securities have an effective maturity date of greater than 12 months and less than 15 months.

NOTE 6. LEASES

The Company has entered into operating and finance leases for facilities and research and development equipment. Both operating and finance leases have remaining lease terms which range from 2 year to 6 years, and often include one or more options to renew. These renewal terms can extend the lease term from 1 to 5 years and are included in the lease term when it is reasonably certain that the Company will exercise the option. One lease provides the option to terminate the lease under certain conditions with three months' notice. The Company does not expect to exercise this termination option. The exercise of lease renewal and termination options is at the Company's sole discretion. The Company also has variable lease payments that are primarily comprised of common area maintenance and utility charges.

During the six months ended June 30, 2019, in connection with the decision to exit its Hong Kong facility, the Company recorded an impairment charge of $1.3 million in research and development expenses relating to operating lease right-of-use assets.

During the six months ended June 30, 2020, the Company entered into a new agreement to lease approximately 200,000 square feet of laboratory and office space in North Carolina, which will be recognized as an operating lease upon the lease commencement date. The Company expects the lease to commence during the third or fourth quarter of 2020 for a term of 12.5 years with three five-year renewal options. The total estimated aggregate base rent payments, excluding the renewal options and any tenant improvement allowances, for the North Carolina laboratory and office space are $82.6 million.

NOTE 7. COMMITMENTS AND CONTINGENCIES

See Note 6 for a summary of the Company's lease commitments. As of June 30, 2020, the Company's future commitments over the next five years and thereafter were as follows:

	Minimum Royalties	Purchase Commitments	Total
		(in thousands)	
2020*	$ —	$ 1,762	$ 1,762
2021	570	—	570
2022	575	—	575
2023	1,075	—	1,075
2024	1,075	—	1,075
Thereafter	6,750	—	6,750
Total commitments	$ 10,045	$ 1,762	$ 11,807

(*) Excluding the six months ending June 30, 2020.

Minimum Royalty Commitments

The Company has certain minimum royalty commitments under licensing agreements related to its research efforts.

Purchase Commitments

The Company has open purchase orders primarily related to the purchase of laboratory supplies in the normal course of business.

Contingencies

The Company responds to claims arising in the ordinary course of business. If necessary, the Company will accrue estimates of the amounts it expects to pay upon resolution of such matters, and such amounts will be included in other current liabilities. Should the Company not be able to secure the terms it expects, these estimates may change and will be recognized in the period in which they are identified.

Legal Matters

The Company is subject to various claims, complaints, and legal actions that arise from time to time. The Company does not believe it is a party to any currently pending or threatened legal proceedings that will result in a material adverse effect on its business. There can be no assurance that existing or future legal proceedings arising in the ordinary course of business or otherwise will not have a material adverse effect on the Company's business, financial position, results of operations, or cash flows.

Indemnification

The Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at the Company's request in such capacity. The indemnification period covers all pertinent events and occurrences during the director's or officer's service. The maximum potential amount of future payments the Company could be required to make under the applicable indemnification agreements is not

specified in the agreements; however, the Company has director and officer insurance coverage that reduces its exposure and enables the Company to recover a portion of any future amounts paid. The Company believes the estimated fair value of these indemnification agreements in excess of applicable insurance coverage is minimal.

The Company enters into standard indemnification arrangements in the ordinary course of business. Pursuant to these arrangements, the Company indemnifies, holds harmless, and agrees to reimburse the indemnified parties for losses suffered or incurred by the indemnified party, in connection with any trade secret, copyright, patent or other intellectual property infringement claim by any third party with respect to the Company's technology. The term of these indemnification agreements is generally perpetual after the execution of the agreement. The maximum potential amount of future payments the Company could be required to make under these arrangements is not determinable. The Company has not incurred costs to defend lawsuits or settle claims related to these indemnification agreements. As a result, the Company believes the estimated fair value of these agreements is minimal.

NOTE 8. COMMON STOCK

The Company has two classes of common stock: Class A and Class B. The voting rights per share of Class A and Class B are 1:1 and 10:1, respectively. Common stockholders are entitled to dividends when and if declared by the board of directors subject to the prior rights of the preferred stockholders. As of June 30, 2020, no dividends have been declared. The shares of Class B common stock are convertible into shares of Class A common stock at a ratio of 0.44 shares of Class A common stock to 0.42 shares of Class B common stock.

As of June 30, 2020, the Company has reserved shares of Class A common stock for issuance upon conversion of the redeemable convertible preferred stock and exercise of options. No shares of Class B common stock have been reserved. The Company has reserved shares of Class A common stock, on an as converted basis, for issuance as follows:

	Class A Shares (in thousands)
Conversion of Series A redeemable convertible preferred stock	85,000
Conversion of Series B redeemable convertible preferred stock	309,257
Conversion of Series C redeemable convertible preferred stock	63,145
Conversion of Series D redeemable convertible preferred stock	76,744
Conversion of Class B common stock	26,179
Options and awards outstanding for the 2016 Equity Incentive Plan	101,852
Non-Plan Incentive Awards	26,525
Reserved for future grants	14,976
Total	703,678

NOTE 9. REDEEMABLE CONVERTIBLE PREFERRED STOCK

The following tables represent the redeemable convertible preferred stock as of December 31, 2019 and June 30, 2020:

	As of December 31, 2019				
	Shares Authorized	Original Issuance Price	Shares Issued and Outstanding	Net Proceeds	Liquidation Value
	(in thousands, except share and per share data)				
Series A	85,000,000	$ 1.0000	85,000,000	$ 120,000	$ 85,000
Series B	309,256,591	4.0085	309,256,591	1,085,404	1,239,655
Series C	63,144,600	4.7510	63,144,600	299,557	300,000
Series D	48,942,833	5.1080	31,323,413	159,836	160,000
Total	506,344,024		488,724,604	$ 1,664,797	$ 1,784,655

	As of June 30, 2020				
	Shares Authorized	Original Issuance Price	Shares Issued and Outstanding	Net Proceeds	Liquidation Value
	(in thousands, except share and per share data)				
Series A	85,000,000	$ 1.0000	85,000,000	$ 120,000	$ 85,000
Series B	309,256,591	4.0085	309,256,591	1,085,404	1,239,655
Series C	63,144,600	4.7510	63,144,600	299,557	300,000
Series D	76,743,836	5.1080	76,743,836	391,697	392,008
Total	534,145,027		534,145,027	$ 1,896,658	$ 2,016,663

During the six months ended June 30, 2020, the Company issued 45,420,423 additional shares of Series D redeemable convertible preferred stock for gross proceeds of $232.0 million, less $0.1 million of issuance costs. The Series D redeemable convertible preferred stock has substantially similar terms as the Company's Series A, Series B and Series C redeemable convertible preferred stock except that it has a liquidation preference of $5.1080 per share.

Redemption

As of December 31, 2019 and June 30, 2020, the Company classified the convertible preferred stock as redeemable on the consolidated balance sheets. Upon the occurrence of certain change-in-control events that may be outside the Company's control, including liquidation, sale, or transfer of the Company, holders of the convertible preferred stock could cause a redemption of their stock for cash. The preferred stock does not have a mandatory redemption date.

Conversion

Each share of preferred stock is convertible, at the option of the holder, according to a conversion ratio, which is subject to adjustment for dilutive share issuances as described in the next paragraph. The total number of shares of common stock into which the preferred stock may be converted is determined by dividing the then-applicable conversion price by the initial conversion price. The preferred stock automatically converts into shares of Class A common stock at the then-applicable conversion price in the event of an underwritten public offering of shares of common stock with aggregate gross proceeds of no less than $150 million (Qualifying IPO), provided that, prior to April 17, 2022 (24 months after the Series D extension closing), such automatic conversion shall also require either (i) the per share price of the Qualifying IPO to be at least $5.1080 per share (i.e., the Series D preferred stock original issue price) or (ii) the vote of the holders of a majority of the combined Series C and D preferred stock. The preferred stock also automatically converts into shares of Class A common stock at the then-applicable conversion price upon the vote of a majority of the holders of preferred stock and, if prior to April 17, 2022, the vote of the holders of two-thirds of the combined Series C and D preferred stock shall also be required. As of June 30, 2020, each share of Series A, B, C, and D preferred stock was convertible into one share of Class A common stock.

Subject to certain exceptions, including issuances of shares to employees or consultants pursuant to a stock option plan approved by the board of directors and issuances of shares to lenders or strategic partners or in connection with the acquisition of a company or technology, in each case approved by the board of directors, the conversion price of each applicable series of preferred stock is subject to adjustment to prevent dilution in the event that the Company issues additional shares at a purchase price less than the then-applicable conversion price.

Dividends

Any dividends paid in any fiscal year will be paid among the holders of redeemable convertible preferred stock and common stock then outstanding based on preferences and on an if-converted basis. Dividends are noncumulative, and none were declared as of December 31, 2019 or June 30, 2020.

Voting

Each share of redeemable convertible preferred stock is entitled to the number of votes equal to the number of shares of Class A common stock into which such shares could be converted. Holders of redeemable convertible preferred stock and common stock vote as a single class.

Liquidation Preference

In the event of any liquidation, dissolution or winding up of the Company, either voluntary or involuntary, including a merger, acquisition, or sale of assets where the holders of common stock and preferred stock own less than a majority of the resulting voting power of the surviving entity (Liquidation Transaction), the holders of preferred stock will receive in preference to the holders of common stock, an amount per share equal to the liquidation preference, plus any accrued but unpaid dividends. After payment of the liquidation preference to the holders of the preferred stock, the remaining assets of the Company are available for distribution to the holders of common stock on a pro rata basis. The vote of a majority of the holders of the preferred stock can waive the liquidation preference; provided that, prior to April 17, 2022, the vote of the holders of two-thirds of the combined Series C and D preferred stock shall also be required to waive such liquidation preference. These liquidation features cause the Series A, B, C, and D preferred stock to be classified as mezzanine equity rather than as a component of stockholders' deficit.

NOTE 10. STOCK INCENTIVE AWARDS

The Company grants awards under the 2016 Equity Incentive Plan (2016 Plan) as well as incentive awards not under the 2016 Plan (Non-Plan Equity Incentive Awards).

2016 Equity Incentive Plan

The Company's board of directors adopted, and its stockholders approved, the Company's 2016 Plan in January 2016. The 2016 Plan was amended on February 6, 2017, February 27, 2017, September 18, 2019, November 21, 2019, November 25, 2019, and May 7, 2020.

As of June 30, 2020, the Company had granted options or rights to purchase 159,105,895 shares of its Class A common stock and 24,989,397 shares of its Class B common stock under the Company's 2016 Plan, of which options or rights to purchase 101,852,376 shares of Class A common stock and no shares of Class B common stock were outstanding. As of June 30, 2020, 14,975,649 shares of Class A common stock and no shares of Class B common stock remained available for future grants. The maximum contractual term of options is generally ten years.

The Company's 2016 Plan allows for the grant of awards in the form of: (i) incentive stock options, (ii) non-qualified stock options; (iii) stock appreciation rights; (iv) restricted stock; (v) restricted stock units; and (vi) unrestricted stock. Directors, employees, and consultants are eligible to participate in the 2016 Plan.

Stock Option Activity—A summary of all stock option activity for the 2016 Plan for the Six Months Ended June 30, 2020 was as follows:

		Class A				
	Number of Shares Available for Grant	Number of Shares Underlying Outstanding Options	Weighted-Average Exercise Price Per Share	Weighted-Average Grant Date Fair Value Per Share	Weighted-Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
	(in thousands, except years and per share data)					
Balance as of January 1, 2020	23,717	77,784	$ 1.52		$ 9.07	$ 44,677
Granted	(24,215)	24,215	2.09	$ 1.44		
Exercised	—	(1,245)	1.06			
Repurchased	57	—	—			
Forfeited	15,417	(15,417)	1.32			
Balance as of June 30, 2020	14,976	85,337	1.72		8.91	31,463
Options vested and expected to vest as of June 30, 2020	—	77,320	1.69		8.85	30,933
Options vested and exercisable as of June 30, 2020	—	26,480	1.16		7.90	24,701

Restricted Stock Unit Activity—A summary of all restricted stock units activity for the 2016 Plan for the six months ended June 30, 2020 was as follows:

	Class A Restricted Stock Units	
	Restricted Stock Units Outstanding	Weighted-Average Grant Date Fair Value Per Share
	(in thousands, except per share data)	
Unvested balance as of January 1, 2020	16,516	$ 1.97
Granted	—	—
Vested	—	—
Forfeited	—	—
Unvested balance as of June 30, 2020	16,516	1.97

As of June 30, 2020, there was $23.9 million of total unrecognized compensation cost related to restricted stock units granted under the Company's 2016 Plan. That cost is expected to be recognized over a weighted-average period of 2.5 years.

Awards with Service-Based Vesting Conditions Granted under the 2016 Plan

During the six months ended June 30, 2019 and 2020, the Company granted 4,392,200 and 21,765,127 awards with service-based conditions, respectively. During the six months ended June 30, 2020, the Company modified 1,450,451 options with service-based conditions from the 2016 Plan. See "Modification of Stock Options".

Awards with Performance-Based Vesting Conditions Granted under the 2016 Plan

During the year ended December 31, 2016, the Company granted restricted stock awards of 5,714,286 shares of Class B common stock that vest upon satisfaction of performance or service-based conditions. During the six months ended June 30, 2020, all 5,714,286 shares vested upon meeting the service-based condition.

During the year ended December 31, 2017, the Company granted options to purchase 4,180,021 shares of Class A common stock to the founders of Cirina Limited that vest upon satisfaction of performance- and service-based conditions. The options vest over a period of 4 years with 25% vesting upon the first anniversary of the grant date and 1/48th vesting at the end of each month thereafter. During the year ended December 31, 2017, a performance-based condition was satisfied upon a successful patent claim and as a result, vesting of one-third of these options was accelerated. During the six months ended June 30, 2019, a second performance-based condition was satisfied upon a subsequent successful patent claim and as a result, vesting of the remaining options was accelerated. The grant date fair value per share of these options was $0.32 and the aggregate grant date fair value was $1.3 million.

During the year ended December 31, 2018, the Company granted options to purchase 1,500,000 shares of Class A common stock that vest upon satisfaction of performance-based conditions. During the year ended December 31, 2018, 500,000 shares vested after the related performance-based condition was met, and stock-based compensation expense of $0.1 million was recognized for these vested options. In addition, 500,000 shares were forfeited due to the related performance-based condition not being met by December 31, 2018. As of June 30, 2020, the remaining 500,000 shares were forfeited due to the related performance-based condition not being met prior to the termination of the respective agreement.

During the year ended December 31, 2019, the Company granted options to purchase 1,743,300 of Class A common stock to one of the Company's executives. The options will commence vesting upon the consummation of the Company's IPO, provided such IPO is consummated within 10 years from the grant date, over a period of four years, with 1/48th vesting upon each monthly anniversary of such vesting commencement date. The grant date fair value per share of these options was $1.69 and the aggregate grant date fair value was $3.0 million. As of June 30, 2020, no options have been exercised, no options have vested, and no expense has been recognized for these awards as the performance-based conditions are not yet considered probable of being met.

During the year ended December 31, 2019, the Company granted options to purchase 3,506,222 of Class A common stock to two of the Company's executives. The options will commence vesting upon the achievement of certain performance targets, provided such performance targets are met within 10 years from the grant date, over a period of three years, with 1/36th vesting upon each monthly anniversary of such vesting commencement date. The grant date fair value per share of these options was $1.69 and the aggregate grant date fair value was $5.9 million. As of June 30, 2020, no options have been exercised, no options have vested, and no expense has been recognized for these awards as the performance-based conditions are not yet considered probable of being met.

During the six months ended June 30, 2020, the Company granted options to purchase 1,700,000 shares of Class A common stock to one of the Company's executives. The options will commence vesting upon the achievement of certain performance targets, provided such performance targets are met within 10 years from the grant date, over a period of three years, with 1/36th vesting upon each monthly anniversary of such vesting commencement date. The grant date fair value per share of these options was $1.68 per share and the aggregate grant date fair value was $2.9 million. As of June 30, 2020, the achievement of the performance-based condition was not deemed to be probable.

During the six months ended June 30, 2020, the Company granted options to purchase 750,000 shares of Class A common stock to one of the Company's executives. The options will commence vesting upon the consummation of the Company's IPO provided such IPO is consummated within 10 years from the grant date, over a period of two years, with 25% vesting upon IPO, and 3.125% vesting upon each monthly anniversary of such vesting commencement date. The grant date fair value per share of these options was $1.68 per share and the aggregate grant date fair value was $1.3 million. As of June 30, 2020, the achievement of the performance-based condition was not deemed to be probable.

Awards with Performance- and Market-Based Vesting Conditions Granted under the 2016 Plan

During the year ended December 31, 2018, the Company granted options to purchase 4,883,947 shares of Class A common stock that vest upon satisfaction of performance- and market-based conditions. The performance-based condition is satisfied upon the Company successfully executing an IPO of the Company's common stock and achieving certain performance targets. The market-based condition is satisfied upon the Company maintaining certain market capitalization levels after the IPO. For these options, the Company uses a Monte Carlo simulation to

determine the fair value at the grant date and the implied service period. The weighted-average grant date fair value per share for these options was $0.22 and the aggregate grant date fair value was $1.1 million. As of June 30, 2020, 4,400,000 shares were forfeited.

Non-Plan Incentive Awards

During the year ended December 31, 2016, the Company granted restricted stock awards of 1,125,000 shares of Class A common stock outside of the 2016 Plan. These awards have an expiration term of 10 years. Of these awards, 1,000,000 will vest over a period of 4 years with 1/48th vesting on the monthly anniversary of the grant date with the exception of accelerating events relating to certain successful patent claims. The remaining 125,000 of these awards vest over a period of 4 years with 25% vesting upon the first anniversary of the grant date and 1/48th vesting at the end of each month thereafter. The weighted-average grant date fair values per share for these awards was $0.25 and the aggregate grant date fair value was $0.3 million. During the six months ended June 30, 2019 and 2020, 140,625 and 135,417 shares of these awards vested, respectively. As of June 30, 2020, these awards are fully vested.

During the year ended December 31, 2018, the Company granted 28,683,500 options to purchase Class A common stock outside of the 2016 Plan to two of the Company's executives. Of these options, 21,453,125 have an expiration term of 10 years and vest over a period of 4 years with 25% vesting upon the first anniversary of the grant date and 1/48th vesting at the end of each month thereafter. The grant date fair value per share was $0.45 and the aggregate grant date fair value was $9.7 million. As of June 30, 2020, 8,279,501 of these options were forfeited and 7,230,375 were cancelled. As of June 30, 2020, 476,191 of these options had been early exercised.

During the year ended December 31, 2019, the Company granted restricted stock units of 13,827,568 shares of Class A common stock outside of the 2016 Plan. These units have an expiration term of 10 years and they vest over a period of 3 years with 67% vesting upon the second anniversary of the vesting start date and the remaining 33% vesting on the third anniversary of the vesting start date. The weighted-average grant date fair value per share for these units was $1.92 and the aggregate grant date fair value was $26.5 million. None of these units vested during the six months ended June 30, 2019 or 2020.

The Non-Plan Incentive options outstanding as of June 30, 2020 had a weighted-average exercise price of $0.93 per share.

Early Exercise of Stock Options

Certain options granted under the 2016 Plan and Non-Plan Incentive Awards have been early exercised. The unvested shares are subject to a repurchase right held by the Company at the original purchase price. The proceeds initially are recorded as a liability for early exercise of unvested options and reclassified to additional paid-in capital as the repurchase right lapses.

The Company issued 233,043 and 14,167 shares of common stock upon the early exercise of options during the six months ended June 30, 2019 and 2020, respectively, for total exercise proceeds of $0.2 million and an immaterial amount, respectively.

Shares Subject to Repurchase

As of June 30, 2020, 605,555 shares held by employees and directors were subject to the Company's right of repurchase at an aggregate price of $0.5 million.

Modification of Stock Options

During the six months ended June 30, 2019, the Company entered into agreements with two employees, as a result of which the terms of certain of their service-based options to purchase shares of Class A common stock were modified. As a result of these modifications, the vesting of 2,669,562 options were accelerated as of the date of the agreements, and 8,102,891 of the vested options had their exercise period extended. The Company accounted for the changes to the options as modifications, and the fair value of their service-based options was increased by $3.8 million which was recorded as an incremental expense during the six months ended June 30, 2019.

During the six months ended June 30, 2019, the Company modified an employee's options to purchase 1,631,375 shares of Class A common stock with performance- and market-based conditions. As a result of this modification, the performance-based conditions were changed, and the market-based conditions were eliminated. The Company accounted for the changes to the awards as a modification, and the fair value of these awards was increased by $0.3 million with no impacts recorded in the financial statements because the performance-based conditions were not considered probable of being met. As of June 30, 2020, the awards have been cancelled.

During the six months ended June 30, 2020, the Company entered into agreements with four employees, as a result of which the terms of certain of their service-based options to purchase shares of Class A common stock were modified. As a result of these modifications, the vesting of 70,578 options were accelerated as of the date of the agreements, and 1,443,623 of the vested options had their exercise period extended. The Company accounted for the changes to the options as modifications, and the fair value of their service-based options was increased by $0.3 million which was recorded as an incremental expense during the six months ended June 30, 2020.

Stock-Based Compensation Expense

The following table is a summary of stock-based compensation expense recognized for the six months ended June 30, 2019 and 2020 for employees and non-employees for both the 2016 Plan and Non-Plan Incentive Awards:

	Six Months Ended June 30,	
	2019	2020
	(in thousands)	
Research and development	$ 1,595	$ 2,957
Research and development—related parties	67	30
Marketing	13	1,230
General and administrative	6,004	19,730
Total stock-based compensation expense	$ 7,679	$ 23,947

As of June 30, 2020, the total unrecognized stock-based compensation expense for awards that contain service-based conditions for both the 2016 Plan and Non-Plan Incentive Awards was $101.1 million, which is expected to be recognized over a weighted-average period of approximately 2.9 years. As of June 30, 2020, the total unrecognized stock-based compensation expense for awards that contain only performance-based or performance- and market-based conditions for both the 2016 Plan and Non-Plan Incentive Awards was $13.1 million.

Liability-Classified Awards with Performance- and Market-Based Vesting Conditions Granted under the 2016 Plan

In February 2016, the Company entered into an agreement with a former executive officer pursuant to which he was eligible to receive $10.0 million in incentive awards. As of June 30, 2020, these incentive awards were forfeited.

In October 2017, the Company entered into a transition agreement with the vice chairperson of the board of directors. Under the transition agreement, the individual is eligible to receive up to $130.0 million in incentive awards.

In June 2018, the Company entered into a separation agreement with a former executive. Under the agreement, the individual was eligible to receive up to $8.0 million in incentive awards. As of June 30, 2020, these incentive awards were forfeited.

The remaining incentive awards for the vice chairperson of the board of directors are granted subject to the respective individual's continued service to the Company. The awards are earned upon the satisfaction of certain performance- and market-based conditions, including upon the closing of one or more qualifying events at specified per-share valuations, provided the qualifying events occur prior to March 2026. The qualifying events include (i) certain financing events, including minimum public trading valuations and (ii) a change in control. The determination of whether certain qualifying events have occurred are subject to approval by the board of directors.

The above incentive awards for the vice chairperson of the board of directors will be paid, at the Company's election, in fully vested shares of common stock or in cash. The dollar value of these incentive awards is based on the achievement of the performance- and market-based conditions described above. The number of shares is variable based on the per-share valuation at the time of the respective qualifying event. Accordingly, these awards are accounted for as liability-classified awards, and, once the related performance-based conditions are deemed to be probable, the liability will be remeasured at fair value on each reporting date until the awards vest.

As of June 30, 2019 and June 30, 2020, the Company had not recognized any compensation expense associated with these awards as the achievement of the performance-based condition was not deemed to be probable.

NOTE 11. RELATED-PARTY TRANSACTIONS

Illumina Agreements

Beginning May 4, 2020, Mostafa Ronaghi has served as a member of the Company's board of directors. Mr Ronaghi was also the Chief Technology Officer of Illumina, Inc. (Illumina) through May 2020 and is currently the Senior Vice President of Entrepreneurial Development of Illumina. Illumina is a principal owner of the Company and is a major supplier of the Company's reagents and capital equipment.

In January 2019, pursuant to the Company's supply and commercialization with Illumina, which was entered into in January 2016 and subsequently amended in September 2017, the Company paid Illumina $15.0 million related to its data delivery requirements under a supply and commercialization agreement with Illumina. This amount was accrued as of December 31, 2018. In February 2019, pursuant to the terms of the Company's supply and commercialization agreement with Illumina, the Company entered into two separate non-exclusive and non-sublicensable license agreements with Illumina. Under these license agreements, the Company sublicensed to Illumina rights to patents and technology in-licensed from other collaboration partners. Under these license agreements, Illumina is required to pay the Company (i) initial aggregate licensing fees of $50,000 and (ii) annual minimum aggregate royalties of $50,000, increasing by $10,000 annually to a max of $100,000, and (iii) running royalties in the low percentages of net sales of products utilizing in-licensed technology. In addition, one of the license agreements include a milestone of $50,000 tied to the first commercial sale of a product covered by a licensed patent. During the six months ended June 30, 2019, Illumina paid the Company $0.2 million associated with licensing fees, minimum royalties, and achievement of the milestone. No amounts were paid by Illumina during the six months ended June 30, 2020.

Transactions with Illumina under a supply and commercialization agreement as well as for limited services rendered by Illumina on the Company's behalf that have been reflected in the condensed consolidated financial statements are as follows:

	As of	
	December 31, 2019	June 30, 2020
	(in thousands)	
Prepaid service arrangements	$ 567	$ 189
Property and equipment, net	1,252	326
Accounts payable	151	294

	Six Months Ended June 30,	
	2019	2020
	(in thousands)	
Research and development	$ 4,057	$ 4,063

Dr. Klausner Consulting Agreement

Effective May 2016, the Company entered into a consulting agreement with Richard Klausner, M.D. Dr. Klausner is: (i) a member of the board of directors of the Company; and (ii) has performed advisory consulting services. The compensation under the consulting agreement consists of options to purchase 876,000 shares of Class A common stock at an exercise price of $0.23 per share that were granted in 2016 and reimbursement of certain out of pocket expenses. In May 2018, in connection with Dr. Klausner's board service, the Company granted him additional options to purchase 450,000 shares of Class A common stock at an exercise price of $1.74 per share.

Agilent Arrangements

Since August 2018, Hans Bishop has served as a member of the Company's board of directors. During June 2019, Mr. Bishop was appointed as the Company's chief executive officer. Mr. Bishop is also on the board of directors of Agilent Technologies, Inc. (Agilent). Agilent is a supplier to the Company. During the six months ended June 30, 2019 and 2020, the Company placed purchase orders with Agilent pursuant to which the Company incurred $0.4 million and $0.1 million in research and development expenses, respectively. As of both December 31, 2019 and June 30, 2020, $0.1 million of property and equipment that the Company purchased from Agilent is reflected in the condensed consolidated balance sheets.

Collaboration Agreement with Janssen Biotech, Inc.

Johnson & Johnson UK Treasury Company Limited (J&J UK Treasury) and Janssen Biotech, Inc. (Janssen) are subsidiaries of Johnson & Johnson Inc. (J&J). As of December 31, 2019 and June 30, 2020, J&J UK Treasury was a minority stockholder of the Company. In December 2019, the Company entered into a testing resources and collaboration agreement with Janssen. In January 2020, the Company received $2.5 million in payment for services to be performed under this agreement. As of June 30, 2020, $2.5 million is reflected in other current liabilities—related parties in the condensed consolidated balance sheet.

NOTE 12. NET LOSS PER SHARE ATTRIBUTABLE TO COMMON STOCKHOLDERS

The following table presents the calculation of basic and diluted net loss per share attributable to Class A and Class B common stockholders:

	Six Months Ended June 30,			
	2019		2020	
	Class A	Class B	Class A	Class B
	(in thousands, except share and per share data)			
Numerator				
Net loss	$ (100,038)	$ (17,162)	$ (112,439)	$ (23,977)
Net loss attributable to Class A and Class B common stockholders				
Basic and diluted	$ (100,038)	$ (17,162)	$ (112,439)	$ (23,977)
Denominator				
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders				
Basic and diluted	103,066,177	17,681,973	109,511,713	23,352,819
Net loss per share attributable to Class A and Class B common stockholders				
Basic	$ (0.97)	$ (0.97)	$ (1.03)	$ (1.03)
Diluted	$ (0.97)	$ (0.97)	$ (1.03)	$ (1.03)

As the Company was in a net loss position for all periods presented, basic net loss per share is the same as diluted net loss per share because the inclusion of potential shares of common stock would have been anti-dilutive. The following common stock equivalents were therefore excluded from the computation of diluted net loss per share for the periods presented:

	Six Months Ended June 30,	
	2019	2020
Redeemable convertible preferred stock (on an if-converted basis)	457,401,191	534,145,027
Options to purchase common stock and restricted stock units	52,122,880	128,377,377
Shares subject to repurchase	9,446,577	605,555
Total	518,970,648	663,127,959

Pro Forma Net Loss Per Share Attributable to Common Stockholders

The following table presents the calculation of pro forma basic and diluted net loss per share attributable to common stockholders:

	Six Months Ended June 30, 2020		
	Class A	Class B	Common
	(in thousands, except share and per share data)		
Numerator			
Net loss attributable to Class A and Class B common stockholders			
Basic and diluted	$ (112,439)	$ (23,977)	$ —
Reallocation of net loss due to pro forma adjustments	112,439	23,977	(136,416)
Pro forma net loss attributable to common stockholders			
Basic and diluted	$ —	$ —	$ (136,416)
Denominator			
Weighted-average shares of Class A and Class B common stock used in computing net loss per share attributable to Class A and Class B common stockholders			
Basic and diluted	109,511,713	23,352,819	—
Pro forma adjustment to reflect assumed conversion of all outstanding shares of redeemable convertible preferred stock	—	—	509,661,192
Pro forma adjustment to reflect conversion of Class B shares to Class A shares	24,464,858	(23,352,819)	—
Pro forma adjustment to reflect reclassification of Class A shares	(133,976,571)	—	133,976,571
Pro forma adjustment to reflect reclassification of Class B shares	—	—	—
Weighted-average shares of common stock used in computing pro forma net loss per share	—	—	643,637,763
Pro forma net loss per share attributable to common stockholders			
Basic and diluted	$ —	$ —	$ (0.21)

NOTE 13. SUBSEQUENT EVENTS

The Company has reviewed and evaluated subsequent events through September 8, 2020, the date the unaudited condensed consolidated financial statements were available to be reissued.

Subsequent to June 30, 2020, the Company granted options to purchase 9,233,000 shares of Class A common stock at a weighted-average exercise price of $2.09 per share. Of the awards granted, 7,233,000 of these awards vest 25% upon the first anniversary of the grant date and 1/48th vest at the end of each month thereafter, and 2,000,000 of the awards vest based on the achievement of certain commercial performance targets.

In August 2020, the Company modified certain liability-classified awards with performance- and market-based vesting conditions that were granted to the vice chairperson of the board of directors. Under the terms of the modified award, the individual is eligible to receive up to $78 million of awards, payable in either fully vested shares of common stock or cash at the Company's election, based on the achievement of certain commercial performance targets. The modification did not result in any expense recognition.

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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, payable by us in connection with the sale of the common stock being registered.

	Amount to Be Paid
SEC registration fee	$ 12,980
FINRA filing fee	15,500
Nasdaq listing fee	*
Transfer agent's fees	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue Sky fees and expenses	*
Miscellaneous	*
Total	$ *

* To be completed by amendment.

Each of the amounts set forth above, other than the SEC registration fee and the FINRA filing fee, is an estimate.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify directors and officers as well as other employees and individuals against expenses (including attorneys' fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by such person in connection with any threatened, pending, or completed actions, suits, or proceedings in which such person is made a party by reason of such person being or having been a director, officer, employee, or agent to the registrant. The Delaware General Corporation Law provides that Section 145 is not exclusive of other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise. Article 9 of the registrant's amended and restated certificate of incorporation provides for indemnification by the registrant of its directors, officers, and employees to the fullest extent permitted by the Delaware General Corporation Law. The registrant has entered into indemnification agreements with each of its current directors, executive officers, and certain other officers to provide these directors and officers additional contractual assurances regarding the scope of the indemnification set forth in the registrant's amended and restated certificate of incorporation and amended and restated bylaws and to provide additional procedural protections. There is no pending litigation or proceeding involving a director or executive officer of the registrant for which indemnification is sought.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) for unlawful payments of dividends or unlawful stock repurchases, redemptions, or other distributions, or (iv) for any transaction from which the director derived an improper personal benefit. The registrant's amended and restated certificate of incorporation provides for such limitation of liability.

The registrant maintains standard policies of insurance under which coverage is provided (a) to its directors and officers against loss rising from claims made by reason of breach of duty or other wrongful act, and (b) to the registrant with respect to payments that may be made by the registrant to such officers and directors pursuant to the above indemnification provision or otherwise as a matter of law.

The proposed forms of underwriting agreement filed as Exhibits 1.1 and 1.2 to this registration statement provide for indemnification of directors and officers of the registrant by the underwriters against certain liabilities.

Item 15. Recent Sales of Unregistered Securities

Since September 11, 2015, the registrant has sold the following securities without registration under the Securities Act of 1933:

(a) certain shares of our capital stock to Illumina, Inc. in the following transactions: on September 11, 2015, we issued 1,000 shares of Class B common stock at par value, in connection with our formation; on January 11, 2016, we issued 10,000,000 shares of Class A common stock upon the conversion of 10,000,000 shares of Class B common stock; on June 23, 2016 we issued 97,500,000 shares of Series A-1 redeemable convertible preferred stock upon the conversion of 97,500,000 shares of Class B common stock; and on February 27, 2017 we issued 78,105,879 shares of Class A common stock upon conversion of 78,105,879 shares of Class B common stock;

(b) between January 8, 2016 and February 10, 2016, we sold 120,000,000 shares of Series A redeemable convertible preferred stock to 13 accredited investors at a price of $1.00 per share, for aggregate proceeds of approximately $120,000,000; between February 28, 2017 and December 27, 2017, we sold 271,836,114 shares of Series B redeemable convertible preferred stock to 55 accredited investors at a price of $4.0085 per share, for aggregate proceeds of approximately $1,089,655,000; and on May 16, 2018 we sold 63,144,600 shares of Series C redeemable convertible preferred stock to 10 accredited investors at a price of $4.751 per share, for aggregate proceeds of approximately $300,000,000; and between November 27, 2019 and May 15, 2020, we sold 76,743,836 shares of Series D redeemable convertible preferred stock to 14 accredited investors at a price of $5.1080 per share, for aggregate proceeds of $392,007,514;

(c) on May 30, 2017, we issued 37,420,477 shares of our Series B redeemable convertible preferred stock at a price of $4.0085 per share to six accredited investors in connection with our acquisition of Cirina Limited;

(d) between April 7, 2016 and February 28, 2017, we issued 1,625,000 shares of Class A common stock to three licensors or collaborators, each of which is an accredited investor, as partial consideration paid in exchange for services rendered pursuant to certain research and license agreements;

(e) on September 30, 2016, we granted 40,000 shares of Class A common stock to three individuals in connection with an asset purchase, representing an approximate value of $10,000;

(f) since March 29, 2016, we have granted equity awards to 686 individuals consisting of our directors, officers, employees, and consultants, which awards consisted of 30,343,670 shares of restricted units and 180,506,293 options to purchase an aggregate of 210,849,963 shares of our Class A common stock at exercise prices ranging from $0.23 to $2.09 and an aggregate of 24,989,397 shares of restricted Class B common stock at a price of $0.24 or as consideration for employment; and

(g) since March 9, 2016, we have issued an aggregate of 29,577,654 shares of our Class A common stock upon the exercise of options for aggregate proceeds of approximately $14.0 million, and an aggregate of 24,989,397 shares of Class B common stock for aggregate proceeds of approximately $4.1 million.

The offers, sales, and issuances of the securities described in Item 15(a) through 15(d) were exempt from registration under the Securities Act in reliance upon Section 4(a)(2) of the Securities Act or Regulation D promulgated thereunder as transactions by an issuer not involving any public offering. The recipients of the

securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about our company.

The offers, sales, and issuances of the securities described in Item 15(e) were exempt from registration under the Securities Act under either Regulation S promulgated under the Securities Act in that the offers, sales, and issuances were not made to persons in the United States and no directed selling efforts were made in the United States, or under Rule 701 promulgated under the Securities Act in that the transaction was pursuant to a compensatory benefit plan or contract relating to compensation. Appropriate legends were affixed to the securities issued in this transaction.

The offers, sales, and issuances of the securities described in Item 15(f) through 15(g) were exempt from registration under the Securities Act under either Rule 701, in that the transaction were under compensatory benefit plans and contracts relating to compensation, or under Section 4(a)(2) of the Securities Act in that the transactions were between an issuer and members of its senior executive management and did not involve any public offering within the meaning of Section 4(a)(2). The recipients of such securities were our employees, directors or consultants. Appropriate legends were affixed to the securities issued in these transactions.

Item 16. Exhibits and Financial Statement Schedules

See the Exhibit Index attached to this registration statement, which Exhibit Index is incorporated herein by reference.

Schedules not listed above have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings

(a) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers, and controlling persons of the registrant pursuant to the provisions referenced in Item 14 of this registration statement, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer, or controlling person of the registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered hereunder, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(b) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

EXHIBIT INDEX

Exhibit Number	Description
1.1*	Form of Underwriting Agreement
2.1	Stock Purchase Agreement by and among the Company, Cirina Limited, the Company Stockholders and Shareholder Representative Services LLC, dated as of May 30, 2017
3.1	Restated Certificate of Incorporation of the Company, as currently in effect
3.2*	Form of Amended and Restated Certificate of Incorporation of the Company, to be in effect at the closing of this offering
3.3	Amended and Restated Bylaws of the Company, as currently in effect
3.4*	Form of Amended and Restated Bylaws of the Company, to be in effect at the closing of this offering
4.1*	Form of Common Stock Certificate
5.1*	Opinion of Latham & Watkins LLP
10.1	Amended and Restated Investors' Rights Agreement among certain investors and the Company
10.2+	Offer Letter between the Company and Jennifer Cook, dated November 24, 2017
10.3+	Separation and General Release Agreement between the Company and Jennifer Cook, dated June 6, 2019
10.4+	Offer Letter between the Company and Hans E. Bishop, dated June 6, 2019
10.5+	Amended and Restated Offer Letter between the Company and Gautam K. Kollu, dated August 27, 2020
10.6+	Offer Letter between the Company and Matthew P. Young, dated October 2, 2019
10.7+	Transition Agreement between the Company and Jeffrey T. Huber, dated October 12, 2017, as amended
10.8+	Consulting Agreement between the Company and Richard Klausner, dated May 10. 2016, as amended
10.9+	2016 Equity Incentive Plan (amended May 7, 2020)
10.10+	Form of Stock Option Agreement and Stock Option Exercise Notice and Agreement under the 2016 Equity Incentive Plan (executive officers)
10.11+	Form Notice of Restricted Stock Unit Grant and Restricted Stock Unit Agreement under the 2016 Equity Incentive Plan (executive officers)
10.12+*	2020 Equity Incentive Plan
10.13+*	Form of Stock Option Agreement under the 2020 Equity Incentive Plan (executive officers)
10.14+*	2020 Employee Stock Purchase Plan
10.15+*	Form of Indemnification Agreement between the Company and each of its directors and executive officers
10.16†	Amended and Restated Supply and Commercialization Agreement by and between Illumina, Inc. and the Company, dated as of February 28, 2017, as amended September 27, 2017 and December 11, 2019
10.17†	License Agreement by and between The Chinese University of Hong Kong and Cirina Limited (No. TC1510005), dated as of April 7, 2016, as amended May 29, 2017
10.18†	License Agreement by and between The Chinese University of Hong Kong and Cirina Limited (No. TC1510006), dated as of April 7, 2016, as amended May 29, 2017
10.19†	License Agreement by and between The Chinese University of Hong Kong and Cirina Limited (No. TC1711655), dated as of May 29, 2017
10.20†	License Agreement by and between The Chinese University of Hong Kong and Cirina Limited (No. TC1711656), dated as of May 29, 2017
10.21†	License Agreement by and between The Chinese University of Hong Kong and Cirina Limited (No. TC1711657), dated as of May 29, 2017
10.22	Lease by and between MENLO PREHC I, LLC, MENLO PREPI I, LLC, TPI Investors 9, LLC and the Company, dated as of May 5, 2016

10.23	First Amendment to Lease among MENLO PREHC I, LLC, MENLO PREPI I, LLC, TPI Investors 9, LLC and the Company, dated as of June 8, 2017
10.24	Lease Agreement by and between PP Office Owner 1, L.P. and the Company, dated as of June 4, 2020
21.1	List of subsidiaries of the Company
23.1	Consent of Independent Registered Public Accounting Firm
23.2*	Consent of Latham & Watkins LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on the signature page to this registration statement)

* To be filed by amendment.

† Portions of this exhibit (indicated therein by asterisks) have been omitted for confidentiality purposes.

+ Indicates management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Menlo Park, State of California, on the 9th day of September, 2020.

GRAIL, Inc.

By: /s/ Hans E. Bishop

Name: Hans E. Bishop

Title: Chief Executive Officer

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Hans E. Bishop, Matthew P. Young, and Marissa Lee Song, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place, and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement and any and all additional registration statements pursuant to Rule 462(b) of the Securities Act of 1933, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto each said attorney-in-fact and agents full power and authority to do and perform each and every act in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or either of them or their or his or her substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Hans E. Bishop Hans E. Bishop	Chief Executive Officer and Director (principal executive officer)	September 9, 2020
/s/ Matthew P. Young Matthew P. Young	Chief Financial Officer (principal financial and accounting officer)	September 9, 2020
/s/ Hal V. Barron, M.D. Hal V. Barron, M.D.	Director	September 9, 2020
/s/ Xiangmin Cui, Ph.D. Xiangmin Cui, Ph.D.	Director	September 9, 2020
/s/ Kaye Foster Kaye Foster	Director	September 9, 2020
/s/ Catherine J. Friedman Catherine J. Friedman	Director	September 9, 2020
/s/ Maykin Ho, Ph.D. Maykin Ho, Ph.D.	Director	September 9, 2020

Signature	Title	Date
/s/ Jeffrey T. Huber Jeffrey T. Huber	Director	September 9, 2020
/s/ Richard Klausner, M.D. Richard Klausner, M.D.	Director	September 9, 2020
/s/ Robert Nelsen Robert Nelsen	Director	September 9, 2020
/s/ William Rastetter, Ph.D. William Rastetter, Ph.D.	Director	September 9, 2020
/s/ Mostafa Ronaghi, Ph.D. Mostafa Ronaghi, Ph.D.	Director	September 9, 2020

Exhibit 2.1
EXECUTION VERSION

STOCK PURCHASE AGREEMENT

by and among

GRAIL, INC.,
a Delaware corporation,

CIRINA LIMITED,
a company established under the laws of the Hong Kong Special Administrative Region,

THE COMPANY STOCKHOLDERS

and

SHAREHOLDER REPRESENTATIVE SERVICES LLC,
as the Equityholders' Representative

Dated as of May 30, 2017

Exhibits

Exhibit A	-	Initial Selling Stockholders
Exhibit B	-	Definitions
Exhibit C	-	Form of Joinder Agreement
Exhibit D-1	-	Form of FIRPTA Notice
Exhibit D-2	-	Form of FIRPTA Notification Letter
Exhibit E-1	-	Form of Founder Proxy Agreement
Exhibit E-2	-	Form of Company Preferred Stockholder Proxy Agreement
Exhibit F	-	Form of Accredited Investor Questionnaire
Exhibit G-1	-	Form of Instrument of Transfer
Exhibit G-2	-	Form of Sold Note
Exhibit H	-	Form of Confirmation of No Property

Schedules

Company Disclosure Letter		
Schedule 1.1	-	Purchased Shares
Schedule 1.4(b)(vii)	-	Required Consents

STOCK PURCHASE AGREEMENT

This **STOCK PURCHASE AGREEMENT** (this "***Agreement***") is made and entered into as of May 30, 2017 (the "***Agreement Date***"), by and among GRAIL, Inc., a Delaware corporation ("***Purchaser***"), Cirina Limited, a company established under the laws of the Hong Kong Special Administrative Region (the "***Company***"), the Company Stockholders listed on Exhibit A hereto (the "***Initial Selling Stockholders***")) and Shareholder Representative Services LLC, a Colorado limited liability company, solely in its capacity as the representative of the Company Securityholders hereunder (the "***Equityholders' Representative***"). Certain other capitalized terms used herein are defined in Exhibit B. The Company was founded by Yuk Ming Dennis Lo, Wai Kwun Rossa Chiu and Kwan Chee Chan with the long-term vision to reduce mortality in cancer through cutting-edge research and development into cancer screening, monitoring and prognostication, and thus the original intention in the establishment of Cirina Limited follows the same long-term vision.

RECITALS

A. Following the execution of this Agreement, the Company shall direct the Company Stockholders other than the Initial Selling Stockholders (each, a "***Joining Stockholder***" and, together with the Initial Selling Stockholders, the "***Selling Stockholders***"), and the Company Optionholders, whether or not they exercise their Company Options for shares of Company Ordinary Shares (each a "***Joining Optionholder***" and, together with the Selling Stockholders, the "***Selling Securityholders***"), to be bound by the terms of this Agreement by executing and delivering a Joinder Agreement in the form attached hereto as Exhibit C (a "***Joinder Agreement***").

B. Purchaser desires to, and shall, subject to the terms and conditions set forth in this Agreement, purchase from the Selling Stockholders, and the Selling Stockholders desire to, and shall, sell to Purchaser the shares of Company Capital Stock owned by such Selling Stockholders and set forth across such Selling Stockholders names on Schedule 1.1 (the "***Purchased Shares***") free from any Encumbrances and subject to the terms and conditions set forth in this Agreement (the "***Stock Purchase***").

C. The Company, the Initial Selling Stockholders and Purchaser desire to make certain representations, warranties, covenants and other agreements in connection with the Stock Purchase as set forth herein.

D. The board of directors of the Company (the "***Board***") has carefully considered the terms of this Agreement and has unanimously (1) declared this Agreement and the transactions contemplated by this Agreement and the documents referenced herein (collectively, the "***Transactions***"), including the Stock Purchase, upon the terms and subject to the conditions set forth herein, advisable, fair to and in the best interests of the Company and the Company Stockholders and (2) approved this Agreement in accordance with Applicable Law.

E. Concurrently with the execution of this Agreement, and as a condition and inducement to Purchaser's willingness to enter into this Agreement, Maneesh Jain (the "***Key Employee***") has executed Purchaser's customary form of employment offer letter together with a confidential information and invention assignment agreement (each, an "***Employment Agreement***"), each to become effective upon the Closing.

F. Concurrently with the execution of this Agreement, and as a condition and inducement to Purchaser's willingness to enter into this Agreement, the Key Employee has executed a restrictive

covenant agreement (each, a "***Restrictive Covenant Agreement***") to become effective upon the Closing.

Now, Therefore, in consideration of the representations, warranties, covenants, agreements and obligations contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

ARTICLE I
THE STOCK PURCHASE

1.1 Stock Purchase. At the Closing, upon the terms and subject to the conditions of this Agreement, the Selling Stockholders shall sell to Purchaser, and Purchaser shall purchase from the Selling Stockholders, the Purchased Shares set forth on Schedule 1.1 free from any Encumbrances, and with the benefit of all rights of whatsoever nature attaching or accruing to such Purchased Shares, including rights to any unpaid dividends and distributions, in consideration for the payment to such Selling Stockholders of the consideration payable for such Purchased Shares.

1.2 Closing. Upon the terms and subject to the conditions set forth herein, the closing of the Transactions (the "***Closing***") shall take place at the offices of Fenwick & West LLP, 555 California Street, San Francisco, California, 94104, or at such other location as Purchaser and the Company agree, at (i) 10:00 a.m. local time on a date to be agreed by Purchaser and the Company, which date shall be no later than the third Business Day following the date on which all of the conditions set forth in Article VII have been satisfied or waived (other than those conditions that, by their terms, are intended to be satisfied at the Closing, but subject to the satisfaction or waiver of such conditions) or (ii) such other time as Purchaser and the Company agree. The date on which the Closing occurs is sometimes referred to herein as the "***Closing Date***."

1.3 Taking of Necessary Action; Further Action. Purchaser, the Company and the Selling Securityholders shall sign and deliver any documents and instruments and take any further action that is necessary or desirable to effect the Closing and to carry out the purposes of this Agreement and to vest Purchaser with full right, title and interest in and to the Purchased Shares. If, at any time after the Closing, any further action is necessary or desirable to carry out the purposes of this Agreement and to vest Purchaser with full right, title and interest in, to and under, and/or possession of, the Purchased Shares, the officers and directors of the Company are fully authorized, in the name and on behalf of the Company or otherwise, to take all lawful action necessary or desirable to accomplish such purpose or acts, so long as such action is not inconsistent with this Agreement.

1.4 Closing Deliveries.

(a) Purchaser Deliveries. Purchaser shall deliver to the Company, at or prior to the Closing, a certificate, dated as of the Closing Date, executed on behalf of Purchaser by a duly authorized officer of Purchaser, to the effect that each of the conditions set forth in Section 7.2(a) has been satisfied.

(b) Company Deliveries. The Company shall deliver to Purchaser, at or prior to the Closing:

(i) a certificate, dated as of the Closing Date and executed on behalf of the Company by its Chief Executive Officer, to the effect that each of the conditions set forth in Section 7.3(a) and Section 7.3(e) has been satisfied;

(ii) a certificate, dated as of the Closing Date and executed on behalf of the

Company by its Secretary, certifying (A) the Articles of Association in effect as of the Closing and (B) the resolutions of the Board (I) declaring this Agreement and the Transactions, including the Stock Purchase, upon the terms and subject to the conditions set forth herein, advisable, fair to and in the best interests of the Company and the Company Stockholders, (II) approving this Agreement in accordance with Applicable Law, (III) terminating the 2016 Equity Incentive Plan and (IV) terminating the CL Shareholders Agreement;

(iii) written acknowledgments pursuant to which any Person that is entitled to any Transaction Expenses acknowledges (A) the total amount of Transaction Expenses that (I) has been incurred and paid to such Person prior to the Closing and (II) has been incurred and remains payable to such Person as of the Closing and (B) that, upon payment of such remaining payable amount at the Closing, it shall be paid in full and shall not be owed any other amount by any of Purchaser, the Company and/or its Affiliates.

(iv) an Employment Agreement and Restrictive Covenant Agreement, effective as of the Closing, executed by the Key Employee;

(v) Joinder Agreements executed by each Joining Stockholder and Joining Optionholder who is not a party to this Agreement as of the Agreement Date, and an updated version of Schedule 1.1 to reflect the Purchased Shares held by each Selling Stockholder;

(vi) evidence reasonably satisfactory to Purchaser of the resignation of each director and officer of the Company and/or each Subsidiary (in their capacities as such) requested by Purchaser at least two Business Days prior to the Closing Date, effective as of, and contingent upon, the Closing;

(vii) evidence reasonably satisfactory to Purchaser of the Company's receipt of all consents, waivers and approvals set forth in Schedule 1.4(b)(vii);

(viii) executed counterparts by each Founder and Company Preferred Stockholder to the Purchaser Investors' Rights Agreement, Purchaser Voting Agreement, Purchaser Right of First Refusal and Co-Sale Agreement;

(ix) the Spreadsheet completed to include all of the information specified in Section 6.7 in a form reasonably satisfactory to Purchaser and a certificate executed by the Chief Executive Officer of the Company, dated as of the Closing Date, certifying on behalf of the Company that the Spreadsheet is true, correct and complete;

(x) FIRPTA documentation, consisting of (A) a notice to the IRS, in accordance with the requirements of Temporary Treasury Regulation Section 1.1445-11T(d)(2), in substantially the form attached hereto as Exhibit D-1, dated as of the Closing Date and executed by Cirina, Inc., a Delaware corporation and Subsidiary of the Company, together with written authorization for Purchaser to deliver such notice form to the IRS on behalf of Cirina Inc. after the Closing and (B) a FIRPTA Notification Letter, in substantially the form attached hereto as Exhibit D-2, dated as of the Closing Date and executed by Cirina Inc.;

(xi) executed counterparts by each Founder to the Founder Proxy Agreement in the form attached hereto as Exhibit E-1 and by each Company Preferred Stockholder to the Company Preferred Stockholder Proxy Agreement in the form attached hereto as Exhibit E-2;

(xii) an Accredited Investor Questionnaire, in the form attached hereto as Exhibit F, executed by each of the Founders and Company Preferred Stockholders;

(xiii) executed counterparts by each Selling Securityholder, with original counterparts for each Selling Securityholder delivered to one of Purchaser's designated counsels in either Hong Kong or San Francisco, to the Instrument of Transfer in the form attached hereto as Exhibit G-1 and to the Sold Note in the form attached hereto as Exhibit G-2;

(xiv) an executed counterpart by the Company of the Confirmation of No Property in the form attached hereto as Exhibit H;

(xv) for each Selling Stockholder, a copy of each stock certificate for Company Capital Stock held by such Selling Stockholder or, in the alternative, an executed counterpart for an indemnity for lost certificate;

(xvi) a certificate, dated as of the Closing Date and executed on behalf of the Company by its Secretary, certifying a true and complete copy of the management accounts and latest audited accounts of the Company; and

(xvii) a parachute payment waiver, in a form reasonably satisfactory to Purchaser (the "***Parachute Payment Waiver***"), executed by each Person required to execute such a waiver pursuant to Section 6.13(a).

Receipt by Purchaser of any of the agreements, instruments, certificates or documents delivered pursuant to this Section 1.4(b) shall not be deemed to be an agreement by Purchaser that the information or statements contained therein are true, correct or complete, and shall not diminish Purchaser's remedies hereunder if any of the foregoing agreements, instruments, certificates or documents are not true, correct or complete.

1.5 Stock Purchase Consideration.

(a) Company Capital Stock.

(i) Company Capital Stock. Each Selling Stockholder shall be entitled to receive, in exchange for all of the shares of Company Capital Stock held by such Selling Stockholder immediately prior to the Closing, including any Unvested Company Shares, (A) an amount in cash, without interest, as set forth opposite the name of such Selling Stockholder on the Spreadsheet, subject to and in accordance with Section 1.6, including any reduction for such Selling Stockholder's Pro Rata Share of the Expense Amount withheld pursuant to Section 1.6(c), (B) a number of shares of Purchaser Series B Stock as set forth opposite the name of such Selling Stockholder on the Spreadsheet, if any, and (C) an amount of cash and/or number of shares of Purchaser's Series B Stock (as applicable) calculated pursuant to (and subject to the terms of) Section 1.5(c); provided that any shares of Purchaser Series B Stock issuable pursuant to clauses (B) and (C) shall be rounded down to the nearest whole number of shares of Purchaser Series B Stock with any resulting fractional shares to be cashed out pursuant to Section 1.5(f). The amount of cash each Selling Stockholder holding shares of Company Capital Stock is entitled to receive for such shares of Company Capital Stock shall be rounded to the nearest cent and computed after aggregating cash amounts for all shares of Company Capital Stock held by such Selling Stockholder.

(ii) Each Selling Stockholder agrees that Purchaser shall not be obliged to complete the purchase of any of the Purchased Shares unless the sale and purchase of all of the Purchased Shares is completed simultaneously.

(iii) Subject to and contingent upon the Closing, (A) each of the Selling Stockholders hereby irrevocably and unconditionally waives all pre-emption rights, rights of first refusal, right to a liquidation preference, redemption rights and rights of notice and any similar rights over and with respect to any of the Purchased Shares conferred on him, her or it by the Company's Articles of Association or in any other way in relation to the Purchased Shares under this Agreement and (B) the Company hereby irrevocably and unconditionally waives all rights of first refusal, rights of first offer and any similar rights, together with any related rights of notice, over and with respect to any of the Purchased Shares to be sold by the Selling Stockholders to Purchaser hereunder.

(b) Company Options. Each Company Option, whether vested or unvested, that is unexpired, unexercised and outstanding immediately prior to the Closing shall be terminated and cancelled at the Closing and shall not be assumed by Purchaser, and no Company Option shall be substituted with any equivalent option or right to purchase or otherwise acquire any capital stock or other securities of Purchaser. Upon cancellation thereof, each Company Optionholder shall be entitled to receive, subject to and in accordance with Section 1.6, including any reduction for such Selling Securityholder's Pro Rata Share of the Expense Amount withheld pursuant to Section 1.6(c), (a) an amount in cash, without interest, as set forth opposite the name of each Company Optionholder on the Spreadsheet and (b) pursuant to (and subject to the terms of) Section 1.5(c), an additional amount in cash and/or number of shares of Purchaser Series B Stock (as applicable) as set forth opposite the name of each Company Optionholder on the Spreadsheet (collectively, the "***Option Payments***"). All other Company Options not described in the preceding sentence shall be cancelled without consideration. The amount of cash each Company Optionholder is entitled to receive for all such Company Options held by such Company Optionholder immediately prior to such cancellation upon the Closing shall be rounded to the nearest cent and computed after aggregating cash amounts for all Company Options held by such Company Optionholder, and will be reduced by any applicable payroll, income tax or other withholding taxes. The Company shall, prior to the Closing, take or cause to be taken all actions as may be reasonably required to effect the treatment of Company Options pursuant to this Section 1.5(b). The termination and cancellation of Company Options shall be evidenced by this Agreement together with the Joinder Agreements.

(c) Contingent Consideration. The Contingent Consideration shall become payable and/or issuable to each Selling Securityholder within 10 Business Days of the Contingent Consideration Date in accordance with this Section 1.5(c) (and subject to Section 1.5(a)), subject to and in accordance with Section 1.6, including any reduction for an amount of cash up to such Selling Securityholder's Pro Rata Share of the Holdback Amount withheld pursuant to Section 1.6(b), with each Selling Securityholder receiving an amount of cash and/or stock equal to (a) the percentage set forth in the Spreadsheet opposite such Selling Securityholder's name under the heading "***Contingent Consideration Percentage***" multiplied by (b) the Contingent Consideration. The "***Contingent Consideration Date***" shall mean the earlier of (i) the date that is 30 months following the Closing Date and (ii) the date upon which $50 million in gross proceeds (net of transaction fees and expenses, including any broker fees, the "***Contingent Threshold Amount***") is received by Purchaser from investors pursuant to *bona fide* equity financings in exchange for the issuance of Purchaser Series B Stock. If the Contingent Threshold Amount (A) is met prior to the Contingent Consideration Date, then the Contingent Consideration shall be an amount payable in cash equal to $50 million, or (B) is not met prior to the Contingent Consideration Date, then the Contingent Consideration shall be (I) an amount payable in cash equal to the gross proceeds (net of transaction fees and expenses, including any broker fees) received by Purchaser from investors pursuant to *bona fide* equity financings during such 30-month period in exchange for the

issuance of Purchaser Series B Stock (the "***Actual Financing Proceeds***"), plus (II) a number of shares of Purchaser Series B Stock equal to (x) two multiplied by (y) (i) (1) the Contingent Threshold Amount minus (2) the Actual Financing Proceeds, divided by (ii) the Purchaser Series B Stock Price (such amount of cash paid and/or shares issued, the "***Contingent Consideration***"). Notwithstanding anything to the contrary in the foregoing, to the extent any such Selling Securityholder is not able to provide evidence satisfactory to Purchaser that such Selling Securityholder is an accredited investor as defined in Rule 501(a) of Regulation D under the Securities Act (or otherwise provide evidence satisfactory to Purchaser that another applicable exemption under the Securities Act is available to rely upon), then Purchaser reserves the right, in its sole discretion, to replace the share issuance to such Selling Securityholder pursuant to clause (II) of the prior sentence with a payment in cash equal to (x) the Purchaser Series B Stock Price multiplied by (y) the number of shares that otherwise would have been issuable to such Selling Securityholder pursuant to clause (II) of the prior sentence (rounded down to the nearest cent).

(d) Adjustments. In the event of any stock split, reverse stock split, stock dividend (including any dividend or distribution of securities convertible into capital stock), reorganization, reclassification, combination, recapitalization or other like change with respect to the Company Capital Stock occurring after the Agreement Date and prior to the Closing, all references herein to specified numbers of shares of any class or series affected thereby, and all calculations provided for that are based upon numbers of shares of any class or series (or trading prices therefor) affected thereby, shall be equitably adjusted to the extent necessary to provide the parties the same economic effect as contemplated by this Agreement prior to such stock split, reverse stock split, stock dividend, reorganization, reclassification, combination, recapitalization or other like change.

(e) Rights Not Transferable. The rights of the Selling Securityholders under this Agreement as of immediately prior to the Closing are personal to each such Selling Securityholder and shall not be transferable for any reason, other than by operation of law, will or the laws of descent and distribution without action taken by or on behalf of such Selling Securityholder. Any attempted transfer of such right by any holder thereof (other than as permitted by the immediately preceding sentence) shall be null and void.

(f) Fractional Shares. The number of shares of Purchaser Series B Stock for which a Selling Securityholder's shares of Company Capital Stock or Company Options are exchanged pursuant to this Article I (if any) shall be rounded down to the nearest whole number of shares of Purchaser Series B Stock. In lieu of any fractional shares of Purchaser Series B Stock to which any Selling Securityholder would otherwise be entitled (after aggregating, for each particular stock certificate representing Company Capital Stock and each Company Option, all fractional shares of Purchaser Series B Stock to be received by such holder), such Selling Securityholder shall receive from Purchaser an amount in cash (rounded to the nearest whole cent) equal to the product of (i) such fraction and (ii) the Purchaser Series B Stock Price.

(g) No Interest. Notwithstanding anything to the contrary contained herein, no interest shall accumulate on any cash payable in connection with the consummation of the Stock Purchase and the other Transactions.

1.6 Payment and Exchange Procedures.

(a) Surrender of Certificates; Surrender of Options.

(i) Each Selling Stockholder shall use commercially reasonable efforts to cause such Selling Stockholder's certificates or instruments that immediately prior to the Closing represented such Selling Stockholder's shares of Company Capital Stock (the "***Certificates***"), to be

delivered to Purchaser (or to the Exchange Agent on Purchaser's behalf) at, prior to or as soon as reasonably practicable following the Closing (to the extent such shares of Company Capital Stock are certificated).

(ii) Within one Business Day following the Closing Date, Purchaser shall cause to be deposited with U.S. Bank National Association or such other bank or trust company as Purchaser may choose in its discretion (the "***Exchange Agent***") (A) an amount in cash equal to the aggregate cash consideration payable upon the Closing and (B) an amount of shares of Purchaser Series B Stock equal to the aggregate stock consideration issuable upon the Closing, in each case to the Selling Securityholders pursuant to Sections 1.5(a)-(b) in respect of their shares of Company Capital Stock. As soon as reasonably practicable after the Contingent Consideration Date, Purchaser shall cause to be deposited with Exchange Agent an amount of cash and/or stock equal to the Contingent Consideration. As soon as reasonably practicable (A) after the date of delivery to the Exchange Agent of a Certificate (to the extent such shares of Company Capital Stock are certificated) and any documentation required by the Exchange Agent (including a letter of transmittal, an IRS Form W-4, W-8 or W-9 and any other certificates or applicable Tax reporting forms to allow Purchaser to meet its withholding and information reporting requirements under any applicable Tax Law), (I) the holder of record of such Certificate shall be entitled to receive (x) the amount of cash and (y) the number of shares of Purchaser Series B Stock that such holder has the right to receive pursuant to Section 1.5(a) in respect of such Certificate, less such Company Stockholder's Pro Rata Share of the Expense Amount and (II) such Certificate shall be cancelled, and (B) after the Contingent Consideration Date, subject to the prior delivery to the Exchange Agent of a Certificate in accordance with preceding clause (A), the holder of record of such Certificate (prior to such cancellation in preceding clause (A)(II)) shall be entitled to receive (x) the amount of cash and (y) the number of shares of Purchaser Series B Stock that such holder has the right to receive pursuant to Section 1.5(c) in respect of such Certificate, less such Company Stockholder's Pro Rata Share of the Holdback Amount.

(iii) If any Certificate shall have been lost, stolen or destroyed, upon the making of an affidavit of that fact by the Person claiming such document to be lost, stolen or destroyed, the Exchange Agent will pay and deliver, respectively, in exchange for such lost, stolen or destroyed document the applicable portion of the Total Consideration payable and issuable, respectively, pursuant to Section 1.5(a) (subject to Section 1.6(c)) and Section 1.5(c) (subject to Section 1.5(b)) in respect of their shares of Company Capital Stock.

(iv) Purchaser shall, subject to Section 1.5(b), within 30 days following the Closing Date, and in all cases in the calendar year of the Closing, cause the Option Payments to be paid or issued, respectively, to each Company Optionholder holding Company Options through Purchaser's or the Company's payroll system in accordance with standard payroll practices, and subject to any required withholding for applicable Taxes; provided that such payment to such Company Optionholder shall be made only if such Company Optionholder shall have delivered a duly executed Joinder Agreement prior to the Closing; provided, further, that any payments or issuances to be made to such Company Optionholder with respect to the Contingent Consideration shall be paid or issued, respectively, at the times prescribed in Section 1.5(c), subject to Section 1.6(b)-(c) with respect to such Company Optionholder's Pro Rata Share of each of the Holdback Amount and Expense Amount.

(b) Holdback Amount. Notwithstanding anything to the contrary in this Agreement, after the Closing and prior to the Holdback Release Date Purchaser shall withhold an amount of cash from the applicable portion of the Contingent Consideration payable to each Selling Securityholder pursuant to Section 1.5(c) up to such Selling Securityholder's Pro Rata Share of the Holdback Amount. The Holdback Fund shall constitute partial security for the benefit of Purchaser (on behalf of itself or any other Indemnified Person) with respect to any Indemnifiable Damages pursuant to the indemnification

obligations of the Selling Securityholders under Article IX, and shall be held and distributed in accordance with Section 9.1. The execution of this Agreement or a Joinder Agreement by the Selling Securityholders shall constitute, among other things, approval of the Holdback Amount, the withholding of such cash up to the Holdback Amount by Purchaser and the appointment of the Equityholders' Representative.

(c) Expense Amount. Notwithstanding anything to the contrary in this Agreement, Purchaser shall withhold from each Selling Securityholder's applicable portion of the Cash Consideration payable to such Selling Securityholder pursuant to Section 1.5(a) or 1.5(b), as applicable, such Selling Securityholder's Pro Rata Share of the Expense Amount. As soon as reasonably practicable after the Closing Date, Purchaser shall cause to be deposited with Equityholders' Representative the Expense Amount (the aggregate amount of cash so held by the Equityholders' Representative from time to time, the "***Expense Fund***"), which Expense Fund shall be held by the Equityholders' Representative and used solely for the payment of expenses incurred by it in performing its duties in accordance with Section 9.7. At the Closing, each such Selling Securityholder shall be deemed to have contributed to the Expense Fund such Selling Securityholder's Pro Rata Share of the Expense Fund. For applicable Tax purposes, each Selling Securityholder shall be treated as having received at the Closing his, her or its Pro Rata Share of the Expense Fund. The Selling Securityholders will not receive any interest or earnings on the Expense Fund and irrevocably transfer and assign to the Equityholders' Representative any ownership right that they may otherwise have had in any such interest or earnings. The Equityholders' Representative will not be liable for any loss of principal of the Expense Fund other than as a result of its gross negligence or willful misconduct. The Equityholders' Representative will hold these funds separate from its corporate funds, will not use these funds for its operating expenses or any other corporate purposes and will not voluntarily make these funds available to its creditors in the event of bankruptcy. As soon as practicable following the completion of the Equityholders' Representative's responsibilities, the Equityholders' Representative will deliver any remaining balance of the Expense Fund to the Exchange Agent for further distribution to the Selling Securityholders.

(d) Transfers of Ownership. If any cash amount or shares of Purchaser Series B Stock payable or issuable pursuant to Sections 1.5(a)-(c) is to be paid or issued to a Person other than the Person to which the Certificate or Company Option surrendered in exchange therefor is registered, it shall be a condition of the payment or issuance thereof that such Certificate shall be properly endorsed and otherwise in proper form for transfer and that the Person requesting such exchange shall have paid to Purchaser or any agent designated by Purchaser any transfer or other Taxes required by reason of the payment of cash or issuance of shares of Purchaser Series B Stock in any name other than that of the registered holder of such Certificate or Company Option, or established to the satisfaction of Purchaser or any agent designated by Purchaser that such Tax has been paid or is not payable.

(e) No Liability. Notwithstanding anything to the contrary in this Section 1.6, no party hereto shall be liable to any Person for any amount properly paid to a public official pursuant to any applicable abandoned property, escheat or similar Applicable Law.

(f) Unclaimed Consideration. Each holder of a Certificate or Company Option who has not theretofore complied with the exchange procedures set forth in and contemplated by this Section 1.6 shall look only to Purchaser (subject to abandoned property, escheat and similar Applicable Law) for such holder's claim, only as a general unsecured creditor of Purchaser, to any portion of the Total Consideration payable or issuable pursuant to Sections 1.5(a)-(c) in respect of such Certificate or Company Option.

1.7 No Further Ownership Rights in the Purchased Shares or Company Options. The applicable portion of the Total Consideration paid or payable or issued or issuable following the surrender

for exchange of the Certificates or Company Options in accordance with this Agreement shall be paid or payable or issued or issuable in full satisfaction of all rights pertaining to the Purchased Shares represented by such Certificates or shares issuable pursuant to such Company Options. If, after the Closing Date, any Certificate or document or instrument representing a Company Option is presented to the Company or Purchaser for any reason, such Certificate, document or instrument (and the underlying shares of Company Capital Stock and Company Options) shall be cancelled and exchanged as provided in this Article I.

1.8 Tax Consequences. It is intended by the parties hereto that the Stock Purchase shall constitute a taxable transaction for U.S. federal income Tax purposes. However, Purchaser makes no representations or warranties to the Company or to any Selling Securityholder regarding the Tax treatment of the Stock Purchase, or any of the Tax consequences to the Company or any Selling Securityholder of this Agreement, the Stock Purchase or the other Transactions or the other agreements contemplated by this Agreement. The Company acknowledges that the Company and the Selling Securityholders are relying solely on their own Tax advisors in connection with this Agreement, the Stock Purchase and the other Transactions and the other agreements contemplated by this Agreement.

1.9 Certain Taxes. Responsibility for all transfer, documentary, sales, use, stamp, registration and other Taxes and fees (including any penalties and interest) incurred in connection with this Agreement ("***Transfer Taxes***") shall be borne 50% by the applicable Selling Securityholder (the "***Seller Stamp Tax Amount***") and 50% by Purchaser (the "***Purchaser Stamp Tax Amount***") when due, provided that Purchaser shall remit to the applicable Tax authorities the Purchaser Stamp Tax Amount and, on behalf of the Selling Securityholders, the Seller Stamp Tax Amount. Each Selling Securityholder shall, at its own expense, file all necessary Tax Returns and other documentation with respect to all such transfer, documentary, sales, use, stamp, registration and other Taxes and fees.

1.10 Withholding Rights. Each of Purchaser, the Company and the Exchange Agent shall be entitled to deduct and withhold from any payments of cash or issuances of Purchaser Series B Stock pursuant to this Agreement to any Key Employee any Continuing Employee or any holder of any shares of Company Capital Stock, Company Options or Certificates, such amounts in cash as Purchaser, the Company or the Exchange Agent is required to deduct and withhold with respect to any such payments under the Code or any provision of U.S. state, local, provincial or non-U.S. Tax law (including the Tax laws of Hong Kong). To the extent that amounts are so withheld, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to such Persons in respect of which such deduction and withholding was made.

ARTICLE II
REPRESENTATIONS AND WARRANTIES OF THE COMPANY

Subject to the disclosures set forth in the disclosure letter of the Company delivered to Purchaser concurrently with the execution of this Agreement (the "***Company Disclosure Letter***") (each of which disclosures, in order to be effective, shall clearly indicate the Section and, if applicable, the Subsection of this Article II to which it relates (unless and only to the extent the relevance to other representations and warranties is readily apparent from the actual text of the disclosures without any reference to extrinsic documentation or any independent knowledge on the part of the reader regarding the matter disclosed; provided that no such disclosure shall be deemed to be disclosed on Schedule 2.5(b) of the Company Disclosure Letter unless expressly stated in Schedule 2.5(b) of the Company Disclosure Letter), and each of which disclosures shall also be deemed to be representations and warranties made by the Company to Purchaser under this Article II), the Company represents and warrants to Purchaser as follows:

2.1 Organization, Standing, Power and Subsidiaries.

(a) The Company is a corporation duly organized and validly existing under the laws of its jurisdiction of organization. Each Subsidiary is in good standing under the laws of its jurisdiction of organization. Each Group Company has the corporate power to own, operate, use, distribute and lease its properties and to conduct the Business and is duly licensed or qualified to do business and is in good standing in each jurisdiction where the failure to be so qualified or in good standing (to the extent the applicable jurisdiction recognizes such concept), individually or in the aggregate with any such other failures, would reasonably be expected to be material to the Group Companies, as a whole.

(b) Schedule 2.1(b) of the Company Disclosure Letter lists each Subsidiary, their respective jurisdictions of organization and the holders of the equity interests thereof. Except as set forth on Schedule 2.1(b) of the Company Disclosure Letter, the Company has and, since its inception has had, no other Subsidiaries or any Equity Interest, whether direct or indirect, in, or any loans to, any corporation, partnership, limited liability company, joint venture or other business entity. The Company is the sole owner, directly or indirectly, of all of the issued and outstanding Equity Interests of the Subsidiaries.

(c) Schedule 2.1(c) of the Company Disclosure Letter sets forth a true, correct and complete list of: (i) the names of the members of the Board (or similar body) and the directors of each Subsidiary, (ii) the names of the members of each committee of the Board (or similar body) and (iii) the names and titles of the officers of each Group Company and any other Person having the authority to enter into Contracts on behalf of any Group Company.

(d) Schedule 2.1(d) of the Company Disclosure Letter sets forth (i) a list of all jurisdictions throughout the world in which any Group Company is authorized or qualified to do business as a foreign corporation, (ii) a true, correct and complete listing of the locations of all sales office, manufacturing facilities, and any other office or facilities of each Group Company and (iii) a true and complete list of all jurisdictions in which any Group Company maintains any employees or contractors.

2.2 Capital Structure.

(a) A total of 16,438,000 shares of Company Ordinary Shares and 12,000,000 shares of Company Series A Stock are issued and outstanding as of the Agreement Date, and there are no other authorized or issued and outstanding shares of Company Capital Stock and no commitments or Contracts to issue any shares of Company Capital Stock other than pursuant to the exercise of Company Options under the Company Option Plans that are outstanding as of the Agreement Date. The Company holds no treasury shares. Schedule 2.2(a) of the Company Disclosure Letter sets forth, as of the Agreement Date, (i) a true, correct and complete list of the Company Stockholders and the number and type of such shares so owned by such Company Stockholder, and any beneficial holders thereof, if applicable, (ii) the number of shares of Company Ordinary Shares that would be owned by such Company Stockholder assuming conversion of all shares of Company Preferred Stock so owned by such Person after giving effect to all anti-dilution and similar adjustments and (iii) the number of such shares of Company Ordinary Shares that are Unvested Company Shares, including as applicable the number and type of such Unvested Company Shares, the per share purchase price paid for such Unvested Company Shares, the vesting schedule in effect for such Unvested Company Shares (and the terms of any acceleration thereof), the per share repurchase price payable for such Unvested Company Shares and the length of the repurchase period following the termination of service of the holder of such Unvested Company Shares. All issued and outstanding shares of Company Capital Stock are duly authorized, validly issued, fully paid and non-assessable and are free of any Encumbrances, outstanding subscriptions, preemptive rights or “put” or “call” rights created by statute, the Articles of Association or any Contract to which the Company is a

party or by which the Company or any of its assets is bound. The Company has never declared or paid any dividends on any shares of Company Capital Stock. There is no Liability for dividends accrued and unpaid by the Company. The Company is not under any obligation to register under the Securities Act or any other Applicable Law any shares of Company Capital Stock, any Equity Interests or any other securities of the Company, whether currently outstanding or that may subsequently be issued. Each share of Company Preferred Stock is convertible into shares of Company Ordinary Shares on a one-for-one basis. All issued and outstanding shares of Company Capital Stock and all Company Options were issued in compliance with Applicable Law and all requirements set forth in the Certificate of Incorporation, the Bylaws and any applicable Contracts to which the Company is a party or by which the Company or any of its assets is bound.

(b) As of the Agreement Date, the Company has reserved 4,500,000 shares of Company Ordinary Shares for issuance to employees, non-employee directors and consultants pursuant to the Company Option Plans, of which 3,514,000 shares are subject to outstanding and unexercised Company Options, and 986,000 shares remain available for issuance thereunder. Schedule 2.2(b) of the Company Disclosure Letter sets forth, as of the Agreement Date, a true, correct and complete list of all Company Optionholders, and each Company Option, whether or not granted under the Company Option Plan, including the number of shares of Company Capital Stock subject to each Company Option, the number of such shares that are vested or unvested, the "date of grant" of such Company Option (as defined under Treasury Regulation 1.409A-1(b)(5)(vi)(B)), the vesting commencement date, the vesting schedule (and the terms of any acceleration thereof), the exercise price per share, the Tax status of such Company Option under Section 422 of the Code (or any applicable non-U.S. Tax law), the term of each Company Option, the plan from which such Company Option was granted (if any) and the country and state of residence of such Company Optionholder. All Company Options listed on Schedule 2.2(b) of the Company Disclosure Letter that are denoted as incentive stock options under Section 422 of the Code so qualify. In addition, Schedule 2.2(b) of the Company Disclosure Letter indicates, as of the Agreement Date, which Company Optionholders are Persons that are not employees of the Company (including non- employee directors, consultants, advisory board members, vendors, service providers or other similar Persons), including a description of the relationship between each such Person and the Company. True, correct and complete copies of each Company Option Plan, all agreements and instruments relating to or issued under each Company Option Plan (including executed copies of all Contracts relating to each Company Option and the shares of Company Capital Stock purchased under such Company Option) have been provided to Purchaser, and such Company Option Plans and Contracts have not been amended, modified or supplemented since being provided to Purchaser, and there are no agreements, understandings or commitments to amend, modify or supplement such Company Option Plans or Contracts in any case from those provided to Purchaser. The terms of the Company Option Plans permit the treatment of Company Options as provided herein, without notice to, or the consent or approval of, the Company Optionholders, the Company Stockholders or otherwise and without any acceleration of the exercise schedule or vesting provisions, and without any adjustment to the number of shares or exercise prices, in effect for such Company Options.

(c) As of the Agreement Date, there are no authorized, issued or outstanding Equity Interests of the Company other than shares of Company Capital Stock and Company Options. Other than as set forth on Schedule 2.2(a), Schedule 2.2(b) and Schedule 2.2(c) of the Company Disclosure Letter, as of the Agreement Date, no Person has any Equity Interests of the Company, stock appreciation rights, stock units, share schemes, calls or rights, or is party to any Contract of any character to which the Company or a Company Securityholder is a party or by which it or its assets is bound, (i) obligating the Company or such Company Securityholder to issue, deliver, sell, repurchase or redeem, or cause to be issued, delivered, sold, repurchased or redeemed, any Equity Interests of the Company or other rights to purchase or otherwise acquire any Equity Interests of the Company, whether vested or unvested or (ii) obligating the Company to grant, extend, accelerate the vesting and/or repurchase rights of, change the

price of, or otherwise amend or enter into any such Company Option, call, right or Contract.

(d) No Company Debt (i) granting its holder the right to vote on any matters on which any Company Securityholder may vote (or that is convertible into, or exchangeable for, securities having such right) or (ii) the value of which is in any way based upon or derived from capital or voting stock of the Company, is issued or outstanding as of the Agreement Date (collectively, "***Company Voting Debt***").

(e) There are no Contracts relating to voting, purchase, sale or transfer of any shares of Company Capital Stock (i) between or among the Company and any Company Securityholder and (ii) to the knowledge of the Company, between or among any of the Company Securityholders. Neither the Company Option Plans nor any Contract of any character to which the Company is a party to or by which the Company or any of its assets is bound relating to any Company Options or Unvested Company Shares requires or otherwise provides for any accelerated vesting of any Company Options or Unvested Company Shares or the acceleration of any other benefits thereunder, in each case in connection with the Transactions or upon termination of employment or service with the Company or Purchaser, or any other event, whether before, upon or following the Closing or otherwise.

(f) As of the Closing, (i) the number of shares of Company Capital Stock set forth in the Spreadsheet as being owned by a Person, or subject to Company Options owned by such Person, will constitute the entire interest of such Person in the issued and outstanding shares of Company Capital Stock or any other Equity Interests of the Company, (ii) no Person not disclosed in the Spreadsheet will have a right to acquire from the Company any shares of Company Capital Stock, Company Options, or any other Equity Interests of the Company and (iii) the shares of Company Capital Stock, Company Options disclosed in the Spreadsheet will be free and clear of any Encumbrances.

(g) Schedule 2.2(h) of the Company Disclosure Letter identifies each employee of the Company or other Person with an offer letter or other Contract or Company Employee Plan that contemplates a grant of, or right to purchase or receive: (i) options to purchase shares of Company Ordinary Shares or other equity awards with respect to Company Capital Stock or (ii) other securities of the Company, that in each case, have not been issued or granted as of the Agreement Date, together with the number of such options, other equity awards or other securities and any promised terms thereof.

2.3 Authority; Non-contravention.

(a) The Company has all requisite corporate power and authority to enter into this Agreement and the other Company Transaction Documents and to consummate the Transactions. The execution and delivery of this Agreement and the other Company Transaction Documents and the consummation of the Transactions have been duly authorized by all necessary corporate action on the part of the Company. Each Transaction Document has been duly executed and delivered by the Company and, assuming the due execution and delivery of such Transaction Document by the other parties hereto, constitutes the valid and binding obligation of the Company enforceable against the Company in accordance with its terms subject only to the effect, if any, of (i) applicable bankruptcy and other similar Applicable Laws affecting the rights of creditors generally and (ii) rules of law governing specific performance, injunctive relief and other equitable remedies. The Board, by resolutions duly adopted (and not thereafter modified or rescinded) by the unanimous vote of the Board, has (A) declared that this Agreement and the Transactions, including the Stock Purchase, upon the terms and subject to the conditions set forth herein, advisable, fair to and in the best interests of the Company and the Company Stockholders and (B) approved this Agreement in accordance with Applicable Law. No vote of the holders of Company Capital Stock is necessary to adopt this Agreement and approve the Stock Purchase under the DGCL or the Articles of Association, each as in effect as of the Agreement Date.

(b) The execution and delivery of this Agreement and the other Company Transaction Documents by the Company does not, and the consummation of the Transactions will not, (i) result in the creation of any Encumbrance on any of the material assets of any Group Company or any of the shares of Company Capital Stock or (ii) conflict with, or result in any violation of or default under (with or without notice or lapse of time, or both), or give rise to a right of termination, cancellation or acceleration of any obligation or loss of any benefit under, or require any consent, approval or waiver from any Person pursuant to, (A) any provision of the Articles of Association, the Bylaws or other equivalent organizational or governing documents of any Group Company, in each case as amended to date, (B) any Material Contract or (C) any Applicable Law.

(c) No consent, approval, Order or authorization of, or registration, declaration or filing with, or notice to, any Governmental Entity or any other Person is required by or with respect to any Group Company in connection with the execution and delivery of this Agreement or any other Company Transaction Document or the consummation of the Transactions, except for such other consents, approvals, Orders, authorizations, registrations, declarations, filings and notices that, if not obtained or made, would not adversely affect, and would not reasonably be expected to adversely affect, the Company's ability to perform or comply with the covenants, agreements or obligations of the Company herein or in any other Company Transaction Document or to consummate the Transactions in accordance with this Agreement or any other Company Transaction Document and Applicable Law.

(d) The Company, the Board and the Company Stockholders have taken all actions such that the restrictive provisions of any "fair price," "moratorium," "control share acquisition," "business combination," "interested shareholder" or other similar anti-takeover statute or regulation, and any anti-takeover provision in the organizational or governing documents of the Company will not be applicable to any of Purchaser or the Company, or to the execution, delivery, or performance of this Agreement or to the Transactions.

2.4 Financial Statements; No Undisclosed Liabilities.

(a) The Company has delivered to Purchaser its audited, consolidated financial statements for fiscal year 2015, its unaudited, consolidated financial statements for fiscal year 2016 and its unaudited, consolidated financial statements for the three-month period ended March 31, 2017 (including, in each case, balance sheets, statements of operations and statements of cash flows) (collectively, the "***Financial Statements***"), which are included as Schedule 2.4(a) of the Company Disclosure Letter. The Financial Statements (i) are derived from and in accordance with the books and records of the Group Companies, (ii) fairly present in all material respects the consolidated financial condition of the Group Companies at the dates therein indicated and the consolidated results of operations and cash flows of the Company for the periods therein specified (subject, in the case of unaudited interim period financial statements, to normal recurring year-end audit adjustments, none of which individually or in the aggregate will be material in amount) and (iii) were prepared in accordance with GAAP, except for the absence of footnotes in the unaudited Financial Statements, applied on a consistent basis throughout the periods involved.

(b) The Company has no Liabilities of any nature required to have been included in the Financial Statements in accordance with GAAP other than (i) those set forth or adequately provided for in the balance sheet included in the Financial Statements as of March 31, 2017 (the "***Company Balance Sheet***"), (ii) those incurred in the conduct of the Company's business since March 31, 2017 (the "***Company Balance Sheet Date***") in the ordinary course consistent with past practice that are of the type that ordinarily recur and, individually or in the aggregate, are not material in nature or amount and do not result from any breach of Contract, warranty, infringement, tort or violation of Applicable Law and (iii) those incurred by the Company in connection with the execution of this Agreement. Except for

Liabilities reflected in the Financial Statements, the Company has no off-balance sheet Liability of any nature to, or any financial interest in, any third parties or entities, the purpose or effect of which is to defer, postpone, reduce or otherwise avoid or adjust the recording of expenses incurred by the Company. All reserves that are set forth in or reflected in the Company Balance Sheet have been established in accordance with GAAP consistently applied and are adequate. Without limiting the generality of the foregoing, the Company has never guaranteed any debt or other obligation of any other Person.

(c) The Company has no indebtedness for money borrowed ("***Company Debt***").

(d) Schedule 2.4(d) of the Company Disclosure Letter sets forth the names and locations of all banks and other financial institutions at which the Company maintains accounts and the names of all Persons authorized to make withdrawals therefrom.

(e) The Company has in place systems and processes that are reasonable and appropriate for companies at the same stage of development as the Company designed to (i) provide reasonable assurances regarding the accuracy of the Financial Statements and (ii) in a timely manner accumulate and communicate to the Company's principal executive officers the type of information that would be required to be disclosed in the Financial Statements.

2.5 Absence of Changes. Since the Company Balance Sheet Date, (a) each Group Company has conducted the Business only in the ordinary course of business consistent with past practice and (b) there has not occurred a Material Adverse Effect with respect to the Group Companies.

2.6 Litigation. There is no Legal Proceeding to which any Group Company is a party pending before any Governmental Entity, or, to the knowledge of the Company, threatened against any Group Company or any of their respective assets or any of its directors, officers or employees (in their capacities as such or relating to their employment, services or relationship with any Group Company). There is no Order against the Company, any of its assets, or, to the knowledge of the Company, any of its directors, officers or employees (in their capacities as such or relating to their employment, services or relationship with the Company). No Group Company has any Legal Proceeding pending against any other Person.

2.7 Restrictions on Business Activities. Other than the Material Contracts, there is no Contract or Order binding upon any Group Company that restricts or prohibits, purports to restrict or prohibit, has or would reasonably be expected to have, whether before or after consummation of the Stock Purchase, the effect of prohibiting, restricting or impairing any current business practice of any Group Company, any acquisition of property by any Group Company or the conduct or operation of the Business or, excluding restrictions on the use of Third-Party Intellectual Property contained in the applicable written license agreement therefor, limiting the freedom of the Company to (i) engage or participate, or compete with any other Person, in any line of business, market or geographic area with respect to the Company Products or the Company Intellectual Property, or to make use of any Company Intellectual Property, including any grants by any Group Company of exclusive rights or licenses or (ii) sell, distribute or manufacture any products or services or to purchase or otherwise obtain any software, components, parts or services.

2.8 Compliance with Laws; Governmental Permits.

(a) Each Group Company has complied in all material respects with, is not in violation in any material respect of, and has not received any notices of violation with respect to, Applicable Law.

(b) Each Group Company has obtained each material federal, state, county, local or

non-U.S. governmental consent, license, permit, grant or other authorization of a Governmental Entity (i) pursuant to which any Group Company currently operates or holds any interest in any of its assets or properties or (ii) that is required for the conduct of the Business or the holding of any such interest (all of the foregoing consents, licenses, permits, grants and other authorizations, collectively, the "***Company Authorizations***"), and all of the Company Authorizations are in full force and effect. The Company has not received any notice or other communication from any Governmental Entity regarding (i) any actual or possible violation of any Company Authorization or (ii) any actual or possible revocation, withdrawal, suspension, cancellation, termination or modification of any Company Authorization, and to the knowledge of the Company, no such notice or other communication is forthcoming. Each Group Company has materially complied with all of the terms of the Company Authorizations and none of the Company Authorizations will be terminated or impaired, or will become terminable, in whole or in part, as a result of the consummation of the Transactions.

2.9 Title to, Condition and Sufficiency of Tangible Assets; Real Property.

(a) Each Group Company has good and marketable title to, or valid leasehold interest in all of its tangible properties, and interests in tangible properties and tangible assets, real and personal, reflected on the Company Balance Sheet or acquired after the Company Balance Sheet Date (except properties and assets, or interests in properties and assets, sold or otherwise disposed of since the Company Balance Sheet Date in the ordinary course of business consistent with past practice), or, with respect to leased properties and assets, valid leasehold interests in such tangible properties and tangible assets that afford such Group Company valid leasehold possession of the properties and assets that are the subject of such leases, in each case, free and clear of all Encumbrances, except Permitted Encumbrances.

(b) The tangible assets and properties owned, leased or licensed by the Group Companies (i) constitute all of the tangible assets and tangible properties that are necessary for the Group Companies to conduct, operate and continue the current conduct of the Business and to sell and otherwise enjoy full rights to exploitation of its assets, properties and all products and services that are provided in connection with its tangible assets and tangible properties and (ii) constitute all of the tangible assets and tangible properties that are used in the current conduct of the Business, without (A) the need for Purchaser to acquire or license any other tangible asset or tangible property or (B) the breach or violation of any Contract.

(c) Schedule 2.9(a) of the Company Disclosure Letter identifies each parcel of real property leased by any Group Company. The Company has provided to Purchaser true, correct and complete copies of all leases, subleases and other agreements under which any Group Company uses or occupies or has the right to use or occupy, now or in the future, any real property or facility, including all modifications, amendments and supplements thereto. The Company does not currently own any real property.

2.10 Intellectual Property.

(a) As used herein, the following terms have the meanings indicated below:

(i) "***Company Data***" means all data collected, generated, or received in connection with the marketing, delivery, or use of any Company Product, including Personal Data.

(ii) "***Company Data Agreement***" means any Contract involving Company Data to which the Company is a party or is bound.

(iii) "***Company Intellectual Property***" means any and all Company Owned

Intellectual Property and any and all Third-Party Intellectual Property that is licensed to or used by any Group Company.

(iv) "***Company Intellectual Property Agreements***" means any Contract governing any Company Intellectual Property that is material to the Business as currently conducted, except for Contracts for Third-Party Intellectual Property that is licensed for an annual fee under $25,000 and is for (A) generally, commercially available software that has not been materially modified or customized for the Company, or (B) not material to the Company. The Company Intellectual Property Agreements shall include, without limitation, (A) the license agreement between the Company and the Chinese University of Hong Kong ("***CUHK***") dated 7 April 2016 bearing reference number TC1510006, and (B) the license agreement between the Company and CUHK dated 7 April 2016 bearing reference number TC1510005 (collectively, the license agreements in clause (A) and (B), the "***CUHK Licenses***").

(v) "***Company Owned Intellectual Property***" means any and all Intellectual Property that is owned by any Group Company.

(vi) "***Company Privacy Policies***" means, collectively, any and all (A) of the Group Companies' data privacy and security policies, whether applicable internally, or published on Company Websites or otherwise made available by any Group Company to any Person, (B) public representations (including representations on Company Websites), industry self-regulatory obligations and commitments and Contracts with third parties relating to the Processing of Company Data and (C) policies and obligations applicable to the Company relating to transfers of Company Data, including as a result of the Company's certification under the EU-U.S. Privacy Shield Framework and the U.S.-Swiss Safe Harbor Framework.

(vii) "***Company Products***" means all products or services produced, marketed, licensed, sold, distributed or performed by or on behalf of any Group Company and all products or services currently under research, development or testing by the Company.

(viii) "***Company Registered Intellectual Property***" means the United States, international and non-U.S.: (A) patents and patent applications (including provisional applications), (B) registered trademarks, applications to register trademarks, intent-to-use applications, or other registrations or applications related to trademarks, (C) registered Internet domain names and (D) registered design rights, copyrights and applications for copyright registration, in each case registered or filed in the name of, or owned by, the Company.

(ix) "***Company Websites***" means all websites owned, operated or hosted by any Group Company or through which any Group Company conducts the Business (including those websites operated using the domain names listed in Schedule 2.10(c) of the Company Disclosure Letter).

(x) "***Intellectual Property***" means (A) Intellectual Property Rights; and (B) Proprietary Information and Technology.

(xi) "***Intellectual Property Rights***" means any and all of the following and all rights in, arising out of, or associated therewith, throughout the world: patents, utility models, and applications therefor and all reissues, divisions, re-examinations, renewals, extensions, provisionals, continuations and continuations-in-part thereof and equivalent or similar rights in inventions and discoveries anywhere in the world, including invention disclosures, common law and statutory rights associated with trade secrets, confidential and proprietary information and know-how, industrial designs and design rights and any registrations and applications therefor, trade names, logos, trade dress, trademarks and service marks, trademark and service mark registrations, trademark and service mark

applications and any and all goodwill associated with and symbolized by the foregoing items, Internet domain name applications and registrations, Internet and World Wide Web URLs or addresses, copyrights, copyright registrations and applications therefor and all other rights corresponding thereto, database rights, mask works, mask work registrations and applications therefor and any equivalent or similar rights in semiconductor masks, layouts, architectures or topology, moral and economic rights of authors and inventors, however denominated and any similar or equivalent rights to any of the foregoing, and all tangible embodiments of the foregoing.

(xii) "***Personal Data***" means a natural Person's (including a customer's or an employee's) name, street address, telephone number, e-mail address, photograph, social security number, driver's license number, passport number or customer or account number, or is otherwise considered personally identifiable information or personal data under Applicable Law.

(xiii) "***Privacy Laws***" means (A) each Applicable Law applicable to the protection or Processing or both of Personal Data, and includes the rules relating to the U.S.-EU/Switzerland Safe Harbor, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Health Information Technology for Economic Clinical Health Act (HITECH), (B) guidance issued by a Governmental Entity that pertains to one of the laws, rules or standards outlined in clause (A) and (C) industry self-regulatory principles applicable to the protection or Processing of Personal Data, direct marketing, e-mails, text messages or telemarketing.

(xiv) "***Process***" or "***Processing***" means, with respect to data, the use, collection, processing, storage, recording, organization, adaption, alteration, transfer, retrieval, consultation, disclosure, dissemination or combination of such data.

(xv) "***Proprietary Information and Technology***" means any and all of the following: works of authorship, computer programs, source code and executable code, whether embodied in software, firmware or otherwise, assemblers, applets, compilers, user interfaces, application programming interfaces, protocols, architectures, documentation, annotations, comments, designs, files, records, schematics, test methodologies, test vectors, emulation and simulation tools and reports, hardware development tools, models, tooling, prototypes, breadboards and other devices, data, data structures, databases, data compilations and collections, inventions (whether or not patentable), information regarding physical or chemical or biological materials (such as, but not limited to, reagents, gene sequences, cell lines, media, antibodies, compounds, proteins and vectors) and techniques for their handling and use, invention disclosures, discoveries, improvements, technology, proprietary and confidential ideas and information, know-how and information maintained as trade secrets, tools, assays, concepts, techniques, methods, processes, formulae, patterns, algorithms and specifications, customer lists and supplier lists and any and all embodiments of the foregoing.

(xvi) "***Third-Party Intellectual Property***" means any and all Intellectual Property owned by a third party.

(b) Status. To the knowledge of the Company, the Group Companies have full title and ownership of, or are duly licensed under or otherwise authorized to use, all Intellectual Property necessary to enable them to carry on the Business as currently conducted, free and clear of any Encumbrances and, to the knowledge of the Company, without infringement or misappropriation of the Intellectual Property of any third party. To the knowledge of the Company, the Company Intellectual Property collectively constitute all Intellectual Property necessary for Purchaser's conduct of, or that are used in the Business as currently conducted without: (i) the need for Purchaser to acquire or license any other Intellectual Property Right and (ii) the breach or violation of any Contract to which the Company is a party. No Group Company has transferred ownership of, or granted any exclusive rights in, any Company

Intellectual Property to any third party. To the Knowledge of the Company, no third party has any ownership right, title, interest, claim in or lien on any of the Company-Owned Intellectual Property.

(c) Company Registered Intellectual Property. Schedule 2.10(c) of the Company Disclosure Letter lists all Company Registered Intellectual Property and Company Intellectual Property that is licensed to the Company, and the jurisdictions in which it has been issued or registered or in which any application for such issuance and registration has been filed or the jurisdictions in which any other filing or recordation has been made. To the knowledge of the Company, each item of Company Registered Intellectual Property is valid (or in the case of applications, applied for), all registration, maintenance and renewal fees currently due in connection with such Company Registered Intellectual Property have been paid and all documents, recordations and certificates in connection with such Company Registered Intellectual Property currently required to be filed have been filed with the relevant patent, copyright, trademark or other authorities in the United States or non-U.S. jurisdictions, as the case may be, for the purposes of prosecuting, maintaining and perfecting such Company Registered Intellectual Property and recording the Company's ownership interests therein. The Company has provided to Purchaser tangible copies of all of the Company's pending patent applications.

(d) No Assistance. At no time during the conception of or reduction to practice of any of the Company Owned Intellectual Property was any Group Company or to the knowledge of the Company, any developer or inventor of such Company Owned Intellectual Property operating under any grants from any Governmental Entity or agency or private source, performing research sponsored by any Governmental Entity or agency or private source or subject to any employment agreement or invention assignment or nondisclosure agreement or other obligation with any third party, in each case in relation to the development or invention of such Company Owned Intellectual Property that could adversely affect any Group Company's rights in such Company Owned Intellectual Property. Except as listed in Schedule 2.10(d) of the Company Disclosure Letter, to the knowledge of the Company, at no time during the conception of or reduction to practice of any of the Company Intellectual Property that is licensed to the Company from the CUHK was any developer, inventor or other contributor to such Company Intellectual Property operating under any grants from any Governmental Entity (other than CUHK) or agency or private source, performing research sponsored by any Governmental Entity (other than CUHK) or agency or private source or subject to any employment agreement or invention assignment or nondisclosure agreement or other obligation with any third party (other than CUHK) and none of the Company Intellectual Property that is licensed to the Company from CUHK is subject to any obligations or restrictions of any Governmental Entity.

(e) Company Products. Schedule 2.10(e) of the Company Disclosure Letter lists all Company Products that have been made available for use or purchase by the Group Companies, including any product or service currently under development and scheduled for commercial release within 90 days of the date of this Agreement, for each such Company Product (and each version thereof) identifying its release date. The Company is not in material breach of the terms and conditions of any Company Intellectual Property Agreements.

(f) [reserved]

(g) Invention Assignment Agreement. Each Group Company has secured from all (i) consultants, advisors, employees and independent contractors who independently or jointly contributed to or participated in the conception, reduction to practice, creation or development for any Group Company of any Intellectual Property that is material to the Business as currently conducted, and (ii) named inventors of patents and patent applications owned by any Group Company (any Person described in clause (i) or (ii), an "***Author***"), unencumbered and unrestricted exclusive ownership of, all of the Authors' right, title and interest in and to such Intellectual Property, and to the knowledge of the Company

and to the extent permissible under applicable laws, each Group Company has obtained the waiver of all non-assignable rights. Without limiting the foregoing, each Group Company has obtained written proprietary information and invention disclosure and Intellectual Property assignments from all current and former Authors and, in the case of patents and patent applications, where required under applicable laws, to the knowledge of the Company such assignments have been recorded with the relevant authorities in the applicable jurisdiction or jurisdictions. The Company has provided to Purchaser copies of all forms of such disclosure and assignment documents currently and historically used by the Company and, in the case of patents and patent applications the Company has provided to Purchaser copies of all such assignments.

(h) No Violation. To the knowledge of the Company, no current or former employee, consultant, advisor or independent contractor of any Group Company: (i) is in violation of any term or covenant of any Contract relating to employment, invention disclosure, invention assignment, non- disclosure or non-competition or any other Contract with any other party by virtue of such employee's, consultant's, advisor's or independent contractor's being employed by, or performing services for, any Group Company or using trade secrets or proprietary information of others without permission or (ii) has developed any technology, software or other copyrightable, patentable or otherwise proprietary work for any Group Company that is subject to any agreement under which such employee, consultant, advisor or independent contractor has assigned or otherwise granted to any third party any rights (including Intellectual Property Rights) in or to such technology, software or other copyrightable, patentable or otherwise proprietary work.

(i) Confidential Information. Each Group Company has taken commercially reasonable steps to protect and preserve the confidentiality of all confidential or non-public information of the Group Companies (including trade secrets) or provided by any third party to any Group Company ("***Confidential Information***"). All current and former employees and contractors of each Group Company and any third party having access to Confidential Information have executed and delivered to a Group Company a written agreement regarding the protection of such Confidential Information. Each Group Company has implemented and maintains reasonable security, disaster recovery and business continuity plans consistent with industry practices of companies offering similar services, and acts in compliance therewith. To the knowledge of the Company, no Group Company has experienced any breach of security or otherwise unauthorized access by third parties to the Confidential Information, including Personal Data in the possession, custody or control of any Group Company. To the knowledge of the Company there has not been any failure with respect to any of the computer systems, including software, used by any Group Company in the conduct of the Business, in each case that is material to the conduct of the Business. To the knowledge of the Company, there has been no Group Company or third-party breach of confidentiality.

(j) Non-Infringement. To the knowledge of the Company, there is no unauthorized use, unauthorized disclosure, infringement or misappropriation of any Company Intellectual Property or any Company Product by any third party. No Group Company has brought any Legal Proceeding for infringement or misappropriation of any Company Intellectual Property or Company Product. To the knowledge of the Company, the operation of the Business as currently conducted, including (i) the design, development, manufacturing, reproduction, marketing, licensing, sale, offer for sale, importation, distribution, provision and/or use of any Company Product and/or Company Intellectual Property and (ii) the Group Companies' use of any product, device, process or service used in the Business as currently conducted, (A) has not infringed, and does not infringe, misappropriate or violate any Third-Party Intellectual Property, or breach any terms of service, click-through agreement or any other agreement or rules, policies or guidelines, and (B) does not constitute unfair competition or unfair trade practices under the Applicable Law of any jurisdiction in which any Group Company conducts its business or in which Company Products are manufactured, marketed, distributed, licensed or sold. No Group Company has been sued in any Legal Proceeding or received any written communications (including any third-party reports by users) alleging that any Group Company has infringed, misappropriated, or violated or, by

conducting the Business as currently conducted, would infringe, misappropriate, or violate any Intellectual Property of any other Person or entity. To the knowledge of the Company, no Company Intellectual Property or Company Product is subject to any Legal Proceeding, Order, settlement agreement or right that restricts in any manner the use, transfer or licensing thereof by any Group Company, or that, with the exception of patent prosecution-related communications, to the knowledge of the Company, may affect the validity, use or enforceability of any Company Intellectual Property. No Group Company has received any opinion of counsel that any Company Product or Company Intellectual Property or the operation of the business of the Company, as previously or currently conducted infringes or misappropriates any Third- Party Intellectual Property Rights.

(k) Licenses; Agreements. No Group Company has granted any options, licenses or agreements of any kind relating to any Company Intellectual Property, and no Group Company is bound by or a party to any option, license or agreement of any kind with respect to any of the Company Intellectual Property. Except as set forth on Schedule 2.10(k), no Group Company is obligated to pay any royalties or other payments to third parties with respect to the marketing, sale, distribution, manufacture, license or use of any Company Products or Company Intellectual Property or any other property or rights.

(l) CUHK Licenses. (1) CUHK solely owns the patent applications identified in the CUHK Licenses and has obtained all rights from the inventors of the inventions claimed in such patent applications; (2) CUHK has the right to grant the licenses to Company as granted under the CUHK Licenses; and (3) CUHK has not granted any rights under the patent applications identified in the CUHK Licenses to a third party except rights in prenatal (fetal or maternal) diagnostics and/or prenatal (fetal or maternal) prognostics and/or prenatal (fetal or maternal) analysis and an internal research license (with no commercialization rights) to Sequenom, Inc., as identified in section 2.4.3 of each of the CUHK Licenses. Company has not granted any rights or (sub)licenses to any third party under the rights granted under the CUHK Licenses.

(m) Other Intellectual Property Agreements. With respect to the Company Intellectual Property Agreements:

(i) each such agreement is valid and in force and has, where required under applicable laws, been duly recorded or registered;

(ii) no Group Company is (and no Group Company will be as a result of the execution and delivery or effectiveness of this Agreement or the performance of the Company's obligations under this Agreement), in material breach of any Company Intellectual Property Agreement and the consummation of the Transactions will not result in the modification, cancellation, termination, suspension of, or acceleration of any payments, rights, obligations or remedies with respect to any Company Intellectual Property Agreements, or give any non-Group Company party to any Company Intellectual Property Agreement the right to do any of the foregoing;

(iii) to the knowledge of the Company, no counterparty to any Company Intellectual Property Agreement is in material breach thereof;

(iv) at and after the Closing, the Group Companies (as subsidiaries of Purchaser) will be permitted to exercise all of the Group Companies' rights under the Company Intellectual Property Agreements to the same extent the Group Companies would have been able to had the Transactions not occurred and without the payment of any additional amounts or consideration other than ongoing fees, royalties or payments that any Group Company would otherwise be required to pay under the terms of such Intellectual Property Agreements;

(v) Company has not received any written notice of any disputes or Legal Proceedings (pending or threatened) regarding the scope of any Company Intellectual Property Agreements, or performance under any Company Intellectual Property Agreements including with respect to any payments to be made or received by any Group Company thereunder;

(vi) no Company Intellectual Property Agreement requires any Group Company to include any Third-Party Intellectual Property in any Company Product or obtain any Person's approval of any Company Product at any stage of development, licensing, distribution or sale of that Company Product;

(vii) none of the Company Intellectual Property Agreements grants any third party rights to or under any Company Intellectual Property;

(viii) none of the Company Intellectual Property Agreements grants any third party the right to sublicense any Company Intellectual Property;

(ix) no third party that has licensed Intellectual Property Rights to the Company that is material to the conduct of the Business as currently conducted has ownership or license rights to improvements or derivative works made by any Group Company in the Third-Party Intellectual Property that has been licensed to such Group Company, where such Group Company does not have rights to use or practice such improvements or derivative works.

(n) Non-Contravention. None of the execution and performance of this Agreement, the consummation of the Transactions and the assignment to Purchaser by operation of law or otherwise of any Contracts to which the any Group Company is a party or by which any of its assets is bound, will result in: (i) Purchaser or any of its Affiliates (other than any Group Company following the consummation of the Transactions) granting to any third party any right to or with respect to any Intellectual Property Rights owned by, or licensed to, Purchaser or any of its Affiliates, (ii) Purchaser or any of its Affiliates (other than any Group Company following the consummation of the Transactions), being bound by or subject to, any exclusivity obligations, non-compete or other restriction on the operation or scope of their respective businesses, (iii) Purchaser or any Group Company being obligated to pay any royalties or other material amounts to any third party in excess of those payable by any of them, respectively, in the absence of this Agreement or the Transactions or (iv) any termination of, or other material impact to, any Company Intellectual Property.

(o) *Personal Information*.

(i) To the knowledge of the Company, the data, privacy and security practices of the Group Companies conform, and at all times have conformed, to all of the Company Privacy Commitments, Privacy Laws and Company Data Agreements. To the knowledge of the Company, each Group Company has at all times: (A) provided adequate notice and obtained any necessary consents from end users required for any Processing of Personal Data as conducted by or for the Company and (B) abided by any privacy choices (including as required by applicable Institutional Review Board (IRB)) relating to Personal Data (such obligations along with those contained in Company Privacy Policies, collectively, "***Company Privacy Commitments***"). To the knowledge of the Company, neither the execution, delivery and performance of this Agreement nor the taking over by Purchaser of all of the Company databases, Company Data and other information relating to the Company's end users will cause, constitute, or result in a breach or violation of any Privacy Laws or Company Privacy Commitments, any Company Data Agreements or standard terms of service entered into by users of the Company Products.

(ii) To the knowledge of the Company, each Group Company has established and maintains appropriate technical, physical and organizational measures and security systems and technologies in compliance with all data security requirements under Privacy Laws and Company Privacy Commitments that are designed to protect Company Data against accidental or unlawful Processing in a manner appropriate to the risks represented by the Processing of such data by any Group Company and its data processors.

(iii) To the knowledge of the Company, no breach, security incident or violation of any data security policy in relation to Company Data has occurred or is threatened, and there has been no unauthorized or unlawful Processing of any Company Data. To the knowledge of the Company, no circumstance has arisen in which: (A) Privacy Laws would require any Group Company to notify a Governmental Entity of a data security breach or security incident or (B) applicable guidance or codes of practice promulgated under Privacy Laws would recommend any Group Company to notify a Governmental Entity of a data security breach.

(iv) No Group Company has received or experienced and, to the knowledge of the Company, there is no circumstance (including any circumstance arising as the result of an audit or inspection carried out by any Governmental Entity) that would reasonably be expected to give rise to, any Legal Proceeding, Order, notice, communication, warrant, regulatory opinion, audit result or allegation from a Governmental Entity or any other Person (including an end user): (A) alleging or confirming non- compliance with a relevant requirement of Privacy Laws or Company Privacy Commitments, (B) requiring or requesting any Group Company to amend, rectify, cease Processing, de-combine, permanently anonymize, block or delete any Company Data, (C) permitting or mandating relevant Governmental Entities to investigate, requisition information from, or enter the premises of, any Group Company or (D) claiming compensation from any Group Company. No Group Company has been involved in any Legal Proceedings involving a breach or alleged breach of Privacy Laws or Company Privacy Commitments.

(v) Schedule 2.10(o)(v) of the Company Disclosure Letter contains the complete list of notifications and registrations made by each Group Company under Privacy Laws with relevant Governmental Entities in connection with the Processing of Personal Data by any Group Company. All such notifications and registrations (including any Group Company's certification under the U.S.-EU/Switzerland Safe Harbor) are valid, accurate, complete and fully paid up and, to the knowledge of the Company, the consummation of the Transactions will not invalidate such notification or registration or require such notification or registration to be amended. To the knowledge of the Company, other than the notifications and registrations set forth on Schedule 2.10(o)(v) of the Company Disclosure Letter, no other registrations or notifications are required in connection with the Processing of Personal Data by any Group Company.

(vi) No Group Company has transferred or permitted the transfer of Personal Data originating in the EEA outside the EEA, except where such transfers have complied with the requirements of Privacy Laws and Company Privacy Commitments, including any Group Company's certification under the U.S.-EU/Switzerland Safe Harbor.

2.11 Taxes.

(a) Each Group Company has properly completed and timely filed all Tax Returns required to be filed by it prior to the Closing Date, has timely paid all Taxes required to be paid by it (whether or not shown on any Tax Return), and has no Liability for Taxes in excess of the amount so paid. There is no claim for Taxes being asserted against any Group Company that has resulted in an Encumbrance against any of the assets or properties of any Group Company. All Taxes required to be

withheld or paid by any Group Company in connection with amounts paid or owing to any employee of any Group Company have been duly and timely withheld or paid, and any such withheld Taxes have been either duly and timely paid to the proper Tax Authority or properly set aside in accounts for such purpose and will be duly and timely paid to the proper Tax Authority. There are no liens on or against any of the assets or properties of any Group Company. All Tax Returns were complete and accurate in all material respects and have been prepared in material compliance with Applicable Law.

(b) There are no disputes, unsettled or outstanding assessments or appeals in respect of Tax and no Group Company has within the last six years been subject to any Legal Proceeding or other dispute with any Tax Authority and there are no circumstances at Closing which may give rise to such an enquiry or dispute.

(c) The Company has made available to Purchaser true, correct and complete copies of all Tax Returns, examination reports and statements of deficiencies, adjustments, and proposed deficiencies and adjustments in respect of the Group Companies.

(d) The Financial Statements reserve or provide in full for all Taxes for which each Group Company was liable or able to be made liable in respect of all periods (or portions of periods) through the Company Balance Sheet Date in accordance with GAAP. No Group Company has any Liability for unpaid Taxes accruing after the Company Balance Sheet Date except for Taxes arising in the ordinary course of business consistent with past practice subsequent to the Company Balance Sheet Date. No Group Company has any Liability for Taxes (whether outstanding, accrued for, contingent or otherwise) that are not included in the Financial Statements. Proper provision has been made in the Financial Statements for deferred taxation in accordance with GAAP.

(e) There is (i) no past or pending audit, inquiry or investigation of, or Tax controversy associated with, any Tax affairs of any Group Company that has been or is being conducted by a Tax Authority, (ii) no extension of any statute of limitations on the assessment of any Taxes granted by any Group Company currently in effect and (iii) no agreement to any extension of time for filing any Tax Return that has not been filed.

(f) No Group Company is treated for any Tax purpose as resident in a country other than the country of its incorporation. No Group Company conducts business or has employees or a permanent establishment in any country other than the country of its incorporation. No Tax Authority in any jurisdiction in which any Group Company does not file Tax Returns has asserted that any Group Company is or may be subject to Tax in such jurisdiction. No Group Company (other than a Group Company organized in the United States) has ever been engaged in a “United States trade or business” within the meaning of Section 864 of the Code.

(g) No Group Company has, nor will be required to, include any adjustment in Taxable income for any Tax period (or portion thereof) pursuant to Section 481 or 263A of the Code or any comparable provision under U.S. state, local or non-U.S. Tax laws as a result of transactions, events or accounting methods employed prior to the Stock Purchase.

(h) No Group Company is a party to or bound by any Tax sharing, Tax indemnity, or Tax allocation agreement, and no Group Company has any Liability or potential Liability to another party under any such agreement. No Group Company has any Liability for the Taxes of any Person (other than itself) under Section 1.1502-6 of the Treasury Regulations (or any similar provision of state, local or foreign law) as a transferee or successor, by Contract or otherwise.

(i) No Group Company has consummated or participated in, and no Group Company is currently participating in, any transaction that was or is a "Tax shelter" transaction as defined in Sections 6662 or 6111 of the Code or the Treasury Regulations promulgated thereunder. No Group Company has participated in, nor is currently participating in, a "Listed Transaction" or a "Reportable Transaction" within the meaning of Section 6707A(c) of the Code or Treasury Regulation Section 1.6011-4(b), or any transaction requiring disclosure under a corresponding or similar provision of U.S. state, local, or non-U.S. law.

(j) No Group Company nor any predecessor of any Group Company has ever been a member of a consolidated, combined, unitary or aggregate group of which the Company or any predecessor of the Company was not the ultimate parent corporation. No Group Company has entered into any tax allocation or sharing arrangement (including any arrangement under which Tax losses or Tax reliefs are surrendered or claimed or agreed to be surrendered or claimed) in respect of its profits, gains or losses and, except as provided in the Financial Statements, no Group Company is, or will be, under any obligation to make or repay or have any entitlement to receive any payment in respect of any period ending on or before the Closing Date under any such arrangement.

(k) No Group Company has received a Tax ruling from any Governmental Entity (including a private letter ruling from the IRS) (or any comparable Tax ruling from any other Governmental Entity).

(l) All capital expenditures incurred by any Group Company on the provision of machinery or plant or industrial buildings since the Company Balance Sheet Date and all such capital expenditure that may be incurred by any Group Company under any existing contract has qualified or will be capable of qualifying for capital allowances. Such allowances have been or will be made in taxing the trade of any Group Company.

(m) No Group Company has, since the Company Balance Sheet Date, made or provided, and no Group Company is under any obligation currently or in the future to make or provide, any payment of an income or revenue nature or any benefit, the cost of which will be prevented from being deductible for Tax purposes, whether as a deduction in computing the profits of a trade or as an expense of management or as a charge on income.

(n) No Group Company has entered into, or been party to, any scheme or arrangement the main purpose or one of the main purposes of which was to reduce, defer or postpone Tax, and no Group Company has acquired or disposed of any asset other than by way of a bargain at arm's length.

(o) Neither entering into this Agreement nor Closing will result in the withdrawal of a stamp duty or stamp duty land tax relief granted on or before Closing which will affect any Group Company.

(p) Each Group Company does not own any interest in any controlled foreign corporation (as defined in Section 957 of the Code). No Group Company would be classified as a controlled foreign corporation (as defined in Section 957 of the Code) if its taxable year ended on the Closing Date.

(q) No election has ever been made by or on behalf of any Group Company pursuant to Section 301.7701-3 of the Treasury Regulations electing for any Group Company to be classified as a partnership or disregarded entity for United States federal Tax purposes.

(r) No Group Company will be required to include any item of income in, or exclude any item of deduction from, Taxable income for any Taxable period (or portion thereof) ending after the Closing Date as a result of any (i) change in method of accounting for a Taxable period ending on or prior to the Closing Date, (ii) "closing agreement" described in Section 7121 of the Code (or any corresponding or similar provision of state, local, or foreign Tax law) executed on or prior to the Closing Date, (iii) intercompany transactions (including any intercompany transaction subject to Section 367 or 482 of the Code) or any excess loss account described in Treasury Regulations under Section 1502 of the Code (or any corresponding or similar provision of state, local, or foreign Tax law) with respect to a transaction occurring on or prior to the Closing Date, (iv) installment sale or open transaction disposition made on or prior to the Closing Date, (v) election under Section 108(i) of the Code made on or prior to the Closing Date, or (vi) prepaid amount received on or prior to the Closing Date.

(s) With respect to each Group Company which is a "United States person" within the meaning of Section 7701(a)(30) of the Code, such Group Company is not, and it has never been, a "United States real property holding corporation" within the meaning of Section 897 of the Code, and such Group Company has filed with the IRS all statements, if any, that are required under Section 1.897- 2(h) of the Treasury Regulations.

(t) No Group Company has constituted either a "distributing corporation" or a "controlled corporation" in a distribution of stock qualifying for Tax-free treatment under Section 355 of the Code (i) in the two years prior to the Agreement Date or (ii) in a distribution that could otherwise constitute part of a "plan" or "series of related transactions" (within the meaning of Section 355(e) of the Code) in conjunction with the consummation of the Stock Purchase.

(u) With respect to each Group Company which is a "United States person" within the meaning of Section 7701(a)(30) of the Code or with respect to any Person subject to taxation under the Code, the Company has delivered to Purchaser true, correct and complete copies of all election statements under Section 83(b) of the Code, together with evidence of timely filing of such election statements with the appropriate IRS Service Center with respect to any property that was initially subject to vesting (including shares of Company Capital Stock) issued by such Group Company or to such Person. No payment to any Selling Stockholder of any applicable portion of the Total Consideration payable pursuant to Section 1.5(a) and Section 1.5(c) will result in compensation or other income to any Selling Stockholder with respect to which Purchaser or the Company would be required to deduct or withhold any Taxes.

(v) With respect to each Group Company which is a "United States person" within the meaning of Section 7701(a)(30) of the Code or with respect to any Person subject to taxation under the Code, Schedule 2.11(v) to the Company Disclosure Letter lists all "nonqualified deferred compensation plans" (within the meaning of Section 409A of the Code) to which such Group Company is a party or which covers such Person. Any nonqualified deferred compensation plans subject to Section 457A of the Code are listed on Schedule 2.11(z) of the Company Disclosure Letter.

(w) Each nonqualified deferred compensation plan to which such Group Company is a party complies with the requirements of paragraphs (2), (3) and (4) of Section 409A(a) by its terms and has been operated in accordance with such requirements. No event has occurred that would be treated by Section 409A(b) as a transfer of property for purposes of Section 83 of the Code. All arrangements of any Group Company are in compliance with Section 457A of the Code and no payments thereunder are subject to the penalties of Section 457A of the Code.

(x) With respect to each Group Company which is a "United States person" within the meaning of Section 7701(a)(30) of the Code or with respect to any Company Option held by a Person

subject to taxation under the Code, the exercise price of all Company Options held by any of such Group Company's employees, non-employee directors, consultants or other service providers or any such Person subject to taxation under the Code is at least equal to the fair market value of the Company Ordinary Shares on the date such Company Options were granted, and neither the Group Company nor Purchaser has incurred or will incur any Liability or obligation to withhold Taxes under Section 409A of the Code upon the vesting of any Company Options. All such Company Options constitute "service recipient stock" (as defined under Treasury Regulation 1.409A-1(b)(5)(iii)) with respect to the grantor thereof.

(y) Each Group Company has (i) complied with all Applicable Law relating to the payment, reporting and withholding of Taxes (including withholding of Taxes pursuant to Sections 1441, 1442, 1445, 1446, 1471, 1472 and 3406 of the Code, or similar provisions under any other law), (ii) withheld (within the time and in the manner prescribed by Applicable Law) from employee wages or consulting compensation and paid over to the proper Governmental Entities (or is properly holding for such timely payment) all amounts required to be so withheld and paid over under all Applicable Law, including federal and state income Taxes, Federal Insurance Contribution Act, Medicare, Federal Unemployment Tax Act, relevant state income and employment Tax withholding laws, and (iii) timely filed all withholding Tax Returns, for all periods through and including the Closing Date.

(z) The prices for any property or services (or for the use of any property) provided by or to each Group Company are arm's length prices for purposes of all applicable transfer pricing laws, including Treasury Regulations promulgated under Section 482 of the Code.

(aa) No independent contractor was or will be considered as an employee of the Company by an applicable Tax Authority.

(bb) Except as set forth on Schedule 2.11(bb) of the Company Disclosure Letter, there is no agreement, plan, arrangement or other Contract covering any current or former employee or other service provider of the Company or any Subsidiary to which the Company is a party or by which the Company or its assets is bound that, considered individually or considered collectively with any other such agreements, plans, arrangements or other Contracts, will, or would reasonably be expected to, as a result of the Transactions (whether alone or upon the occurrence of any additional or subsequent events), give rise directly or indirectly to the payment of any amount that would reasonably be expected to be non-deductible under Section 162 of the Code (or any corresponding or similar provision of U.S. state, local or non-U.S. Tax law) or be characterized as a "parachute payment" within the meaning of Section 280G of the Code.

2.12 Employee Benefit Plans and Employee Matters.

(a) Schedule 2.12(a) of the Company Disclosure Letter lists, with respect to the Company and (i) all "employee benefit plans" within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended ("***ERISA***"), (ii) all material stock option, stock purchase, phantom stock, stock appreciation right, restricted stock unit, supplemental retirement, severance, sabbatical, medical, dental, vision care, disability, employee relocation, cafeteria benefit (Section 125 of the Code), dependent care (Section 129 of the Code), life insurance or accident insurance plans, programs or arrangements, (iii) all material bonus, pension, profit sharing, savings, severance, retirement, deferred compensation or incentive plans (including cash incentive plans), programs or arrangements, (iv) all other material fringe or employee benefit plans, programs or arrangements and (v) all material employment, individual consulting, retention, change of control or executive compensation or severance agreements, written or otherwise, as to which any unsatisfied obligations of the Company remain for the benefit of any present or former employee, consultant or non-employee director of the Company, other than any such plan, program, or other arrangement mandated and

maintained by a Governmental Entity (all of the foregoing described in clauses (i) through (v), collectively, the "***Company Employee Plans***"). Notwithstanding the foregoing, for purposes of the other representations in this Section 2.12, all references to Company Employee Plan shall include arrangements that would be listed in this Section 2.12(a) but for the "material" qualifiers in (ii), (iii), (iv), and (v), and shall include plans that are mandated by a Governmental Entity, but sponsored or contributed to by the Company or any Subsidiary thereof.

(b) The Company does not sponsor or maintain any self-funded Company Employee Plan, that provides medical or life insurance benefits, including any such plan to which a stop-loss policy applies. The Company has made available to Purchaser a true, correct and complete copy of each of the Company Employee Plans and related material plan documents (including, as applicable, trust documents, insurance policies or Contracts, employee booklets, summary plan descriptions and other authorizing documents) and has, with respect to each Company Employee Plan that is subject to such ERISA reporting requirements, made available to Purchaser true, correct and complete copies of the Form 5500 reports filed for the last plan year. Any Company Employee Plan intended to be qualified under Section 401(a) of the Code has either obtained from the IRS a favorable determination letter as to its qualified status under the Code, including all amendments to the Code effected by the Tax Reform Act of 1986 and subsequent legislation, or has applied (or has time remaining in which to apply) to the IRS for such a determination letter prior to the expiration of the requisite period under applicable Treasury Regulations or IRS pronouncements in which to apply for such determination letter and to make any amendments necessary to obtain a favorable determination or has been established under a standardized prototype plan for which an IRS opinion letter has been obtained by the plan sponsor and is valid as to the adopting employer. The Company has made available to Purchaser a true, correct and complete copy of the most recent IRS determination or opinion letter issued with respect to each such Company Employee Plan, and, to the knowledge of the Company, nothing has occurred since the issuance of each such letter that would reasonably be expected to cause the loss of the Tax-qualified status of any Company Employee Plan subject to Section 401(a) of the Code.

(c) None of the Company Employee Plans promises or provides retiree medical or life insurance benefits to any person other than as required under the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("***COBRA***") or similar state or local law. There has been no "prohibited transaction" (within the meaning of Section 406 of ERISA and Section 4975 of the Code and not exempt under Section 408 of ERISA and regulatory guidance thereunder) with respect to any Company Employee Plan that would reasonably be expected to result in material liability to the Company. Each Company Employee Plan has been administered in accordance with its terms and in compliance with the requirements prescribed by any and all statutes, rules and regulations (including ERISA and the Code), in each case, in all material respects. No Legal Proceeding is pending, or to the knowledge of the Company, is threatened, against or with respect to any Company Employee Plan, including any audit or inquiry by the IRS or U.S. Department of Labor that would reasonably be expected to result in material Liability to the Company.

(d) Neither the Company nor any current or former Subsidiary currently maintains, sponsors, participates in or contributes to, or has ever maintained, established, sponsored, participated in, or contributed to, or has any Liability (including as a result of being an ERISA Affiliate of another Person) with respect to any pension plan (within the meaning of Section 3(2) of ERISA) that is subject to Part 3 of Subtitle B of Title I of ERISA, Title IV of ERISA or Section 412 of the Code.

(e) Neither the Company nor any Subsidiary is a party to, or has made any contribution to or otherwise incurred any obligation under, or has any Liability (including as a result of being an ERISA Affiliate of another Person) with respect to any "multiemployer plan" as such term is

defined in Section 3(37) of ERISA or any "multiple employer plan" as such term is defined in Section 413(c) of the Code.

(f) Except as set forth on Schedule 2.12(a) of the Company Disclosure Letter, no Company Employee Plan is sponsored, maintained or contributed to under the law or applicable custom or rule of the any jurisdiction outside of the United States.

(g) Each Group Company is in compliance in all material respects with all Applicable Laws respecting employment, discrimination in employment, terms and conditions of employment, employee benefits (including compensation of untaken vacation and rendered overtime), worker classification (including the proper classification of workers as independent contractors and consultants), wages, hours and occupational safety and health and employment practices, including the Immigration Reform and Control Act, Section 8 of the Asylum and Immigration Act 1996 and Sections 15-21 of the Immigration, Asylum and Nationality Act 2006 (as applicable) and, with respect to each Company Employee Plan, (i) the applicable health care continuation and notice provisions of COBRA and the regulations (including proposed regulations) thereunder, (ii) the applicable requirements of the Family Medical and Leave Act of 1993 and the regulations (including proposed regulations) thereunder, (iii) the applicable requirements of the Health Insurance Portability and Accountability Act of 1996 and the regulations (including proposed regulations) thereunder, (iv) the applicable requirements of the Americans with Disabilities Act of 1990, as amended and the regulations (including proposed regulations) thereunder, (v) the Age Discrimination in Employment Act of 1967, as amended, and (vi) the applicable requirements of the Women's Health and Cancer Rights Act of 1998 and the regulations (including proposed regulations) thereunder. No Group Company is engaged in any unfair labor practice. No Group Company is liable for any arrears of wages, compensation, Taxes, penalties or other sums for failure to comply with any of the foregoing. Each Group Company has paid in full to all employees, independent contractors and consultants all wages, salaries, commissions, bonuses, benefits and other compensation due to or on behalf of such employees, independent contractors and consultants. No Group Company is liable for any payment to any trust or other fund or to any Governmental Entity, with respect to unemployment compensation benefits, social security or other benefits or obligations for employees (other than routine payments to be made in the normal course of business and consistently with past practice). There are no pending claims against any Group Company under any workers compensation plan or policy or for long term disability. No Group Company has any obligations under COBRA with respect to any former employees or qualifying beneficiaries thereunder, except for obligations that are not material in amount. There are no controversies or claims pending or, to the knowledge of the Company, threatened, between any Group Company and any of its employees, which controversies have or would reasonably be expected to result in a Legal Proceeding before any Governmental Entity.

(h) The Company has provided to Purchaser, with respect to each Group Company, true, correct and complete copies of each of the following: (i) all forms of offer letters, (ii) all forms of employment agreements, severance agreements and any other agreements relating to compensation (including all supplementary agreements), (iii) all forms of services agreements and agreements with current and former consultants and/or advisory board members, (iv) all forms of confidentiality, non- competition or inventions agreements between current and former employees/consultants and any Group Company (and a true, correct and complete list of employees, consultants and/or others not subject thereto), (v) the most current management organization chart(s), (vi) a schedule of bonus commitments made to employees of the Group Companies, if any, and (vii) all forms of bonus plans and any form award agreements thereunder.

(i) No Group Company nor any former Affiliate or Subsidiary is a party to or bound by any collective bargaining agreement or other labor union Contract or work agreements and no collective bargaining agreement is being negotiated by any Group Company, and no Group Company has

any duty to bargain with any labor organization. No general promises made to all employees are valid and in force at any Group Company or any former Affiliates or Subsidiaries. There is no pending demand for recognition or any other request or demand from a labor organization for representative status with respect to any Person employed by any Group Company or former Affiliates or Subsidiaries. To the knowledge of the Company, there are no activities or proceedings of any labor union or to organize their respective employees or employees of any of its Affiliates and Subsidiaries. There is no labor dispute, strike or work stoppage against the Company or its Affiliates and Subsidiaries pending or, to the knowledge of the Company, threatened that may interfere with the conduct of the Business. Neither the Company nor, to the knowledge of the Company, any Subsidiaries, nor any of its Representatives has committed any unfair labor practice in connection with the conduct of the Business, and there is no charge or complaint against the Company and its Affiliates and Subsidiaries by the National Labor Relations Board or any comparable Governmental Entity pending or, to the knowledge of the Company, threatened. No employee of any Group Company has been dismissed in the immediately preceding 12 months.

(j) Schedule 2.12(j) of the Company Disclosure Letter sets forth each non- competition agreement and non-solicitation agreement that binds any current or former employee or contractor of the Group Companies (other than those agreements entered into with newly-hired employees of the Company in the ordinary course of business consistent with past practice).

(k) No employee of any Group Company is in violation of any term of any employment agreement, non-competition agreement or any restrictive covenant to a former employer relating to the right of any such employee to be employed by a Group Company because of the nature of the Business or to the use of trade secrets or proprietary information of others. No contractor of the Group Companies is in violation of any term of any non-competition agreement or any restrictive covenant to a former employer relating to the right of any such contractor to be providing services to a Group Company because of the nature of the Business or to the use of trade secrets or proprietary information of others. Except as set forth on Schedule 2.12(k) of the Company Disclosure Letter, no employee of any Group Company has given notice to any Group Company and, to the knowledge of the Company, no employee of any Group Company intends to terminate his or her employment with the applicable Group Company. Except as set forth on Schedule 2.12(k) of the Company Disclosure Letter, the employment of each of the employees of the Group Companies is “at will” (except for non-U.S. employees of the Group Companies located in a jurisdiction that does not recognize the “at will” employment concept in those jurisdictions there is not in existence any contract of employment with any director or employee, nor any consultancy agreement, which provides for a notice period of more than three months) and the none of the Group Company have any obligation to provide any particular form or period of notice prior to terminating the employment of any of their respective employees. As of the Agreement Date, none of the Group Companies have, and to the knowledge of the Company, no other Person has, (i) entered into any Contract that obligates or purports to obligate Purchaser to make an offer of employment to any present or former employee or consultant of any Group Company, and/or (ii) promised or otherwise provided any assurances (contingent or otherwise) to any present or former employee or consultant of any Group Company of any terms or conditions of employment with Purchaser following the Closing Date. There are no outstanding offers of employment or engagement made to any person by any of the Group Companies, and there is no one who has accepted an offer of employment or engagement made by any of them but who has not yet taken it up.

(l) The Company has provided to Purchaser a true, correct and complete list of the names, positions and rates of compensation of all officers, directors and employees of the Group Companies, showing each such individual’s name, position, annual remuneration, status as exempt/non- exempt and bonuses and fringe benefits for the current fiscal year and the most recently completed fiscal year. The Company has provided to Purchaser the additional following information for each of its international employees: city/country of employment, citizenship, date of hire, manager’s name and work

location, date of birth, notice period, term of employment agreement, vacation entitlement, any material special circumstances (including pregnancy, maternity protection, parental leave, disability or military service or who are otherwise absent from work), benefits (including pension), and whether the employee was recruited from a previous employer. Schedule 2.12(l) of the Company Disclosure Letter sets forth a true, correct and complete list of all of its and its Affiliates and Subsidiaries consultants, advisory board members and independent contractors and, for each, such individual's compensation and the initial date of such individual's engagement, whether such engagement has been terminated by written notice by either party thereto and the notice or termination provisions required to terminate such individual's engagement. Every service provider of the Company or any Subsidiary who requires a visa, employment pass or other required permit to work in the country in which he is employed has a current employment pass or such other required permit and all necessary permission to remain in such country and perform services in that country. The Company and all Subsidiaries have obtained Forms I-9 from each employee who has ever provided services in the United States.

(m) There are no performance improvements, investigations or disciplinary actions contemplated or pending against any of the Group Companies.

(n) Each Group Company is in compliance in all material respects with the Worker Adjustment Retraining Notification Act of 1988, as amended (the "***WARN Act***"), or any similar state or local law. In the past two years, (i) no Group Company has effectuated a "plant closing" (as defined in the WARN Act) affecting any site of employment or one or more facilities or operating units within any site of employment or facility of its business, (ii) there has not occurred a "mass layoff" (as defined in the WARN Act) affecting any site of employment or facility of any Group Company and (iii) no Group Company has been affected by any transaction or engaged in layoffs or employment terminations sufficient in number to trigger application of any similar U.S. state, local or non-U.S. law or regulation. No Group Company has caused any of its employees to suffer an "employment loss" (as defined in the WARN Act) during the 90-day period immediately preceding the Agreement Date. No Group Company is a party to or is bound by (in respect of any director or employee) by any redundancy payment scheme in the United Kingdom, in addition to statutory redundancy pay, nor is there any agreed procedure for redundancy selection.

(o) Except as set forth on Schedule 2.12(a) of the Company Disclosure Letter and as expressly provided under this Agreement, none of the execution, delivery and performance of this Agreement, the consummation of the Transactions, any termination of employment or service and any other event in connection therewith or subsequent thereto will, individually or together or with the occurrence of some other event (whether contingent or otherwise), (i) result in any material payment or benefit (including severance, unemployment compensation, golden parachute, bonus or otherwise) becoming due or payable, or required to be provided, to any current or former employee, director, independent contractor or consultant under any Company Employee Plan, (ii) materially increase the amount or value of any benefit or compensation otherwise payable or required to be provided to any current or former employee, director, independent contractor or consultant, (iii) result in the acceleration of the time of payment, vesting or funding of any such benefit or compensation, (iv) increase the amount of compensation due to any Person in any material respect under any Company Employee Plan or (v) result in the forgiveness in whole or in part of any outstanding loans made by any Group Company to any current or former employee, director, independent contractor or consultant. Except as set forth on Schedule 2.12(a) of the Company Disclosure Letter, no amount paid or payable by any Group Company in connection with the Transactions, whether alone or in combination with another event, will be an "excess parachute payment" within the meaning of Code Section 280G or Code Section 4999 or will not be deductible by the Company and its Subsidiaries by reason of Code Section 280G.

2.13 Regulatory Matters.

(a) The Company holds all required approvals, licenses, permits or similar rights issuable by any Governmental Entity necessary for the conduct of the Business (the "***Regulatory Permits***") and no such Regulatory Permit has been (i) revoked, withdrawn, suspended, canceled or terminated or (ii) modified in any materially adverse manner. Company has not received any written notice or other written communication from any Governmental Entity regarding any revocation, withdrawal, suspension, cancelation, termination or material modification of any Regulatory Permit.

(b) All clinical, pre-clinical and other studies and tests conducted by or on behalf of, or sponsored by, Company, have been conducted in all material respects in accordance with standard medical and scientific research procedures and in compliance with Applicable Laws.

2.14 Insurance. Each Group Company maintains the policies of insurance and bonds set forth in Schedule 2.14 of the Company Disclosure Letter, including all legally required workers' compensation insurance and errors and omissions, casualty, fire and general liability insurance. Schedule 2.14 of the Company Disclosure Letter sets forth the name of the insurer under each such policy and bond, the type of policy or bond and the coverage amount. The Company has provided to Purchaser true, correct and complete copies of all such policies of insurance and bonds issued at the request or for the benefit of any Group Company. There is no claim pending under any of such policies or bonds as to which coverage has been questioned, denied or disputed by the underwriters of such policies or bonds. All premiums due and payable under all such policies and bonds have been timely paid and each Group Company is otherwise in compliance with the terms of such policies and bonds. All such policies and bonds remain in full force and effect, and the Company has no knowledge of any threatened termination of such policies.

2.15 Books and Records. The Company has provided to Purchaser true, correct and complete copies of (a) all documents identified on the Company Disclosure Letter, (b) the Articles of Association, Certificate of Incorporation, Bylaws or equivalent organizational or governing documents of each Group Company, each as currently in effect, (c) the complete minute books containing records of all proceedings, consents, actions and meetings of the Board, committees of the Board and the Company Stockholders and the corresponding records of each Subsidiary, including any presentations and written materials provided thereto in connection with such proceedings, consents, actions and meetings, and (d) the stock ledger, journal and other records reflecting all stock issuances and transfers and all stock option and warrant grants and agreements of each Group Company. The minute books of each Group Company provided to Purchaser contain a true, correct and complete summary of all meetings of directors and of the Company Stockholders or actions by written consent since the time of organization of such Group Company through the Agreement Date. The books, records and accounts of each Group Company (i) are true, correct and complete in all material respects, (ii) have been maintained in accordance with reasonable business practices on a basis consistent with prior years, (iii) are stated in reasonable detail and accurately and fairly reflect all of the transactions and dispositions of the assets and properties of the Company and (iv) accurately and fairly reflect the basis for the Financial Statements.

2.16 Material Contracts.

(a) Schedules 2.16(a)(i) through (xxiv) of the Company Disclosure Letter set forth a list of each of the following Contracts to which any Group Company is a party that are in effect on the Agreement Date (the "***Material Contracts***"):

(i) any Contract providing for payments by or to any Group Company (or under which any Group Company has made or received such payments) in the period since such Group Company's inception in an aggregate amount of $25,000 or more;

(ii) any dealer, distributor, referral or similar agreement, or any Contract

providing for the grant of rights to reproduce, license, market, refer or sell its products or services to any other Person or relating to the advertising or promotion of the Business or pursuant to which any third parties advertise on any websites operated by any Group Company;

(iii) other than "shrink wrap" and similar generally available commercial end-user licenses to software that have an individual acquisition cost of $25,000 or less, all licenses, sublicenses and other Contracts to which any Group Company is a party and pursuant to which the Company acquired or is authorized to use any Third-Party Intellectual Property Rights used in the development, marketing or licensing of the Company Products;

(iv) any license, sublicense or other Contract to which any Group Company is a party and pursuant to which any Person is authorized to use any Company Intellectual Property Rights;

(v) any license, sublicense or other Contract pursuant to which any Group Company has agreed to any restriction on the right of any Group Company to use or enforce any Company Intellectual Property Rights or pursuant to which any Group Company agrees to encumber, transfer or sell rights in or with respect to any Company Intellectual Property Rights;

(vi) any Contract providing for the development of any software, technology or Intellectual Property Rights, independently or jointly, either by or for any Group Company (other than employee invention assignment agreements and consulting agreements with Authors on the Company's standard form of agreement, copies of which have been provided to Purchaser);

(vii) any confidentiality, secrecy or non-disclosure Contract other than any such Contract entered into by any Group Company in the ordinary course of business consistent with past practice;

(viii) any Contract to license or authorize any third party to manufacture or reproduce any of the Company Products or Company Intellectual Property;

(ix) any Contract with any Governmental Entity, any Company Authorization, or any Contract with a government prime contractor, or higher-tier government subcontractor, including any indefinite delivery/indefinite quantity contract, firm-fixed-price contract, schedule contract, blanket purchase agreement, or task or delivery order (each a "***Government Contract***").

(x) (A) any joint venture Contract, (B) any Contract that involves a sharing of revenues, profits, cash flows, expenses or losses with other Persons and (C) any Contract that involves the payment of royalties to any other Person;

(xi) any separation agreement or severance agreement with any current or former employees under which the any Group Company has any actual or potential Liability;

(xii) any Contract for or relating to the employment or service of any director, officer, employee, consultant or beneficial owner of more than 5% of the total shares of Company Capital Stock or any other type of Contract with any of its officers, employees, consultants or beneficial owners of more than 5% of the total shares of Company Capital Stock, as the case may be, excluding (A) at-will employment offer letters, (B) consulting agreements that can be terminated by the Company on not more than 30 days' notice, (C) Contracts providing for the grant or issuance of equity (including all associated financing agreements) and (D) form Contracts entered into in connection with employment or service,

such as invention and assignment agreements;

(xiii) any Contract (A) pursuant to which any other party is granted exclusive rights or "most favored party" rights of any type or scope with respect to any of the Company Products or Company Intellectual Property, (B) containing any non-competition covenants or other restrictions relating to the Company Products or Company Intellectual Property, (C) that limits or would limit the freedom of the Company or any of its successors or assigns or their respective Affiliates to (I) engage or participate, or compete with any other Person, in any line of business, market or geographic area with respect to the Company Products or the Company Intellectual Property, or to make use of any Company Intellectual Property, including any grants by any Group Company of exclusive rights or licenses or (II) sell, distribute or manufacture any products or services or to purchase or otherwise obtain any software, components, parts or services or (D) containing any "take or pay," minimum commitments or similar provisions;

(xiv) any standstill or similar agreement containing provisions prohibiting a third party from purchasing Equity Interests of the Company or assets of any Group Company or otherwise seeking to influence or exercise control over any Group Company;

(xv) any Contracts relating to the membership of, or participation by, any Group Company in, or the affiliation of any Group Company with, any industry standards group or association;

(xvi) any settlement agreement with respect to any Legal Proceeding;

(xvii) any Contract pursuant to which rights of any third party are triggered or become exercisable, or under which any other consequence, result or effect arises, in connection with or as a result of the execution of this Agreement or the consummation of the Stock Purchase or the other Transactions, either alone or in combination with any other event;

(xviii) any Contract or plan (including any stock option, share scheme, merger and/or stock bonus plan) relating to the sale, issuance, grant, exercise, award, purchase, repurchase or redemption of any shares of Company Capital Stock or any other securities of any Group Company or any options, warrants, convertible notes or other rights to purchase or otherwise acquire any such shares of stock, other securities or options, warrants or other rights therefor;

(xix) any Contract with any trade union, works council, labor union or any collective bargaining agreement or similar contract with its employees;

(xx) any trust indenture, mortgage, promissory note, loan agreement or other Contract for the borrowing of money, any currency exchange, commodities or other hedging arrangement or any leasing transaction of the type required to be capitalized in accordance with GAAP;

(xxi) any Contract of guarantee, surety, support, assumption or endorsement of, or any similar commitment with respect to, the Liabilities or indebtedness of any other Person;

(xxii) any Contract for capital expenditures in excess of $50,000 in the aggregate;

(xxiii) any Contract pursuant to which any Group Company is a lessor or lessee of any real property or any machinery, equipment, motor vehicles, office furniture, fixtures or other personal property involving expenditures in excess of $25,000 per annum; and

(xxiv) any Contract pursuant to which any Group Company has acquired a business or entity, or assets of a business or entity, whether by way of merger, consolidation, purchase of stock, purchase of assets, license or otherwise, or any Contract pursuant to which it has any ownership interest in any other Person.

(b) All Material Contracts are in written form. Each Group Company has performed all of the obligations required to be performed by it and is entitled to all benefits under, and is not alleged to be in default in respect of, any Material Contract to which it is a party. Each of the Material Contracts is in full force and effect, subject only to the effect, if any, of applicable bankruptcy and other similar Applicable Law affecting the rights of creditors generally and rules of law governing specific performance, injunctive relief and other equitable remedies. There exists no default or event of default or event, occurrence, condition or act, with respect to any Group Company or to the knowledge of the Company, with respect to any other contracting party, that, with the giving of notice, the lapse of time or the happening of any other event or condition, would reasonably be expected to (i) become a default or event of default under any Material Contract or (ii) give any third party (A) the right to declare a default or exercise any remedy under any Material Contract, (B) the right to a rebate, chargeback, refund, credit, penalty or change in delivery schedule under any Material Contract, (C) the right to accelerate the maturity or performance of any obligation of any Group Company under any Material Contract or (D) the right to cancel, terminate or modify any Material Contract. No Group Company has received any notice or other communication regarding any actual or possible violation or breach of, default under, or intention to cancel or modify any Material Contract. No Group Company has any Liability for renegotiation of Government Contracts. True, correct and complete copies of all Material Contracts have been provided to Purchaser at least three Business Days prior to the Agreement Date.

2.17 Transaction Fees. No broker, finder, financial advisor, investment banker or similar Person is entitled to any brokerage, finder's or other fee or commission in connection with the origin, negotiation or execution of this Agreement or in connection with the Transactions based on arrangements made by or on behalf of the Company.

2.18 Anti-Corruption Law.

(a) No Group Company nor any of its directors, employees, agents or representatives (in each case, acting in their capacities as such) has, since the inception of such Group Company, directly or indirectly through its representatives or any Person authorized to act on its behalf (including any distributor, agent, sales intermediary or other third party), (i) engaged in any other activity, practice or conduct or has taken any other action or inaction, directly or indirectly, which would constitute an offense under any Anti-Corruption Law or (ii) offered, paid, given, promised to pay or give or authorized the giving of money or anything of value, to any Government Official or to any other Person: (A) for the purpose of (I) influencing any act or decision of any Government Official, (II) inducing any Government Official to do or omit to do any act in violation of their lawful duties, (III) securing any improper advantage or (IV) inducing any Government Official to use his or her respective influence with a Governmental Entity to affect any act or decision of such Governmental Entity or (B) in a manner that would constitute or have the purpose or effect of public or commercial bribery, acceptance of, or acquiescence in, extortion, kickbacks or other unlawful or improper means of obtaining business or any improper advantage.

(b) Each Group Company (i) has maintained complete and accurate books and records, including records of payments to any agents, consultants, representatives, third parties and Government Officials, in accordance with GAAP, (ii) there have been no false or fictitious entries made in the books and records of any Group Company relating to any unlawful offer, payment, promise to pay or authorization of the payment of any money, or unlawful offer, gift, promise to give, or authorization of

the giving of anything of value, including any bribe, kickback or other illegal or improper payment and (iii) no Group Company has established or maintained a secret or unrecorded fund or account.

(c) No Group Company has conducted or initiated an internal investigation, made a voluntary or other disclosure to a Governmental Entity, or been the subject of any Legal Proceedings or received any notice or citation from any Governmental Entity related to alleged violations of Applicable Law including any Anti-Corruption Law.

(d) No Governmental Official and no close relative or family member of a Governmental Official (i) holds or will hold an ownership or other economic interest, direct or indirect in any Group Company, (ii) serves as a Representative of any Group Company, or (iii) will receive any economic benefit as a result of the Transactions.

2.19 Environmental, Health and Safety Matters.

(a) Each Group Company is in compliance with all Environmental, Health and Safety Requirements in connection with the ownership, use, maintenance or operation of its business or assets or properties. There are no pending, or to the knowledge of the Company, any threatened allegations by any Person that the properties or assets of the Group Companies are not, or that their business has not been conducted, in compliance with all Environmental, Health and Safety Requirements. No Group Company has retained or assumed any Liability of any other Person under any Environmental, Health and Safety Requirements. To the knowledge of the Company, there are no past or present facts, circumstances or conditions that would reasonably be expected to give rise to any Liability of any Group Company with respect to Environmental, Health and Safety Requirements.

(b) The Company has made available to Purchaser a copy of all studies, audits, assessments or investigations containing material information concerning compliance with, or Liability or obligations under, Environmental, Health and Safety Requirements affecting any Group Company that are in the possession or control of the Company, each of which is identified in Schedule 2.19(b) of the Company Disclosure Letter.

2.20 Export Control Laws. Each Group Company has conducted its export transactions in accordance in all respects with applicable provisions of European Union, United Kingdom and United States export and re-export controls, including the European Union Dual-Use Regulation (Council Regulation (EC) No 428/2009), Export Administration Act and Regulations, the Foreign Assets Control Regulations, the International Traffic in Arms Regulations and other controls administered by the U.S. Department of Commerce and/or the U.S. Department of State and all other applicable import/export controls in other countries in which the Company conducts business. Without limiting the foregoing: (i) the Group Companies have obtained all export and import licenses, license exceptions and other consents, notices, waivers, approvals, orders, authorizations, registrations, declarations and filings with any Governmental Entity required for (A) the export, import and re-export of products, services, software and technologies and (B) releases of technologies and software to foreign nationals located in the United States and abroad (collectively, "***Export Approvals***"), (ii) each Group Company is in compliance with the terms of all applicable Export Approvals, (iii) there are no pending or, to the knowledge of the Company, threatened claims against any Group Company with respect to such Export Approvals, (iv) there are no actions, conditions or circumstances pertaining to any Group Company's export transactions that would reasonably be expected to give rise to any future claims and (v) no Export Approvals for the transfer of export licenses to Purchaser are required, except for such Export Approvals that can be obtained expeditiously and without material cost.

2.21 Interested-Party Transactions. None of the Founders, officers and directors of any Group

Company and, to the knowledge of the Company, none of the other employees of the Group Companies, any Company Stockholders, or any of the immediate family members of any of the foregoing, (i) has any direct or indirect ownership, participation, royalty or other interest in, or is an officer, director, employee of or consultant or contractor for any firm, partnership, entity or corporation that competes with, or does business with, or has any contractual arrangement with, any Group Company (except with respect to any interest in less than 5% of the stock of any corporation whose stock is publicly traded), (ii) is a party to, or to the knowledge of the Company, otherwise directly or indirectly interested in, any Contract to which the Company is a party or by which any Group Company or any of its assets is bound, except for normal compensation for services as an officer, director or employee thereof or (iii) to the knowledge of the Company, has any interest in any property, real or personal, tangible or intangible (including any Intellectual Property) that is used in, or that relates to, the Business, except for the rights of Company Stockholders under Applicable Law.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF THE INITIAL SELLING STOCKHOLDERS

Each Initial Selling Stockholder represents and warrants, solely as to himself, herself or itself, to Purchaser as follows:

3.1 Organization and Standing. If such Initial Selling Stockholder is an entity, such Initial Selling Stockholder is duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization. Such Initial Selling Stockholder has all requisite power and authority (if such Initial Selling Stockholder is an entity) or legal capacity (if such Initial Selling Stockholder is a natural person) to enter into this Agreement, and each other deed, agreement, document or certificate to which he or it may become a party pursuant to this Agreement, and to perform his or its obligations under this Agreement and each other such deed, agreement, document or certificate. The execution and delivery of this Agreement and each such deed, agreement, document or certificate by such Initial Selling Stockholder and the consummation by such Initial Selling Stockholder of the transactions contemplated hereby and thereby have been duly authorized by all necessary action, if any, on the part of such Initial Selling Stockholder (or its board of directors or similar governing body, as applicable), and no other actions or proceedings on the part of such Initial Selling Stockholder are necessary to authorize the execution and delivery by such Initial Selling Stockholder of this Agreement and the consummation by such Initial Selling Stockholder of the Transactions.

3.2 Authority; Non-contravention.

(a) This Agreement has been duly executed and delivered by such Initial Selling Stockholder. This Agreement is a valid and legally binding obligation, enforceable against such Initial Selling Stockholder in accordance with its terms (assuming the due execution and delivery of this Agreement by the other parties hereto), except as may be limited by (i) applicable bankruptcy, insolvency, reorganization or other laws of general application relating to or affecting the enforcement of creditors' rights generally and (ii) the effect of rules of law governing the availability of equitable remedies.

(b) The execution, delivery and performance by such Initial Selling Stockholder of this Agreement does not, and the consummation of the Transactions will not, (i) result in the creation of any lien on any of the material assets of the Company or any shares of Company Capital Stock, (ii) require notice to, or the consent of any person under, any Contract or Order to which such Initial Selling Stockholder is a party or by which such Initial Selling Stockholder is, or any of his or its assets are, bound, except for such conflicts, breaches, violations or defaults that would not, individually or in the aggregate, prevent or delay consummation of the Stock Purchase or otherwise prevent or delay such Initial Selling Stockholder from performing his or its obligations under this Agreement or (iii) conflict

with, or result in any violation of or default under (with or without notice or lapse of time, or both), or give rise to a right of termination, cancellation or acceleration of any obligation or loss of any benefit under, or require any consent, approval or waiver from any Person pursuant to, or result in the creation of any lien upon such Initial Selling Stockholder's shares of Company Capital Stock.

(c) No consent, approval, order or authorization of, or registration, declaration or filing with, any Governmental Entity or any other Person is required by or with respect to such Initial Selling Stockholder in connection with the execution and delivery of this Agreement or the consummation of the Transactions that would reasonably be expected to adversely affect the ability of such Initial Selling Stockholder to consummate the Stock Purchase or any of the other Transactions.

3.3 Title to Company Capital Stock. Such Initial Selling Stockholder has good and valid title to such shares of Company Capital Stock (as set forth on such Initial Selling Stockholder's signature page to this Agreement), free and clear of all Encumbrances, options, warrants and purchase rights that would adversely affect the Stock Purchase, this Agreement or the exercise or fulfillment of the rights and obligations of Purchaser, the Company or such Initial Selling Stockholder under this Agreement. At the Closing, such Initial Selling Stockholder shall deliver to Purchaser good and valid title to the Purchased Shares held by such Initial Selling Stockholder, free and clear of all Encumbrances, options, warrants and purchase rights. Such Initial Selling Stockholder's shares of Company Capital Stock constitutes such Initial Selling Stockholder's entire interest in the Equity Interests in the Company and such Initial Selling Stockholder does not have the right to acquire, directly or indirectly, any other Equity Interest in the Company. Such Initial Selling Stockholder is not a party to any option, warrant, purchase right or other Contract that could require such Initial Selling Stockholder to sell, transfer, or otherwise dispose of any shares of Company Capital Stock (other than this Agreement). No person not a signatory to this Agreement has a beneficial interest in or a right to acquire any of such Initial Selling Stockholder's shares of Company Capital Stock (other than, if such Initial Selling Stockholder is a married individual and resides in a state with community property laws, the community property interest of his spouse to the extent applicable under such community property laws).

3.4 Litigation. There are no Legal Proceedings or claims pending or, to the knowledge of such Initial Selling Stockholder, threatened against such Initial Selling Stockholder that seek to restrain or enjoin the consummation of the transactions contemplated hereby. There is no Order against such Initial Selling Stockholder that seeks to restrain or enjoin the consummation of the Stock Purchase.

3.5 Solvency. Such Initial Selling Stockholder is not bankrupt or insolvent and has not proposed a voluntary arrangement or made or proposed any arrangement or composition with such Initial Selling Stockholder's creditors or any class of such creditors, and no petition in respect of any such arrangement or composition has been presented. The consummation of the Stock Purchase and the Transactions contemplated hereby shall not constitute a fraudulent transfer by such Initial Selling Stockholder under Applicable Law, including laws relating to bankruptcy and insolvency of such Initial Selling Stockholder.

3.6 Tax Matters. Such Initial Selling Stockholder has had an opportunity to review with his or its own tax advisors the Tax consequences of the Stock Purchase and the Transactions contemplated hereby. Such Initial Selling Stockholder understands that he or it must rely solely on his or its advisors and not on any statements or representations made by Purchaser, the Company or any of their lawyers, advisors, agents or representatives. Such Initial Selling Stockholder understands that such Initial Selling Stockholder (and not Purchaser or the Company) shall be responsible for any Tax liability for such Initial Selling Stockholder that may arise as a result of the Stock Purchase and the Transactions contemplated hereby.

3.7 Accredited Investor. Such Initial Selling Stockholder, to the extent also a Founder or a Company Preferred Stockholder, is an accredited investor as defined in Rule 501(a) of Regulation D promulgated under the Securities Act (as defined in Rule 501(h) of Regulation D promulgated under the Securities Act).

3.8 Acknowledgment. Such Initial Selling Stockholder acknowledges that such Initial Selling Stockholder has received a copy of the Agreement and familiarized himself, herself or itself with the terms and conditions contained herein, including provisions relating to payment of the cash consideration to be paid to such Initial Selling Stockholder pursuant to Section 1.5(a) and Section 1.5(c) and the indemnification obligations of such Initial Selling Stockholder pursuant to Article IX.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF PURCHASER

Subject to the disclosures set forth in the disclosure letter of Purchaser delivered to the Company concurrently with the execution of this Agreement (the "***Purchaser Disclosure Letter***") (each of which disclosures, in order to be effective, shall clearly indicate the Section and, if applicable, the Subsection of this Article IV to which it relates (unless and only to the extent the relevance to other representations and warranties is readily apparent from the actual text of the disclosures without any reference to extrinsic documentation or any independent knowledge on the part of the reader regarding the matter disclosed), and each of which disclosures shall also be deemed to be representations and warranties made by Purchaser to the Company under this Article IV), and except as contemplated by this Agreement and/or in connection with the Transactions, Purchaser represents and warrants to the Company and the Initial Selling Stockholders as follows:

4.1 Organization, Good Standing, Corporate Power and Qualification. Purchaser is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware and has all requisite corporate power and authority to carry on its business as presently conducted and as presently proposed to be conducted. Purchaser is duly qualified to transact business and is in good standing in each jurisdiction in which the failure to so qualify would have a Material Adverse Effect.

4.2 Capitalization.

(a) The authorized capital of Purchaser consists, as of the Agreement Date, of:

(i) 710,000,000 shares of Class A Common Stock, $0.001 par value per share ("***Purchaser Class A Common Stock***"), 100,469,279 of which are issued and outstanding as of the Agreement Date, and 30,000,000 shares of Class B Common Stock, $0.001 par value per share ("***Purchaser Class B Common Stock***"), 24,989,397 shares of which are issued and outstanding immediately prior to the Initial Closing (collectively, the "***Purchaser Common Stock***"). All of the outstanding shares of Purchaser Common Stock have been duly authorized, are fully paid and nonassessable and were issued in compliance with all applicable federal and state securities laws. Purchaser holds no Purchaser Common Stock in its treasury.

(ii) 509,100,000 shares of Preferred Stock (the "***Purchaser Preferred Stock***"), of which 85,000,000 shares have been designated Series A Preferred Stock ("***Purchaser Series A Stock***"), 85,000,000 of which are issued and outstanding immediately prior to the Initial Closing, and 424,100,000 shares have been designated Purchaser Series B Stock, 247,377,462 of which are issued and outstanding immediately as of the Agreement Date. None of the rights, privileges and preferences of the Preferred Stock, as stated in the Purchaser's Restated Certificate of Incorporation (the "***Restated Certificate***"), as in effect as of the Agreement Date, are prohibited by the Delaware General Corporation

Law. As of the Agreement Date, each outstanding share of Purchaser Preferred Stock will initially be convertible into one (1) share of Common Stock.

(b) Purchaser has reserved an aggregate of 82,860,541 shares of Purchaser Common Stock for issuance to officers, directors, employees and consultants of Purchaser pursuant to its 2016 Equity Incentive Plan duly adopted by the Purchaser's board of directors and approved by the requisite stockholders (the "***Stock Plan***"). Of such reserved shares of Purchaser Common Stock, 24,989,397 shares of Purchaser Class B Common Stock and 11,228,400 shares of Purchaser Class A Common Stock have been issued pursuant to restricted stock purchase agreements as of the Agreement Date, options to purchase 13,486,030 shares of Purchaser Class A Common Stock have been granted and are currently outstanding as of the Agreement Date, and 33,686,714 shares of Purchaser Common Stock remain available for issuance to officers, directors, employees and consultants pursuant to the Stock Plan as of the Agreement Date. Purchaser has furnished to the Company complete and accurate copies of the Stock Plan and forms of agreements used thereunder.

(c) Except for (A) the conversion privileges of the Purchaser Preferred Stock, (B) the rights provided in Section 4 of the Purchaser Investors' Rights Agreement and (C) the securities and rights described in Section 4.2(a)(ii) and Section 4.2(c) of the Purchaser Disclosure Letter (if any), there are no outstanding options, warrants, rights (including conversion or preemptive rights and rights of first refusal or similar rights) or agreements, orally or in writing, to purchase or acquire from Purchaser any shares of Purchaser Common Stock or Purchaser Preferred Stock, or any securities convertible into or exchangeable for shares of Purchaser Common Stock or Purchaser Preferred Stock. All outstanding shares of Purchaser Common Stock and all shares of Purchaser Common Stock underlying outstanding options are subject to (i) a right of first refusal in favor of Purchaser upon any proposed transfer (other than transfers for estate planning or similar purposes) and (ii) a lock-up or market standoff agreement of not less than 180 days following Purchaser's initial public offering pursuant to a registration statement filed with the Securities and Exchange Commission under the Securities Act. All outstanding shares of the Purchaser Preferred Stock are subject to a lock-up or market standoff agreement of not less than 180 days following Purchaser's initial public offering pursuant to a registration statement filed with the Securities and Exchange Commission under the Securities Act.

(d) None of Purchaser's stock purchase agreements or stock option documents contains a provision for acceleration of vesting (or lapse of a repurchase right) or other changes in the vesting provisions or other terms of such agreement or understanding upon the occurrence of any event or combination of events, including in the case where Purchaser's Stock Plan is not assumed in an acquisition. Purchaser has never adjusted or amended the exercise price of any stock options previously awarded, whether through amendment, cancellation, replacement grant, repricing, or any other means. Except as set forth in the Restated Certificate, Purchaser has no obligation (contingent or otherwise) to purchase or redeem any of its capital stock.

4.3 Subsidiaries. Purchaser does not currently own or control, directly or indirectly, any interest in any other corporation, partnership, trust, joint venture, limited liability company, association, or other business entity. Purchaser is not a participant in any joint venture, partnership or similar arrangement.

4.4 Authorization. All corporate action required to be taken by Purchaser's board of directors and stockholders in order to authorize Purchaser to enter into the Transaction Documents, and to issue the shares of Purchaser Series B Stock issuable pursuant to this Agreement and the Purchaser Class A Common Stock issuable upon conversion of the shares of Purchaser Series B Stock issuable pursuant to this Agreement, has been taken or will be taken prior to the Closing. All action on the part of the officers of Purchaser necessary for the execution and delivery of the Transaction Documents, the performance of

all obligations of Purchaser under the Transaction Documents to be performed as of the Closing, and the issuance and delivery of the shares of Purchaser Series B Stock issuable pursuant to this Agreement has been taken or will be taken prior to the Closing. The Transaction Documents, when executed and delivered by Purchaser, shall constitute valid and legally binding obligations of Purchaser, enforceable against Purchaser in accordance with their respective terms except (i) as limited by applicable bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance, or other laws of general application relating to or affecting the enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief, or other equitable remedies, or (iii) to the extent the indemnification provisions contained in the Purchaser Investors' Rights Agreement and the indemnification agreements to which Purchaser is a party may be limited by applicable federal or state securities laws.

4.5 Valid Issuance of Shares.

(a) The shares of Purchaser Series B Stock issuable pursuant to this Agreement, when issued, sold and delivered in accordance with the terms and for the consideration set forth in this Agreement, will be validly issued, fully paid and nonassessable and free of restrictions on transfer other than restrictions on transfer under the Transaction Documents, applicable state and federal securities laws and liens or encumbrances created by or imposed by a Purchaser. Assuming the accuracy of the representations of the Company and the Initial Selling Stockholders in Article 2 and Article 3 and subject to the filings described in Section 4.6 below, the shares of Purchaser Series B Stock issuable pursuant to this Agreement will be issued in compliance with all applicable federal and state securities laws. The Purchaser Class A Common Stock issuable upon conversion of the shares of Purchaser Series B Stock issuable pursuant to this Agreement has been duly reserved for issuance, and upon issuance in accordance with the terms of the Restated Certificate, will be validly issued, fully paid and nonassessable and free of restrictions on transfer other than restrictions on transfer under the Transaction Documents, applicable federal and state securities laws and liens or encumbrances created by or imposed by a Purchaser. Based in part upon the representations of the Company and the Initial Selling Stockholders in Article 2 and Article 3, and subject to Section 4.5(b) below, the Purchaser Class A Common Stock issuable upon conversion of the shares of Purchaser Series B Stock issuable pursuant to this Agreement will be issued in compliance with all applicable federal and state securities laws. For accounting purposes, the Purchaser Series B Stock is classified as equity and not as debt.

(b) No "bad actor" disqualifying event described in Rule 506(d)(1)(i)-(viii) of the Securities Act (a "***Disqualification Event***") is applicable to Purchaser or, to Purchaser's knowledge, any Company Covered Person, except for a Disqualification Event as to which Rule 506(d)(2)(ii–iv) or (d)(3), is applicable.

4.6 Governmental Consents and Filings. Assuming the accuracy of the representations made by the Company and the Initial Selling Stockholders in Article 2 and Article 3, no consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any federal, state or local governmental authority is required on the part of Purchaser in connection with the consummation of the transactions contemplated by this Agreement, except for any filings that may be required pursuant to Regulation D of the Securities Act, and applicable state securities laws, which to the extent required have been made or will be made in a timely manner.

4.7 Litigation. There is no claim, action, suit, proceeding, arbitration, complaint, charge or investigation pending or to Purchaser's knowledge, currently threatened in writing (i) against Purchaser or any officer or director of Purchaser arising out of such officer's or director's employment or board relationship with Purchaser; (ii) to Purchaser's knowledge, that questions the validity of the Transaction Documents or the right of Purchaser to enter into them, or to consummate the transactions

contemplated by the Transaction Documents; or (iii) to Purchaser's knowledge, that would reasonably be expected to have, either individually or in the aggregate, a Material Adverse Effect with respect to Purchaser. Neither Purchaser nor, to Purchaser's knowledge, any of its officers or directors is a party or is named as subject to the provisions of any order, writ, injunction, judgment or decree of any court or government agency or instrumentality (in the case of officers or directors, such as would affect Purchaser). There is no action, suit, proceeding or investigation by Purchaser pending or which Purchaser intends to initiate. The foregoing includes, without limitation, actions, suits, proceedings or investigations pending or threatened in writing (or any basis therefor known to Purchaser) involving the prior employment of any of Purchaser's employees, their services provided in connection with Purchaser's business, any information or techniques allegedly proprietary to any of their former employers or their obligations under any agreements with prior employers.

4.8 Intellectual Property. Purchaser owns or possesses or believes it can acquire on commercially reasonable terms sufficient legal rights to all Purchaser Intellectual Property without any known conflict with, or infringement of, the rights of others. To Purchaser's knowledge, no product or service marketed or sold (or proposed to be marketed or sold) by Purchaser violates or will violate any license or infringes or will infringe any intellectual property rights of any other party. Other than with respect to generally commercially available software products under standard end-user object code license agreements, there are no outstanding options, licenses, agreements, claims, encumbrances or shared ownership interests of any kind relating to Purchaser Intellectual Property, nor is Purchaser bound by or a party to any options, licenses or agreements of any kind with respect to the patents, trademarks, service marks, trade names, copyrights, trade secrets, licenses, information, proprietary rights and processes of any other Person. Purchaser has not received any communications alleging that Purchaser has violated, or by conducting its business, would violate any of the patents, trademarks, service marks, tradenames, copyrights, trade secrets, mask works or other proprietary rights or processes of any other Person. Purchaser has obtained and possesses valid licenses to use all of the software programs present on the computers and other software- enabled electronic devices that it owns or leases or that it has otherwise provided to its employees for their use in connection with Purchaser's business. To Purchaser's knowledge, it will not be necessary to use any inventions of any of its employees or consultants (or Persons it currently intends to hire) made prior to their employment by Purchaser. Each current and former employee and consultant has assigned to Purchaser all intellectual property rights he or she owns that are related to Purchaser's business as now conducted and as presently proposed to be conducted. Section 4.8 of the Purchaser Disclosure Letter lists all Purchaser Intellectual Property that is registered with a governmental entity. Purchaser has not embedded any open source, copyleft or community source code in any of its products generally available or in development, including but not limited to any libraries or code licensed under any General Public License, Lesser General Public License or similar license arrangement in a manner that would require (or purport to require) the distribution of the source code of such software or prohibit (or purport to prohibit) Purchaser from charging for the distribution or use of the software or otherwise limit such software's use for commercial purposes. For purposes of this Section 4.8, Purchaser shall be deemed to have knowledge of a patent right if Purchaser has actual knowledge of the patent right or would be found to be on notice of such patent right as determined by reference to United States patent laws.

4.9 Compliance with Other Instruments. Purchaser is not in violation or default (i) of any provisions of its Restated Certificate or Bylaws, (ii) in any material respect, of any instrument, judgment, order, writ or decree, or (iii) in any material respect, under any lease, agreement, contract or purchase order to which it is a party or by which it is bound that is required to be listed on the Purchaser Disclosure Letter, or (iv) to its knowledge, of any provision of federal or state statute, rule or regulation applicable to Purchaser, the violation of which would have a Material Adverse Effect with respect to Purchaser. The execution, delivery and performance of the Transaction Documents and the consummation of the transactions contemplated by the Transaction Documents will not result in any such

violation or be in conflict with or constitute, with or without the passage of time and giving of notice, either (i) a material default under any such provision, instrument, judgment, order, writ, decree, contract or agreement; or (ii) an event which results in the creation of any material lien, charge or encumbrance upon any assets of Purchaser or the suspension, revocation, forfeiture, or nonrenewal of any material permit or license applicable to Purchaser.

4.10 Agreements; Actions.

(a) Except for the Transaction Documents, there are no agreements, understandings, instruments, contracts or proposed transactions to which Purchaser is a party or by which it is bound that involve: (i) obligations (contingent or otherwise) of, or payments to, Purchaser in excess of $250,000, (ii) the license of any patent, copyright, trademark, trade secret or other proprietary right to or from Purchaser other than licenses with respect to widely commercially available software products under standard end-user object code license agreements or standard customer terms of service and privacy policies for Internet sites, (iii) the grant of rights to manufacture, produce, assemble, license, market, or sell its products to any other Person that limit Purchaser's exclusive right to develop, manufacture, assemble, distribute, market or sell its products, or (iv) indemnification by Purchaser with respect to infringements of proprietary rights other than standard customer or channel agreements (each, a "***Purchaser Material Agreement***"). Purchaser is not in material breach of or default under any Purchaser Material Agreement and, to Purchaser's knowledge, there is no current claim or threat that Purchaser is or has been in material breach of or default under any Purchaser Material Agreement. Each Purchaser Material Agreement is in full force and effect and is enforceable by Purchaser in accordance with its respective terms, except as may be limited by (i) applicable bankruptcy, insolvency, reorganization or others laws of general application relating to or affecting the enforcement of creditors' rights generally or (ii) the effect of rules of law governing the availability of equitable remedies. To Purchaser's knowledge, no other party to a Purchaser Material Agreement is in material default thereunder or in actual or anticipated material breach thereof.

(b) Purchaser has not (i) declared or paid any dividends, or authorized or made any distribution upon or with respect to any class or series of its capital stock, (ii) incurred any indebtedness for money borrowed or incurred any other liabilities individually in excess of $150,000 or in excess of $300,000 in the aggregate, (iii) made any loans or advances to any Person, other than ordinary advances for travel expenses, or (iv) sold, exchanged or otherwise disposed of any of its assets or rights, other than the sale of its inventory in the ordinary course of business. For the purposes of (a) and (b) of this Section 4.10, all indebtedness, liabilities, agreements, understandings, instruments, contracts and proposed transactions involving the same Person (including Persons Purchaser has reason to believe are affiliated with each other) shall be aggregated for the purpose of meeting the individual minimum dollar amounts of such subsection.

(c) Purchaser is not a guarantor or indemnitor of any indebtedness of any other Person.

4.11 Certain Transactions.

(a) Other than (i) standard employee benefits generally made available to all employees, (ii) standard director and officer indemnification agreements approved by the Purchaser's board of directors, and (iii) the purchase of shares of Purchaser's capital stock and the issuance of options to purchase shares of Purchaser Common Stock, in each instance, approved in the written minutes of the Purchaser's board of directors, there are no agreements, understandings or proposed transactions between Purchaser and any of its officers, directors or consultants, or any Affiliate thereof.

(b) Purchaser is not indebted, directly or indirectly, to any of its directors, officers or employees or to their respective spouses or children or to any Affiliate of any of the foregoing, other than in connection with expenses or advances of expenses incurred in the ordinary course of business or employee relocation expenses and for other customary employee benefits made generally available to all employees. None of Purchaser's directors or officers, or any members of their immediate families, or any Affiliate of the foregoing are, directly or indirectly, indebted to Purchaser or, to Purchaser's knowledge, have any (i) material commercial, industrial, banking, consulting, legal, accounting, charitable or familial relationship with any of Purchaser's customers, suppliers, service providers, joint venture partners, licensees and competitors, (ii) direct or indirect ownership interest in any firm or corporation with which Purchaser is affiliated or with which Purchaser has a business relationship, or any firm or corporation which competes with Purchaser except that directors, officers, employees or stockholders of Purchaser may own stock in (but not exceeding two percent (2%) of the outstanding capital stock of) publicly traded companies that may compete with Purchaser; or (iii) material financial interest in any material contract with Purchaser.

4.12 Rights of Registration and Voting Rights. Except as provided in the Purchaser Investors' Rights Agreement, Purchaser is not under any obligation to register under the Securities Act any of its currently outstanding securities or any securities issuable upon exercise or conversion of its currently outstanding securities. To Purchaser's knowledge, except as contemplated in the Purchaser Voting Agreement, no stockholder of Purchaser has entered into any agreements with respect to the voting of capital shares of Purchaser.

4.13 Property. The property and assets that Purchaser owns are free and clear of all mortgages, deeds of trust, liens, loans and encumbrances, except for statutory liens for the payment of current Taxes that are not yet due and payable and encumbrances and liens that arise in the ordinary course of business and do not materially impair Purchaser's ownership or use of such property or assets. With respect to the property and assets it leases, Purchaser is in compliance with such leases and, to its knowledge, holds a valid leasehold interest free of any liens, claims or encumbrances other than those of the lessors of such property or assets. Purchaser does not own any real property.

4.14 Financial Statements. Purchaser has made available to each Company Securityholder its unaudited financial statements (including balance sheet, income statement and statement of cash flows) as of March 31, 2017 and for the three-month period then ended (collectively, the "***Purchaser Financial Statements***"). The Purchaser Financial Statements have been prepared in accordance with generally accepted accounting principles applied on a consistent basis throughout the periods indicated, except that the unaudited Purchaser Financial Statements may not contain all footnotes required by generally accepted accounting principles. The Purchaser Financial Statements fairly present in all material respects the financial condition and operating results of Purchaser as of the dates, and for the periods, indicated therein. Except as set forth in the Purchaser Financial Statements, Purchaser has no material liabilities or obligations, contingent or otherwise, other than (a) liabilities incurred in the ordinary course of business subsequent to March 31, 2017 that are not material, individually or in the aggregate, and in each case which liabilities and obligations do not exceed $150,000 individually or $300,000 in the aggregate, (b) obligations under contracts and commitments incurred in the ordinary course of business and (c) liabilities and obligations of a type or nature not required under generally accepted accounting principles to be reflected in the Purchaser Financial Statements.

4.15 Changes. Since March 31, 2017, there has not been:

(a) any change in the assets, liabilities, financial condition or operating results of Purchaser from that reflected in the Financial Statements, except changes in the ordinary course of business that have not caused, in the aggregate, a Material Adverse Effect with respect to Purchaser;

(b) any damage, destruction or loss, whether or not covered by insurance, that would have a Material Adverse Effect with respect to Purchaser;

(c) any waiver or compromise by Purchaser of a valuable right or of a material debt owed to it;

(d) any satisfaction or discharge of any lien, claim, or encumbrance or payment of any obligation by Purchaser, except in the ordinary course of business and the satisfaction or discharge of which would not have a Material Adverse Effect with respect to Purchaser;

(e) any material change to a material contract or agreement by which Purchaser or any of its assets is bound or subject;

(f) any material change in any compensation arrangement or agreement with any employee, officer, director or stockholder;

(g) any resignation or termination of employment of any officer of Purchaser;

(h) any mortgage, pledge, transfer of a security interest in, or lien, created by Purchaser, with respect to any of its material properties or assets, except liens for Taxes not yet due and payable and liens that arise in the ordinary course of business and do not materially impair Purchaser's ownership or use of such property or assets;

(i) any loans or guarantees made by Purchaser to or for the benefit of its employees, officers or directors, or any members of their immediate families, other than travel advances and other advances made in the ordinary course of its business;

(j) any declaration, setting aside or payment or other distribution in respect of any of Purchaser's capital stock, or any direct or indirect redemption, purchase, or other acquisition of any of such stock by Purchaser;

(k) any sale, assignment or transfer of any Purchaser Intellectual Property that could reasonably be expected to result in a Material Adverse Effect with respect to Purchaser;

(l) receipt of notice that there has been a loss of, or material order cancellation by, any major customer of Purchaser;

(m) to Purchaser's knowledge, any other event or condition of any character, other than events affecting the economy or Purchaser's industry generally, that could reasonably be expected to result in a Material Adverse Effect with respect to Purchaser; or

(n) any arrangement or commitment by Purchaser to do any of the things described in this Section 4.15.

4.16 Employee Matters.

(a) As of the Agreement Date, Purchaser employs 188 full time employees and one part-time employee.

(b) To Purchaser's knowledge, none of its employees is obligated under any contract (including licenses, covenants or commitments of any nature) or other agreement, or subject to any

judgment, decree or order of any court or administrative agency, that would materially interfere with such employee's ability to promote the interest of Purchaser or that would conflict with Purchaser's business. Neither the execution or delivery of the Transaction Documents, nor the carrying on of Purchaser's business by the employees of Purchaser, nor the conduct of Purchaser's business as now conducted and as presently proposed to be conducted, will, to Purchaser's knowledge, conflict with or result in a breach of the terms, conditions, or provisions of, or constitute a default under, any contract, covenant or instrument under which any such employee is now obligated.

(c) Purchaser is not delinquent in payments to any of its employees, consultants, or independent contractors for any wages, salaries, commissions, bonuses, or other direct compensation for any service performed for it to the date hereof or amounts required to be reimbursed to such employees, consultants or independent contractors. Purchaser has complied in all material respects with all applicable state and federal equal employment opportunity laws and with other laws related to employment, including those related to wages, hours, worker classification and collective bargaining. Purchaser has withheld and paid to the appropriate governmental entity or is holding for payment not yet due to such governmental entity all amounts required to be withheld from employees of Purchaser and is not liable for any arrears of wages, Taxes, penalties or other sums for failure to comply with any of the foregoing.

(d) The employment of each employee of Purchaser is terminable at the will of Purchaser. Except as set forth in Section 4.16(d) of the Purchaser Disclosure Letter or as required by law, upon termination of the employment of any such employees, no severance or other payments will become due. Except as set forth in Section 4.16(d) of the Purchaser Disclosure Letter, Purchaser has no policy, practice, plan or program of paying severance pay or any form of severance compensation in connection with the termination of employment services.

(e) Purchaser has not made any representations regarding equity incentives to any officer, employee, director or consultant that are inconsistent with the share amounts and terms set forth in the minutes of meetings of Purchaser's board of directors.

(f) Section 4.16(f) of the Purchaser Disclosure Letter sets forth each employee benefit plan maintained, established or sponsored by Purchaser, or which Purchaser participates in or contributes to, which is subject to ERISA. Purchaser has made all required contributions and has no liability to any such employee benefit plan, other than liability for health plan continuation coverage described in Part 6 of Title I(B) of ERISA, and has complied in all material respects with all applicable laws for any such employee benefit plan.

(g) Purchaser is not bound by or subject to (and none of its assets or properties is bound by or subject to) any written or oral, express or implied, contract, commitment or arrangement with any labor union, and no labor union has requested or, to the knowledge of Purchaser, has sought to represent any of the employees, representatives or agents of Purchaser. There is no strike or other labor dispute involving Purchaser pending, or to Purchaser's knowledge, threatened, which could have a Material Adverse Effect with respect to Purchaser, nor is Purchaser aware of any labor organization activity involving its employees.

(h) To Purchaser's knowledge, none of the directors of Purchaser has been (a) subject to voluntary or involuntary petition under the federal bankruptcy laws or any state insolvency law or the appointment of a receiver, fiscal agent or similar officer by a court for his business or property; (b) convicted in a criminal proceeding or named as a subject of a pending criminal proceeding (excluding traffic violations and other minor offenses); (c) subject to any order, judgment or decree (not subsequently reversed, suspended, or vacated) of any court of competent jurisdiction permanently or temporarily

enjoining him from engaging, or otherwise imposing limits or conditions on his engagement in any securities, investment advisory, banking, insurance, or other type of business or acting as an officer or director of a public company; or (d) found by a court of competent jurisdiction in a civil action or by the Securities and Exchange Commission or the Commodity Futures Trading Commission to have violated any federal or state securities, commodities, or unfair trade practices law, which such judgment or finding has not been subsequently reversed, suspended, or vacated.

4.17 Tax Returns and Payments. There are no federal, state, county, local or foreign taxes due and payable by Purchaser which have not been timely paid. There are no accrued and unpaid federal, state, county, local or foreign Taxes of Purchaser which are due, whether or not assessed or disputed. There have been no examinations or audits of any Tax returns or reports by any applicable federal, state, local or foreign governmental agency. Purchaser has duly and timely filed all federal, state, county, local and foreign Tax returns required to have been filed by it and there are in effect no waivers of applicable statutes of limitations with respect to Taxes for any year.

4.18 Insurance. Purchaser has in full force and effect fire and casualty insurance policies with extended coverage, sufficient in amount (subject to reasonable deductions) to allow it to replace any of its properties that might be damaged or destroyed.

4.19 Employee Agreements. Each current and former employee, consultant and officer of Purchaser has executed an agreement with Purchaser regarding confidentiality and proprietary information substantially in the form or forms delivered to the counsel for the Purchasers (the "***Confidential Information Agreements***"). No current or former employee whose primary responsibility was technological innovation has excluded works or inventions necessary to Purchaser's business from his or her assignment of inventions pursuant to such employee's Confidential Information Agreement. Purchaser is not aware that any of its employees is in violation of any agreement covered by this Section 4.19.

4.20 Permits. Purchaser has all franchises, permits, licenses and any similar authority necessary for the conduct of its business, the lack of which could reasonably be expected to have a Material Adverse Effect with respect to Purchaser. Purchaser is not in default in any material respect under any of such franchises, permits, licenses or other similar authority.

4.21 Corporate Documents. The Restated Certificate is the currently effective certificate of incorporation of Purchaser. The Bylaws of Purchaser are in the form provided to the Purchasers. The copy of the minute books of Purchaser provided to the Purchasers contains minutes of all meetings of directors and stockholders and all actions by written consent without a meeting by the directors and stockholders since the date of incorporation and accurately reflects in all material respects all actions by the directors (and any committee of directors) and stockholders with respect to all transactions referred to in such minutes.

4.22 83(b) Elections. To Purchaser's knowledge, all elections and notices under Section 83(b) of the Code have been or will be timely filed by all individuals who have acquired unvested shares of Purchaser Common Stock.

4.23 Real Property Holding Corporation. Purchaser is not now and has never been a "United States real property holding corporation" as defined in the Code and any applicable regulations promulgated thereunder. Purchaser has filed with the Internal Revenue Service all statements, if any, with its United States income tax returns which are required under such regulations.

4.24 FDA.

(a) Purchaser possesses all material permits, licenses, registrations, certificates, authorizations, orders and approvals from the appropriate federal, state or foreign regulatory authorities necessary to conduct its business, including all such permits, licenses, registrations, certificates, authorizations, orders and approvals required by the U.S. Food and Drug Administration (the "***FDA***") or any other federal, state or foreign agencies or bodies engaged in the regulation of pharmaceuticals or biohazardous materials. Purchaser has not received written notice of proceedings relating to the suspension, modification, revocation or cancellation of any such permit, license, registration, certificate, authorization, order or approval. Neither Purchaser nor, to Purchaser's knowledge, any officer, employee or agent of Purchaser has been convicted of any crime or engaged in any conduct that has previously caused or would reasonably be expected to result in (A) disqualification or debarment by the FDA under 21 U.S.C. Sections 335(a) or (b), or any similar law, rule or regulation of any other Governmental Entities, or (B) exclusion under 42 U.S.C. Section 1320a-7 or any similar law, rule or regulation of any Governmental Entities.

(b) Purchaser has a documented internal quality audit schedule to monitor its quality management system that meets the Quality System Regulation, or QSR, for medical devices found under 21 CFR Part 820, has not received any post- or pre-inspection FDA notices related to its operations or the conduct of its business as now or proposed to be conducted, and has not been contacted by the FDA, formally or informally, to discuss with the FDA such agency's concerns related to the current or proposed conduct of Purchaser's business or operations. Specifically, Purchaser is in compliance with, and has not received notices of violation or other warnings with respect to, the Food Drug and Cosmetic ("***FD&C***") Act, including any Form 483 notices of violation. To Purchaser's knowledge, it is (i) in compliance or, prior to offering its liquid biopsy or sequencing technology and software to identify free floating circulating tumor DNA (ctDNA) in the blood stream for early cancer detection to the medical professional or direct to patient markets, will be in compliance with all FD&C and FDA regulatory accreditation requirements, including any applicable requirements that human blood samples be processed in Clinical Laboratory Improvement Amendments of 1988, or CLIA, certified laboratories and/or College of American Pathologists, or CAP, accredited laboratories.

4.25 FCPA; Anti-Bribery; OFAC.

(a) Neither Purchaser nor any of Purchaser's directors, officers, employees or agents have, directly or indirectly, made, offered, promised or authorized any payment or gift of any money or anything of value to or for the benefit of any "foreign official" (as such term is defined in the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "***FCPA***")), foreign political party or official thereof or candidate for foreign political office for the purpose of (i) influencing any official act or decision of such official, party or candidate, (ii) inducing such official, party or candidate to use his, her or its influence to affect any act or decision of a foreign governmental authority, or (iii) securing any improper advantage, in the case of (i), (ii) and (iii) above in order to assist Purchaser or any of its affiliates in obtaining or retaining business for or with, or directing business to, any person. Neither Purchaser nor any of its directors, officers, employees or agents have made or authorized any bribe, rebate, payoff, influence payment, kickback or other unlawful payment of funds or received or retained any funds in violation of any law, rule or regulation. Purchaser further represents that it has maintained, and has caused each of its subsidiaries and affiliates to maintain, systems of internal controls (including, but not limited to, accounting systems, purchasing systems and billing systems) to ensure compliance with the FCPA or any other applicable anti-bribery or anti-corruption law. Neither Purchaser, or, to Purchaser's knowledge, any of its officers, directors or employees are the subject of any allegation, voluntary disclosure, investigation, prosecution or other enforcement action related to the FCPA or any other anti-corruption law.

(b) None of Purchaser, or, to Purchaser's knowledge, any director, officer, agent, employee or person acting on behalf of Purchaser is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("***OFAC***"), and neither Purchaser nor any subsidiary of Purchaser will directly or indirectly use the proceeds from the sale of the Shares, or lend, contribute or otherwise make available such proceeds to any subsidiary of Purchaser, joint venture partner or other person or entity, towards any sales or operations in any country sanctioned by OFAC or, to Purchaser's knowledge, for the purpose of financing the activities of any person subject to any U.S. sanctions administered by OFAC.

ARTICLE V
CONDUCT PRIOR TO THE CLOSING

5.1 Conduct of the Business; Notices. During the period from the Agreement Date and continuing until the earlier of the termination of this Agreement and the Closing, the Company shall, and shall cause the Subsidiaries to:

(a) conduct the Business solely in the ordinary course consistent with past practice (except to the extent expressly provided otherwise herein or as consented to in writing by Purchaser) and in compliance with Applicable Law;

(b) (i) pay and perform all of its undisputed debts and other obligations (including income and other material Taxes) when due, (ii) use commercially reasonable efforts consistent with past practice and policies to collect accounts receivable when due and not extend credit outside of the ordinary course of business consistent with past practice, (iii) sell the Company's products and services consistent with past practice as to discounting, license, service and maintenance terms, incentive programs and revenue recognition and other terms and (iv) use its commercially reasonable efforts consistent with past practice and policies to preserve intact its present business organizations, keep available the services of its present officers and key employees and preserve its relationships with customers, suppliers, distributors, licensors, licensees, and others having business dealings with it, to the end that its goodwill and ongoing businesses shall be unimpaired at the Closing;

(c) assure that each of its Contracts (other than with Purchaser) entered into after the Agreement Date will not require the procurement of any consent, waiver or novation or provide for any change in the obligations of any party thereto in connection with, or terminate as a result of the consummation of, the Transactions, and shall give reasonable advance notice to Purchaser prior to allowing any Material Contract or right thereunder to lapse or terminate by its terms;

(d) maintain each of its leased premises in accordance with the terms of the applicable lease;

(e) promptly notify Purchaser of any notice or other communication from any Person alleging that the consent of such Person is or may be required in connection with the Transactions;

(f) promptly notify Purchaser of any notice or other communication from any Governmental Entity (i) relating to the Transactions, (ii) indicating that a Company Authorization has been or is about to be revoked or (iii) indicating that a Company Authorization is required in any jurisdiction in which such Company Authorization has not been obtained, which revocation or failure to obtain has had or would reasonably be expected to be material to Purchaser (following the Closing) or the Company;

(g) promptly notify Purchaser of any inaccuracy in any representation or warranty or

breach of any covenant of the Company herein such that the condition set forth in Section 7.3(a) would not be satisfied; and

(h) to the extent not otherwise required by this Section 5.1, promptly notify Purchaser of any change, occurrence or event not in the ordinary course of business, or of any change, occurrence or event that, individually or in the aggregate with any other changes, occurrences and events, would reasonably be expected to cause any of the conditions to the Closing set forth in Article VII not to be satisfied.

5.2 Restrictions on Conduct of the Business. Without limiting the generality or effect of Section 5.1, except as expressly set forth on Schedule 5.2 of the Company Disclosure Letter, during the period from the Agreement Date and continuing until the earlier of the termination of this Agreement and the Closing, the Company shall not, and shall cause each Subsidiary not to, do, cause or permit any of the following (except to the extent expressly provided otherwise herein or as consented to in writing by Purchaser):

(a) Charter Documents. Cause, propose or permit any amendments to the Certificate of Incorporation, the Bylaws or equivalent organizational or governing documents of the Company or any Subsidiary, other than the filing of the Articles of Association;

(b) Merger, Reorganization. Merge or consolidate itself with any other Person or adopt a plan of complete or partial liquidation, dissolution, consolidation, restructuring, recapitalization or other reorganization;

(c) Dividends; Changes in Company Capital Stock. Declare or pay any dividends on or make any other distributions (whether in cash, stock or other property) in respect of any of its Equity Interests, or split, combine or reclassify any of its Equity Interests or issue or authorize the issuance of any Equity Interests or other securities in respect of, in lieu of or in substitution for its Equity Interests, or repurchase or otherwise acquire, directly or indirectly, any of its Equity Interests except for Permitted Issuances, in each case other than cash dividends or cash distributions that do not cause the Company's cash balance to be less than the Minimum Cash Balance;

(d) Material Contracts. (i) Enter into, amend or modify any (A) Contract that would (if entered into, amended or modified prior to the Agreement Date) constitute a Material Contract or (B) Contract requiring a novation or consent in connection with the Stock Purchase or the other Transactions, (ii) violate, terminate, amend or modify (including by entering into a new Contract with such party or otherwise) or waive any of the terms of any of its Material Contracts or (iii) enter into, amend, modify or terminate any Contract or waive, release or assign any rights or claims thereunder, which if so entered into, modified, amended, terminated, waived, released or assigned would be reasonably like to (A) adversely affect the Company (or, following consummation of the Stock Purchase, Purchaser or any of its Affiliates) in any material respect, (B) impair the ability of the Company or the Equityholders' Representative to perform their respective obligations under this Agreement or (C) prevent or materially delay or impair the consummation of the Stock Purchase and the other Transactions; provided that this Section 5.2(d) shall not require the Company to seek or obtain Purchaser's consent in order to set or change the prices at which the Company sells products or provides services to current end users in the ordinary course of business consistent with past practice;

(e) Issuance of Equity Interests. Issue, deliver, grant or sell or authorize or propose the issuance, delivery, grant or sale of, or purchase or propose the purchase of, any Company Voting Debt or any Equity Interests, or enter into or authorize or propose to enter into any Contracts of any character obligating it to issue any Equity Interests, other than: (i) the issuance of shares of Company Ordinary

Shares pursuant to the exercise of Company Options that are outstanding as of the Agreement Date, (ii) the issuance of Company Ordinary Shares upon conversion of Company Preferred Stock outstanding on the Agreement Date and (iii) the repurchase of any shares of Company Capital Stock from former employees, non-employee directors and consultants in accordance with Contracts providing for the repurchase of shares in connection with any termination of service (clauses (i)-(iii), "***Permitted Issuances***");

(f) Employees; Consultants; Independent Contractors. (i) Hire, or offer to hire, any additional officers or other employees, or any consultants or independent contractors, (ii) terminate the employment, change the title, office or position, or materially reduce the responsibilities of any employee of any Group Company, (iii) enter into, amend or extend the term of any employment or consulting agreement with, or Company Option held by, any officer, employee, consultant or independent contractor, (iv) enter into any Contract with a labor union or collective bargaining agreement or works agreement (unless required by Applicable Law) or (v) add any new members to the Board;

(g) Loans and Investments. Make any loans or advances (other than routine expense advances to employees of the Company consistent with past practice) to, or any investments in or capital contributions to, any Person, or forgive or discharge in whole or in part any outstanding loans or advances, or prepay any indebtedness for borrowed money;

(h) Intellectual Property. Transfer or license from any Person any rights to any Intellectual Property, or transfer or license to any Person any rights to any Company Intellectual Property;

(i) Patents. Take any action regarding a patent, patent application or other Intellectual Property right, other than filing continuations for existing patent applications or completing or renewing registrations of existing patents, domain names, trademarks or service marks in the ordinary course of business consistent with past practice;

(j) Dispositions. Sell, lease, license or otherwise dispose or permit to lapse of any of its tangible or intangible assets, other than sales and nonexclusive licenses of Company Products in the ordinary course of business consistent with past practice, or enter into any Contract with respect to the foregoing;

(k) Indebtedness. Incur any indebtedness for borrowed money or guarantee any such indebtedness;

(l) Payment of Obligations. Pay, discharge or satisfy (i) any Liability to any Person who is an officer, director or Company Stockholder (other than compensation due for services as an officer or director) or (ii) any claim or Liability arising other than in the ordinary course of business consistent with past practice (other than the payment, discharge or satisfaction of Liabilities reflected or reserved against in the Financial Statements and Transaction Expenses or payments that do not cause the Company's cash balance to be less than the Minimum Cash Balance), or defer payment of any accounts payable other than in the ordinary course of business consistent with past practice, or give any discount, accommodation or other concession other than in the ordinary course of business consistent with past practice, in order to accelerate or induce the collection of any receivable;

(m) Capital Expenditures. Make any capital expenditures, capital additions or capital improvements in excess of $25,000 individually or $50,000 in the aggregate;

(n) Insurance. Materially change the amount of, or terminate, any insurance coverage;

(o) Termination or Waiver. Cancel, release or waive any claims or rights held by the Company;

(p) Employee Benefit Plans; Pay Increases. (i) Adopt or amend any employee or compensation benefit plan, including any stock issuance or stock option plan, or amend any compensation, benefit, entitlement, grant or award provided or made under any such plan, except in each case as required under ERISA, Applicable Law or as necessary to maintain the qualified status of such plan under the Code, (ii) materially amend any deferred compensation plan within the meaning of Section 409A of the Code and the regulations thereunder, except to the extent necessary to meet the requirements of such Section or Notice, (iii) pay any special bonus or special remuneration to any employee or non-employee director or consultant or (iv) increase the salaries, wage rates or fees of its employees or consultants (other than, in each case, as required under Applicable Law or the terms and conditions of any Contract or Company Employee Plan in effect as of the date hereof);

(q) Severance Arrangements. Grant or pay, or enter into any Contract providing for the granting of any severance, retention or termination pay, or the acceleration of vesting or other benefits, to any Person (other as required under Applicable Law or the terms and conditions of any Contract or Company Employee Plan in effect as of the date hereof);

(r) Lawsuits; Settlements. (i) Commence a lawsuit other than (A) for the routine collection of bills, (B) in such cases where the Company in good faith determines that failure to commence suit would result in the material impairment of a valuable aspect of its business (provided that the Company consults with Purchaser prior to the filing of such a suit) or (C) for a breach of this Agreement or (ii) settle or agree to settle any pending or threatened lawsuit or other dispute;

(s) Acquisitions. Acquire or agree to acquire by merging or consolidating with, or by purchasing a substantial portion of the assets of, or by any other manner, any business or any corporation, partnership, association or other business organization or division thereof, or otherwise acquire or agree to acquire any assets that are material, individually or in the aggregate, to the Company or the Business, or enter into any Contract with respect to a joint venture, strategic alliance or partnership;

(t) Taxes. Make or change any material election in respect of Taxes, adopt or change any material accounting method in respect of Taxes, file any amendment to a federal, state, or non-U.S. income Tax Return or any other material Tax Return, enter into any Tax sharing or similar agreement or closing agreement, assume any Liability for the Taxes of any other Person (whether by Contract or otherwise), settle any claim or assessment in respect of Taxes, consent to any extension or waiver of the limitation period applicable to any claim or assessment in respect of Taxes, or enter into intercompany transactions giving rise to deferred gain or loss of any kind;

(u) Accounting. Change accounting methods or practices (including any change in depreciation or amortization policies) or revalue any of its assets (including writing down the value of inventory or writing off notes or accounts receivable otherwise than in the ordinary course of business), except in each case as required by changes in GAAP as concurred with its independent accountants and after notice to Purchaser;

(v) Real Property. Enter into any agreement for the purchase, sale or lease of any real property;

(w) Encumbrances. Place or allow the creation of any Encumbrance (other than a Permitted Encumbrance) on any of its properties;

(x) Interested Party Transactions. Enter into any Contract that, if entered prior to the Agreement Date, would be required to be listed on Schedule 2.21 of the Company Disclosure Letter;

(y) Subsidiaries. Take any action that would result in the Company having any additional Subsidiaries; and

(z) Other. Take or agree in writing or otherwise to take, any of the actions described in clauses (a) through (y) in this Section 5.2.

ARTICLE VI
ADDITIONAL AGREEMENTS

6.1 No Solicitation. During the period from the Agreement Date and continuing until the earlier of the termination of this Agreement and the Closing:

(a) None of the Company or any Initial Selling Stockholders will, and none of the Company or any Initial Selling Stockholders will authorize or permit any of their respective Representatives to, directly or indirectly, (i) solicit, initiate, seek, entertain, knowingly encourage, facilitate, support or induce the making, submission or announcement of any inquiry, expression of interest, proposal or offer that constitutes, or could reasonably be expected to lead to, an Acquisition Proposal, (ii) enter into, participate in, maintain or continue any communications (except solely to provide written notice as to the existence of these provisions) or negotiations regarding, or deliver or make available to any Person any non-public information with respect to, or take any other action regarding, any inquiry, expression of interest, proposal or offer that constitutes, or could reasonably be expected to lead to, an Acquisition Proposal, (iii) agree to, accept, approve, endorse or recommend (or publicly propose or announce any intention or desire to agree to, accept, approve, endorse or recommend) any Acquisition Proposal, (iv) enter into any letter of intent or any other Contract contemplating or otherwise relating to, or that could reasonably be expected to lead to, any Acquisition Proposal, (v) submit any Acquisition Proposal to the vote of any Company Securityholders or (vi) enter into any other transaction or series of transactions not in the ordinary course of business consistent with past practice, the consummation of which would impede, interfere with, prevent or delay, or would reasonably be expected to impede, interfere with, prevent or delay, the consummation of the Stock Purchase or the other Transactions. Each of the Company and the Initial Selling Stockholders will, and will cause their respective Representatives to, (A) immediately cease and cause to be terminated any and all existing activities, discussions or negotiations with any Persons conducted prior to or on the Agreement Date with respect to any Acquisition Proposal and (B) immediately revoke or withdraw access of any Person (other than Purchaser and its Representatives) to any data room (virtual or actual) containing any non-public information with respect to the Company in connection with an Acquisition Proposal and request from each Person (other than Purchaser and its Representatives) the prompt return or destruction of all non-public information with respect to the Company previously provided to such Person in connection with an Acquisition Proposal. If any of the Company's or the Initial Selling Stockholders' Representatives, whether in his, her or its capacity as such or in any other capacity, takes any action that the Company or an Initial Selling Stockholder is obligated pursuant to this Section 6.1 not to authorize or permit such Representative to take, then the Company and the applicable Initial Selling Stockholder, respectively, shall be deemed for all purposes of this Agreement to have breached this Section 6.1.

(b) The Company and each Initial Selling Stockholder shall immediately (but in any event, within 24 hours) notify Purchaser orally and in writing after receipt by it (or, to the knowledge of the Company, by any of the Company's Representatives), of (i) any Acquisition Proposal, (ii) any inquiry, expression of interest, proposal or offer that constitutes, or would reasonably be expected to lead to, an Acquisition Proposal, (iii) any other notice that any Person is considering making an Acquisition

Proposal or (iv) any request for non-public information relating to the Company or for access to any of the properties, books or records of the Company by any Person or Persons other than Purchaser and its Representatives. Such notice shall, subject to confidentiality obligations existing as of the Agreement Date, describe (A) the material terms and conditions of such Acquisition Proposal, inquiry, expression of interest, proposal, offer, notice or request and (B) the identity of the Person or Group making any such Acquisition Proposal, inquiry, expression of interest, proposal, offer, notice or request. The sender of such notice shall, subject to confidentiality obligations existing as of the Agreement Date, keep Purchaser fully informed of the status and details of, and any modification to, any such inquiry, expression of interest, proposal or offer and any correspondence or communications related thereto and shall provide to Purchaser a true, correct and complete copy of such inquiry, expression of interest, proposal or offer and any amendments, correspondence and communications related thereto, if it is in writing, or a reasonable written summary thereof, if it is not in writing. The Company shall provide Purchaser with 48 hours prior notice (or such lesser prior notice as is provided to the members of the Board) of any meeting of the Board at which the Board is reasonably expected to discuss any Acquisition Proposal.

6.2 Confidentiality; Public Disclosure.

(a) The parties hereto acknowledge that Purchaser and the Company have previously executed a mutual non-disclosure agreement, dated as of May 3, 2017 (the "***Confidentiality Agreement***"), which shall continue in full force and effect in accordance with its terms. Each party hereto (other than the Equityholders' Representative) agrees that it and its Representatives shall hold the terms of this Agreement, and the fact of this Agreement's existence, in strict confidence. At no time shall any party hereto (other than the Equityholders' Representative) disclose any of the terms of this Agreement (including the economic terms) or any non-public information about a party hereto to any other Person without the prior written consent of the party hereto about which such non-public information relates. Notwithstanding anything to the contrary in the foregoing, a party hereto shall be permitted to disclose any and all terms to its financial, tax and legal advisors (each of whom is subject to a similar obligation of confidentiality), to its members and limited and general partners (each of whom is subject to an obligation of confidentiality that is at least as strict as set forth herein and in the Confidentiality Agreement), to prospective investors (each of whom is subject to an obligation of confidentiality that is at least as strict as set forth herein and in the Confidentiality Agreement, and to whom the identities of the parties to this Agreement shall remain undisclosed until such prospective investors become actual investors) and to any Governmental Entity or administrative agency to the extent necessary or advisable in compliance with Applicable Law. The Equityholders' Representative acknowledges and agrees that after the Closing it shall continue to be bound by the terms and conditions of that certain Nondisclosure Agreement, dated as of May 13, 2017, by and between the Equityholders' Representative and the Company, which shall be deemed to cover all information relating to the Stock Purchase or this Agreement received by the Equityholders' Representative after the Closing or relating to the period after the Closing and shall be enforceable by Purchaser after the Closing.

(b) The Company shall not issue any press release or other public communications relating to the terms of this Agreement or the Transactions or use Purchaser's name or refer to Purchaser directly or indirectly in connection with Purchaser's relationship with the Company in any media interview, advertisement, news release, press release or professional or trade publication, or in any print media, whether or not in response to an inquiry, without the prior written approval of Purchaser, unless required by Applicable Law (in which event a satisfactory opinion of counsel to that effect shall be first delivered to Purchaser prior to any such disclosure) and except as reasonably necessary for the Company to obtain the consents and approvals of third parties contemplated by this Agreement. Notwithstanding anything to the contrary contained herein or in the Confidentiality Agreement, Purchaser may make such public communications regarding this Agreement or the Transactions as Purchaser may determine is reasonably appropriate.

6.3 Reasonable Best Efforts. Each of the parties hereto (other than the Equityholders' Representative) agrees to use its reasonable best efforts, and to cooperate with each other party hereto, to take, or cause to be taken, all actions, and to do, or cause to be done, all things necessary, appropriate or desirable to consummate and make effective, in the most expeditious manner practicable, the Stock Purchase and the other Transactions, including the satisfaction of the respective conditions set forth in Article VII, and including to execute and deliver such other instruments and do and perform such other acts and things as may be necessary or reasonably desirable for effecting completely the consummation of the Stock Purchase and the other Transactions.

6.4 Third-Party Consents; Notices.

(a) Following consultation with Purchaser, the Company shall use all reasonable efforts to obtain prior to the Closing, and deliver to Purchaser at or prior to the Closing, all consents, waivers and approvals under each Contract set forth on Schedule 1.4(b)(xiii).

(b) The Company shall give all notices and other information required to be given to the employees of the Company, any collective bargaining unit representing any group of employees of the Company, and any applicable Governmental Entity under the WARN Act, the National Labor Relations Act, as amended, the Code, COBRA and other Applicable Law in connection with the Transactions.

6.5 Litigation. The Company shall (i) notify Purchaser in writing promptly after learning of any Legal Proceeding initiated by or against it, or known by the Company to be threatened against the Company, or any of its directors, officers or employees or the Company Stockholders in their capacity as such (a "***New Litigation Claim***"), (ii) notify Purchaser of ongoing material developments in any New Litigation Claim and (iii) consult in good faith with Purchaser regarding the conduct of the defense of any New Litigation Claim.

6.6 Access to Information.

(a) During the period from the Agreement Date and continuing until the earlier of the termination of this Agreement and the Closing, (i) the Company shall afford Purchaser and its Representatives reasonable access during business hours to (A) the Company's properties, personnel, books, Contracts and records and (B) all other information concerning the business, properties and personnel of the Company as Purchaser may reasonably request and (ii) the Company shall provide to Purchaser and its Representatives true, correct and complete copies of the Company's (A) internal financial statements, (B) Tax Returns, Tax elections and all other records and workpapers relating to Taxes, (C) a schedule of any deferred intercompany gain or loss with respect to transactions to which the Company has been a party and (D) receipts for any Taxes paid to non-U.S. Tax Authorities.

(b) Subject to compliance with Applicable Law, from the Agreement Date until the earlier of the termination of this Agreement and the Closing, the Company shall confer from time to time as requested by Purchaser with one or more Representatives of Purchaser to discuss any material changes or developments in the operational matters of the Company and the general status of the ongoing operations of the Company.

(c) No information or knowledge obtained by Purchaser during the pendency of the Transactions in any investigation pursuant to this Section 6.6 shall affect or be deemed to modify any representation, warranty, covenant, agreement, obligation or condition set forth herein.

(d) Within five days following the Agreement Date, the Company shall deliver to Purchaser one or more DVDs or other digital media evidencing the documents that were made available,

which shall indicate, for each document, the date that such document was first uploaded to the data room.

6.7 Spreadsheet. The Company shall prepare and deliver to Purchaser, in accordance with Section 6.11, a spreadsheet (the "***Spreadsheet***") in form and substance reasonably satisfactory to Purchaser, which spreadsheet shall be dated as of the Closing Date and shall set forth all of the following information (in addition to the other required data and information specified therein), as of immediately prior to the Closing: (a) the names of all of the Selling Securityholders and their respective addresses and e-mail addresses (to the extent known), (b) the number and type of shares of Company Capital Stock held by, or subject to the Company Options held by, such Selling Securityholders and, in the case of outstanding shares, the respective certificate numbers, and if the Company Capital Stock was ever subjected to vesting or other conditions constituting a "substantial risk of forfeiture" within the meaning of Section 83 of the Code, whether a Section 83(b) election was timely and properly made in respect thereof, (c) (i) for each Company Option that was exercised, whether it was early exercised, and the Tax status of each such Company Option under Section 422 of the Code, the date of such exercise and the applicable exercise price and (ii) for each outstanding Company Option, the Tax status of each such Company Option under Section 422 of the Code, the date of such exercise and the applicable exercise price, (d) the Total Consideration (including, listed separately, the Cash Consideration, Stock Consideration and Aggregate Exercise Price, and excluding, for purposes of this clause (d), the Contingent Consideration, (e) the calculation of each Selling Securityholder's Pro Rata Share (expressed as a percentage), (f) the calculation of the aggregate cash amounts payable to each such Selling Securityholder pursuant to each of Section 1.5(a), Section 1.5(b) and Section 1.5(c) (with respect to Section 1.5(c), assuming paid in all cash pursuant to the terms of Section 1.5(c)), (g) the calculation of the aggregate number of shares of Purchase Series B Stock issuable to each such Selling Securityholder pursuant to each of Section 1.5(a), (h) the amount of any indebtedness to the Company owed by such Selling Securityholder and to be deducted from such Selling Securityholder's applicable portion of the Cash Consideration, (i) the calculation of the Seller Stamp Tax Amount and (j) a funds flow memorandum setting forth all Transaction Expenses incurred (whether paid or unpaid), including any Transaction Expenses to be paid by the Purchaser at the Closing and any other payments to be made by Purchaser at the Closing (including Transaction Expenses reasonably anticipated to be incurred in the future).

6.8 Expenses. Whether or not the Stock Purchase is consummated, except as otherwise set forth herein, all costs and expenses incurred in connection with this Agreement and the Transactions (including Transaction Expenses) shall be paid by the party incurring such expense, provided that at the Closing, Purchaser shall pay or cause to be paid all Transaction Expenses that are incurred but unpaid as of the Closing.

6.9 Employees.

(a) With respect to any employee of the Company who receives an offer of employment from Purchaser or the Company, the Company shall assist Purchaser with its efforts to enter into an offer letter and a confidential information and assignment agreement with such employee prior to the Closing Date. Notwithstanding anything to the contrary in the foregoing, none of Purchaser or any Group Company shall have any obligation to make an offer of employment to any employee of the Company. With respect to matters described in this Section 6.9, the Company will consult with Purchaser (and will consider in good faith the advice of Purchaser) prior to sending any notices or other communication materials to its employees.

(b) The Company shall ensure that there shall be no outstanding securities, commitments or agreements of any Group Company immediately prior to the Closing that purport to obligate the Company or any Subsidiary to issue any shares of Company Capital Stock or Company

Options under any circumstances other than Permitted Issuances.

(c) The Company's Board of Directors shall validly pass resolutions to declare that all unvested Company Options will be cancelled without consideration immediately prior to the Closing, consistent with Section 9(c)(v) of the Company's equity incentive plan, as well as all other actions necessary or reasonably requested by the Purchaser to give effect to the cancellation of the unvested Company Options (contemplated by Section 1.5(b) of this Agreement). The form and substance of the resolutions described in this subsection shall be subject to review and approval of Purchaser.

6.10 Repayment of Transaction Expenses; Minimum Cash Balance.

(a) Prior to or concurrent with the Closing, the Company shall use commercially reasonable efforts to repay all Transaction Expenses.

(b) The Company shall cause its cash balance as of the Closing to be at least $2,300,000 (the "***Minimum Cash Balance***").

6.11 Certain Closing Certificates and Documents. The Company shall prepare and deliver to Purchaser a draft of the Spreadsheet concurrently with (or shall have prepared and delivered to Purchaser such draft prior to) the execution of this Agreement, and shall prepare and deliver a final version of the Spreadsheet to Purchaser not later than one Business Day prior to the Closing Date. In the event that Purchaser notifies the Company that there are reasonably apparent errors in the Spreadsheet, Purchaser and the Company shall discuss such errors in good faith and the Company shall correct such errors prior to delivering the final versions of the same in accordance with this Section 6.11. Without limiting the foregoing or Section 6.6, the Company shall provide to Purchaser, together with the Spreadsheet, such supporting documentation, information and calculations as are reasonably necessary for Purchaser to verify and determine the calculations, amounts and other matters set forth in the Spreadsheet.

6.12 Tax Matters.

(a) Each of Purchaser, the Equityholders' Representative, the Selling Stockholders and the Company shall cooperate fully, as and to the extent reasonably requested by any of the others, in connection with the filing of Tax Returns and any Legal Proceeding with respect to Taxes. Such cooperation shall include the retention and (upon request therefor) the provision of records and information reasonably relevant to any such Legal Proceeding and making employees available on a mutually convenient basis to provide additional information and explanation of any material provided hereunder. Purchaser, the Company, the Equityholders' Representative and the Selling Stockholders agree to retain all books and records in its possession with respect to Tax matters pertinent to the Company relating to any taxable period beginning before the Closing Date until expiration of the statute of limitations of the respective taxable periods, and to abide by all record retention agreements entered into with any Tax Authority.

(b) The Company shall cause each Selling Stockholder to further agree, upon request, to use their reasonable best efforts to obtain any certificate or other document from any Governmental Entity or any other Person as may be necessary to mitigate, reduce or eliminate any Tax that could be imposed (including with respect to the Transactions).

(c) Purchaser shall prepare or cause to be prepared and timely file or cause to be timely filed all income Tax Returns of the Company for all periods (or portions thereof) ending on or before the Closing Date that are due after the Closing Date, and shall provide drafts of each such income Tax Return to the Equityholders' Representative not less than 30 days prior to the due date for such

income Tax Return (taking into account any validly obtained extensions of time to file), and shall make any changes provided by the Equityholders' Representative. Purchaser shall also prepare or cause to be prepared and file or cause to be filed all other Tax Returns of the Company that are due (taking into account any validly obtained extensions) after the Closing Date, whether such Tax Returns are for taxable periods ending before, on or after the Closing Date shall provide drafts of each such Tax Returns to the Equityholders' Representative not less than 30 days prior to the due date for such Tax Return (taking into account any validly obtained extensions of time to file), and shall make any reasonable changes requested by the Equityholders' Representative in good faith.

(d) Except as Purchaser reasonably determines to be necessary to comply with applicable Tax Law (and with prior notice to, and good faith consultation with, the Equityholders' Representative), Purchaser shall not: (i) cause or permit the Company or its Subsidiaries to amend any Tax Return of the Company or its Subsidiaries for a taxable period ending on or prior to the Closing Date, (ii) except for Tax Returns prepared and filed in accordance with Section 6.12(c), file any Tax Return with respect to a Pre-Closing Tax Period, or (iii) make or change any Tax election (other than an election contemplated by Section 6.12(g)) or change any method of accounting that has retroactive effect to a Pre-Closing Tax Period, in each case, without the Equityholders' Representative's prior written consent (not to be unreasonably conditioned, withheld or delayed).

(e) Purchaser shall promptly notify the Equityholders' Representative upon receipt by Purchaser or any Affiliate of Purchaser of written notice of any claims, assessments, audits or similar events with respect to Taxes relating to a Pre-Closing Tax Period for which any of the Indemnifying Parties would be liable under this Agreement (any such claim, assessment, audit or similar event, a "***Tax Claim***"); provided that the failure to provide such notice shall not affect Purchaser's rights to indemnification unless the Selling Securityholders are actually prejudiced thereby. Following the Closing, Purchaser shall have the right in its sole discretion to control the conduct of any Tax Claim; provided, that, (i) Purchaser shall keep the Equityholders' Representative reasonably informed about the progress of such Tax Claim and provide the Equityholders' Representative the right to review and comment on any submissions to a Tax authority; and (ii) Purchaser shall not abandon, compromise or resolve such Tax Claim without the Equityholders' Representative's prior written consent (not to be unreasonably withheld, conditioned or delayed).

(f) Refunds of Taxes paid by the Company or any of its Subsidiaries prior to the Closing Date that are received by Purchaser or its Affiliates that relate to Taxable periods (or portions thereof) ending on or before the Closing Date shall be for the account of the Selling Securityholders. The Purchaser or its Affiliates shall promptly pay to the Exchange Agent (for further distribution to the Selling Securityholders) the amount of such Tax refund, less any costs or Taxes attributable to the receipt thereof). Purchaser shall have the right to offset any Tax refund payable under this Section 6.12(e) against any amount owed by the Selling Securityholders. In the event that any Tax Refund paid to the Selling Securityholders under this Section 6.12(e) is subsequently disallowed, the Selling Securityholders shall promptly repay such amounts (with interest) to Purchaser.

(g) Purchaser (or an Affiliate of Purchaser) intends to make an election under Section 338(g) of the Code (and any corresponding election under state and local Tax law) with respect to the purchase of the Purchased Shares and the deemed purchase of Cirina Hong Kong Limited, a Hong Kong Subsidiary of the Company; provided, however, that Purchaser shall not make an election under Section 338 of the Code (or any corresponding election under state and local Tax law) with respect to the indirect purchase of any Subsidiary of the Company organized in the United States.

6.13 280G Stockholder Approval.

(a) Parachute Payment Waivers. The Company shall take commercially reasonable efforts to obtain and deliver to Purchaser, prior to the initiation of the requisite stockholder approval procedure under Section 6.13(b), a Parachute Payment Waiver from each Person who is, with respect to the Company, any Subsidiary and/or any ERISA Affiliate, a "disqualified individual" (within the meaning of Section 280G of the Code and the regulations promulgated thereunder), as determined immediately prior to the initiation of the requisite stockholder approval procedure under Section 6.13(b), and who might otherwise be reasonably expected to have, receive or have the right or entitlement to receive a parachute payment under Section 280G of the Code, pursuant to which each such Person shall agree to waive any and all right or entitlement to any benefits that may be characterized as potential parachute payments under Section 280G of the Code, to the extent the value thereof exceeds three times such Person's base amount less $1.00 determined in accordance with Section 280G of the Code and the regulations promulgated thereunder, unless the requisite stockholder approval of such accelerated vesting, payments, benefits, options and stock is obtained pursuant to Section 6.13(b). The form and substance of the waivers described in this Section 6.13(a) shall be subject to reasonable review and approval of Purchaser.

(b) Section 280G Stockholder Approval. The Company shall obtain the approval by such number of Company Stockholders as is required by the terms of Section 280G(b)(5)(B) so as to render the parachute payment provisions of Section 280G of the Code inapplicable to any and all accelerated vesting payments, benefits, options and/or stock provided pursuant to agreements, contracts or arrangements that are the subject of a Parachute Payment Waiver and that might otherwise result, separately or in the aggregate, in the payment of any amount and/or the provision of any benefit that would not be deductible by reason of Section 280G of the Code, with such stockholder vote to be obtained in a manner which satisfies all applicable requirements of Section 280G(b)(5)(B) of the Code and the regulations promulgated thereunder. The form and substance of any stockholder solicitation described in this Section 6.13(b) shall be subject reasonable to review and approval of Purchaser.

6.14 Restriction on Company Capital Stock.

(a) Except to the extent disclosed in Schedule 6.14 of the Company Disclosure Letter, no Selling Securityholder shall, directly or indirectly, transfer (except as may be specifically required by court order or by operation of law), sell, exchange, pledge or otherwise dispose of or encumber any of his, her or its shares of Company Capital Stock or Company Options, or enter into any agreement or other arrangement relating thereto, at any time during the period from the Agreement Date and continuing until the earlier of the termination of this Agreement and the Closing; provided that each Selling Stockholder may (i) if such Selling Stockholder is a partnership, limited liability company or corporation, distribute any of its shares of Company Capital Stock to its partners, members and equity holders (as applicable), (ii) if such Selling Stockholder is an individual, transfer any of its shares to any member of such Selling Stockholder's immediate family, or to a trust for the benefit of such Selling Stockholder or any member of such Selling Stockholder's immediate family for estate planning purposes and (iii) transfer any of its shares of Company Capital Stock upon the death or dissolution of such Selling Stockholder; provided, further, that any such transfer shall be permitted only if, as a condition to the effectiveness of such transfer, the transferee agrees in writing to be bound by all of the terms of this Agreement.

(b) Except pursuant to the terms of this Agreement, no Selling Stockholder shall, directly or indirectly, grant any proxies or powers of attorney with respect to any of his, her or its shares of Company Capital Stock, deposit any such shares of Company Capital Stock into a voting trust, or enter into a voting agreement or similar arrangement or commitment with respect to any of such shares of Company Capital Stock.

(c) Any shares of Company Capital Stock or other Equity Interests of the Company that a Selling Securityholder purchases or with respect to which such Selling Securityholder otherwise acquires beneficial ownership during the period from the Agreement Date and continuing until the earlier of the termination of this Agreement and the Closing, including by reason of any stock split, stock dividend, reclassification, recapitalization or other similar transaction or the conversion of any debt into shares of Company Capital Stock shall be subject to the terms and conditions of this Agreement to the same extent as if they comprised a portion of the shares of Company Capital Stock or other Equity Interests for the purposes hereof.

6.15 Release of Claims.

(a) Effective as of, and contingent upon, the Closing, each Selling Securityholder, on such Selling Securityholder's behalf and on behalf of any such Selling Securityholder's heirs or assigns and all Persons that might allege a Claim through such Selling Securityholder or on such Selling Securityholder's behalf (which, for clarity, excludes any portfolio companies of any venture capital, private equity or angel investor in the Company), hereby knowingly, fully, unconditionally and irrevocably (a) acknowledges and agrees that he, she or it has no rights or entitlements with respect to any shares of Company Capital Stock, Company Options or any other equity interest in the Company or any Subsidiary except as set forth on such Selling Securityholder's signature page to this Agreement or the Joinder (as applicable), (b) acknowledges and agrees that he, she or it has no current or potential right, title, license, claim or unassigned personal interest of any kind in or to any Company Owned Intellectual Property or, more generally, to any Company Intellectual Property and (c) releases, effective as of the Closing Date, any and all Claims and causes of action that such Selling Securityholder has or may have against the Company or any Subsidiary or any present or former director, officer, manager, employee or agent of the Company or any Subsidiary, whether asserted or unasserted, known or unknown, contingent or noncontingent, past or present, arising or resulting from or relating, directly or indirectly, to any act, omission, event or occurrence prior to the Closing relating to the Company, any Subsidiary, the Company Intellectual Property, the Purchased Shares and any rights or interests therein (the "***Released Claims***"). Notwithstanding anything to the contrary in the foregoing, nothing in this Section 6.15 will be deemed to constitute release by such Selling Securityholder of (i) any right of such Selling Securityholder under this Agreement or any other Operative Document, (ii) any right under any existing Contract a Selling Securityholder has with the Company that is disclosed in Schedule 2.16 of the Company Disclosure Letter, (iii) any rights to continuing indemnification, exculpation or expense advancement to the extent provided under (A) the organizational documents of the Company or any Subsidiary that have been provided to Purchaser, (B) any indemnification agreement to which the Selling Securityholder and the Company or any Subsidiary are parties that is disclosed in Schedule 2.21 of the Company Disclosure Letter or (C) any applicable policy of directors' and officers' insurance maintained by the Company Group that is disclosed on Schedule 2.14 of the Company Disclosure Letter and (iv) if the Selling Securityholder is or was an employee or other service provider of the Company, (A) rights to accrued but unpaid wages, salaries or other cash compensation due to him, her or it that remain unpaid as of the Closing, (B) rights to expense reimbursements for reasonable and necessary business expenses incurred and documented prior to the Closing and consistent with prior expenditures, (C) unreimbursed claims under employee health and welfare plans, consistent with terms of coverage and (D) the entitlement to continuation coverage benefits or any other similar benefits required to be provided by Law. Notwithstanding anything to the contrary in this Agreement, each Selling Securityholder on such Selling Securityholder's behalf and on behalf of any such Selling Securityholder's heirs or assigns and all Persons that might allege a Claim through such Selling Securityholder or on such Selling Securityholder's behalf, hereby knowingly, fully, unconditionally and irrevocably waives any Claim or right of recourse he, she, or it may have against the Company with respect to the Company's representations and warranties (including any inaccuracies thereof) set forth in Article II and the covenants of the Company set forth in Article V and Article VI.

(b) Each of the Initial Selling Stockholders and the Joining Securityholders hereby unconditionally and irrevocably releases, discharges and waives any and all of its rights under any term of the CL Shareholders Agreement, the Articles of Association or any other agreement between the Company and such Selling Securityholder where the exercise of any such right would in any way prevent, conflict with, hinder or be inconsistent with the execution and performance of this Agreement or the consummation of the Stock Purchase or any of the other Transactions.

(c) Each Selling Stockholder further waives any rights under Section 1542 of the Civil Code of the State of California, which states:

> A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

ARTICLE VII
CONDITIONS TO THE STOCK PURCHASE

7.1 Conditions to Obligations of Each Party to Effect the Stock Purchase. The respective obligations of each party hereto to consummate the Transactions shall be subject to the satisfaction or waiver in writing at or prior to the Closing of each of the following conditions:

(a) Illegality. No Order issued by any court of competent jurisdiction or other legal or regulatory restraint or prohibition preventing the consummation of the Stock Purchase shall be in effect, and no action shall have been taken by any Governmental Entity seeking any of the foregoing, and no Applicable Law or Order shall have been enacted, entered, enforced or deemed applicable to the Stock Purchase that makes the consummation of the Stock Purchase illegal.

(b) Governmental Approvals. Purchaser and the Company shall have timely obtained from each Governmental Entity all approvals, waivers and consents, if any, necessary for consummation of, or in connection with, the Stock Purchase.

7.2 Additional Conditions to Obligations of the Company and the Selling Stockholders. The obligations of the Company and the Selling Stockholders to consummate the Transactions shall be subject to the satisfaction or waiver at or prior to the Closing of each of the following conditions (it being understood and agreed that each such condition is solely for the benefit of the Company and the Selling Stockholders and may be waived by the Company in writing in its sole discretion without notice or Liability to any Person):

(a) Representations, Warranties and Covenants. The representations and warranties made by Purchaser herein shall be true and correct in all material respects (except for such representations and warranties that are qualified by their terms by a reference to materiality or Material Adverse Effect, which representations and warranties as so qualified shall be true and correct in all respects) on and as of the Agreement Date and on and as of the Closing Date as though such representations and warranties were made on and as of such dates (except for representations and warranties that address matters only as to a specified date or dates, which representations and warranties shall be true and correct with respect to such specified date or dates). Purchaser shall have performed and complied in all material respects with all covenants, agreements and obligations herein required to be performed and complied with by

Purchaser at or prior to the Closing.

(b) Receipt of Closing Deliveries. The Company shall have received each of the agreements, instruments, certificates and other documents set forth in Section 1.4(a).

7.3 Additional Conditions to the Obligations of Purchaser. The obligations of Purchaser to consummate the Transactions shall be subject to the satisfaction or waiver at or prior to the Closing of each of the following conditions (it being understood and agreed that each such condition is solely for the benefit of Purchaser and may be waived by Purchaser in writing in its sole discretion without notice or Liability to any Person):

(a) Representations, Warranties and Covenants. The representations and warranties made by the Company and the Initial Selling Stockholders herein, and made by the Joining Stockholders in the Joinder Agreement, shall be true and correct in all material respects (except for such representations and warranties that are qualified by their terms by a reference to materiality or Material Adverse Effect, which representations and warranties as so qualified shall be true and correct in all respects) on and as of the Agreement Date and on and as of the Closing Date as though such representations and warranties were made on and as of such dates (except for representations and warranties that address matters only as to a specified date or dates, which representations and warranties shall be true and correct with respect to such specified date or dates). The Company and the Selling Stockholders shall have performed and complied in all material respects with all covenants, agreements and obligations herein required to be performed and complied with by the Company and the Selling Stockholders at or prior to the Closing.

(b) Receipt of Closing Deliveries. Purchaser shall have received each of the agreements, instruments, certificates and other documents set forth in Section 1.4(b).

(c) Orders. No Order issued by any court of competent jurisdiction or other legal or regulatory restraint or prohibition limiting or restricting Purchaser's ownership of the Purchased Shares following the Closing shall be in effect.

(d) No Legal Proceedings. No Governmental Entity or other Person shall have commenced or threatened to commence any Legal Proceeding challenging or seeking the recovery of a material amount of damages in connection with the Stock Purchase or the other Transactions or seeking to prohibit or limit the exercise by Purchaser of any material right pertaining to ownership of Equity Interests of the Company.

(e) No Material Adverse Effect. Since the Agreement Date, there shall not have occurred a Material Adverse Effect with respect to the Group Companies as a whole.

(f) No Outstanding Securities. Other than shares of Company Capital Stock and Company Options, no Person has any Equity Interests of the Company, Company Options, warrants, stock appreciation rights, stock units, share schemes, calls or rights, or is party to any Contract of any character to which the Company or a Company Stockholder is a party or by which it or its assets is bound, obligating the Company or such Company Stockholder to issue, deliver, sell, repurchase or redeem, or cause to be issued, delivered, sold, repurchased or redeemed, any Equity Interests of the Company or other rights to purchase or otherwise acquire any Equity Interests of the Company, whether vested or unvested.

(g) Employees.

(i) The Employment Agreement and Restrictive Covenant Agreement

executed by the Key Employee shall continue to be in full force and effect and no action shall have been taken by any such individual to rescind any of such agreements.

(ii) No fewer than 90% of the employees of the Group Companies, excluding the Key Employees, shall have remained continuously employed with a Group Company from the Agreement Date through the Closing.

(h) Section 280G Matters. Any agreements, plans, contracts or arrangements that may result, separately or in the aggregate, in the payment of any amount or the provision of any benefit that are the subject of a Parachute Payment waiver and that would be characterized as a "parachute payment" within the meaning of Section 280G of the Code shall have been submitted for approval by such number of stockholders of Company as is required by the terms of Section 280G in order for such payments and benefits not to be deemed parachute payments under Section 280G of the Code, with such approval to be obtained in a manner which satisfies all applicable requirements of Section 280G(b)(5)(B) of the Code and the Treasury Regulations thereunder, including Q-7 of Section 1.280G-1 of such Treasury Regulations, or, in the absence of such stockholder approval, none of those payments or benefits shall be paid or provided, pursuant to the Parachute Payment Waivers.

ARTICLE VIII
TERMINATION

8.1 Termination. At any time prior to the Closing, this Agreement may be terminated and the Stock Purchase abandoned by authorized action taken by the terminating party:

(a) by mutual written consent duly authorized by Purchaser and the Company;

(b) by either Purchaser or the Company, by written notice to the other, if the Closing shall not have occurred on or before the date that is 30 days following the Agreement Date or such other date that Purchaser and the Company may agree upon in writing (the "***Termination Date***"); provided that the right to terminate this Agreement under this Section 8.1(b) shall not be available to any party whose breach of any covenant, agreement or obligation hereunder will have been the principal cause of, or will have directly resulted in, the failure of the Closing to occur on or before the Termination Date;

(c) by either Purchaser or the Company, by written notice to the other, if any Order of a Governmental Entity of competent authority preventing the consummation of the Stock Purchase shall have become final and non-appealable;

(d) by Purchaser, by written notice to the Company, if there shall have been an inaccuracy in any representation or warranty made by, or a breach of any covenant, agreement or obligation of, the Company or the Selling Stockholders herein and such inaccuracy or breach shall not have been cured within 10 Business Days after receipt by the Company of written notice of such inaccuracy or breach and, if not cured within such period and at or prior to the Closing, such inaccuracy or breach would result in the failure of any of the conditions set forth in Section 7.1 or Section 7.3 to be satisfied (provided that no such cure period shall be available or applicable to any such breach that by its nature cannot be cured), (ii) there shall have been a Material Adverse Effect with respect to the Company or (iii) the Company or any Selling Stockholder shall have breached Section 6.1; or

(e) by the Company, by written notice to Purchaser, if there shall have been an inaccuracy in any representation or warranty made by, or a breach of any covenant, agreement or obligation of, Purchaser herein and such inaccuracy or breach shall not have been cured within 10 Business Days after receipt by Purchaser of written notice of such inaccuracy or breach and, if not cured

within such period and at or prior to the Closing, such inaccuracy or breach would result in the failure of any of the conditions set forth in Section 7.1 or Section 7.2 to be satisfied (provided that no such cure period shall be available or applicable to any such inaccuracy or breach that by its nature cannot be cured).

8.2 Effect of Termination. In the event of termination of this Agreement as provided in Section 8.1, this Agreement shall forthwith become void and there shall be no Liability on the part of Purchaser, the Company, the Selling Stockholders or their respective officers, directors, stockholders or Affiliates; provided that (a) Section 6.2 (Confidentiality; Public Disclosure), Section 6.7 (Expenses), this Section 8.2 (Effect of Termination), Section 9.7(b) (Equityholders' Representative), Article X (General Provisions) and any related definition provisions in or referenced in Exhibit B and the Confidentiality Agreement shall remain in full force and effect and survive any termination of this Agreement and (b) nothing herein shall relieve any party hereto from Liability in connection with any intentional misrepresentation made by, or a willful breach of any covenant, agreement or obligation of such party herein.

ARTICLE IX
HOLDBACK FUND AND INDEMNIFICATION

9.1 Holdback Fund.

(a) At the Closing, Purchaser shall withhold the Holdback Amount from the Contingent Consideration payable and/or issuable to the Selling Securityholders pursuant to Section 1.5(a) (the aggregate amount of cash so held by Purchaser from time to time, the "***Holdback Fund***"). The Holdback Fund shall constitute partial security for the benefit of Purchaser (on behalf of itself or any other Indemnified Person) with respect to any Indemnifiable Damages pursuant to the indemnification obligations of the Selling Securityholders under this Article IX. Subject to Section 9.4, Purchaser shall hold the Holdback Fund until 11:59 p.m. local time on the date (the "***Holdback Release Date***") that is 12 months after the Closing (the "***Holdback Period***"). The Selling Securityholders shall not receive interest or other earnings on the cash in the Holdback Fund. Neither the Holdback Fund (including any portion thereof) nor any beneficial interest therein may be pledged, subjected to any Encumbrance, sold, assigned or transferred by any Selling Securityholder or be taken or reached by any legal or equitable process in satisfaction of any debt or other Liability of any Selling Securityholder, in each case prior to the distribution of the Holdback Fund to any Selling Securityholder in accordance with Section 9.1(b), except that each Selling Securityholder shall be entitled to assign such Selling Securityholder's rights to such Selling Securityholder's Pro Rata Share of the Holdback Fund by will, by the laws of intestacy or by other operation of law.

(b) Within five Business Days following the Holdback Release Date, Purchaser (or its agent) will distribute to each Selling Securityholder such Selling Securityholder's Pro Rata Share of the Holdback Fund less that portion of the Holdback Fund that is determined, in the reasonable judgment of Purchaser, to be necessary to satisfy all unsatisfied or disputed claims for indemnification specified in any Claim Certificate delivered to the Equityholders' Representative on or prior to the Holdback Release Date in accordance with this Article IX, which portion shall remain in the Holdback Fund with the applicable portion to be released as each claim for Indemnifiable Damages is resolved or satisfied.

9.2 Indemnification.

(a) Subject to the limitations set forth in this Article IX, from and after the Closing, each Selling Securityholder shall severally but not jointly, and in accordance with its Pro Rata Share, indemnify and hold harmless Purchaser and the Company and their respective officers, directors, agents

and employees and each Person, if any, who controls or may control Purchaser within the meaning of the Securities Act (each, an "***Indemnified Person***") from and against, and shall compensate and reimburse each Indemnified Person for, any and all losses, Liabilities, damages, claims, fees, lost profits, Taxes, reductions in value, interest, costs and expenses, including costs of investigation, enforcement and defense and reasonable fees and expenses of counsel, experts and other professionals, directly or indirectly, whether or not due to a Third-Party Claim (collectively, "***Indemnifiable Damages***"), arising out of, resulting from or in connection with:

(i) any failure of any representation or warranty made by the Company in Article II (as modified by the Company Disclosure Letter (including any exhibit or schedule to the Company Disclosure Letter)) to be true and correct (A) as of the Agreement Date (except in the case of representations and warranties that by their terms speak only as of a specified date or dates, which representations and warranties shall be true and correct as of such date or dates) or (B) as of the Closing Date as though such representation or warranty were made as of the Closing Date (except in the case of representations and warranties that by their terms speak only as of a specific date or dates, which representations and warranties shall be true and correct as of such date or dates);

(ii) any failure of any certification, representation or warranty made by the Company in any certificate (other than the Spreadsheet) delivered to Purchaser pursuant to this Agreement to be true and correct as of the date such certificate is delivered to Purchaser;

(iii) any unpaid Pre-Closing Taxes;

(iv) any breach of, or default in connection with, any of the covenants, agreements or obligations made by the Company herein;

(v) any inaccuracies in the Spreadsheet and any unpaid Transaction Expenses;

(vi) any claims by (A) any then-current or former holder or alleged then- current or former holder of any Equity Interests of the Company (including any predecessors), arising out of, resulting from or in connection with (I) the Transactions or this Agreement, including the allocation of the Total Consideration or any portion thereof, or (II) such Person's status or alleged status as a holder of Equity Interests of any Group Company (including any predecessors) at any time at or prior to the Closing, whether for breach of fiduciary duty or otherwise, (B) any Person to the effect that such Person is entitled to any Equity Interest of Purchaser or any Group Company or any payment in connection with the Transactions other than as specifically set forth on the Spreadsheet or (C) any Person with respect to any Company Option Plan or any other plan, policy or Contract providing for compensation to any Person in the form of Equity Interests; and

(vii) any Fraud, intentional misrepresentation or willful misconduct by or on behalf of the Company.

(b) From and after the Closing, each Selling Securityholder shall severally but not jointly, solely as to himself, herself or itself, indemnify and hold harmless the Indemnified Persons from and against any and all Indemnifiable Damages arising out of, resulting from or in connection with (i) any failure of any representation or warranty made by such Selling Securityholder in Article III or in a Joinder Agreement to be true and correct as of the Agreement Date or as of the Closing Date as though such representation or warranty were made as of the Closing Date (except in the case of representations and warranties that by their terms speak only as of a specific date or dates, which representations and warranties shall be true and correct as of such date or dates), (ii) any failure of any certification,

representation or warranty made by such Selling Securityholder in any certificate delivered to Purchaser pursuant to this Agreement to be true and correct as of the date such certificate is delivered to Purchaser, (iii) any breach of or default in connection with any of the covenants, agreements or obligations made by such Selling Securityholder herein and (iv) any Fraud, intentional misrepresentation or willful misconduct by such Selling Securityholder. The obligations of a Selling Securityholder under this Section 9.2(b) may be satisfied, at Purchaser's sole discretion, from the amount otherwise distributable to such Selling Securityholder from the Holdback Fund or directly from such Selling Securityholder.

(c) Materiality standards and qualifications by reference to the defined term "Material Adverse Effect" in any representation, warranty, covenant, agreement or obligation shall not be taken into account in determining the amount of any Indemnifiable Damages with respect to an inaccuracy in such representation or warranty, or a breach of such covenant, agreement or obligation.

(d) From and after the Closing, the rights to indemnification, compensation and reimbursement set forth in Article IX shall be the sole and exclusive monetary remedy of the Indemnified Persons for claims regarding the subject matter of this Agreement.

9.3 Indemnifiable Damage Threshold; Other Limitations.

(a) Notwithstanding anything to the contrary contained herein, no Indemnified Person may make a claim against the Holdback Fund in respect of any claim for Indemnifiable Damages arising out of, resulting from or in connection with the matters listed in clauses (i), (ii) or (iii) of Section 9.2(a) (other than claims arising out of, resulting from or in connection with (i) Fraud, intentional misrepresentation or willful misconduct by or on behalf of the Company or by such Selling Stockholder, or (ii) any failure of any of the Special Representations to be true and correct as aforesaid) unless and until a Claim Certificate (together with any other delivered Claim Certificates) describing Indemnifiable Damages for claims other than those set forth in clauses (i) and (ii) in an aggregate amount greater than $300,000 (the "***Basket***") has been delivered, in which case the Indemnified Person may make claims for indemnification, compensation and reimbursement and may receive cash from the Holdback Fund for all Indemnifiable Damages (including the amount of the Basket), subject to the limitations set forth in this Article IX. The Basket shall not apply to any other Indemnifiable Damages or claims therefor.

(b) If the Stock Purchase is consummated, recovery from the Holdback Fund shall constitute the sole and exclusive remedy for the indemnity obligations of each Selling Securityholder under this Agreement for Indemnifiable Damages (and not specific performance or other equitable remedies) arising out of, resulting from or in connection with the matters listed in clauses (i), (ii) or (iii) of Section 9.2(a), except (i) in the case of Fraud, intentional misrepresentation or willful misconduct by or on behalf of the Company or such Selling Securityholder and (ii) any failure of any of the representations and warranties made by (A) the Company in Section 2.1(a)-(b) (Organization, Standing, Power and Subsidiaries), Section 2.2 (Capital Structure), or Section 2.3(a) and Section 2.3(b)(i) and (ii)(A) (Authority; Non-contravention) or (B) the Company in any certificate delivered to Purchaser pursuant to this Agreement that are within the scope of those covered by the foregoing Sections (collectively, the "***Special Representations***") to be true and correct as aforesaid.

(c) In the case of any claims for Indemnifiable Damages arising out of, resulting from or in connection with (1) the failure of any of the Special Representations to be true and correct as aforesaid, (2) the matters listed in clauses (iv) through (vii) of Section 9.2(a) or (3) the matters listed in Section 9.2(b) (clauses (1), (2) and (3) collectively, "***Special Claims***"), after Indemnified Persons have exhausted or made claims upon all amounts of cash held in the Holdback Fund (after taking into account all other claims for indemnification, compensation and reimbursement from the Holdback Fund made by Indemnified Persons), or following the Holdback Release Date, each Selling Securityholder shall have

Liability for such Selling Securityholder's Pro Rata Share of the amount of any Indemnifiable Damages resulting therefrom. Notwithstanding anything to the contrary contained herein, (i) the total Liability of a Selling Securityholder for Special Claims shall be limited to the aggregate amount of cash and the aggregate number of shares of Purchaser Series B Stock that has been paid or issued, respectively, to such Selling Securityholder pursuant to Sections 1.5(a)-(c) (the "***Securityholder's Consideration***") and (ii) any limitation of Liability in this Section 9.3(c) shall not apply in the case of a claim for Fraud, intentional misrepresentation or willful misconduct against a Selling Securityholder who commits such Fraud, intentional misrepresentation or willful misconduct. To the extent of any such Liability of a Selling Securityholder following exhaustion or release of all amounts of cash held in the Holdback Fund, such Selling Securityholder may elect to satisfy such Liability either (x) in cash or (y) to the extent applicable, with a combination of cash and Purchaser Series B Stock (which combination is proportionate to such Securityholder's Consideration), with such Purchaser Series B Stock valued, for the purposes of this Article IX, at the Purchaser Series B Stock Price.

(d) Notwithstanding anything to the contrary contained herein, the amounts that an Indemnified Person recovers from the Holdback Fund pursuant to Special Claims shall not reduce the amount that an Indemnified Person may recover with respect to claims that are not Special Claims. By way of illustration and not limitation, assuming there are no other claims for indemnification, compensation or reimbursement, in the event that Indemnifiable Damages resulting from a Special Claim are first satisfied from the Holdback Fund and such recovery fully depletes the Holdback Fund, the maximum amount recoverable by an Indemnified Person pursuant to a subsequent claim that is not a Special Claim shall continue to be the full dollar value of the Holdback Fund irrespective of the fact that the Holdback Fund was used to satisfy such Special Claim, such that the amount recoverable for such two claims would be the same regardless of the chronological order in which they were made.

(e) Notwithstanding anything to the contrary contained herein, (i) no Selling Securityholder shall have any right of indemnification, compensation, reimbursement, contribution or right of advancement from Purchaser, the Company or any other Indemnified Person (based upon such Selling Securityholder's position as an officer, director, employee or agent of the Company or otherwise) with respect to any Indemnifiable Damages claimed by any Indemnified Person or any right of subrogation against the Company with respect to any indemnification, compensation or reimbursement of an Indemnified Person by reason of any of the matters set forth in Section 9.2(a), (ii) the rights and remedies of the Indemnified Persons after the Closing shall not be limited by (x) any investigation by or on behalf of, or disclosure to (other than in the Company Disclosure Letter with respect to clauses (i) and (vi) of Section 9.2(a)), any Indemnified Person at or prior to the Closing regarding any failure, breach or other event or circumstance or (y) any waiver of any condition to the Closing related thereto, (iii) if an Indemnified Person's claim under this Article IX may be properly characterized in multiple ways in accordance with this Article IX such that such claim may or may not be subject to different limitations depending on such characterization, then such Indemnified Person shall have the right to characterize such claim in a manner that maximizes the recovery and time to assert such claim permitted in accordance with this Article IX and (iv) no Selling Securityholder shall be liable for the breach of any representation, warranty or covenant of another Selling Securityholder or any Fraud, intentional misrepresentation or willful misconduct by or on behalf of any Person other than the Company or such Selling Securityholder; provided that nothing herein shall limit the Liability of a Selling Securityholder for any Fraud, intentional misrepresentation or willful misconduct by such Selling Securityholder.

(f) All Indemnifiable Damages shall be calculated net of the amount of any actual recoveries actually received by an Indemnified Person prior to the Holdback Release Date under any existing insurance policies and contractual indemnification or contribution provisions (in each case, calculated net of any actual collection costs and reserves, expenses, deductibles or premium adjustments or retrospectively rated premiums (as determined in good faith by an Indemnified Person) incurred or

paid to procure such recoveries) in respect of any Indemnifiable Damages suffered, paid, sustained or incurred by any Indemnified Person; provided that no Indemnified Person shall have any obligation to seek to obtain or continue to pursue any such recoveries.

9.4 Period for Claims. Except as otherwise set forth in this Section 9.4, the period (the "***Claims Period***") during which claims may be made (a) against the Holdback Fund for Indemnifiable Damages arising out of, resulting from or in connection with the matters listed in clauses (i), (ii) and (iii) of Section 9.2(a) (other than with respect to any of the Special Representations) shall commence at the Closing and terminate at 11:59 p.m. local time on the Holdback Release Date and (b) for Indemnifiable Damages arising out of, resulting from or in connection with all other matters, including Special Claims, shall commence at the Closing and terminate at 11:59 p.m. local time on the date that is the expiration of the applicable statute of limitations. Notwithstanding anything to the contrary contained herein, the Claims Period for claims for Indemnifiable Damages arising out of, resulting from or in connection with Fraud, intentional misrepresentation or willful misconduct shall not be limited.

9.5 Claims.

(a) From time to time during the Claims Period, Purchaser may deliver to the Equityholders' Representative one or more certificates signed by any officer of Purchaser (each, a "***Claim Certificate***"):

(i) stating that an Indemnified Person has incurred, paid, reserved or accrued, or in good faith believes that it may incur, pay, reserve or accrue, Indemnifiable Damages (or that with respect to any Tax matters, that any Tax Authority may raise such matter in audit of Purchaser or its subsidiaries, that could give rise to Indemnifiable Damages);

(ii) stating the amount of such Indemnifiable Damages (which, in the case of Indemnifiable Damages not yet incurred, paid, reserved or accrued, may be the maximum amount believed by Purchaser in good faith to be incurred, paid, reserved, accrued or demanded by a third party); and

(iii) specifying in reasonable detail (based upon the information then possessed by Purchaser) the individual items of such Indemnifiable Damages included in the amount so stated and the nature of the claim to which such Indemnifiable Damages are related.

(b) Such Claim Certificate (i) need only specify such information to the knowledge of such officer of Purchaser as of the date thereof, (ii) shall not limit any of the rights or remedies of any Indemnified Person with respect to the underlying facts and circumstances specifically set forth in such Claim Certificate and (iii) may be updated and amended from time to time by Purchaser by delivering any updated or amended Claim Certificate, so long as the delivery of the original Claim Certificate is made within the applicable Claims Period and such update or amendment relates to the underlying facts and circumstances specifically set forth in such original Claims Certificate; provided that all claims for Indemnifiable Damages properly set forth in a Claim Certificate or any update or amendment thereto shall remain outstanding until such claims have been resolved or satisfied, notwithstanding the expiration of such Claims Period. No delay in providing such Claim Certificate within the applicable Claims Period shall affect an Indemnified Person's rights hereunder, unless (and then only to the extent that) the Equityholders' Representative or the Selling Securityholders are prejudiced thereby.

9.6 Resolution of Objections to Claims.

(a) If the Equityholders' Representative does not contest, by written notice to

Purchaser, any claim or claims by Purchaser made in any Claim Certificate within the 30-day period following receipt of the Claim Certificate, then the Purchaser shall reclaim an amount of cash from the Holdback Fund having a total value equal to the amount of any Indemnifiable Damages corresponding to such claim or claims as set forth in such Claim Certificate.

(b) If the Equityholders' Representative objects in writing to any claim or claims by Purchaser made in any Claim Certificate within the 30-day period set forth in Section 9.6(a), Purchaser and the Equityholders' Representative shall attempt in good faith for 60 days after Purchaser's receipt of such written objection to resolve such objection. If Purchaser and the Equityholders' Representative shall so agree, a memorandum setting forth such agreement shall be prepared and signed by both Purchaser and the Equityholders' Representative. Purchaser shall be entitled to conclusively rely on any such memorandum and Purchaser shall reclaim an amount of cash from the Holdback Fund in accordance with the terms of such memorandum.

(c) If no such agreement can be reached during the 60-day period for good faith negotiation set forth in Section 9.6(b), but in any event upon the expiration of such 60-day period, either Purchaser or the Equityholders' Representative may bring an arbitration in accordance with the terms of Section 10.12 to resolve the matter. The decision of the arbitral tribunal as to the validity and amount of any claim in such Claim Certificate shall be non-appealable, binding and conclusive upon the parties hereto and the Selling Securityholders, and Purchaser shall be entitled to act in accordance with such decisions and Purchaser shall reclaim an amount of cash from the Holdback Fund in accordance therewith.

(d) Judgment upon any determination of an arbitral tribunal may be entered in any court having jurisdiction. For purposes of this Section 9.6(d), in any suit hereunder in which any claim or the amount thereof stated in the Claim Certificate is at issue, Purchaser shall be deemed to be the prevailing party unless the arbitral tribunal determines in favor of the Equityholders' Representative (on behalf of the Selling Securityholders) with respect to more than one-half of the amount in dispute, in which case the Selling Securityholders shall be deemed to be the prevailing party. The non-prevailing party to an arbitration shall pay its own fees and expenses and the fees and expenses of the prevailing party, including attorneys' fees and costs, reasonably incurred in connection with such suit.

(e) Any portion of the Holdback Fund held following the Holdback Release Date with respect to a pending but unresolved claim for indemnification that is not awarded to Purchaser upon the resolution of such claim shall be distributed to the Selling Securityholders within five Business Days following resolution of such claim and in accordance with each such Selling Securityholder's Pro Rata Share of such portion of the Holdback Fund.

9.7 Equityholders' Representative.

(a) At the Closing, Shareholder Representative Services LLC shall be constituted and appointed as the Equityholders' Representative. The Equityholders' Representative shall be the representative, agent and attorney-in-fact for and on behalf of the Selling Securityholders for all purposes in connection with this Agreement and the agreements ancillary hereto, including to: (i) execute, as the Equityholders' Representative, this Agreement and any agreement or instrument entered into or delivered in connection with the Transactions, (ii) give and receive notices, instructions and communications permitted or required under this Agreement, or any other agreement, document or instrument entered into or executed in connection herewith, for and on behalf of any Selling Securityholder, to or from Purchaser (on behalf of itself or any other Indemnified Person) relating to this Agreement or any of the Transactions and any other matters contemplated by this Agreement or by such other agreement, document or instrument (except to the extent that this Agreement expressly contemplates that any such notice or

communication shall be given or received by each Selling Securityholder individually), (iii) review, negotiate and agree to and authorize Purchaser to reclaim an amount of cash from the Holdback Fund in satisfaction of claims asserted by Purchaser (on behalf of itself or any other Indemnified Person, including by not objecting to such claims) pursuant to this Article IX, (iv) object to such claims pursuant to Section 9.6, (v) consent or agree to, negotiate, enter into, or, if applicable, contest, prosecute or defend, settlements and compromises of, and demand arbitration and comply with Orders of courts and awards of arbitrators with respect to, such claims, resolve any such claims, take any actions in connection with the resolution of any dispute relating hereto or to the Transactions by arbitration, settlement or otherwise, and take or forego any or all actions permitted or required of any Selling Securityholder or necessary in the judgment of the Equityholders' Representative for the accomplishment of the foregoing and all of the other terms, conditions and limitations of this Agreement, (vi) consult with legal counsel, independent public accountants and other experts selected by it, solely at the cost and expense of the Selling Securityholders, (vii) consent or agree to any amendment to this Agreement or to waive any terms and conditions of this Agreement providing rights or benefits to the Selling Securityholders (other than with respect to the payment and issuance of the Total Consideration payable or issuable pursuant to Section 1.5(a) and Section 1.5(c) less the Holdback Amount) in accordance with the terms hereof and in the manner provided herein, (viii) take all actions necessary or appropriate in the judgment of the Equityholders' Representative for the accomplishment of the foregoing, in each case without having to seek or obtain the consent of any Person under any circumstance and (ix) utilize the Expense Fund in connection with any of the foregoing. Purchaser and its Affiliates (including after the Closing, the Company) shall be entitled to rely on the appointment of Shareholder Representative Services LLC as the Equityholders' Representative and treat such Equityholders' Representative as the duly appointed attorney-in-fact of each Selling Securityholder and as having the duties, power and authority provided for in this Section 9.7. The Selling Securityholders shall be bound by all actions taken and documents executed by the Equityholders' Representative in connection with this Article IX, and Purchaser and other Indemnified Persons shall be entitled to rely exclusively on any action or decision of the Equityholders' Representative. The Person serving as the Equityholders' Representative may be removed or replaced from time to time, or if such Person resigns from its position as the Equityholders' Representative, then a successor may be appointed, by the holders of a majority in interest of the aggregate amount of cash then held in the Holdback Fund (or, in the event that there is no cash then held in the Holdback Fund by the Selling Securityholders collectively having a Pro Rata Share greater than 50%) upon not less than 30 days' prior written notice to Purchaser. No bond shall be required of the Equityholders' Representative.

(b) The Equityholders' Representative shall not be liable to any Selling Securityholder for any act done or omitted hereunder as the Equityholders' Representative while acting in good faith (and any act done or omitted pursuant to the advice of counsel shall be conclusive evidence of such good faith) and without gross negligence or willful misconduct provided, that notwithstanding the definition of "willful misconduct" set forth in Exhibit B, the term "willful misconduct" as used in each instance in this Section 9.7 (and in Section 1.6(c)) shall not have the meaning given to it in Exhibit B, but instead shall have the meaning given such term under the applicable laws of the State of Delaware without reference to the definition in Exhibit B. The Selling Securityholders shall severally (based on each Selling Securityholder's Pro Rata Share compared to the aggregate of the Pro Rata Shares of all Selling Securityholders) but not jointly indemnify the Equityholders' Representative and hold it harmless against any and all losses, liabilities, damages, claims, penalties, fines, forfeitures, actions, fees, costs and expenses (including the fees and expenses of counsel and experts and their staffs and all expense of document location, duplication and shipment) (collectively, "***Representative Losses***") in an amount not to exceed the portion of the Total Consideration actually paid to each such Selling Securityholder arising out of or in connection with the Equityholders' Representative's execution and performance of this Agreement and any agreements ancillary hereto, in each case as such Representative Loss is suffered or incurred; provided, that in the event that any such Representative Loss is finally adjudicated to have been directly caused by the gross negligence or willful misconduct of the Equityholders' Representative, the

Equityholders' Representative will reimburse the Selling Securityholders the amount of such indemnified Representative Loss to the extent attributable to such gross negligence or willful misconduct. If not paid directly to the Equityholders' Representative by the Selling Securityholders, any such Representative Losses may be recovered by the Equityholders' Representative from (i) the funds in the Expense Fund, (ii) the amounts in the Holdback Fund at such time as remaining amounts would otherwise be distributable to the Selling Securityholders, and (iii) from any other future amounts that become payable to the Selling Securityholders under the terms of this Agreement at such time as any such amounts would otherwise be distributable to the Selling Securityholders; provided, that while this section allows the Equityholders' Representative to be paid from the aforementioned sources of funds, this does not relieve the Selling Securityholders from their obligation to promptly pay such Representative Losses as they are suffered or incurred, nor does it prevent the Equityholders' Representative from seeking any remedies available to it at law or otherwise. In no event will the Equityholders' Representative be required to advance its own funds on behalf of the Selling Securityholders or otherwise. Notwithstanding anything in this Agreement to the contrary, any restrictions or limitations on liability or indemnification obligations of the Selling Securityholders set forth elsewhere in this Agreement are not intended to be applicable to the indemnities provided to the Equityholders' Representative under this section. The foregoing indemnities will survive the Closing, the resignation or removal of the Equityholders' Representative or the termination of this Agreement.

(c) After the Closing, any notice or communication given or received by, and any decision, action, failure to act within a designated period of time, agreement, consent, settlement, resolution or instruction of, the Equityholders' Representative that is within the scope of the Equityholders' Representative's authority under Section 9.7(a) shall constitute a notice or communication to or by, or a decision, action, failure to act within a designated period of time, agreement, consent, settlement, resolution or instruction of all the Selling Securityholders and shall be final, binding and conclusive upon each such Selling Securityholder; and each Indemnified Person shall be entitled to rely exclusively upon any such notice, communication, decision, action, failure to act within a designated period of time, agreement, consent, settlement, resolution or instruction as being a notice or communication to or by, or a decision, action, failure to act within a designated period of time, agreement, consent, settlement, resolution or instruction of, each and every such Selling Securityholder. Purchaser, the Company and the Indemnified Persons are hereby relieved from any Liability to any Person for any acts done by them in accordance with such notice, communication, decision, action, failure to act within a designated period of time, agreement, consent, settlement, resolution or instruction of the Equityholders' Representative.

9.8 Third-Party Claims. In the event that Purchaser becomes aware of a claim by a third party that would result in Indemnifiable Damages under Section 9.2 if it were assumed that such claim was ultimately determined in favor of such third party (a "***Third-Party Claim***"), Purchaser shall have the right in its sole discretion to conduct the defense of and to settle or resolve such Third-Party Claim. The Equityholders' Representative shall have the right to receive copies of all pleadings, notices and communications with respect to such Third-Party Claim to the extent that receipt of such documents does not adversely affect any privilege relating to any Indemnified Person (and in such event, Purchaser shall cooperate in good faith with the Equityholders' Representative to provide such information to the Equityholders' Representative in a manner that does not adversely affect such applicable privilege, including by entering into joint defense agreements or similar arrangements). However, Purchaser shall have the right in its sole discretion to determine and conduct the defense of any Third-Party Claim and the settlement, adjustment or compromise of such Third-Party Claim. Unless otherwise consented to in writing in advance by Purchaser in its sole discretion, the Equityholders' Representative and its Affiliates may not participate in any Third-Party Claim or any action related to such Third-Party Claim (including any discussions or negotiations in connection with the settlement, adjustment or compromise thereof). In the event that the Equityholders' Representative has consented to the amount of any settlement or

resolution by Purchaser of any such claim (which consent shall not be unreasonably withheld, conditioned or delayed and which consent shall be deemed to have been given unless the Equityholders' Representative shall have objected within 30 days after a written request therefor by Purchaser), or if the Equityholders' Representative shall have been judicially determined to have unreasonably withheld, conditioned or delayed its consent to the amount of any such settlement or resolution, neither the Equityholders' Representative nor any Selling Securityholder shall have any power or authority to object under this Article IX to the amount of any claim by or on behalf of any Indemnified Person against the Holdback Fund for indemnity with respect to such settlement or resolution. Notwithstanding anything to the contrary contained herein, the Equityholders' Representative shall not be entitled to object to a claim for Indemnifiable Damages incurred by an Indemnified Person in connection with the defense, enforcement, settlement or resolution (including reasonable attorneys' fees, other professionals' and experts' fees and court or arbitration costs) of a Third-Party Claim on the basis that there has been no ultimate determination (including a judgment of a court or a finding of an arbitral body) with respect to such Third-Party Claim. Notwithstanding the foregoing, to the extent that this Section 9.8 conflicts with the provisions of Section 6.12(e) with respect to Tax Claims, Section 6.12(e) will apply to the conduct of Tax Claims.

9.9 Treatment of Indemnification Payments. Purchaser, the Equityholders' Representative and the Selling Securityholders agree to treat (and cause their respective Affiliates to treat) any payment received by the Indemnified Persons pursuant to this Article IX as adjustments to the Total Consideration payable or issuable for the Purchased Shares for all Tax purposes, to the maximum extent permitted by Applicable Law.

ARTICLE X
GENERAL PROVISIONS

10.1 Survival of Representations, Warranties and Covenants. If the Stock Purchase is consummated, (a) the representations and warranties made by the Company in Article II (as modified by the Company Disclosure Letter (including any exhibit to or schedule of the Company Disclosure Letter) and in the other certificates contemplated by this Agreement shall survive the Closing and remain in full force and effect, regardless of any investigation or disclosure made by or on behalf of any of the parties hereto, until the date that is 12 months following the Closing Date; provided that, regardless of any investigation or disclosure made by or on behalf of any of the parties hereto, the Special Representations will remain operative and in full force and effect until the expiration of the applicable statute of limitations; provided, further, that (i) no right to indemnification pursuant to Article IX in respect of any claim that is set forth in a Claim Certificate delivered to the Equityholders' Representative on or prior to the expiration of such representations and warranties shall be affected by such expiration and (ii) such expiration shall not affect the rights of any Indemnified Person under Article IX or otherwise to seek recovery of Indemnifiable Damages arising out of, resulting from or in connection with any Fraud, intentional misrepresentation or willful misconduct until the expiration of the applicable statute of limitations, and (b) the representations and warranties made by the Purchaser herein and in the Purchaser Disclosure Letter (including any exhibit to or schedule of the Purchaser Disclosure Letter) shall survive the Closing and remain in full force and effect, regardless of any investigation or disclosure made by or on behalf of any of the parties hereto, until the date that is 12 months following the Closing Date. If the Stock Purchase is consummated, all covenants, agreements and obligations of the parties hereto shall expire and be of no further force or effect as of the Closing, except to the extent such covenants, agreements and obligations provide that they are to be performed after the Closing; provided that no right to indemnification pursuant to Article IX in respect of any claim based upon any breach of a covenant, agreement or obligation shall be affected by the expiration of such covenant, agreement or obligation.

10.2 Notices. All notices, requests, consents, claims, demands, waivers and other communications hereunder shall be in writing and shall be deemed given if delivered personally or by commercial delivery service, or mailed by registered or certified mail (return receipt requested) or sent via facsimile (with automated confirmation of receipt) to the parties hereto at the following address (or at such other address for a party as shall be specified by like notice):

(i) if to Purchaser, to:

GRAIL, Inc.
1525 O'Brien Drive
Menlo Park, CA 94025
Attention: Ken Drazan, Chief Business Officer
Telephone No.: (650) 455-9320
Email: ken@grailbio.com

with a copy (which shall not constitute notice) to:

Fenwick & West LLP
555 California Street
San Francisco, CA 94104
Attention: Matthew Rossiter and Ken Myers
Email: mrossiter@fenwick.com and kmyers@fenwick.com
Telephone No.: (415) 875-2300

(ii) if to the Company (prior to the Closing), to:

Cirina Limited
21st Floor, Edinburgh Tower,
The Landmark, 15 Queen's Road Central, Hong Kong
Attention: Dennis Lo
Email: dennis.lo@cirina.com

with a copy (which shall not constitute notice) to:

Cooley LLP
3175 Hanover Street
Palo Alto, CA
Attention: Mark Tanoury and Laura Medina
Email: mtanoury@cooley.com and lmedina@cooley.com
Telephone No.: (650) 843-5000

(iii) if to the Selling Securityholders, to the address last provided to the Company or Purchaser with respect to such Selling Securityholder

with a copy (which shall not constitute notice) to:

Cooley LLP
3175 Hanover Street
Palo Alto, CA
Attention: Mark Tanoury and Laura Medina
Email: mtanoury@cooley.com and lmedina@cooley.com

Telephone No.: (650) 843-5000

And a copy to:

If prior to July 31, 2017:

Shareholder Representative Services LLC
1614 15th Street, Suite 200
Denver, CO 80202
Attention: Managing Director
Email: deals@srsacquiom.com
Facsimile No.: (303) 623-0294
Telephone No.: (303) 648-4085

If on or after July 31, 2017:

Shareholder Representative Services LLC
950 17th Street, Suite 1400
Denver, CO 80202
Attention: Managing Director
Email: deals@srsacquiom.com
Facsimile No.: (303) 623-0294
Telephone No: (303) 648-4085

(iv) If to the Equityholders' Representative, to:

If prior to July 31, 2017:

Shareholder Representative Services LLC
1614 15th Street, Suite 200
Denver, CO 80202
Attention: Managing Director
Email: deals@srsacquiom.com
Facsimile No.: (303) 623-0294
Telephone No.: (303) 648-4085

If on or after July 31, 2017:

Shareholder Representative Services LLC
950 17th Street, Suite 1400
Denver, CO 80202
Attention: Managing Director
Email: deals@srsacquiom.com
Facsimile No.: (303) 623-0294
Telephone No: (303) 648-4085

with a copy (which shall not constitute notice) to:

Cooley LLP
3175 Hanover Street

Palo Alto, CA
Attention: Mark Tanoury and Laura Medina
Email: mtanoury@cooley.com and lmedina@cooley.com
Telephone No.: (650) 843-5000

Any notice given as specified in this Section 10.2 (i) if delivered personally or sent by facsimile transmission shall conclusively deemed to have been given or served at the time of dispatch if sent or delivered on a Business Day or, if not sent or delivered on a Business Day, on the next following Business Day and (ii) if sent by commercial delivery service or mailed by registered or certified mail (return receipt requested) shall conclusively be deemed to have been received on the third Business Day after the post of the same.

10.3 Interpretation. When a reference is made herein to Articles, Sections, subsections, Schedules or Exhibits, such reference shall be to an Article, Section or subsection of, or a Schedule or an Exhibit to this Agreement unless otherwise indicated. The headings contained herein are for reference purposes only and shall not affect in any way the meaning or interpretation of this Agreement. The words "include," "includes" and "including" when used herein shall be deemed in each case to be followed by the words "without limitation." Where a reference is made to a Contract, instrument or Applicable Law, such reference is to such Contract, instrument or Applicable Law as amended, modified or supplemented, including (in the case of Contracts or instruments) by waiver or consent and (in the case of Applicable Law) by succession of comparable successor law and references to all attachments thereto and instruments incorporated therein. Unless the context of this Agreement otherwise requires: (a) words of any gender include each other gender and neutral forms of such words, (b) words using the singular or plural number also include the plural or singular number, respectively, (c) the terms "hereof," "herein," "hereto," "hereunder" and derivative or similar words refer to this entire Agreement, (d) references to clauses without a cross-reference to a Section or subsection are references to clauses within the same Section or, if more specific, subsection, (e) references to any Person include the successors and permitted assigns of that person, (f) references from or through any date shall mean, unless otherwise specified, from and including or through and including, respectively, (g) the phrases "provided to" and "delivered to" and phrases of similar import mean that a true, correct and complete paper or electronic copy of the information or material referred to has been delivered to the party to whom such information or material is to be provided and (h) the phrase "made available to" and phrases of similar import means, with respect to any information, document or other material of Purchaser or the Company, that such information, document or material was made available for review by the Company or Purchaser, respectively, and its Representatives in the virtual data room established by the Company in connection with this Agreement at least 48 hours prior to the execution of this Agreement or actually delivered (whether by physical or electronic delivery) to the Company or Purchaser, respectively, or its Representatives at least 48 hours prior to the execution of this Agreement. The symbol "$" refers to United States Dollars. The word "extent" in the phrase "to the extent" means the degree to which a subject or other thing extends and such phrase shall not mean simply "if." All references to "days" shall be to calendar days unless otherwise indicated as a "Business Day." Any action otherwise required to be taken on a day that is not a Business Day shall instead be taken on the next succeeding Business Day, and if the last day of such period is a non-Business Day, the period in question shall end on the next succeeding Business Day. Unless indicated otherwise, all mathematical calculations contemplated by this Agreement shall be rounded to the tenth decimal place, except in respect of payments, which shall be rounded to the nearest whole United States cent.

10.4 Amendment. Subject to Applicable Law, Purchaser and the Company may amend this Agreement by authorized action at any time prior to the Closing pursuant to an instrument in writing signed on behalf of each of Purchaser and the Company. To the extent permitted by Applicable Law,

Purchaser and the Equityholders' Representative may cause this Agreement to be amended at any time after the Closing by execution of an instrument in writing signed on behalf of Purchaser and the Equityholders' Representative.

10.5 Extension; Waiver. At any time at or prior to the Closing, any party hereto may, to the extent legally allowed, (a) extend the time for the performance of any of the obligations or other acts of the other parties hereto owed to such party, (b) waive any inaccuracies in the representations and warranties made to such party contained herein or in any document delivered pursuant hereto and (c) waive any breaches of any of the covenants, agreements, obligations or conditions for the benefit of such party contained herein. At any time after the Closing, Purchaser and the Equityholders' Representative may, to the extent legally allowed, (i) extend the time for the performance of any of the obligations of the other owed to such party, (ii) waive any inaccuracies in the representations and warranties made to such party contained herein or in any document delivered pursuant hereto or (iii) waive any breaches of any of the covenants, agreements, obligations or conditions for the benefit of such party contained herein. Any such extension or waiver shall be valid only if set forth in an instrument in writing that is (x) prior to the Closing with respect to the Company and/or the Selling Securityholders, signed by the Company, (y) after the Closing with respect to the Selling Securityholders and/or the Equityholders' Representative, signed by the Equityholders' Representative and (z) with respect to Purchaser, signed by Purchaser. Without limiting the generality or effect of the preceding sentence, no failure to exercise or delay in exercising any right under this Agreement shall constitute a waiver of such right, and no waiver of any breach or default shall be deemed a waiver of any other breach or default of the same or any other provision herein.

10.6 Counterparts. This Agreement may be executed in one or more counterparts, all of which shall be considered one and the same instrument and shall become effective when one or more counterparts have been signed by each of the parties hereto and delivered to the other parties hereto; it being understood and agreed that all parties hereto need not sign the same counterpart. The delivery by facsimile or by electronic delivery in PDF format of this Agreement with all executed signature pages (in counterparts or otherwise) shall be sufficient to bind the parties hereto to the terms and conditions set forth herein. All of the counterparts will together constitute one and the same instrument and each counterpart will constitute an original of this Agreement.

10.7 Entire Agreement; Parties in Interest. This Agreement and the documents and instruments and other agreements specifically referred to herein or delivered pursuant hereto, including all the exhibits attached hereto, the Schedules, including the Company Disclosure Letter, (a) constitute the entire agreement among the parties hereto with respect to the subject matter hereof and supersede all prior agreements and understandings, both written and oral, among the parties hereto with respect to the subject matter hereof, except for the Confidentiality Agreement, which shall continue in full force and effect, and shall survive any termination of this Agreement, in accordance with its terms and (b) are not intended to confer, and shall not be construed as conferring, upon any Person other than the parties hereto any rights or remedies hereunder (except that Article IX is intended to benefit the Indemnified Persons).

10.8 Assignment. Neither this Agreement nor any of the rights and obligations under this Agreement may be assigned or delegated, in whole or in part, by operation of law or otherwise by any of the parties hereto without the prior written consent of the other parties hereto, and any such assignment without such prior written consent shall be null and void, except that Purchaser may assign its rights and delegate its obligations under this Agreement to any direct or indirect wholly owned subsidiary of Purchaser without the prior consent of any other party hereto; provided that notwithstanding any such assignment, Purchaser shall remain liable for all of its obligations under this Agreement. Subject to the preceding sentence, this Agreement shall be binding upon, inure to the benefit of, and be enforceable by, the parties hereto and their respective heirs, successors and assigns.

10.9 Severability. In the event that any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement shall continue in full force and effect and shall be interpreted so as reasonably necessary to effect the intent of the parties hereto. The parties hereto shall use all reasonable efforts to replace such void or unenforceable provision of this Agreement with a valid and enforceable provision that shall achieve, to the greatest extent possible, the economic, business and other purposes of such void or unenforceable provision.

10.10 Remedies Cumulative; Specific Performance. Except as otherwise provided herein, any and all remedies herein expressly conferred upon a party hereto shall be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by law or equity upon such party, and the exercise by a party hereto of any one remedy shall not preclude the exercise of any other remedy and nothing herein shall be deemed a waiver by any party hereto of any right to specific performance or injunctive relief. It is accordingly agreed that, subject to Section 9.3(a), the parties hereto shall be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof, this being in addition to any other remedy to which they are entitled at law or in equity, and the parties hereto hereby waive the requirement of any posting of a bond in connection with the remedies described herein.

10.11 Governing Law. This Agreement, all acts and transactions pursuant hereto and all obligations of the parties hereto shall be governed by and construed in accordance with the laws of the State of Delaware without reference to such state's principles of conflicts of law that would refer a matter to a different jurisdiction.

10.12 Arbitration; Submission to Jurisdiction; Consent to Service of Process. EXCEPT FOR CLAIMS REGARDING EITHER PURCHASER'S OR THE COMPANY'S INTELLECTUAL PROPERTY RIGHTS AND CONFIDENTIAL INFORMATION, TO WHICH THIS SECTION WILL NOT APPLY, IN THE EVENT THAT A RESOLUTION IS NOT REACHED AMONG THE PARTIES HERETO WITHIN 60 DAYS AFTER WRITTEN NOTICE OF A DISPUTE, THE DISPUTE SHALL BE FINALLY SETTLED BY BINDING ARBITRATION IN SAN FRANCISCO, CALIFORNIA. SUCH ARBITRATION SHALL BE CONDUCTED IN ENGLISH IN ACCORDANCE WITH THE RULES OF THE AMERICAN ARBITRATION ASSOCIATION BY ONE ARBITRATOR APPOINTED IN ACCORDANCE WITH SUCH RULES. THE ARBITRATOR SHALL ALLOW SUCH DISCOVERY AS IS APPROPRIATE TO THE PURPOSES OF ARBITRATION IN ACCOMPLISHING A FAIR, SPEEDY AND COST-EFFECTIVE RESOLUTION OF THE DISPUTE. THE ARBITRATOR SHALL REFERENCE THE FEDERAL RULES OF CIVIL PROCEDURE THEN IN EFFECT IN SETTING THE SCOPE AND TIMING OF DISCOVERY. THE AWARD OF ARBITRATION SHALL BE FINAL AND BINDING UPON THE PARTIES HERETO. THE ARBITRATOR WILL AWARD TO THE PREVAILING PARTY ALL COSTS, FEES AND EXPENSES RELATED TO THE ARBITRATION, INCLUDING REASONABLE FEES AND EXPENSES OF ATTORNEYS, ACCOUNTANTS AND OTHER PROFESSIONALS INCURRED BY THE PREVAILING PARTY, AND JUDGMENT ON THE AWARD RENDERED BY THE ARBITRATOR MAY BE ENTERED IN ANY COURT HAVING JURISDICTION THEREOF. THE APPOINTMENT OF AN ARBITRATOR DOES NOT PRECLUDE A PARTY HERETO FROM SEEKING PREJUDGMENT REMEDIES AND EMERGENCY RELIEF FROM A COURT OF COMPETENT JURISDICTION.

10.13 Rules of Construction. The parties hereto have been represented by counsel during the negotiation, preparation and execution of this Agreement and, therefore, hereby waive, with respect to this Agreement, each Schedule and each Exhibit attached hereto, the application of any Applicable Law or rule of construction providing that ambiguities in an agreement or other document shall be construed

against the party drafting such agreement or document.

10.14 Additional Agreement. If the Equityholders' Representative so desires, acting on behalf of the Selling Securityholders and without the need for any consent or waiver by the Company or Purchaser, Cooley LLP ("***Cooley***") shall be permitted to represent the Selling Securityholders after the Closing in connection with any matter related to the Transactions or any other agreements referenced herein or any disagreement or dispute relating thereto. Without limiting the generality of the foregoing, after the Closing, Cooley shall be permitted to represent the Selling Securityholders, any of their agents and Affiliates, or any one or more of them, in connection with any negotiation, transaction or dispute (including any litigation, arbitration or other adversary proceeding) with Purchaser, the Company or any of their agents or Affiliates under or relating to this Agreement, any Transaction and any related matter, such as claims or disputes arising under other agreements entered into in connection with this Agreement, including with respect to any indemnification claims. Purchaser further agrees that, as to all communications among Cooley and the Equityholders' Representative and the Selling Securityholders and their respective Affiliates (individually and collectively, the "***Seller Group***") that relate in any way to the Transactions, following the Closing, the attorney-client privilege and the exception of client confidence belongs solely to Purchaser and may be controlled only by Purchaser and shall not be claimed by the Seller Group; provided that Purchaser shall not assert such attorney-client privilege against the Seller Group or assert any such privileged communication (or use it as evidence) in a dispute (including a dispute under Article IX) with any members of the Seller Group.

[SIGNATURE PAGE NEXT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

PURCHASER:

GRAIL, INC.

By: /s Ken Drazan
Name: Ken Drazan
Title: Chief Financial Officer

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers there to duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

COMPANY:

CIRINA LIMITED

By: /s/ Yuk Ming Dennis Lo
Name: Yuk Ming Dennis Lo
Title: Chairman

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

EQUITYHOLDERS' REPRESENTATIVE:

SHAREHOLDER REPRESENTATIVE SERVICES LLC, solely in its capacity as the Equityholders' Representative

By: /s/ W. Paul Koenig

Name: W. Paul Koenig

Title: Managing Director

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

INITIAL SELLING STOCKHOLDERS:

DECHENG CAPITAL CHINA LIFE SCIENCES USD FUND I, LLP
By: Decheng Capital China Management I (Cayman), LLC
Its: General Partner

By: /s/ Xiangmin Cui
Name: Xiangmin Cui
Title: Managing Director

Securityholder's Consideration - confidential schedule to signature page: see attached.

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

INITIAL SELLING STOCKHOLDERS:

DECHENG CAPITAL CHINA LIFE SCIENCES USD FUND II, LLP
By: Decheng Capital China Management II (Cayman), LLC
Its: General Partner

By: /s/ Xiangmin Cui
Name: Xiangmin Cui
Title: Managing Director

Securityholder's Consideration - confidential schedule to signature page: see attached.

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

INITIAL SELLING STOCKHOLDERS:

DENLUX DIAGNOSTICS INVEST INC.

By: /s/ WEI XU
Name: WEI XU
Title: Director

Securityholder's Consideration - confidential schedule to signature page: see attached.

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

INITIAL SELLING STOCKHOLDERS:

/s/ Allen Chan

CHAN Kwan Chee

Securityholder's Consideration - confidential schedule to signature page: see attached.

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

INITIAL SELLING STOCKHOLDERS:

/s/ Wai Kwun Rossa Chiu

CHIU Wai Kwun Rossa

Securityholder's Consideration - confidential schedule to signature page: see attached.

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers there to duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), atlas of the date first written above.

INITIAL SELLING STOCKHOLDERS:

/s/ Yuk Ming Dennis Lo

Yuk Ming Dennis Lo

Securityholder's Consideration - confidential schedule to signature page: see attached.

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

IN WITNESS WHEREOF, Purchaser, the Company, the Initial Selling Stockholders and the Equityholders' Representative have caused this Stock Purchase Agreement to be executed and delivered by their respective officers thereunto duly authorized (or with respect to any Initial Selling Stockholder that is an individual, personally), all as of the date first written above.

INITIAL SELLING STOCKHOLDERS:

/s/ Maneesh JAIN

Maneesh JAIN

Securityholder's Consideration - confidential schedule to signature page: see attached.

[SIGNATURE PAGE TO STOCK PURCHASE AGREEMENT]

EXHIBIT A

Initial Selling Stockholders

Decheng Capital China Life Sciences USD Fund I, L.P.

Decheng Capital China Life Sciences USD Fund II, L.P.

Denlux Diagnostics Invest Inc.

Yuk Ming Dennis Lo

Wai Kwun Rossa Chiu

Kwan Chee Chan

Maneesh Jain

EXHIBIT B

Definitions

As used herein, the following terms shall have the meanings indicated below.

"***2016 Equity Incentive Plan***" means the Company's 2016 Equity Incentive Plan.

"***Acquisition Proposal***" means, with respect to the Company, any agreement, offer, proposal or *bona fide* indication of interest (other than this Agreement or any other offer, proposal or indication of interest by Purchaser), or any public announcement of intention to enter into any such agreement or of (or intention to make) any offer, proposal or *bona fide* indication of interest, relating to, or involving: (i) any acquisition or purchase from the Company, or from the Company Stockholders, by any Person or Group of more than a 10% interest in the total outstanding voting securities of the Company or any tender offer or exchange offer that if consummated would result in any Person or Group beneficially owning 10% or more of the total outstanding voting securities of the Company or any merger, consolidation, business combination or similar transaction involving the Company, (ii) any sale, lease, mortgage, pledge, exchange, transfer, license (other than in the ordinary course of business consistent with past practice), acquisition, or disposition of more than 10% of the assets of the Company in any single transaction or series of related transactions, (iii) any liquidation, dissolution, recapitalization or other significant corporate reorganization of the Company, or any extraordinary dividend, whether of cash or other property or (iv) any other transaction outside of the ordinary course of business consistent with past practice the consummation of which would impede, interfere with, prevent or delay, or would reasonably be expected to impede, interfere with, prevent or delay, the consummation of the Stock Purchase or the other Transactions.

"***Affiliate***" means, with respect to any Person, any other Person that directly or indirectly through one or more intermediaries controls, or is controlled by, or is under common control with, such Person, including any general partner, managing member, officer or director of such Person or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such Person, in each case as of the date on which, or at any time during the period for which, the determination of affiliation is being made. For purposes of this definition, the term "control" (including the correlative meanings of the terms "controlled by" and "under common control with"), as used with respect to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management policies of such Person, whether through the ownership of voting securities or by Contract or otherwise.

"***Aggregate Exercise Price***" means the sum of the exercise prices of all Company Options that are unexpired, unexercised, vested and outstanding as of immediately prior to the Closing.

"***Anti-Corruption Law***" means any Applicable Law relating to anti-bribery or anti- corruption (governmental or commercial), including the U.S. Foreign Corrupt Practices Act of 1977, as amended, and any other Applicable Law that prohibits the corrupt payment, offer, promise or authorization of the payment or transfer of anything of value (including gifts or entertainment), directly or indirectly, to any Person, including any Government Official.

"***Applicable Law***" means, with respect to any Person, any U.S. federal, state, non-U.S., local, municipal or other law, statute, constitution, legislation, principle of common law, resolution, ordinance, code, edict, decree, rule, directive, license, permit, regulation, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Entity and any Orders applicable to such Person or such Person's Affiliates or to any of

their respective assets, properties or businesses.

"***Business***" means the business of the Group Companies as currently conducted.

"***Business Day***" means a day (i) other than Saturday or Sunday and (ii) on which commercial banks are open for business in San Francisco, California, or Hong Kong.

"***Cash Consideration***" means (i) $100,000,000 in cash plus (ii) the Aggregate Exercise Price less (iii) an amount in cash equal to the Seller Stamp Tax Amount less (iv) an amount in cash equal to Transaction Expenses that are incurred but unpaid as of the Closing.

"***CL Shareholders Agreement***" means the Shareholders Agreement of Cirina Limited, dated as of September 30, 2015, by and between the Company and the parties signatory thereto.

"***Claim***" means any claim, demand, cause of action, suit, proceeding, arbitration, audit, hearing, investigation or inquiry (whether formal or informal, civil, criminal or administrative).

"***Code***" means the Internal Revenue Code of 1986, as amended.

"***Company Capital Stock***" means, collectively, the Company Ordinary Shares and the Company Preferred Stock.

"***Company Ordinary Shares***" means the Founder Ordinary Shares and the Ordinary Shares of the Company.

"***Company Option Plan***" means, collectively, each stock option plan, stock scheme, program or arrangement of the Company.

"***Company Optionholders***" means (i) with respect to any time before the Closing, collectively, the holders of record of Company Options outstanding as of such time and (ii) with respect to any time at or after the Closing, collectively, the holders of record of Company Options outstanding as of immediately prior to the Closing.

"***Company Options***" means options to purchase shares of Company Ordinary Shares.

"***Company Preferred Stock***" means the Company Series A Stock.

"***Company Preferred Stockholder***" means (i) with respect to any time before the Closing, collectively, the holders of record of shares of Company Preferred Stock outstanding as of such time and (ii) with respect to any time at or after the Closing, collectively, the holders of record of shares of Company Preferred Stock outstanding as of immediately prior to the Closing.

"***Company Securityholders***" means, collectively, the Company Stockholders and Company Optionholders.

"***Company Series A Stock***" means the Series A Preferred Stock of the Company.

"***Company Stockholders***" means (i) with respect to any time before the Closing, collectively, the holders of record of shares of Company Capital Stock outstanding as of such time and (ii) with respect to any time at or after the Closing, collectively, the holders of record of shares of Company Capital Stock outstanding as of immediately prior to the Closing.

"***Company Transaction Documents***" means this Agreement and each other Transaction Document to which the Company is or will be a party.

"***Continuing Employees***" means the employees of the Company who are offered continued employment with Purchaser, the Company or one of their respective subsidiaries and who execute Purchaser's customary form of employment offer letter, together with a confidential information and invention assignment agreement and, in each case, who accept employment to remain employees of the Company or become employees of Purchaser or one of its subsidiaries as of immediately after the Closing.

"***Contract***" means any written or oral legally binding contract, agreement, instrument, commitment or undertaking of any nature (including leases, subleases, licenses, mortgages, notes, guarantees, sublicenses, subcontracts, letters of intent and purchase orders) as of the Agreement Date or as may hereafter be in effect, including all amendments, supplements, exhibits and schedules thereto.

"***DGCL***" means the General Corporation Law of the State of Delaware.

"***Employee Stockholder***" means any Company Stockholder who is an employee of the Company as of immediately prior to the Closing.

"***Encumbrance***" means, with respect to any asset, any mortgage, easement, encroachment, equitable interest, right of way, deed of trust, lien (statutory or other), pledge, charge, security interest, title retention device, conditional sale or other security arrangement, collateral assignment, claim, community property interest, adverse claim of title, ownership or right to use, right of first refusal, restriction or other encumbrance of any kind in respect of such asset (including any restriction on (i) the voting of any security or the transfer of any security or other asset, (ii) the receipt of any income derived from any asset, (iii) the use of any asset and (iv) the possession, exercise or transfer of any other attribute of ownership of any asset).

"***Environmental, Health and Safety Requirements***" means all Applicable Law concerning or relating to worker/occupational health and safety, or pollution or protection of the environment, including those relating to the presence, use, manufacturing, refining, production, generation, handling, transportation, treatment, recycling, transfer, storage, disposal, distribution, importing, labeling, testing, processing, discharge, release, threatened release, control or other action or failure to act involving cleanup of any hazardous materials, substances or wastes, chemical substances or mixtures, pesticides, pollutants, contaminants, toxic chemicals, petroleum products or byproducts, asbestos, polychlorinated biphenyls, noise or radiation, each as amended and as now in effect.

"***Equity Interests***" means, with respect to any Person, any capital stock of, or other ownership, membership, partnership, joint venture or equity interest in, such Person or any indebtedness, securities, options, warrants, call, subscription or other rights or entitlements of, or granted by, such Person or any of its Affiliates that are convertible into, or are exercisable or exchangeable for, or giving any Person any right or entitlement to acquire any such capital stock or other ownership, partnership, joint venture or equity interest, in all cases, whether vested or unvested.

"***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

"***Expense Amount***" means cash in an amount equal to $150,000.

"***Founder***" means each of Yuk Ming Dennis Lo, Wai Kwun Rossa Chiu and Kwan Chee Chan.

"***Fraud*" *means*** fraud, but excluding constructive fraud.

"***GAAP***" means United States generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board and the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board, that are applicable to the circumstances of the date of determination, consistently applied.

"***Government Official***" means (i) any official, employee, agent or representative of, or any Person acting in an official capacity for or on behalf of, any Governmental Entity, (ii) any political party, political party official or candidate for political office, (iii) any official, employee, agent or representative of, or any Person acting in an official capacity for or on behalf of, a company, business, enterprise or other entity owned, in whole or in part, or controlled by any Governmental Entity or (iv) any official, employee, agent or representative of, or any Person acting in an official capacity for or on behalf of, a public international organization.

"***Governmental Entity***" means any supranational, national, state, municipal, local or foreign government, any court, tribunal, arbitrator, administrative agency, commission or other Government Official, authority or instrumentality, in each case whether domestic or foreign, any stock exchange or similar self-regulatory organization or any quasi-governmental or private body exercising any executive, legislative, judicial, regulatory, Tax Authority or other functions of, or pertaining to, government authority (including any governmental or political division, department, agency, commission, instrumentality, official, organization, unit, body or entity and any court or other tribunal).

"***Group***" has the meaning ascribed to such term under Section 13(d) of the Exchange Act, the rules and regulations thereunder and related case law.

"***Group Company***" means each of the Company and the Subsidiaries.

"***Holdback Amount***" means cash in an amount equal to $15,000,000.

"***intentional misrepresentation***" means an action or omission that constitutes a breach of a representation or warranty and that was taken or omitted to be taken for the purpose of misleading the party to whom such representation or warranty was made and was not merely a volitional action or omission.

"***IRS***" means the U.S. Internal Revenue Service.

"***knowledge of the Company***" means, with respect to any fact, circumstance, event or other matter in question, the knowledge of such fact, circumstance, event or other matter by any of the Founders after reasonable inquiry of those employees who would reasonably be expected to have knowledge of such fact, circumstance, event or other matter.

"***Legal Proceeding***" means any private or governmental action, inquiry, claim, counterclaim, proceeding, suit, hearing, litigation, audit or investigation, in each case whether civil, criminal, administrative, judicial or investigative, or any appeal therefrom.

"***Liabilities***" (and, with correlative meaning, "***Liability***") means all debts, liabilities, commitments and obligations, whether accrued or fixed, absolute or contingent, matured or unmatured, determined or determinable, liquidated or unliquidated, asserted or unasserted, known or unknown, whenever or however arising, including those arising under Applicable Law or any Legal Proceeding or Order of a Governmental Entity and those arising under any Contract, regardless of whether such debt,

liability, commitment or obligation would be required to be reflected on a balance sheet prepared in accordance with GAAP or disclosed in the notes thereto.

"***Material Adverse Effect***" with respect to any Person means any change, event, violation, inaccuracy, circumstance or effect (each, an "***Effect***") that, individually or taken together with all other Effects, and regardless of whether such Effect constitutes an inaccuracy in the representations or warranties made by, or a breach of the covenants, agreements or obligations of, such Person herein, (i) is, or would reasonably be likely to be or become, materially adverse in relation to the financial condition, assets (including intangible assets), Liabilities, business, prospects, operations or results of operations of such Person and its subsidiaries, taken as a whole, except to the extent that any such Effect results from: (A) changes in general economic conditions (provided that such changes do not affect such Person disproportionately as compared to such Person's competitors), (B) changes affecting the industry generally in which such Person operates (provided that such changes do not affect such Person disproportionately as compared to such Person's competitors) (C) changes in GAAP (provided that such changes do not affect such Person disproportionately as compared to such Person's competitors) or (D) the announcement, pendency or consummation of the transactions contemplated by this Agreement or (ii) adversely affects, or would reasonably be likely to adversely affect, such Person's ability to perform or comply with the covenants, agreements or obligations of such Person herein or to consummate the Transactions in accordance with this Agreement and Applicable Law.

"***Order***" means any judgment, writ, decree, stipulation, determination, decision, award, rule, preliminary or permanent injunction, temporary restraining order or other order.

"***Permitted Encumbrances***" means: (i) statutory liens for Taxes that are not yet due and payable or liens for Taxes being contested in good faith by any appropriate proceedings for which adequate reserves have been established, (ii) statutory liens to secure obligations to landlords, lessors or renters under leases or rental agreements, (iii) deposits or pledges made in connection with, or to secure payment of, workers' compensation, unemployment insurance or similar programs mandated by Applicable Law, (iv) statutory liens in favor of carriers, warehousemen, mechanics and materialmen, to secure claims for labor, materials or supplies and other like liens, (v) liens in favor of customs and revenue authorities arising as a matter of Applicable Law to secure payments of customs duties in connection with the importation of goods and (vi) non-exclusive object code licenses of software by the Company in the ordinary course of business consistent with past practice on its standard unmodified form of end-user agreement (a copy of which has been made available to Purchaser).

"***Person***" means any natural person, company, corporation, limited liability company, general partnership, limited partnership, limited liability partnership, trust, estate, proprietorship, joint venture, business organization or Governmental Entity.

"***Pre-Closing Taxes***" means (a) any Taxes of the Company for a Taxable period (or portion thereof) ending on or prior to the Closing Date and (b) any Taxes of any other Person for which the Company is liable if the agreement, event or occurrence giving rise to such Liability occurred on or before the Closing Date; provided, however, that Pre-Closing Taxes shall not include (i) any Taxes resulting from any transactions occurring on the Closing Date after the Closing outside the ordinary course of business (other than as explicitly contemplated by this Agreement), (ii) any Taxes resulting from any breach by Parent of Section 6.12 (Tax Matters) or (iii) any Taxes taken into account as a Transaction Expense; provided, further, Pre-Closing Taxes includes any payroll taxes or other Taxes of the Company arising in connection with any payment required pursuant to, or arising as a result of, this Agreement or the Transactions, whether or not such Taxes are due and payable as of the Closing Date. In the case of any Taxes of the Company that are imposed on a periodic basis and that are payable for a Taxable period that includes (but does not end on) the Closing Date, such Taxes shall (i) in the case of

property, *ad valorem* or other Taxes that accrue based upon the passage of time, be deemed to be Pre- Closing Taxes in an amount equal to the amount of such Taxes for the entire Taxable period multiplied by a fraction, the numerator of which is the number of days in the Taxable period through and including the Closing Date and the denominator of which is the number of days in the entire Taxable period, and (ii) in the case of any other Taxes, be deemed to be Pre-Closing Taxes in an amount equal to the amount of Taxes that would be payable if the relevant Taxable period ended on the Closing Date. Any credits relating to a Taxable period that includes (but does not end on) the Closing Date shall be taken into account as though the relevant Taxable period ended on the Closing Date.

"***Pro Rata Share***" means, with respect to a particular Selling Securityholder, a percentage set forth on the Spreadsheet under the column "Pro Rata Share."

"***Purchaser Intellectual Property***" means all patents, patent applications, trademarks, trademark applications, service marks, service mark applications, tradenames, copyrights, trade secrets, domain names, mask works, information and proprietary rights and processes, similar or other intellectual property rights, subject matter of any of the foregoing, tangible embodiments of any of the foregoing, licenses in, to and under any of the foregoing, and any and all such cases that are owned or used by the Purchaser in the conduct of the Purchaser's business as now conducted and as presently proposed to be conducted.

"***Purchaser Investors' Rights Agreement***" means that certain Amended and Restated Investors' Rights Agreement, dated as of February 28, 2017, by and among the Purchaser and the investors signatory thereto (as amended from time to time).

"***Purchaser Options***" means options to purchase shares of Purchaser Class A Common Stock.

"***Purchaser Right of First Refusal and Co-Sale Agreement***" means that certain Amended and Restated Right of First Refusal and Co-Sale Agreement, dated as of February 28, 2017, by and among the Purchaser and the investors and key holders signatory thereto (as amended from time to time).

"***Purchaser Series B Stock***" means the Series B Preferred Stock of Purchaser, par value $0.001 per share.

"***Purchaser Voting Agreement***" means that certain Amended and Restated Voting Agreement, dated as of February 28, 2017, by and among the Purchaser and the investors and key holders signatory thereto (as amended from time to time).

"***Purchaser's knowledge***" means the actual knowledge of the following officers: Jeffrey Huber, Ken Drazan, Mark Lee, Angela Lai, Cosmos Nicolaou, Vikram Bajaj and Alex Aravanis.

"***Regulatory Authority***" means any applicable government regulatory authority, domestic or foreign, involved in granting approvals for the manufacturing, marketing, reimbursement and/or pricing of a pharmaceutical or biological product, and any successor governmental authority having substantially the same function.

"***Representatives***" means, with respect to a Person, such Person's officers, directors, Affiliates, stockholders or employees, or any investment banker, attorney, accountant, auditor or other advisor or representative retained by any of them.

"***Securities Act***" means the Securities Act of 1933, as amended.

"***Stock Consideration***" means 37,420,482 shares of Purchaser Series B Stock.

"***subsidiary***" means, with respect to any Person, any corporation, partnership, limited liability company or other Person of which such Person, either alone or together with one or more subsidiaries or by one or more other subsidiaries (i) directly or indirectly owns or purports to own, beneficially or of record securities or other interests representing more than 50% of the outstanding equity, voting power, or financial interests of such other Person or (ii) is entitled, by Contract or otherwise, to elect, appoint or designate directors constituting a majority of the members of such Person's board of directors or other governing body.

"***Subsidiary***" means any subsidiary of the Company.

"***Tax***" (and, with correlative meaning, "***Taxes***" and "***Taxable***") means (i) any net income, alternative or add-on minimum tax, gross income, estimated, gross receipts, sales, use, ad valorem, value added, transfer, franchise, fringe benefit, capital stock, profits, license, registration, withholding, payroll, social security (or equivalent), employment, unemployment, disability, excise, severance, stamp, occupation, premium, property (real, tangible or intangible), environmental or windfall profit tax, custom duty or other tax, governmental fee or other like assessment or charge of any kind whatsoever, together with any interest or any penalty, addition to tax or additional amount (whether disputed or not) imposed by any Governmental Entity responsible for the imposition of any such tax (U.S. or non-U.S.) (each, a "***Tax Authority***"), (ii) any Liability for the payment of any amounts of the type described in clause (i) of this sentence as a result of being a member of an affiliated, consolidated, combined, unitary or aggregate group for any Taxable period and (iii) any Liability for the payment of any amounts of the type described in clause (i) or (ii) of this sentence as a result of being a transferee of or successor to any Person or as a result of any express or implied obligation to assume such Taxes or to indemnify any other Person.

"***Tax Return***" means any return, statement, report, form, notice, computation, assessment or computation (including estimated Tax returns and reports, withholding Tax returns and reports, any schedule or attachment, and information returns and reports) filed or provided to a Governmental Entity or required to be filed or provided to a Governmental Entity with respect to Taxes.

"***Total Consideration***" means, as calculated and set forth on the Spreadsheet, the sum of the Cash Consideration plus the Stock Consideration plus the Contingent Consideration.

"***Transaction Document***" means, collectively, this Agreement and each other agreement or document referred to in this Agreement or to be executed in connection with any of the Transactions.

"***Transaction Expenses***" means all third-party fees, costs, expenses, payments and expenditures incurred at or prior to the Closing by or on behalf of the Company in connection with the Stock Purchase, this Agreement and the Transactions, whether or not billed or accrued (including (i) any fees, costs expenses, payments and expenditures of legal counsel and accountants, (ii) the maximum amount of fees costs, expenses, payments and expenditures payable to brokers, finders, financial advisors, investment bankers or similar Persons notwithstanding any earn-outs, escrows or other contingencies and (iii) any such fees, costs, expenses, payments and expenditures incurred by Selling Stockholders paid for or to be paid for by the Company).

"***Treasury Regulations***" means the U.S. Department of Treasury's tax regulations issued under the Code.

"***Unvested Company Shares***" means shares of Company Capital Stock that are not vested, as of the Closing, under the terms of any Contract with the Company or subject to forfeiture or a right of repurchase by the Company (including any stock option agreement, stock option exercise agreement or restricted stock purchase agreement).

"***willful misconduct***" means an action or omission that constitutes a breach of a covenant and that was taken or omitted to be taken for the purpose of breaching such covenant and was not merely a volitional action or omission.

Other capitalized terms used herein and not defined in this Exhibit B shall have the meanings assigned to such terms in the following Sections:"

"401(k) Plan"	1.4(b)(vii)	***"Company Privacy Policies"***	2.10(a)(vii)
"Actual Financing Proceeds"	1.5(c)	***"Company Products"***	2.10(a)(vii)
"Agreement"	Preamble	***"Company Registered Intellectual Property"***	2.10(a)(viii)
"Agreement Date"	Preamble	***"Company Voting Debt"***	2.2(d)
"Articles of Association"	1.4(b)(ii)	***"Company Websites"***	2.10(a)(ix)
"Author"	2.10(g)	***"Confidential Information"***	2.10(i)
"Basket"	9.3(a)	***"Confidential Information Agreements"***	4.19
"Board"	Recitals	***"Confidentiality Agreement"***	6.2(a)
"Certificates"	1.6(a)(i)	***"Contingent Consideration"***	1.5(c)
"Claim Certificate"	9.5(a)	***"Contingent Consideration Date"***	1.5(c)
"Claims Period"	9.4	***"Contingent Consideration Percentage"***	1.5(c)
"Closing"	1.2	***"Contingent Threshold Amount"***	1.5(c)
"Closing Date"	1.2	***"Cooley"***	10.14
"COBRA"	2.12(c)	***"CUHK"***	2.10(a)(ii)
"Company"	Preamble	***"CUHK Licenses"***	2.10(a)(ii)
"Company Authorizations"	2.8(b)	***"Disqualification Event"***	4.5
"Company Balance Sheet"	2.4(b)	***"Employment Agreement"***	Recitals
"Company Balance Sheet Date"	2.4(b)	***"Exchange Agent"***	1.6(a)(ii)
"Company Data"	2.10(a)(i)	***"Equityholders' Representative"***	Preamble
"Company Data Agreement"	2.10(a)(ii)	***"ERISA"***	2.12(a)
"Company Debt"	2.4(c)	***"ERISA Affiliate"***	2.12(a)
"Company Disclosure Letter"	ARTICLE II	***"Export Approvals"***	2.2
"Company Employee Plans"	2.12(a)	***"FCPA"***	4.25(a)
"Company Intellectual Property"	2.10(a)(iii)	***"FD&C"***	4.24(b)
"Company Intellectual Property Agreements"	2.10(a)(iv)		
"Company Owned Intellectual Property"	2.10(a)(v)		
"Company Privacy Commitments"	2.10(o)(i)		

"FDA"	4.24(a)	***"Purchaser Class B Common Stock"***	4.2(a)(i)
"Financial Statements"	2.4(a)	***"Purchaser Common Stock"***	4.2(a)(i)
"Government Contract"	2.16(a)(ix)	***"Purchaser Financial Statements"***	4.14
"Holdback Fund"	9.1(a)	***"Purchaser Material Agreement"***	4.10(a)
"Holdback Period"	9.1(a)	***"Purchaser Preferred Stock"***	4.2(a)(ii)
"Holdback Release Date"	9.1(a)	***"Purchaser Series A Stock"***	4.2(a)(ii)
"Indemnifiable Damages"	9.2(a)	***"Purchaser Stamp Tax Amount"***	1.9
"Indemnified Person"	9.2(a)	***"Regulations"***	2.12(o)
"Initial Selling Stockholders"	Preamble	***"Regulatory Permits"***	2.13(a)
"Intellectual Property"	2.10(a)(x)	***"Released Claims"***	6.15(a)
"Intellectual Property Rights"	2.10(a)(xi)	***"Restated Certificate"***	4.2(a)(ii)
"Joinder Agreement"	Recitals	***"Restrictive Covenant Agreement"***	Recitals
"Joining Optionholder"	Recitals	***"Seller Group"***	10.14
"Joining Stockholder"	Recitals	***"Seller Stamp Tax Amount"***	1.9
"Key Employee"	Recitals	***"Selling Stockholders"***	Recitals
"Material Contracts"	2.16(a)	***"Selling Securityholders"***	Recitals
"Minimum Cash Balance"	6.1	***"Separation Agreement"***	1.4(a)(xvii)
"New Litigation Claim"	6.5	***"Special Claims"***	9.3(c)
"OFAC"	4.25(b)	***"Special Representations"***	9.3(b)
"Option Payments"	1.5(b)	***"Specified Contractors"***	1.4(a)(xviii)
"Parachute Payment Waiver"	1.4(b)(xviii)	***"Spreadsheet"***	6.7
"Permitted Issuances"	5.2(e)	***"Stock Plan"***	4.2(b)
"Personal Data"	2.10(a)(xii)	***"Stock Purchase"***	Recitals
"Privacy Laws"	2.10(a)(xiii)	***"Termination Date"***	8.1(b)
"Process" or "Processing"	2.10(a)(xiv)	***"Third-Party Claim"***	9.8
"Proprietary Information and Technology"	2.10(a)(xv)	***"Third-Party Intellectual Property"***	2.10(a)(xvi)
"Purchased Shares"	Recitals	***"Transactions"***	Recitals
"Purchaser"	Preamble	***"Transfer Taxes"***	1.9
"Purchaser Class A Common Stock"	4.2(a)(i)	***"WARN Act"***	2.12(n)

GRAIL, INC.

RESTATED CERTIFICATE OF INCORPORATION

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

GRAIL, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "**General Corporation Law**"), does hereby certify as follows:

1. The name of this corporation is GRAIL, Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on September 11, 2015 under the name PSC15, Inc. and filed a Certificate of Amendment to the Certificate of Incorporation on January 5, 2016 changing the name of this corporation to GRAIL, Inc.

2. The Board of Directors duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows.

RESOLVED, that the Certificate of Incorporation of this corporation be amended and restated in its entirety to read as set forth on Exhibit A attached hereto and incorporated herein by this reference.

Exhibit A referred to in the resolution above is attached hereto as Exhibit A and is hereby incorporated herein by this reference.

3. This Restated Certificate of Incorporation was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. This Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 26th day of May, 2020.

By: /s/ Hans Bishop
Hans Bishop
Chief Executive Officer

Exhibit A

GRAIL, Inc.

RESTATED CERTIFICATE OF INCORPORATION

FIRST: The name of this corporation is GRAIL, Inc. (the "**Corporation**").

SECOND: ..The address of the registered office of the Corporation in the State of Delaware is 12 09 Orange Street, in the City of Wilmington, County of New Castle, 19801. The name of its registered agent at such address is The Corporation Trust Company.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is 1,432,348,227 shares, of which the Corporation shall have authority to issue (i) 868,203,200 shares of Class A Common Stock, each having a par value of $0.001 ("**Class A Common Stock**"), (ii) 30,000,000 shares of Class B Common Stock, each having a par value of $0.001 ("**Class B Common Stock**," and together with the Class A Common Stock, "**Common Stock**"), and (iii) 534,145,027 shares of Preferred Stock, each having a par value of $0.001 ("**Preferred Stock**"). As of the effective date of this Restated Certificate of Incorporation (this "**Restated Certificate**"), 85,000,000 shares of the authorized shares of Preferred Stock of the Corporation are hereby designated "**Series A Preferred Stock**", 309,256,591 shares of the authorized shares of Preferred Stock of the Corporation are hereby designated "**Series B Preferred Stock**", 63,144,600 shares of the authorized shares of Preferred Stock of the Corporation are hereby designated "**Series C Preferred Stock**" and 76,743,836 shares of the authorized shares of Preferred Stock of the Corporation are hereby designated "**Series D Preferred Stock**".

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein. Except as otherwise expressly provided herein or required by the General Corporation Law, shares of Class A Common Stock and Class B Common Stock shall have the same rights and privileges and rank equally, share ratably, and be identical in all respects as to all matters.

2. Voting. Except as otherwise expressly provided herein or required by the General Corporation Law, holders of shares of each class of Common Stock shall be entitled to vote, and shall vote together as one class, on all matters to be voted on by stockholders of the Corporation. Except as otherwise expressly provided herein or required by the General

Corporation Law, on any matter that is submitted to a vote of the stockholders, each holder of Class A Common Stock shall be entitled to one vote for each such share, and each holder of Class B Common Stock shall be entitled ten votes for each such share at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Restated Certificate that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to this Restated Certificate or pursuant to the General Corporation Law. There shall be no cumulative voting. Subject to any other requirements set forth herein (including Section 3.3 of Part B Article Fourth) the number of authorized shares of Class A Common Stock or Class B Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Restated Certificate) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

3. Conversion of Class B Common Stock. Each share of Class B Common Stock shall be convertible into Class A Common Stock at the ratio of 0.44 Shares of Class A Common Stock for each 0.42 shares of Class B Common Stock at the earlier of (i) any transfer of any shares of Class B Common Stock by any holder thereof, except any transfer to an Affiliate of such holder and (ii) at the option of the holder thereof, at any time upon written notice to the transfer agent of the Corporation. For purposes of this Section 3, with respect to a holder of Class B Common Stock, the term "Affiliate" shall mean any other person, natural or legal, who, directly or indirectly, controls, is controlled by, or is under common control with such holder, including without limitation any general partner, managing member, officer or director of such holder or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such holder. For purposes of this definition, the terms "controlling," "controlled by," or "under common control with" shall mean the possession, directly or indirectly, of (a) the power to direct or cause the direction of the management and policies of a natural or legal person, whether through the ownership of voting securities, by contract, or otherwise, or (b) the power to elect or appoint at least fifty percent (50%) of the directors, managers, general partners, or persons exercising similar authority with respect to such transferring holder.

4. Reservation of Stock. The Corporation shall at all times reserve and keep available out of its authorized but unissued shares of Class A Common Stock, solely for the purpose of effecting the conversion of the shares of Class B Common Stock, such number of shares of Class A Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of Class B Common Stock into shares of Class A Common Stock.

5. Amendments Regarding Common Stock. Notwithstanding any other provision of this Restated Certificate to the contrary, (1) for so long as any shares of Class A Common Stock are outstanding, the Corporation shall not, without the affirmative vote of the holders of a majority of the voting power of the outstanding shares of Class A Common Stock

(voting as a separate class), amend, alter, or repeal any provision of this Restated Certificate so as to affect adversely the relative rights, preferences, qualifications, limitations, or restrictions of the Class A Common Stock as compared to those of the Class B Common Stock, and (2) for so long as any shares of Class B Common Stock are outstanding, the Corporation shall not, without the affirmative vote of the holders of a majority of the voting power of the outstanding shares of Class B Common Stock (voting as a separate class), amend, alter, or repeal any provision of this Restated Certificate so as to affect adversely the relative rights, preferences, qualifications, limitations, or restrictions of the Class B Common Stock as compared to those of the Class A Common Stock.

6. Dividends. No dividend or distribution may be declared or paid on any share of Class A Common Stock unless a dividend or distribution, payable in the same consideration and manner, is simultaneously declared or paid, as the case may be, on each share of Class B Common Stock, nor shall any dividend or distribution be declared or paid on any share of Class B Common Stock unless a dividend or distribution, payable in the same consideration and manner, is simultaneously declared or paid, as the case may be, on each share of Class A Common Stock, in each case without preference or priority of any kind; provided, however, that if dividends are declared that are payable in shares of Class A Common Stock or in Class B Common Stock or in rights, options, warrants, or other securities convertible into or exchangeable for shares of Class A Common Stock or Class B Common Stock, dividends shall be declared that are payable at the same rate on both classes of Common Stock and the dividends payable in shares of Class A Common Stock or in rights, options, warrants, or other securities convertible into or exchangeable for shares of Class A Common Stock shall be payable to holders of Class A Common Stock and the dividends payable in shares of Class B Common Stock or in rights, options, warrants, or other securities convertible into or exchange for shares of Class B Common Stock shall be payable to holders of Class B Common Stock.

7. Merger, Consolidation, or Reorganization. The Corporation shall not enter into any reorganization, or into any merger, share exchange, consolidation, or combination of the Corporation with one or more other entities (whether or not the Corporation is the surviving entity), unless each holder of an outstanding share of Class A Common Stock shall be entitled to receive with respect to such share the same kind and amount of consideration (including shares of stock and other securities and property (including cash)), if any, receivable upon such reorganization, merger, share exchange, consolidation, or other combination by a holder of an outstanding share of Class B Common Stock, and each holder of an outstanding share of Class B Common Stock shall be entitled to receive with respect to such share the same kind and amount of consideration (including shares of stock and other securities and property (including cash)), if any, receivable upon such reorganization, merger, share exchange, consolidation, or other combination by a holder of an outstanding share of Class A Common Stock, in each case without distinction between classes of Common Stock.

B. PREFERRED STOCK

The following rights, preferences, powers, privileges and restrictions, qualifications and limitations shall apply to the Preferred Stock. Unless otherwise indicated, references to

"sections" or "subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in this Restated Certificate) the holders of the Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Preferred Stock in an amount at least equal to (i) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Preferred Stock as would equal the product of (A) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Class A Common Stock and (B) the number of shares of Class A Common Stock issuable upon conversion of a share of such Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (ii) in the case of a dividend on any class or series that is not convertible into Class A Common Stock, at a rate per share of Preferred Stock determined by (A) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (B) multiplying such fraction by an amount equal to the Original Issue Price (as defined below); provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend. In the case of the Series A Preferred Stock, the "**Original Issue Price**" for the Series A Preferred Stock shall mean $1.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization of shares. In the case of the Series B Preferred Stock, the "**Original Issue Price**" for the Series B Preferred Stock shall mean $4.0085 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization of shares. In the case of the Series C Preferred Stock, the "**Original Issue Price**" for the Series C Preferred Stock shall mean $4.751 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization of shares. In the case of the Series D Preferred Stock, the "**Original Issue Price**" for the Series D Preferred Stock shall mean $5.1080, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization of shares.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the holders of shares of each series of Preferred Stock then outstanding shall be entitled, on a pari passu basis, to be paid out of the assets of the Corporation

available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) one times the applicable Original Issue Price for such series of Preferred Stock, plus any dividends declared but unpaid thereon, or (ii) such amount per share as would have been payable had all shares of such series of Preferred Stock been converted into Class A Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event. The amount payable to holders of Series A Preferred Stock pursuant to the immediately preceding sentence is sometimes referred to herein as the "**Series A Liquidation Amount**", the amount payable to holders of Series B Preferred Stock pursuant to the immediately preceding sentence is sometimes referred to herein as the "**Series B Liquidation Amount**", the amount payable to holders of Series C Preferred Stock pursuant to the immediately preceding sentence is sometimes referred to herein as the "**Series C Liquidation Amount**", and the amount payable to holders of Series D Preferred Stock pursuant to the immediately preceding sentence is sometimes referred to herein as the "**Series D Liquidation Amount**." If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Payments to Holders of Common Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock pursuant to Section 2.1, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares held by each such holder.

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a "**Deemed Liquidation Event**" unless (i) the holders of a majority of the outstanding shares of Preferred Stock (voting together as a single class on an as-converted basis) and (ii) during the period following the Initial Closing (used herein as defined in the Series D Purchase Agreement) and ending on April 17, 2022, only if such waiver would result in the holders of the then-outstanding shares of Series D Preferred Stock receiving a lesser amount with respect to such shares of Series D Preferred Stock than would otherwise be allocated to such shares in a Deemed Liquidation Event, the holders of two-thirds of the Series C Preferred Stock and the Series D Preferred Stock then outstanding, voting together as a single class (the "**Series C&D Vote**"), elect otherwise by written notice sent to the Corporation at least five (5) days prior to the effective date of any such event:

(a) a merger or consolidation in which

(i) the Corporation is a constituent party or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for equity securities that represent, immediately following such merger or consolidation, a majority, by voting power, of the equity securities of (1) the surviving or resulting party; or (2) if the surviving or resulting party is a wholly owned subsidiary of another party immediately following such merger or consolidation, the parent of such surviving or resulting party; *provided* that, for the purpose of this Section 2.3.1, all shares of Common Stock issuable upon exercise of Options (as defined in Section 4.4.1 below) outstanding immediately prior to such merger or consolidation or upon conversion of Convertible Securities (as defined in Section 4.4.1 below) outstanding immediately prior to such merger or consolidation shall be deemed to be outstanding immediately prior to such merger or consolidation and, if applicable, deemed to be converted or exchanged in such merger or consolidation on the same terms as the actual outstanding shares of Common Stock are converted or exchanged; or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary or subsidiaries of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger, consolidation, conversion or otherwise, and whether in a single transaction or a series of related transactions) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to one or more wholly owned subsidiaries of the Corporation.

Notwithstanding the foregoing, the sale of the Corporation's capital stock by the Corporation in a *bona fide* equity financing for capital raising purposes shall not constitute a Deemed Liquidation Event.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(i) unless the definitive agreement for such Deemed Liquidation Event transaction (the "**Definitive Agreement**") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the ninetieth (90^{th}) day after the Deemed Liquidation Event advising such

holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause, (ii) to require the redemption of such shares of Preferred Stock, and (iii) if the holders of a majority of the then outstanding shares of Preferred Stock, acting as a single class and on an as-converted to Class A Common Stock basis, so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation (the "**Board**")), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the "**Available Proceeds**"), no later than the one hundred fiftieth (150^{th}) day after such Deemed Liquidation Event, to redeem all outstanding shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock at a price per share equal to the Series A Liquidation Amount, Series B Liquidation Amount, Series C Liquidation Amount and Series D Liquidation Amount, respectively. Notwithstanding the foregoing, in the event of a redemption pursuant to this Subsection 2.3.2(b), if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall ratably redeem each holder's shares of Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders. Prior to the distribution or redemption provided for in this Subsection 2.3.2(b), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event.

2.3.3 Amount Deemed Paid or Distributed. The funds and assets deemed paid or distributed to the holders of capital stock of the Corporation upon any such Deemed Liquidation Event shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. If the amount deemed paid or distributed under this Subsection 2.3.3 is made in property other than in cash, the value of such distribution shall be the fair market value of such property, provided, however, that the following shall apply:

(a) For securities not subject to investment letters or other similar restrictions on free marketability,

(i) if traded on a securities exchange, the value shall be deemed to be the average of the closing prices of the securities on such exchange or market over the thirty (30) day period ending three (3) days prior to the closing of such transaction;

(ii) if actively traded over-the-counter, the value shall be deemed to be the average of the

closing bid prices over the thirty (30) day period ending three (3) days prior to the closing of such transaction; or

(iii) if there is no active public market, the value shall be the fair market value thereof, as determined in good faith by the Board.

(b) The method of valuation of securities subject to investment letters or other similar restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall take into account an appropriate discount (as determined in good faith by the Board) from the market value as determined pursuant to clause (a) above so as to reflect the approximate fair market value thereof.

The foregoing methods for valuing non-cash consideration to be distributed in connection with a Deemed Liquidation Event shall, with the appropriate approval pursuant to the definitive agreements governing such Deemed Liquidation Event by the stockholders under the General Corporation Law and Section 3.3, be superseded by the determination of such value set forth in the definitive agreements governing such Deemed Liquidation Event.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.3.1, if any portion of the consideration payable to the stockholders of the Corporation is only payable subject to contingencies (the "**Additional Consideration**"), the Definitive Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "**Initial Consideration**") shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Class A Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of this Restated Certificate, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class, shall

have full voting rights and powers equal to the voting rights and powers of the holders of Common Stock, and shall be entitled, notwithstanding any provision hereof, to notice of any stockholders' meeting in accordance with the Bylaws of the Corporation. Fractional votes shall not be permitted and any fractional voting rights available on an as-converted basis (after aggregating all shares into which shares of Preferred Stock held by each holder could be converted) shall be rounded to the nearest whole number (with one-half being rounded upward).

3.2 Election of Directors.

3.2.1 Election. The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "**Series A Director**"). The holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "**Series B Director**", and, together with the Series A Director, the "**Preferred Directors**"). The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Series D Preferred Stock, Series C Preferred Stock, Series B Preferred Stock and Series A Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the remaining number of directors of the Corporation (the "**Common and Preferred Directors**"). Any director elected as provided in the preceding sentences may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock or Series B Preferred Stock, as the case may be, are no longer eligible or fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first two sentences of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock or of the Series B Preferred Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director.

3.2.2 Vacancies Not Caused by Removal. If any vacancy in the office of any director exists, such vacancy may be filled (either contingently or otherwise) by the stockholders as specified in this Section 3.2 or by at least a majority of the members of the Board then in office, although less than a quorum, or by a sole remaining member of the Board then in office, even if such directors or such sole remaining director were not elected by the holders of the class, classes or series that are entitled to elect a director or directors to office under the provisions of Section 3.2.1 (the "**Specified Stock**") and such electing director or directors shall specify at the time of such election the specific vacant directorship being filled; provided, however, that where such vacancy occurs among the directors elected by Specified Stock, the holders of such Specified Stock may override the Board's action to fill such vacancy by (i) voting for their own designee to fill such vacancy at a meeting of the Corporation's stockholders

or (ii) written consent, if the consenting stockholders hold a sufficient number of shares to elect their designee at a meeting of the stockholders.

3.2.3 Vacancies Caused by Removal. Any director elected as provided in the preceding Section 3.2.2 may be removed with or without cause by, and any vacancy in the office of any such removed director may be filled by, and only by, the affirmative vote of the holders of the shares of the Specified Stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders.

3.2.4 Procedure. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the Specified Stock entitled to elect such director shall constitute a quorum for the purpose of electing such director and the candidate or candidates to be elected by such Specified Stock shall be those who receive the highest number of affirmative votes (on an as-converted basis) of the outstanding shares of such Specified Stock. In the case of an action taken by written consent without a meeting, the candidate or candidates to be elected by such Specified Stock shall be those who are elected by the written consent of the holders of a majority of such Specified Stock.

3.3 Preferred Stock Protective Provisions.

3.3.1 Preferred Stock Protective Provisions. At any time when at least 168,781,342 shares of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Restated Certificate) the written consent or affirmative vote of the holders of at least a majority of the then outstanding shares of Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a single class and on an as-converted to Class A Common Stock basis, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect.

(a) liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing;

(b) amend, alter or repeal any provision of this Restated Certificate or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Preferred Stock;

(c) create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional class or series of capital stock having rights, powers or preferences set forth in the Restated Certificate, as then in effect, that are senior to, or on parity with, any series of Preferred Stock (excluding, for the avoidance of doubt, the sale and issuance of shares of the Series D Preferred Stock pursuant to that certain Series D Preferred

Stock Purchase Agreement, dated on or about the Original Issue Date of the Series D Preferred Stock, as amended from time to time, the "**Series D Purchase Agreement**"), or increase or decrease the authorized number of shares of Preferred Stock (or any series thereof);

(d) purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Preferred Stock as expressly authorized herein, (ii) dividends or other distributions payable on the Common Stock solely in the form of Additional Shares of Class A Common Stock, or (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at no greater than the original purchase price thereof;

(e) create, or hold capital stock in, any subsidiary that is not wholly owned (either directly or through one or more other subsidiaries) by the Corporation, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of the Corporation, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose (in a single transaction or series of related transactions) of all or substantially all of the assets of such subsidiary;

(f) increase or decrease the authorized number of directors constituting the Board of Directors.

(g) create any additional classes or series of Common Stock, authorize or issue any additional shares of Class B Common Stock or increase the number of authorized shares of any class or series of Common Stock, except for the issuance (but not the authorization) of Class B Common Stock required under that certain Transition Agreement, dated October 12, 2017, by and between the Company and Jeffrey Huber, unless approved by the Board of Directors, including the affirmative consent of both Preferred Directors;

(h) enter into, be party to or amend any transaction or agreement with any shareholder, director, officer or employee of the Corporation or any "associate" (as defined in Rule 12b-2 promulgated under the Securities Exchange Act of 1934, as amended) of any such person, except for ordinary course of business agreements entered into on an arms-length basis, unless approved by the Board of Directors, including the affirmative consent of both Preferred Directors; or

(i) reclassify, alter or amend any existing security of the Corporation that is *pari passu* with the Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Preferred Stock in respect of any such right, preference, or privilege or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or *pari passu* with the Preferred Stock in respect of any such right, preference or privilege, in each case unless approved by the Board of

Directors, including the affirmative consent of both Preferred Directors, at least one of whom has not been appointed by and is not affiliated with any holder of capital stock of the Corporation that is being reclassified, altered or amended.

3.3.2 Series A Preferred Stock Protective Provisions. At any time when shares of Series A Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Restated Certificate) the written consent or affirmative vote of the holders of at least a majority of the then outstanding shares of Series A Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a single class (and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect):

(a) amend, alter or repeal any provision of the Restated Certificate or Bylaws of the Corporation in a manner that alters or changes the powers, preferences or rights of the shares of Series A Preferred Stock so as to adversely affect them, it being understood that the creation of a new series of preferred stock shall not be deemed to alter or change the powers, preferences or rights of the Series A Preferred Stock or otherwise require the affirmative vote or written consent of the holders of the Series A Preferred Stock pursuant to this Section 3.3.2;

(b) create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional shares of Series A Preferred Stock, or otherwise increase the authorized number of shares of Series A Preferred Stock; or

(c) waive any adjustment to the Conversion Price of the Series A Preferred Stock pursuant to Section 4 below.

3.3.3 Series B Preferred Stock Protective Provisions. At any time when shares of Series B Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Restated Certificate) the written consent or affirmative vote of the holders of at least a majority of the then outstanding shares of Series B Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a single class (and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect):

(a) amend, alter or repeal any provision of the Restated Certificate or Bylaws of the Corporation in a manner that alters or changes the powers, preferences or rights of the shares of Series B Preferred Stock so as to adversely affect them, it being understood that the creation of a new series of preferred stock shall not be deemed to alter or change the powers, preferences or rights of the Series B Preferred Stock or otherwise require the affirmative vote or written consent of the holders of the Series B Preferred Stock pursuant to this Section 3.3.3;

(b) create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional shares of Series B Preferred Stock, or otherwise increase the authorized number of shares of Series B Preferred Stock; or

(c) waive any adjustment to the Conversion Price of the Series B Preferred Stock pursuant to Section 4 below.

3.3.4 Series C Preferred Stock Protective Provisions. At any time when shares of Series C Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Restated Certificate) the written consent or affirmative vote of the holders of at least a majority of the then outstanding shares of Series C Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a single class (and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect):

(a) amend, alter or repeal any provision of the Restated Certificate or Bylaws of the Corporation in a manner that alters or changes the powers, preferences or rights of the shares of Series C Preferred Stock so as to adversely affect them, it being understood that the creation of a new series of preferred stock shall not be deemed to alter or change the powers, preferences or rights of the Series C Preferred Stock or otherwise require the affirmative vote or written consent of the holders of the Series C Preferred Stock pursuant to this Section 3.3.4;

(b) create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional shares of Series C Preferred Stock (excluding, for the avoidance of doubt, the sale and issuance of shares of the Series C Preferred Stock pursuant to the Series C Purchase Agreement), or otherwise increase the authorized number of shares of Series C Preferred Stock; or

(c) waive any adjustment to the Conversion Price of the Series C Preferred Stock pursuant to Section 4 below.

3.3.5 Series D Preferred Stock Protective Provisions. At any time when shares of Series D Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Restated Certificate) the written consent or affirmative vote of the holders of at least a majority of the then outstanding shares of Series D Preferred Stock (the "**Series D Majority**"), given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a single class (and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect):

(a) amend, alter or repeal any provision of the Restated Certificate or Bylaws of the Corporation in a manner that alters or changes the powers, preferences or rights of the shares of Series D Preferred Stock so as to adversely affect them, it being understood that the creation of a new series of preferred stock shall not be deemed to alter or change the powers, preferences or rights of the Series D Preferred Stock or otherwise require

the affirmative vote or written consent of the holders of the Series D Preferred Stock pursuant to this Section 3.3.5; provided, that, for the avoidance of doubt, each of the following shall require the affirmative vote or written consent of the Series D Majority pursuant to this Section 3.3.5: (i) any amendment to Section 2.3.1 and (ii) any amendment to Section 5.1(a);

(b) create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional shares of Series D Preferred Stock (excluding, for the avoidance of doubt, the sale and issuance of shares of the Series D Preferred Stock pursuant to the Series D Purchase Agreement), or otherwise increase the authorized number of shares of Series D Preferred Stock; or

(c) waive any adjustment to the Conversion Price of the Series D Preferred Stock pursuant to Section 4 below.

3.3.6 Series C and D Preferred Stock Protective Provisions. At any time when shares of Series C Preferred Stock and Series D Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Restated Certificate) the Series C&D Vote, given in writing or by vote at a meeting, (and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect):

(a) during the period following the Initial Closing and ending on April 17, 2022, waive the preferential payments to holders of Preferred Stock required by Section 2.1 in the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event.

4. Optional Conversion.

The holders of the Series D Preferred Stock, the holders of the Series C Preferred Stock, the holders of the Series B Preferred Stock, and the holders of the Series A Preferred Stock shall have conversion rights as follows (the "**Conversion Rights**"):

4.1 Right to Convert.

4.1.1 Preferred Stock Conversion Ratio. Each share of a series of Preferred Stock shall be convertible, at the option of the holder thereof, at any time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Class A Common Stock as is determined by dividing the Original Issue Price for such series of Preferred Stock by the Conversion Price (as defined below) for such series of Preferred Stock in effect at the time of conversion. The "**Conversion Price**" for each series of Preferred Stock shall initially mean the Original Issue Price for such series of Preferred Stock. The initial Conversion Price for each series of Preferred Stock, and the rate at which shares of each series of Preferred Stock may be converted into shares of Class A Common Stock, shall be subject to adjustment as provided in Section 4.4.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights for any series of Preferred Stock shall terminate at the close of business on

the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of such series of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Class A Common Stock shall be issued upon conversion of any shares of Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Class A Common Stock, as determined in good faith by the Board. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of such series of Preferred Stock the holder thereof is at the time converting into Class A Common Stock and the aggregate number of shares of Class A Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of any series of Preferred Stock into shares of Class A Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for such series of Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent), that such holder elects to convert all or any number of such holder's shares of such series of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for such series of Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Class A Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "**Conversion Time**"), and the shares of Class A Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of such series of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Class A Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of such series of Preferred Stock represented by the surrendered certificate that were not converted into Class A Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Class A Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of such series of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when any series of Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of such series of Preferred Stock, such number of its duly authorized shares of Class A Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of such series of Preferred Stock; and if at any time the number of authorized but unissued shares of Class A Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of such series of Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Class A Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Restated Certificate. Before taking any action which would cause an adjustment reducing the Conversion Price of a series of Preferred Stock below the then par value of the shares of Class A Common Stock issuable upon conversion of such series of Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Class A Common Stock at such adjusted Conversion Price of such series of Preferred Stock.

4.3.3 Effect of Conversion. All shares of a series of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Class A Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of a series of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of such series of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Conversion Price of such series of Preferred Stock shall be made for any declared but unpaid dividends on any such series of Preferred Stock surrendered for conversion or on the Class A Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Class A Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Class A Common Stock in a name other than that in which the shares of such series of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Conversion Price for Diluting Issuances.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) "**Option**" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Class A Common Stock or Convertible Securities.

(b) "**Original Issue Date**" for a series of Preferred Stock shall mean the date on which the first share of such series of Preferred Stock was issued.

(c) "**Convertible Securities**" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Class A Common Stock (including Class B Common Stock, other than with respect to the definition of "Exempted Securities"), but excluding Options.

(d) "**Additional Shares of Class A Common Stock**" with respect to a series of Preferred Stock shall mean all shares of Class A Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the applicable Original Issue Date for such series of Preferred Stock, other than (1) the following shares of Class A Common Stock and (2) shares of Class A Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, "**Exempted Securities**"):

(i) shares of Class A Common Stock, Options or Convertible Securities issued as a dividend or distribution on any series of Preferred Stock;

(ii) shares of Class A Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Class A Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8**;**

(iii) shares of Class A Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board (including one of the Series A Director or Series B Director); or

(iv) shares of Class A Common Stock or Convertible Securities actually issued upon the exercise of Options, or shares of Class A Common Stock actually issued upon the

conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;

(v) shares of Class A Common Stock, Options or Convertible Securities issued to banks, equipment lessors, real property lessors, financial institutions or other persons engaged in the business of making loans pursuant to a debt financing, equipment leasing or real property leasing transaction, in each case approved by the Board (including one of the Series A Director or Series B Director); or

(vi) shares of Class A Common Stock, Options or Convertible Securities issued pursuant to a bona fide acquisition of another entity by the Corporation by merger or consolidation with, purchase of substantially all of the assets of, or purchase of more than fifty percent (50%) of the outstanding equity securities of, the other entity, or issued pursuant to a bona fide joint venture agreement, *provided* that such issuances are approved by the Board (including one of the Series A Director or Series B Director).

4.4.2 No Adjustment of Conversion Price. No adjustment in the Conversion Price of a series of Preferred Stock shall be made as the result of the issuance or deemed issuance of Additional Shares of Class A Common Stock if the Corporation receives written notice from the holders of a majority of the then outstanding shares of such series of Preferred Stock, acting as a single class and on an as-converted to Class A Common Stock basis, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Class A Common Stock.

4.4.3 Deemed Issue of Additional Shares of Class A Common Stock.

(a) If the Corporation at any time or from time to time after the applicable Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Class A Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision

contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Class A Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Class A Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Conversion Price of a series of Preferred Stock computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Conversion Price of a series of Preferred Stock as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Conversion Price of a series of Preferred Stock to an amount which exceeds the lower of (i) the Conversion Price of a series of Preferred Stock in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Conversion Price of a series of Preferred Stock that would have resulted from any issuances of Additional Shares of Class A Common Stock (other than deemed issuances of Additional Shares of Class A Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Class A Common Stock subject thereto was equal to or greater than the Conversion Price of such series of Preferred Stock then in effect, or because such Option or Convertible Security was issued before the applicable Original Issue Date), are revised after the applicable Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Class A Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Class A

Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, the Conversion Price of such series of Preferred Stock shall be readjusted to such Conversion Price of such series of Preferred Stock as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Class A Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Conversion Price of a series of Preferred Stock provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Class A Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Conversion Price of a series of Preferred Stock that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Conversion Price of such series of Preferred Stock that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Conversion Price Upon Issuance of Additional Shares of Class A Common Stock. In the event the Corporation shall at any time after the applicable Original Issue Date issue Additional Shares of Class A Common Stock (including Additional Shares of Class A Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Conversion Price of a series of Preferred Stock in effect immediately prior to such issue, then the Conversion Price of such series of Preferred Stock shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP_2" shall mean the Conversion Price of such series of Preferred Stock in effect immediately after such issuance or deemed issuance of Additional Shares of Class A Common Stock;

(b) "CP_1" shall mean the Conversion Price of such series of Preferred Stock in effect immediately prior to such issuance or deemed issuance of Additional Shares of Class A Common Stock;

(c) "A" shall mean the number of shares of Class A Common Stock outstanding immediately prior to such issuance or deemed issuance of Additional Shares of Class A Common Stock (treating for this purpose as outstanding all shares of Class A Common Stock issuable upon exercise of Options outstanding immediately prior to such issuance or deemed issuance or upon conversion or exchange of Convertible Securities (including any series of Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "B" shall mean the number of shares of Class A Common Stock that would have been issued if such Additional Shares of Class A Common Stock had been issued or deemed issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) "C" shall mean the number of such Additional Shares of Class A Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Class A Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board; and

(iii) in the event Additional Shares of Class A Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Class A Common

Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Class A Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Class A Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than ninety (90) days from the first such issuance to the final such issuance, then, upon the final such issuance, the Conversion Price of such series of Preferred Stock shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the applicable Original Issue Date effect a subdivision of the outstanding Class A Common Stock, the Conversion Price of a series of Preferred Stock in

effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Class A Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Class A Common Stock outstanding. If the Corporation shall at any time or from time to time after the applicable Original Issue Date combine the outstanding shares of Class A Common Stock, the Conversion Price of a series of Preferred Stock in effect immediately before the combination shall be proportionately increased so that the number of shares of Class A Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Class A Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions.

4.6.1 Preferred Stock. In the event the Corporation at any time or from time to time after the applicable Original Issue Date shall make or issue, or fix a record date for the determination of holders of Class A Common Stock entitled to receive, a dividend or other distribution payable on the Class A Common Stock in additional shares of Class A Common Stock, then and in each such event the Conversion Price of a series of Preferred Stock in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Conversion Price of such series of Preferred Stock then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Class A Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Class A Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Class A Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Conversion Price of a series of Preferred Stock shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Price of such series of Preferred Stock shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders of a series of Preferred Stock simultaneously receive a dividend or other distribution of shares of Class A Common Stock in a number equal to the number of shares of Class A Common Stock as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Class A Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the applicable Original Issue Date shall make or issue, or fix a record date for the determination of holders of Class A Common Stock

entitled to receive a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Class A Common Stock in respect of outstanding shares of Class A Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of such series of Preferred Stock shall receive, simultaneously with the distribution to the holders of Class A Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Class A Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Class A Common Stock (but not such series of Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of such series of Preferred Stock shall thereafter be convertible in lieu of the Class A Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Class A Common Stock of the Corporation issuable upon conversion of one share of such series of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of such series of Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Conversion Price of such series of Preferred Stock) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of such series of Preferred Stock. For the avoidance of doubt, nothing in this Subsection 4.8 shall be construed as preventing the holders of such series of Preferred Stock from seeking any appraisal rights to which they are otherwise entitled under the DGCL in connection with a merger triggering an adjustment hereunder, nor shall this Subsection 4.8 be deemed conclusive evidence of the fair value of the shares of such series of Preferred Stock in any such appraisal proceeding.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Conversion Price of a series of Preferred Stock pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of such series of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which such series of Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of such series of Preferred Stock (but in any event not later than ten (10) days

thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Price of such series of Preferred Stock then in effect, and (ii) the number of shares of Class A Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of such series of Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Class A Common Stock (or other capital stock or securities at the time issuable upon conversion of a series of Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Class A Common Stock or any Deemed Liquidation Event; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of such series of Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Class A Common Stock (or such other capital stock or securities at the time issuable upon the conversion of such series Preferred Stock) shall be entitled to exchange their shares of Class A Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to such series of Preferred Stock and the Class A Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) the closing of the sale of shares of Common Stock to the public in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $150,000,000 of gross proceeds to the Corporation (a "**Qualified IPO**"); *provided*, that the written consent of the holders of a majority of the then-outstanding shares of Series C Preferred Stock and Series D Preferred Stock (the "**Series C&D IPO Consent**") will be required in order to effect the conversion of the shares of Series C Preferred Stock and Series D Preferred Stock pursuant to this clause (a) in the event of a Qualified IPO at an offering price per share less than the Series D Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or similar recapitalization) occurring prior to April 17, 2022; *provided*, *further* that the Series C&D IPO Consent shall be deemed delivered if a majority of the stockholders entitled to consent thereon do not provide written notice (with electronic

communication permitted pursuant to Section 8) to the Company or its authorized representatives of their objection to such consent within twenty-four (24) hours of written request from the Company (with electronic communication permitted pursuant to Section 8) for approval of such conversion; or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of a majority of the then outstanding shares of Preferred Stock, acting as a single class and on an as-converted to Class A Common Stock basis provided that, during the period following the Initial Closing and ending on April 17, 2022, the separate vote or written consent of the holders of a two-thirds of the Series C Preferred Stock and Series D Preferred Stock then outstanding, voting together as a single class, shall be required to effect the conversion of the shares of Series C Preferred Stock and Series D Preferred Stock pursuant to this clause (b) (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "**Mandatory Conversion Time**"), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Class A Common Stock at the then effective conversion rate of such series of Preferred Stock as calculated pursuant to Subsection 4.1.1 and (ii) such shares may not be reissued by the Corporation.

5.2 Procedural Requirements. All holders of record of shares of a series of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of such series of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of such series of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to such series of Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Class A Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for a series of Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Class A Common Stock issuable on such conversion in accordance with the provisions hereof and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Class A Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of such series of Preferred Stock converted. Such converted series of Preferred Stock shall be retired and cancelled and may not be reissued

as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of such series of Preferred Stock accordingly.

6. Redeemed or Otherwise Acquired Shares. Any shares of a series of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of such series of Preferred Stock following redemption.

7. Waiver. Except as otherwise expressly provided in this Restated Certificate, any of the rights, powers, preferences and other terms of a series of Preferred Stock set forth herein may not be waived on behalf of all holders of such series of Preferred Stock, as the case may be, without the affirmative written consent or vote of the holders of a majority of the shares of such series of Preferred Stock then outstanding.

8. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to the Company or to a holder of shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock or Series D Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by this Restated Certificate or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by this Restated Certificate, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law.

Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "**Excluded Opportunity**" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee, affiliate or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, "**Covered Persons**"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation while such Covered Person is performing services in such capacity. Any repeal or modification of this Article Eleventh will only be prospective and will not affect the rights under this Article Eleventh in effect at the time of the occurrence of any actions or omissions giving rise to liability.

TWELFTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the Corporation, its directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law or the Corporation's certificate of incorporation or bylaws or (iv) any action asserting a claim against the Corporation, its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such

determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article Twelfth shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article Twelfth (including, without limitation, each portion of any sentence of this Article Twelfth containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

THIRTEENTH: For purposes of Section 500 of the California Corporations Code (to the extent applicable), in connection with any repurchase of shares of Common Stock permitted under this Restated Certificate from employees, officers, directors or consultants of the Corporation in connection with a termination of employment or services pursuant to agreements or arrangements approved by the Board of Directors (in addition to any other consent required under this Restated Certificate), such repurchase may be made without regard to any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined in Section 500 of the California Corporations Code). Accordingly, for purposes of making any calculation under California Corporations Code Section 500 in connection with such repurchase, the amount of any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined therein) shall be deemed to be zero (0).

FORTEENTH: The Corporation shall have the right, subject to any express provisions or restrictions contained in this Restated Certificate or the Bylaws, from time to time, to amend, alter or repeal any provision of this Restated Certificate in any manner now or hereafter provided by law, and all rights and powers of any kind conferred upon a director or stockholder of the Corporation by this Restated Certificate or any amendment thereof are conferred subject to such right.

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AMENDED AND RESTATED BYLAWS OF GRAIL, INC.

(As adopted and updated on May 7, 2020)

ARTICLE I
OFFICES

Section 1.01 Offices. The address of the registered office of GRAIL, Inc. (hereinafter called the "**Corporation**") in the State of Delaware shall be at 1209 Orange Street, in the City of Wilmington, County of New Castle. The Corporation may have other offices, both within and without the State of Delaware, as the board of directors of the Corporation (the "**Board of Directors**") from time to time shall determine or the business of the Corporation may require.

Section 1.02 Books and Records. Any records maintained by the Corporation in the regular course of its business, including its stock ledger, books of account, and minute books, may be maintained on any **information** storage device or method; *provided that* the records so kept can be converted into clearly legible paper form within a reasonable time. The Corporation shall so convert any records so kept upon the request of any person entitled to inspect such records pursuant to applicable law.

ARTICLE II
MEETINGS OF THE STOCKHOLDERS

Section 2.01 Place of Meetings. All meetings of the stockholders shall be held at such place, if any, either within or without the State of Delaware, as shall be designated from time to time by resolution of the Board of Directors and stated in the notice of meeting.

Section 2.02 Annual Meeting. The annual meeting of the stockholders for the election of directors and for the transaction of such other business as may properly come before the meeting shall be held at such date, time and place, if any, as shall be determined by the Board of Directors and stated in the notice of the meeting.

Section 2.03 Special Meetings. Special meetings of stockholders for any purpose or purposes shall be called pursuant to a resolution approved by the Board of Directors and may not be called by any other person or persons. The only business which may be conducted at a special meeting shall be the matter or matters set forth in the notice of such meeting.

Section 2.04 Adjournments. Any meeting of the stockholders, annual or special, may be adjourned from time to time to reconvene at the same or some other place, if any, and notice

need not be given of any such adjourned meeting if the time, place, if any, thereof and the means of remote communication, if any, are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than 30 days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If after the adjournment a new record date is fixed for stockholders entitled to vote at the adjourned meeting, the Board of Directors shall fix a new record date for notice of the adjourned meeting and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at the adjourned meeting as of the record date fixed for notice of the adjourned meeting.

Section 2.05 Notice of Meetings. Notice of the place, if any, date, hour, the record date for determining the stockholders entitled to vote at the meeting (if such date is different from the record date for stockholders entitled to notice of the meeting) and means of remote communication, if any, of every meeting of stockholders shall be given by the Corporation not less than ten days nor more than 60 days before the meeting (unless a different time is specified by law) to every stockholder entitled to vote at the meeting as of the record date for determining the stockholders entitled to notice of the meeting. Notices of special meetings shall also specify the purpose or purposes for which the meeting has been called. Except as otherwise provided herein or permitted by applicable law, notice to stockholders shall be in writing and delivered personally or mailed to the stockholders at their address appearing on the books of the Corporation. Without limiting the manner by which notice otherwise may be given effectively to stockholders, notice of meetings may be given to stockholders by means of electronic transmission in accordance with applicable law. Notice of any meeting need not be given to any stockholder who shall, either before or after the meeting, submit a waiver of notice or who shall attend such meeting, except when the stockholder attends for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of the meeting shall be bound by the proceedings of the meeting in all respects as if due notice thereof had been given.

Section 2.06 List of Stockholders. The officer of the Corporation who has charge of the stock ledger shall prepare a complete list of the stockholders entitled to vote at any meeting of stockholders (provided, however, if the record date for determining the stockholders entitled to vote is less than ten days before the date of the meeting, the list shall reflect the stockholders entitled to vote as of the tenth day before the meeting date), arranged in alphabetical order, and showing the address of each stockholder and the number of shares of each class of capital stock of the Corporation registered in the name of each stockholder at least ten days before any meeting of the stockholders. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, on a reasonably accessible electronic network if the information required to gain access to such list was provided with the notice of the meeting or during ordinary business hours, at the principal place of business of the Corporation for a period of at least ten days before the meeting. If the meeting is to be held at a place, the list shall also be produced and kept at the time and place of the meeting the whole time thereof and may be inspected by any stockholder who is present. If the meeting is held solely by means of remote communication, the list shall also be open for inspection by any stockholder during the whole

time of the meeting as provided by applicable law. Except as provided by applicable law, the stock ledger of the Corporation shall be the only evidence as to who are the stockholders entitled to examine the stock ledger and the list of stockholders or to vote in person or by proxy at any meeting of stockholders.

Section 2.07 Quorum. Unless otherwise required by law, the Corporation's Certificate of Incorporation (the "**Certificate of Incorporation**") or these bylaws, at each meeting of the stockholders, a majority in voting power of the shares of the Corporation entitled to vote at the meeting, present in person or represented by proxy, shall constitute a quorum. If, however, such quorum shall not be present or represented at any meeting of the stockholders, the stockholders entitled to vote thereat, present in person or represented by proxy, shall have power, by the affirmative vote of a majority in voting power thereof, to adjourn the meeting from time to time, in the manner provided in Section 2.04, until a quorum shall be present or represented. A quorum, once established, shall not be broken by the subsequent withdrawal of enough votes to leave less than a quorum. At any such adjourned meeting at which there is a quorum, any business may be transacted that might have been transacted at the meeting originally called.

Section 2.08 Conduct of Meetings. The Board of Directors may adopt by resolution such rules and regulations for the conduct of the meeting of the stockholders as it shall deem appropriate. At every meeting of the stockholders, the Chief Executive Officer, or in his or her absence or inability to act, the President, or, in his or her absence or inability to act, any Vice President, or, in his or her absence or inability to act, the person whom the Chief Executive Officer shall appoint, shall act as Chairman of, and preside at, the meeting. The secretary or, in his or her absence or inability to act, the person whom the Chairman of the meeting shall appoint secretary of the meeting, shall act as secretary of the meeting and keep the minutes thereof. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the Chairman of any meeting of the stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such Chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the Chairman of the meeting, may include, without limitation, the following: (a) the establishment of an agenda or order of business for the meeting; (b) the determination of when the polls shall open and close for any given matter to be voted on at the meeting; (c) rules and procedures for maintaining order at the meeting and the safety of those present; (d) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies or such other persons as the Chairman of the meeting shall determine; (e) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (f) limitations on the time allotted to questions or comments by participants.

Section 2.09 Voting; Proxies. Unless otherwise required by law or the Certificate of Incorporation the election of directors shall be decided by a plurality of the votes cast at a meeting of the stockholders by the holders of stock entitled to vote in the election. Unless otherwise required by law, the Certificate of Incorporation or these bylaws, any matter, other than the election of directors, brought before any meeting of stockholders shall be decided by the affirmative vote of the majority of shares present in person or represented by proxy at the

meeting and entitled to vote on the matter. Each stockholder entitled to vote at a meeting of stockholders or to express consent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by proxy, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. A proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A stockholder may revoke any proxy which is not irrevocable by attending the meeting and voting in person or by delivering to the secretary of the Corporation a revocation of the proxy or a new proxy bearing a later date. Voting at meetings of stockholders need not be by written ballot.

Section 2.10 Inspectors at Meetings of Stockholders. The Board of Directors, in advance of any meeting of stockholders, may, and shall if required by law, appoint one or more inspectors, who may be employees of the Corporation, to act at the meeting or any adjournment thereof and make a written report thereof. The Board of Directors may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting, the person presiding at the meeting shall appoint one or more inspectors to act at the meeting. E ach inspector, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his or her ability. The inspectors shall (a) ascertain the number of shares outstanding and the voting power of each, (b) determine the shares represented at the meeting, the existence of a quorum and the validity of proxies and ballots, (c) count all votes and ballots, (d) determine and retain for a reasonable period a record of the disposition of any challenges made to any determination by the inspectors and (e) certify their determination of the number of shares represented at the meeting and their count of all votes and ballots. The inspectors may appoint or retain other persons or entities to assist the inspectors in the performance of their duties. Unless otherwise provided by the Board of Directors, the date and time of the opening and the closing of the polls for each matter upon which the stockholders will vote at a meeting shall be announced at the meeting. No ballot, proxies, votes or any revocation thereof or change thereto, shall be accepted by the inspectors after the closing of the polls unless the Court of Chancery of the State of Delaware upon application by a stockholder shall determine otherwise. In determining the validity and counting of proxies and ballots cast at any meeting of stockholders, the inspectors may consider such information as is permitted by applicable law. No person who is a candidate for office at an election may serve as an inspector at such election.

Section 2.11 Written Consent of Stockholders Without a Meeting. Any action to be taken at any annual or special meeting of stockholders may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action to be so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered (by hand or by certified or registered mail, return receipt requested) to the Corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Every written consent shall bear the date of signature of each stockholder who

signs the consent, and no written consent shall be effective to take the corporate action referred to therein unless, within 60 days of the earliest dated consent delivered in the manner required by this Section 2.11, written consents signed by a sufficient number of holders to take action are delivered to the Corporation as aforesaid. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall, to the extent required by applicable law, be given to those stockholders who have not consented in writing, and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for notice of such meeting had been the date that written consents signed by a sufficient number of holders to take the action were delivered to the Corporation.

Section 2.12 Fixing the Record Date.

(a) In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than 60 nor less than ten days before the date of such meeting. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided*, *however*, that the Board of Directors may fix a new record date for the determination of stockholders entitled to vote at the adjourned meeting and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for the determination of stockholders entitled to vote therewith at the adjourned meeting.

(b) In order that the Corporation may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than ten days after the date upon which the resolution fixing the record date is adopted by the Board of Directors. If no record date has been fixed by the Board of Directors, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting: (i) when no prior action by the Board of Directors is required by law, the record date for such purpose shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery (by hand, or by certified or registered mail, return receipt requested) to its registered office in the State of Delaware, its principal place of business, or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded and (ii) if prior action by the Board of Directors is required by law, the record date for such purpose shall be at the close of

business on the day on which the Board of Directors adopts the resolution taking such prior action.

(c) In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

ARTICLE III
BOARD OF DIRECTORS

Section 3.01 General Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors. The Board of Directors may adopt such rules and procedures, not inconsistent with the Certificate of Incorporation, these bylaws or applicable law, as it may deem proper for the conduct of its meetings and the management of the Corporation.

Section 3.02 Number; Term of Office. The Board of Directors shall consist of one or more members, the number thereof to be determined from time to time by resolution of the Board of Directors. Each director shall hold office until a successor is duly elected and qualified or until the director's earlier death, resignation, disqualification, or removal.

Section 3.03 Newly Created Directorships and Vacancies. Any newly created directorships resulting from an increase in the authorized number of directors and any vacancies occurring in the Board of Directors, may be filled by the affirmative votes of a majority of the remaining members of the Board of Directors, although less than a quorum, or by a sole remaining director. A director so elected shall be elected to hold office until the earlier of the expiration of the term of office of the director whom he or she has replaced, a successor is duly elected and qualified or the earlier of such director's death, resignation, or removal.

Section 3.04 Resignation. Any director may resign at any time by notice given in writing or by electronic transmission to the Corporation. Such resignation shall take effect at the date of receipt of such notice by the Corporation or at such later time as is therein specified.

Section 3.05 Removal. Except as prohibited by applicable law or the Certificate of Incorporation, the stockholders entitled to vote in an election of directors may remove any director from office at any time, with or without cause, by the affirmative vote of a majority in voting power thereof.

Section 3.06 Fees and Expenses. Directors shall receive such fees and expenses as the Board of Directors shall from time to time prescribe.

Section 3.07 Regular Meetings. Regular meetings of the Board of Directors may be held without notice at such times and at such places as may be determined from time to time by the Board of Directors or its Chairman.

Section 3.08 Special Meetings. Special meetings of the Board of Directors may be held at such times and at such places as may be determined by the Chairman or the Chief Executive Officer on at least 24 hours' notice to each director given by one of the means specified in Section 3.11 hereof other than by mail or on at least three days' notice if given by mail. Special meetings shall be called by the Chairman or the Chief Executive Officer in like manner and on like notice on the written request of any two or more directors.

Section 3.09 Telephone Meetings. Board of Directors or Board of Directors committee meetings may be held by means of telephone conference or other communications equipment by means of which all persons participating in the meeting can hear each other and be heard. Participation by a director in a meeting pursuant to this Section 3.09 shall constitute presence in person at such meeting.

Section 3.10 Adjourned Meetings. A majority of the directors present at any meeting of the Board of Directors, including an adjourned meeting, whether or not a quorum is present, may adjourn and reconvene such meeting to another time and place. At least 24 hours' notice of any adjourned meeting of the Board of Directors shall be given to each director whether or not present at the time of the adjournment, if such notice shall be given by one of the means specified in Section 3.11 hereof other than by mail, or at least three days' notice if by mail. Any business may be transacted at an adjourned meeting that might have been transacted at the meeting as originally called.

Section 3.11 Notices. Subject to Section 3.08, Section 3.10, and Section 3.12 hereof, whenever notice is required to be given to any director by applicable law, the Certificate of Incorporation or these bylaws, such notice shall be deemed given effectively if given in person or by telephone, mail addressed to such director at such director's address as it appears on the records of the Corporation, facsimile, e-mail, or by other means of electronic transmission.

Section 3.12 Waiver of Notice. Whenever notice to directors is required by applicable law, the Certificate of Incorporation or these bylaws, a waiver thereof, in writing signed by, or by electronic transmission by, the director entitled to the notice, whether before or after such notice is required, shall be deemed equivalent to notice. Attendance by a director at a meeting shall constitute a waiver of notice of such meeting except when the director attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business on the ground that the meeting was not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special Board of Directors or committee meeting need be specified in any waiver of notice.

Section 3.13 Organization. At each meeting of the Board of Directors, the Chairman or, in his or her absence, another director selected by the Board of Directors shall preside. The secretary shall act as secretary at each meeting of the Board of Directors. If the secretary is absent from any meeting of the Board of Directors, an assistant secretary shall perform the duties of secretary at such meeting; and in the absence from any such meeting of the secretary and all assistant secretaries, the person presiding at the meeting may appoint any person to act as secretary of the meeting.

Section 3.14 Quorum of Directors. The presence of a majority of the Board of Directors shall be necessary and sufficient to constitute a quorum for the transaction of business at any meeting of the Board of Directors.

Section 3.15 Action By Majority Vote. Except as otherwise expressly required by these bylaws, the Certificate of Incorporation or by applicable law, the vote of a majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

Section 3.16 Action Without Meeting. Unless otherwise restricted by the Certificate of Incorporation or these bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if all directors or members of such committee, as the case may be, consent thereto in writing or by electronic transmission, and the writings or electronic transmissions are filed with the minutes of proceedings of the Board of Directors or committee in accordance with applicable law.

Section 3.17 Committees of the Board of Directors. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the Corporation. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. If a member of a committee shall be absent from any meeting, or disqualified from voting thereat, the remaining member or members present at the meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent permitted by applicable law, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation and may authorize the seal of the Corporation to be affixed to all papers that may require it to the extent so authorized by the Board of Directors. Unless the Board of Directors provides otherwise, at all meetings of such committee, a majority of the then authorized members of the committee shall constitute a quorum for the transaction of business, and the vote of a majority of the members of the committee present at any meeting at which there is a quorum shall be the act of the committee. Each committee shall keep regular minutes of its meetings. Unless the Board of Directors provides otherwise, each committee designated by the Board of Directors may make, alter and repeal rules and procedures for the conduct of its business. In the absence of such rules and procedures each committee shall conduct its business in the same manner as the Board of Directors conducts its business pursuant to this Article III.

ARTICLE IV
OFFICERS

Section 4.01 Positions and Election. The officers of the Corporation shall be elected by the Board of Directors and shall include a Chief Executive Officer and a Secretary. The Board of Directors, in its discretion, may also elect a President, Chairman (who must be a director), one or more Vice Chairmen (who must be directors) and one or more Vice Presidents, Assistant, Assistant Secretaries, and other officers as may be appointed in accordance with Article IV of these bylaws. Any two or more offices may be held by the same person.

Section 4.02 Term. Each officer of the Corporation shall hold office until such officer's successor is elected and qualified or until such officer's earlier death, resignation, or removal. Any officer elected or appointed by the Board of Directors may be removed by the Board of Directors at any time with or without cause by the majority vote of the members of the Board of Directors then in office. The removal of an officer shall be without prejudice to his or her contract rights, if any. The election or appointment of an officer shall not of itself create contract rights. Any officer of the Corporation may resign at any time by giving written notice of his or her resignation to the Chief Executive Officer or the secretary. Any such resignation shall take effect at the time specified therein or, if the time when it shall become effective shall not be specified therein, immediately upon its receipt. Unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective. Should any vacancy occur among the officers, the position shall be filled for the unexpired portion of the term by appointment made by the Board of Directors.

Section 4.03 The Chief Executive Officer. Subject to such supervisory powers, if any, as may be given by the Board of Directors to the Chairman of the Board of Directors, if any, the Chief Executive Officer of the Corporation shall, subject to the control of the Board of Directors, have general supervision, direction, and control of the business and the officers of the corporation. He or she shall preside at all meetings of the stockholders and, in the absence or nonexistence of a chairman of the Board of Directors, at all meetings of the Board of Directors and shall have the general powers and duties of management usually vested in the office of chief executive officer of a corporation and shall have such other powers and duties as may be prescribed by the Board of Directors or these bylaws.

Section 4.04 The President. Should the Board of Directors designate an officer other than the Chief Executive Officer as the President of the corporation, subject to such supervisory powers, if any, as may be given by the Board of Directors to the chairman of the Board of Directors (if any) or the Chief Executive Officer, the President shall have general supervision, direction, and control of the business and other officers of the corporation. He or she shall have the general powers and duties of management usually vested in the office of president of a corporation and such other powers and duties as may be prescribed by the Board of Directors or these bylaws.

Section 4.05 Vice Presidents. Each vice president shall have such powers and perform such duties as may be assigned to him or her from time to time by the Chairman of the Board of Directors or the Chief Executive Officer.

Section 4.06 The Secretary. The secretary shall attend all sessions of the Board of Directors and all meetings of the stockholders and record all votes and the minutes of all proceedings in a book to be kept for that purpose, and shall perform like duties for committees when required. He or she shall give, or cause to be given, notice of all meetings of the stockholders and meetings of the Board of Directors, and shall perform such other duties as may be prescribed by the Board of Directors or the Chief Executive Officer. The secretary shall keep in safe custody the seal of the Corporation and have authority to affix the seal to all documents requiring it and attest to the same.

Section 4.07 Duties of Officers May be Delegated. In case any officer is absent, or for any other reason that the Board of Directors may deem sufficient, the Chief Executive Officer or the Board of Directors may delegate for the time being the powers or duties of such officer to any other officer or to any director.

Section 4.08 Subordinate Officers. The Board of Directors may appoint, or empower the Chief Executive Officer or the President to appoint, such other officers and agents as the business of the corporation may require, each of whom shall hold office for such period, have such authority, and perform such duties as are provided in these bylaws or as the Board of Directors may from time to time determine.

ARTICLE V
STOCK CERTIFICATES AND THEIR TRANSFER

Section 5.01 Certificates Representing Shares. The shares of stock of the Corporation shall be represented by certificates; provided that the Board of Directors may provide by resolution or resolutions that some or all of any class or series shall be uncertificated shares that may be evidenced by a book-entry system maintained by the registrar of such stock. If shares are represented by certificates, such certificates shall be in the form, other than bearer form, approved by the Board of Directors. The certificates representing shares of stock of each class shall be signed by, or in the name of, the Corporation by the Chairman, any Vice Chairman, the President or any Vice President, and by the Secretary, or any Assistant Secretary. Any or all such signatures may be facsimiles. Although any officer, transfer agent or registrar whose manual or facsimile signature is affixed to such a certificate ceases to be such officer, transfer agent or registrar before such certificate has been issued, it may nevertheless be issued by the Corporation with the same effect as if such officer, transfer agent or registrar were still such at the date of its issue.

Section 5.02 Transfers of Stock. Stock of the Corporation shall be transferable in the manner prescribed by law and in these bylaws. Transfers of stock shall be made on the books of the Corporation only by the holder of record thereof, by such person's attorney lawfully constituted in writing and, in the case of certificated shares, upon the surrender of the certificate thereof, which shall be cancelled before a new certificate or uncertificated shares shall be issued. No transfer of stock shall be valid as against the Corporation for any purpose until it shall have been entered in the stock records of the Corporation by an entry showing from and to whom transferred. To the extent designated by the Chief Executive Officer, President or any Vice

President of the Corporation, the Corporation may recognize the transfer of fractional uncertificated shares, but shall not otherwise be required to recognize the transfer of fractional shares.

Section 5.03 Transfer Agents and Registrars. The Board of Directors may appoint, or authorize any officer or officers to appoint, one or more transfer agents and one or more registrars.

Section 5.04 Lost, Stolen or Destroyed Certificates. The Board of Directors may direct a new certificate or uncertificated shares to be issued in place of any certificate theretofore issued by the Corporation alleged to have been lost, stolen or destroyed upon the making of an affidavit of that fact by the owner of the allegedly lost, stolen or destroyed certificate. When authorizing such issue of a new certificate or uncertificated shares, the Board of Directors may, in its discretion and as a condition precedent to the issuance thereof, require the owner of the lost, stolen or destroyed certificate, or the owner's legal representative to give the Corporation a bond sufficient to indemnify it against any claim that may be made against the Corporation with respect to the certificate alleged to have been lost, stolen or destroyed or the issuance of such new certificate or uncertificated shares.

Section 5.05 Restriction on Transfer.

In clarification of the transfer restrictions currently applicable to shares of Class A Common Stock issued pursuant to Awards under the Corporation's Amended and Restated 2016 Equity Incentive Plan (the "**Plan**"):

(a) No holder of shares of Class A Common Stock of the Corporation issued pursuant to the Plan (for the purposes of this Section 5.05, the "**Shares**", and such holder, or any permitted transferee thereof, a "**Plan Stockholder**") may transfer, assign, pledge, or otherwise dispose of or encumber Shares without the prior written consent of the Corporation.

(b) The restriction contained in subsection 5.05(a) shall not apply to the transfer of any or all of the Shares during Plan Stockholder's lifetime or on Plan Stockholder's death by gift, will or intestacy to Plan Stockholder's Immediate Family or a trust for the benefit of Plan Stockholder or Plan Stockholder's Immediate Family ("**Exempt Transfers**"). "**Immediate Family**" as used herein shall mean spouse, domestic partner, lineal descendant or antecedent, father, mother, brother or sister.

(c) In the case of any transfer consented to by the Corporation or described in subsection (b) above, the transferee, assignee, or other recipient shall receive and hold the Shares subject to the provisions of this Section 5.05, and there shall be no further transfer of such stock except in accordance with this Section 5.05.

Section 5.06 Right of First Refusal. In addition to any other limitation on transfer created by applicable securities laws, these Bylaws (including Section 5.05 above), the Plan, any stock option agreement or contract, including to the extent that the restriction in Section 5.05

above is not applicable for any reason, no Plan Stockholder shall assign or dispose of any interest in any Shares except in compliance with the provisions below and applicable securities laws.

(a) Right of First Refusal. Before any Shares held by a Plan Stockholder may be sold or otherwise transferred (including transfer by gift or operation of law), the Corporation or its assignee(s) shall have a right of first refusal to purchase the Shares on the terms and conditions set forth herein (the "**Right of First Refusal**").

(b) Notice of Proposed Transfer. The Plan Stockholder shall deliver to the Corporation a written notice (the "**Notice**") stating: (i) the Plan Stockholder's bona fide intention to sell or otherwise transfer such Shares; (ii) the name of each proposed transferee ("**Proposed Transferee**"); (iii) the number of Shares to be transferred to each Proposed Transferee; and (iv) the terms and conditions of each proposed sale or transfer. The Plan Stockholder shall offer the Shares at the same price (the "**Offered Price**") and upon the same terms (or terms as similar as reasonably possible) to the Corporation or its assignee(s).

(c) Exercise of Right of First Refusal. At any time within thirty (30) days after receipt of the Notice, the Corporation and/or its assignee(s) may, by giving written notice to the Plan Stockholder, elect to purchase all, but not less than all, of the Shares proposed to be transferred to any one or more of the Proposed Transferees, at the purchase price determined in accordance with subsection (d) below.

(d) Purchase Price. The purchase price ("**Purchase Price**") for the Shares purchased by the Corporation or its assignee(s) under this Section 5.06 shall be the Offered Price. If the Offered Price includes consideration other than cash, the cash equivalent value of the non-cash consideration shall be determined by the Board of Directors of the Corporation in good faith.

(e) Payment. Payment of the Purchase Price shall be made, at the option of the Corporation or its assignee(s), in cash (by check or wire transfer), by cancellation of all or a portion of any outstanding indebtedness, or by any combination thereof within thirty (30) days after receipt of the Notice or in the manner and at the times set forth in the Notice.

(f) Plan Stockholder's Right to Transfer. If all of the Shares proposed in the Notice to be transferred to the Proposed Transferee(s) are not purchased by the Corporation and/or its assignee(s) as provided herein, then the Plan Stockholder may sell or otherwise transfer such Shares to the Proposed Transferee(s) described in the Notice at the Offered Price or at a higher price, provided that such sale or other transfer is consummated within sixty (60) days after the date of the Notice and provided further that any such sale or other transfer is effected in accordance with any applicable securities laws. If the Shares described in the Notice are not transferred to the Proposed Transferee(s) within such period, or if the Plan Stockholder proposes to change the price or other terms to make them more favorable to the Proposed Transferee(s), a new Notice shall be given to the Corporation, and the Corporation and/or its assignees shall again be offered the right of first refusal provided herein before any Shares held by the Plan

Stockholder may be sold or otherwise transferred. The terms of this subsection (f) may be waived by the Board on behalf of the corporation or its assignee(s) in their sole discretion.

(g) Exception for Certain Transfers. Anything to the contrary contained herein notwithstanding, the Exempt Transfers shall be exempt from this Right of First Refusal.

(h) In the case of any transfer effected in accordance with subsections (f) or (g) above, the transferee, assignee or other recipient shall receive and hold the Shares subject to the provisions of Section 5.05 and Section 5.06, subject and in addition to any other transfer restrictions that may apply under the Plan and other agreements between the Plan Stockholder and the Corporation, and there shall be no further transfer of such stock except in accordance therewith.

Section 5.07 Termination of Rights; Legend; Waiver.

(a) The restrictions in Sections 5.05 and 5.06 shall terminate upon the earlier to occur of (i) the closing of a Deemed Liquidation Event (as such term is defined in the corporation's Certificate of Incorporation, as amended, or amended and restated, from time to time); or (ii) the first sale of Common Stock of the corporation to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "***Securities Act***"). Upon termination of such restrictions, a new certificate or certificates representing the Shares not repurchased shall be issued, on request, without the legend referred to in subsection 5.07(b) below and delivered to each Plan Stockholder.

(b) The certificate or certificates representing the Shares may bear the following legend (as well as any legends required by applicable state and federal corporate and securities laws):

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO RESTRICTIONS ON TRANSFER CONTAINED IN THE BYLAWS OF THE COMPANY.

(c) The provisions of Sections 5.05 and 5.06 may be waived, with respect to any transaction subject thereto, by the Board on behalf of the Corporation; provided, however, that such restrictions shall continue to apply to the Shares subsequent to such transaction.

ARTICLE VI
GENERAL PROVISIONS

Section 6.01 Seal. The seal of the Corporation shall be in such form as shall be approved by the Board of Directors. The seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise, as may be prescribed by law or custom or by the Board of Directors.

Section 6.02 Fiscal Year. The fiscal year of the Corporation shall be determined by the Board of Directors.

Section 6.03 Checks, Notes, Drafts, Etc. All checks, notes, drafts, or other orders for the payment of money of the Corporation shall be signed, endorsed, or accepted in the name of the Corporation by such officer, officers, person or persons as from time to time may be designated by the Board of Directors or by an officer or officers authorized by the Board of Directors to make such designation.

Section 6.04 Dividends. Subject to applicable law and the Certificate of Incorporation, dividends upon the shares of capital stock of the Corporation may be declared by the Board of Directors at any regular or special meeting of the Board of Directors. Dividends may be paid in cash, in property or in shares of the Corporation's capital stock, unless otherwise provided by applicable law or the Certificate of Incorporation.

Section 6.05 Conflict With Applicable Law or Certificate of Incorporation. These bylaws are adopted subject to any applicable law and the Certificate of Incorporation. Whenever these bylaws may conflict with any applicable law or the Certificate of Incorporation, such conflict shall be resolved in favor of such law or the Certificate of Incorporation.

ARTICLE VII
AMENDMENTS

These bylaws may be amended, altered, changed, adopted, and repealed or new bylaws adopted by the Board of Directors. The stockholders may make additional bylaws and may alter and repeal any bylaws whether such bylaws were originally adopted by them or otherwise

Exhibit 10.1

EXECUTION VERSION

AMENDED AND RESTATED

INVESTORS' RIGHTS AGREEMENT

THIS AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT (this "**Agreement**"), is made as of the 27th day of November, 2019, by and among GRAIL, Inc., a Delaware corporation (the "**Company**"), and each of the investors listed on Schedule A hereto, each of which is referred to in this Agreement as an "**Investor**" and any Additional Purchaser (as defined in the Purchase Agreement) that becomes a party to this Agreement in accordance with Section 7.9 hereof, and amends and restates, in its entirety, the Amended and Restated Investors' Rights Agreement (the "**Prior Agreement**"), dated as of May 16, 2018, by and among the Company and certain of the Investors.

RECITALS

WHEREAS, certain of the Investors previously purchased shares of the Company's Series A Preferred Stock, par value $0.001 per share (the "**Series A Preferred Stock**"), and/or the Company's Series B Preferred Stock, par value $0.001 per share (the "**Series B Preferred Stock**"), and/or the Company's Series C Preferred Stock, par value $0.001 per share (the "**Series C Preferred Stock**") (such Investors, the "**Prior Investors**");

WHEREAS, the Company and certain of the Investors (including, without limitation, certain of the Prior Investors) are parties to the Series D Preferred Stock Purchase Agreement of even date herewith (the "**Purchase Agreement**"), pursuant to which the Company is selling to such Investors, and such Investors are purchasing from the Company, shares of the Company's Series D Preferred Stock, par value $0.001 per share (the "**Series D Preferred Stock**");

WHEREAS, the Investors and the Company now wish to amend and restate the Prior Agreement in its entirety and replace it with this Agreement, which Agreement shall govern the rights of the Investors to cause the Company to register shares of Class A Common Stock issuable to the Investors, to receive certain information from the Company, and to participate in future equity offerings by the Company, and shall govern certain other matters as set forth in this Agreement; and

WHEREAS, Pursuant to Subsection 7.6 of the Prior Agreement, the undersigned Investors constitute the Investors whose prior written consent is required to amend and restate the Prior Agreement in accordance with its terms.

NOW, THEREFORE, in consideration of the foregoing recitals and the mutual promises hereinafter set forth, the parties hereto hereby agree as follows:

1. Definitions. For purposes of this Agreement:

1.1 "**Affiliate**" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including without limitation any general partner, managing member,

officer or director of such Person or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such Person. For purposes of this definition, the terms "**controlling**," "**controlled by**," or "**under common control with**" shall mean the possession, directly or indirectly, of (a) the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract, or otherwise, or (b) the power to elect or appoint at least fifty percent (50%) of the directors, managers, general partners, or persons exercising similar authority with respect to such Person.

1.2 "**Common Stock**" means, collectively, shares of the Company's Class A Common Stock, par value $0.001 per share, and shares of the Company's Class B Common Stock, par value $0.001 per share and any other shares of common stock issued or issuable with respect thereto whether by way of an exchange for or upon conversion of such shares or otherwise in connection with a share split, consolidation, dividend, recapitalization, amalgamation, arrangement, reorganization or similar reclassification, or any of those in combination.

1.3 "**Damages**" means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, or laws and regulations of any stock exchange on which or of any jurisdiction in which shares of Common Stock are then listed insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, and any free-writing prospectus and any issuer information (as defined in Rule 433 of the Securities Act) filed or required to be filed pursuant to Rule 433(d) under the Securities Act or any other document incident to such registration prepared by or on behalf of the Company or used or referred to by the Company, or any prospectus required by or prepared in accordance with the laws and regulations of any stock exchange on which or of any jurisdiction in which shares of Common Stock are then listed; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law, or laws and regulations of any stock exchange on which or of any jurisdiction in which shares of Common Stock are then listed.

1.4 "**Derivative Securities**" means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly), Common Stock, including options and warrants.

1.5 "**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.6 "**Excluded Registration**" means (i) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.7 "**Form S-1**" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.8 "**Form S-3**" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.9 "**GAAP**" means generally accepted accounting principles in the United States.

1.10 "**Holder**" means any holder of Registrable Securities who is a party to this Agreement.

1.11 "**Immediate Family Member**" means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, domestic partner, mother-in- law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including, adoptive relationships, of a natural person referred to herein.

1.12 "**Initiating Holders**" means, collectively, Holders who properly initiate a registration request under this Agreement.

1.13 "**IPO**" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

1.14 "**Major Investor**" means any Investor that, individually or together with such Investor's Affiliates, holds at least 5,000,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof).

1.15 "**New Securities**" means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

1.16 "**Person**" means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.17 "**Preferred Stock**" means the Series A Preferred Stock, the Series B Preferred Stock, the Series C Preferred Stock and the Series D Preferred Stock.

1.18 "**Registrable Securities**" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; and (ii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clause (i) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 7.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

1.19 "**Registrable Securities then outstanding**" means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.20 "**Representative**" means, with respect to any Person, such Person's directors, officers, managers, employees, representatives, attorneys, auditors, accountants, agents, consultants or other representatives.

1.21 "**Restricted Securities**" means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b) hereof.

1.22 "**SEC**" means the Securities and Exchange Commission.

1.23 "**SEC Rule 144**" means Rule 144 promulgated by the SEC under the Securities Act.

1.24 "**SEC Rule 145**" means Rule 145 promulgated by the SEC under the Securities Act.

1.25 "**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.26 "**Selling Expenses**" means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Subsection 2.6.

1.27 "**Series A Director**" means any director of the Company that the holders of record of the Series A Preferred Stock are entitled to elect pursuant to the Company's Certificate of Incorporation.

1.28 "**Series B Director**" means any director of the Company that the holders of record of the Series B Preferred Stock are entitled to elect pursuant to the Company's Certificate of Incorporation.

1.29 "**Voting Agreement**" means the Amended and Restated Voting Agreement of the Company, dated as of the date hereof, by and among the Company, the Holders and the other parties thereto.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) four (4) years after the Initial Closing (as defined in the Purchase Agreement) or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of forty percent (40%) of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement with respect to Registrable Securities having an anticipated aggregate offering price which would exceed $5 million, then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the "**Demand Notice**") to all Holders other than the Initiating Holders; and (y) as soon as practicable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1 (c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least twenty percent (20%) of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least $5 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Company's Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because

such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing for a period of not more than sixty (60) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than once in any twelve (12) month period; and provided further that the Company shall not register any securities for its own account or that of any other stockholder during such sixty (60) day period other than an Excluded Registration.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a): (i) during the period that is sixty (60) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b): (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its securities under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the managing underwriters, sponsors, or entities serving in an equivalent role for the IPO ("**Managing Underwriters**") advise the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any

Holder to the nearest one hundred (100) shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, or (ii) the number of Registrable Securities included in the offering be reduced below 20% of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120) day period shall be extended for up to sixty (60) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other

documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; provided that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed or, if similar securities of the Company are not then listed, on a national securities exchange or trading system;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any Managing Underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements, not to exceed $35,000, of one counsel for the selling Holders ("**Selling Holder Counsel**"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; provided further that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, managers and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company,

which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; and provided further that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Subsection 2.8, to the extent that such failure materially prejudices the indemnifying party's ability to defend such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Subsection 2.8.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided, however, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and provided further that in no event shall a Holder's liability pursuant to this Subsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act

and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); and (ii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company that would allow such holder or prospective holder (i) to include such securities in any registration unless, under the terms of such agreement, such holder or prospective holder may include such securities in any such registration only to the extent that the inclusion of such securities will not reduce the number of the Registrable Securities of the Holders that are included; or (ii) allow such holder or prospective holder to initiate a demand for registration of any securities held by such holder or prospective holder; provided, that this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Subsection 7.9.

2.11 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the Managing Underwriter(s), during the period commencing on the date of the final prospectus relating to the IPO and ending on the date specified by the Company and the Managing Underwriter(s) (such period not to exceed one hundred eighty (180) days, which period may be extended up to an additional eighteen (18) days as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports, and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in FINRA Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for such offering or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clausem(i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.11 shall apply only to the IPO, shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, or

the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein, and provided further that any such transfer shall not involve a disposition for value, and shall be applicable to the Holders only if all officers, directors, and all stockholders individually owning directly or indirectly more than three percent (3%) of the Company's outstanding Common Stock (after giving effect to conversion into Common Stock of all outstanding Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock) are subject to the same restrictions. For avoidance of doubt, the underwriters in connection with such registration are intended third-party beneficiaries of this Subsection 2.11 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply pro rata to all Holders subject to such agreements, based on the number of shares subject to such agreements.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

> THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.
>
> THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; provided that each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earliest to occur of:

(a) the closing of a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation;

(b) such time after consummation of the IPO as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares without limitation during a three-month period without registration; and

(c) the fifth (5^{th}) anniversary of the IPO.

2.14 Assistance to Other Holders. Without prejudice to the rights of the Holders of the Registrable Securities under this Agreement, this Section 2.14 shall not be

construed as prohibiting the Company from providing assistance to other stockholders whose shares are not freely transferable to third parties under an applicable exemption to the registration requirements of the Securities Act in connection with the registration under the Securities Act of such shares for resale.

3. Information and Observer Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Major Investor, provided that the Board of Directors has not reasonably determined that such Major Investor is a competitor of the Company:

(a) as soon as practicable, but in any event within one hundred twenty (120) days after the end of each Fiscal Year (as defined below), (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, and (iii) a statement of stockholders' equity as of the end of such year, all such financial statements audited and certified by independent public accounts of nationally recognized standing selected by the Company;

(b) as soon as practicable, but in any event within forty five (45) days after the end of each of the Fiscal Quarters (as defined below) of each Fiscal Year, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet and a statement of stockholders' equity as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year- end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each of the Fiscal Quarters of each Fiscal Year, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Major Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event within thirty (30) days of the end of each month, an unaudited income statement and statement of cash flows for such month, and an unaudited balance sheet and statement of stockholders' equity as of the end of such month, all prepared in accordance with GAAP (except that such financial statements may be subject to normal year-end audit adjustments and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(e) as soon as practicable, but in any event thirty (30) days before the end of each Fiscal Year, a budget and business plan for the next Fiscal Year (collectively, the "**Budget**"), approved by the Board of Directors and prepared on a monthly basis, including

balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company;

(f) with respect to the financial statements called for in Subsection 3.1(a), Subsection 3.1(b) and Subsection 3.1(d), an instrument executed by the chief financial officer and chief executive officer of the Company certifying that such financial statements were prepared in accordance with GAAP consistently applied with prior practice for earlier periods (except as otherwise set forth in Subsection 3.1(b) and Subsection 3.1(d)) and fairly present the financial condition of the Company and its results of operation for the periods specified therein; and

(g) such other information relating to the financial condition, business, prospects, or corporate affairs of the Company determined by the Board of Directors or as any Major Investor may from time to time reasonably request; provided, however, that the Company shall not be obligated under this Subsection 3.1 to provide information (i) that the Company reasonably determines in good faith to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in a form acceptable to the Company); or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

For purposes of this Section 3, unless otherwise determined by the Board of Directors, the Company's fiscal year shall end on December 31st (the "**Fiscal Year**"), with quarters ending on March 31st, June 30th, September 30th, and December 31st (each a "**Fiscal Quarter**").

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date thirty (30) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor (provided that the Board of Directors has not reasonably determined that such Major Investor is a competitor of the Company), at such Major Investor's expense, to visit and inspect the Company's and subsidiaries' properties; examine their books of account and records; and discuss the Company's and its subsidiaries' affairs, finances, accounts and business outlook with its officers, including Chief Financial Officer or comparable officer, who shall be available to respond to such questions, during normal business hours of the Company as may be reasonably requested by the Major Investor; provided, however, that the Company shall not be obligated

pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Termination of Information Rights. The covenants set forth in Subsection 3.1 and Subsection 3.2 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event (as such term is defined in the Company's Certificate of Incorporation), other than a sale of all or substantially all of the Company's assets, whichever event occurs first.

3.4 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.4 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.4; (iii) to any existing or prospective Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, provided that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Major Investor. A Major Investor shall be entitled to apportion the right of first offer hereby granted to it, in such proportions as it deems appropriate, among (i) itself, (ii) its Affiliates and (iii) its beneficial interest holders, such as limited partners, members or any other Person having "beneficial ownership," as such term is defined in Rule 13d-3 promulgated under the Exchange Act, of such Major Investor.

(a) The Company shall give notice (the "**Offer Notice**") to each Major Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such

New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Major Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and any other Derivative Securities then held by such Major Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and other Derivative Securities). At the expiration of such twenty (20) day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a "**Fully Exercising Investor**") of any other Major Investor's failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur no later than 90 days after the later of (i) the date that the Offer Notice is given and (ii) the date of initial sale of New Securities pursuant to Subsection 4.1(c) (provided that the Company may provide an earlier deadline for such closing to occur in the Offer Notice).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Major Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Company's Certificate of Incorporation), (ii) shares

of Common Stock issued in the IPO and (iii) the issuance of shares of Series D Preferred Stock to Additional Purchasers pursuant to Subsection 1.3 of the Purchase Agreement.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, or (ii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

5. Additional Covenants.

5.1 Insurance. The Company shall use its commercially reasonable efforts to cause its current Directors and Officers liability insurance policy to be maintained until such time as the Board of Directors determines that such insurance should be discontinued. Notwithstanding any other provision of this Section 5.1 to the contrary, for so long as either of the Series A Director or Series B Director is serving on the Board of Directors, the Company shall not cease to maintain a Directors and Officers liability insurance policy in an amount of at least $3.0 million unless approved by the Series A Director and Series B Director then in office.

5.2 Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, its Certificate of Incorporation, or elsewhere, as the case may be.

5.3 Expenses of Counsel. In the event of a transaction which is a Sale of the Company (as defined in the Voting Agreement) before the Company has consummated its IPO, the reasonable and documented fees (not to exceed $50,000) and disbursements of one counsel for the Major Investors ("**Investor Counsel**"), in their capacities as stockholders, shall be borne and paid by the Company. At the outset of considering a transaction which, if consummated would constitute such a Sale of the Company, the Company shall use commercially reasonable efforts to obtain the ability to share with the Investor Counsel (and such counsel's clients) and shall share the confidential information (including, without limitation, the initial and all subsequent drafts of memoranda of understanding, letters of intent and other transaction documents and related noncompete, employment, consulting and other compensation agreements and plans) pertaining to and memorializing any of the transactions which, individually or when aggregated with others would constitute such Sale of the Company. The Company shall be obligated to share (and cause the Company's counsel and investment bankers to share) such materials when distributed to the Company's executives and/or any one or more of the other parties to such transaction(s). In the event that the Company's legal counsel and Investor Counsel deem it appropriate, in their reasonable discretion, to enter into a joint defense agreement or other arrangement to enhance the ability of the parties to protect their communications and other reviewed materials under the attorney client privilege, the Company shall, and shall direct its counsel to, execute and deliver to Investor Counsel and its clients such an agreement in form and substance reasonably acceptable to the Company's legal counsel and

Investor Counsel. In the event that one or more of the other party or parties to such transactions require the clients of Investor Counsel to enter into a confidentiality agreement and/or joint defense agreement in order to receive such information, then the Company shall share such information that can reasonably be shared without entry into such agreement and shall, at the same time, in good faith work to enable Investor Counsel and its clients to negotiate and enter into the appropriate agreement(s) without undue burden to the clients of Investor Counsel.

5.4 Right to Conduct Activities. The Company hereby agrees and acknowledges that ARCH Venture Fund VIII, L.P. and ARCH Overage Fund IX, L/P. (together with their respective affiliates, "**ARCH**") and is a professional investment fund, and as such invests in numerous portfolio companies, some of which may be deemed competitive with the Company's business (as currently conducted or as currently proposed to be conducted). The Company hereby agrees that, to the extent permitted under applicable law, ARCH shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by ARCH in any entity competitive with the Company, or (ii) actions taken by any partner, officer or other representative of ARCH to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

5.5 Indemnification Matters. The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each a "**Sponsored Director**") may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors or Illumina and certain of their affiliates (collectively, the "**Sponsor Indemnitors**"). The Company hereby agrees (a) that it is the indemnitor of first resort (*i.e.*, its obligations to any such Sponsored Director are primary and any obligation of the Sponsor Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Sponsored Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Sponsored Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Sponsored Director to the extent legally permitted and as required by the Company's Certificate of Incorporation or Bylaws of the Company (or any agreement between the Company and such Sponsored Director), without regard to any rights such Sponsored Director may have against the Sponsor Indemnitors, and, (c) that it irrevocably waives, relinquishes and releases the Sponsor Indemnitors from any and all claims against the Sponsor Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Sponsor Indemnitors on behalf of any such Sponsored Director with respect to any claim for which such Sponsored Director has sought indemnification from the Company shall affect the foregoing and the Sponsor Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of such Sponsored Director against the Company.

5.6 Tax Reporting. The Company will comply with any obligation imposed on the Company to make any filing (including any filing on Internal Revenue Service Form 5471) as a result of any interest that the Company holds in a non-U.S. Person or any activities that the Company conducts outside of the U.S. and shall include in such filing any information necessary to obviate (to the extent possible) any similar obligation to which any stockholder would otherwise be subject with respect to such interest or such activity. The Company shall promptly provide each Investor with a copy of any such filing.

5.7 Termination of Covenants. The covenants set forth in this Section 5, except for Subsections 5.2 through 5.6, shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, or (ii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

6. [Reserved].

7. Miscellaneous.

7.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 5,000,000 shares of Registrable Securities (subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations); provided, however, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Subsection 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; provided further that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties, and shall be enforceable by and against each person who shall be the holder of the Registrable Securities from time to time. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

7.2 Governing Law. This Agreement shall be governed by and construed in accordance with the internal laws of the State of Delaware, regardless of the laws that might otherwise govern under applicable principles of conflicts of law.

7.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.* www.docusign.com), or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes**.**

7.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

7.5 Notices.

(a) General. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A hereto, or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address or physical address as subsequently modified by written notice given in accordance with this Subsection 7.5. If notice is given to the Company, a copy (which shall not constitute notice) shall also be given to McDonald Hopkins LLC, 300 N. LaSalle Street, Ste. 1400, Chicago, IL 60654, Attn: Jordan H. Koss, jkoss@mcdonaldhopkins.com; if notice is given to Investors (other than Illumina), a copy (which shall not constitute notice) shall also be given to Ori Solomon at Proskauer Rose LLP, One International Place, Boston, MA 02110, osolomon@proskauer.com; with a further copy to Ropes & Gray LLP, 1900 University Avenue, East Palo Alto, CA 94303, Attn: Jason Freedman, jason.freedman@ropesgray.com; and if notice is given to Illumina, a copy (which shall not constitute notice) shall also be given to Procopio, Cory, Hargreaves & Savitch LLP, 12544 High Bluff Drive, Suite 300, San Diego, CA 92130, Attn: Paul B. Johnson.

(b) Consent to Electronic Notice. Each Investor consents to the delivery of any stockholder notice pursuant to the Delaware General Corporation Law (the "**DGCL**"), as amended or superseded from time to time, by electronic transmission pursuant to Section 232 of the DGCL (or any successor thereto) at the electronic mail address or the facsimile number as on the books of the Company. Each Investor agrees to promptly notify the Company of any change in its electronic mail address, and that failure to do so shall not affect the foregoing.

7.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and the holders of a majority of the Registrable Securities then outstanding;

provided that the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and provided further that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party; provided further that Subsections 3.1, 3.2, 3.3, 4, the definition of "Major Investor" and this clause of Subsection 7.6 may be amended or waived only with the written consent of the Company and holders of a majority of the Registrable Securities then held by Major Investors; and Subsection 7.5 insofar as it relates to notices to be provided to Illumina, and this clause of Subsection 7.6, may not be amended or waived without the written consent of Illumina. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction); provided further that, notwithstanding any waiver of Section 4 in connection with the issuance of New Securities, in the event any Major Investor actually purchases any New Securities in any such issuance of New Securities by the Company, then each Major Investor shall be permitted to participate in such offering on a pro rata basis (based on the level of participation of the Major Investors purchasing the largest portion of such Major Investor's pro rata share), in accordance with the other provisions (including notice and election periods) set forth in Section 4. The Company shall give prompt notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination, or waiver. Any amendment, termination, or waiver effected in accordance with this Subsection 7.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

7.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

7.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

7.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Series D Preferred Stock after the date hereof, any purchaser of such shares of Series D Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes

hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

7.10 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled. Upon the effectiveness of this Agreement, the Prior Agreement shall be deemed amended and restated and superseded and replaced in its entirety by this Agreement, and shall be of no further force or effect.

7.11 Dispute Resolution. Any unresolved controversy or claim arising out of or relating to this Agreement, except as (i) otherwise provided in this Agreement, or (ii) any such controversies or claims arising out of the Company's intellectual property rights for which a provisional remedy or equitable relief is sought, shall be submitted to arbitration by one arbitrator mutually agreed upon by the parties, and if no agreement can be reached within thirty (30) days after names of potential arbitrators have been proposed by the American Arbitration Association (the "**AAA**"), then by one arbitrator having reasonable experience in corporate finance transactions of the type provided for in this Agreement and who is chosen by the AAA. The arbitration shall take place in Wilmington, DE, in accordance with the AAA rules then in effect, and judgment upon any award rendered in such arbitration will be binding and may be entered in any court having jurisdiction thereof. There shall be limited discovery prior to the arbitration hearing as follows: (a) exchange of witness lists and copies of documentary evidence and documents relating to or arising out of the issues to be arbitrated, (b) depositions of all party witnesses, and (c) such other depositions as may be allowed by the arbitrators upon a showing of good cause. Depositions shall be conducted in accordance with the Delaware Code of Civil Procedure, the arbitrator shall be required to provide in writing to the parties the basis for the award or order of such arbitrator, and a court reporter shall record all hearings, with such record constituting the official transcript of such proceedings. Each party will bear its own costs in respect of any disputes arising under this Agreement. Each of the parties to this Agreement consents to personal jurisdiction for any equitable action sought in the U.S. District Court for the District of Delaware or the Court of Chancery of the State of Delaware.

WAIVER OF JURY TRIAL: EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND

VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

7.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

7.13 Acknowledgement. The Company acknowledges that certain of the Investors are in the business of venture capital investing and therefore review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict the Investors from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

COMPANY:

GRAIL, INC.

By: /s/ Hans Bishop
Name: Hans Bishop
Title: Chief Executive Officer

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

MILKY WAY INVESTMENTS GROUP LIMITED

By: /s/ Despoina Zinonos
Name: Despoina Zinonos
Title: President

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

PSP PUBLIC CREDIT I INC.

By: /s/ Loic Jule
Name: Loic Jule
Title: Authorized Signatory

By: /s/ Sumita Banerjee
Name: Sumita Banerjee
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

CPP INVESTMENT BOARD PMI-1 INC.

By: /s/ Leon Pedersen
Name: Leon Pedersen
Title: Managing Director

By: /s/ Paul McCracken
Name: Paul McCracken
Title: Senior, Portfolio Manager

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors ' Rights Agreement as of the date first written above.

INVESTOR:

AMAZON.COM NV INVESTMENT HOLDINGS LLC

By: /s/ Dan Grossman
Name: Dan Grossman
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

ILLUMINA, INC.

By: /s/ John Leite
Name: John Leite
Title: VP, Business Development

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

EXPLORE HOLDINGS LLC

By: /s/ Paul Dauber
Name: Paul Dauber
Title: Manager

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

RAINBOW HORIZON LIMITED

By: /s/ Jackson Law
Name: Jackson Law
Title: Director

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

YUK MING DENNIS LO
(as stockholder, and as Proxyholder for Kwan Chee Chan and Wai Kwun Rossa Chiu)

By: /s/ Yuk Ming Dennis Lo
Name: /s/ Yuk Ming Dennis Lo

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

DECHENG CAPITAL CHINA LIFE SCIENCES USD FUND I, L.P.

By its General Partner,
Decheng Capital China Management I (Cayman)

By: /s/ Xiangmin Cui
Name: Xiangmin Cui
Title: Managing Director

DECHENG CAPITAL CHINA LIFE SCIENCES USD FUND II, L.P.
(as stockholder, and as Proxyholder for Denlux Diagnostics Invest Inc. and Denlux Capital Inc.)

By its General Partner,
Decheng Capital China Management II (Cayman)

By: /s/ Xiangmin Cui
Name: Xiangmin Cui
Title: Managing Director

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors'Rights Agreement as of the date first written above.

INVESTOR:

ARCH VENTURE FUND VIII, L.P.

By: ARCH Venture Partners VIII, L.P.
Its: General Partner

By: ARCH Venture Partners VIII, LLC
Its: General Partner

By: /s/ Mark McDonnell
Name: Mark McDonnell
Title: Managing Director

ARCH VENTURE FUND IX OVERAGE, L.P.

By: ARCH Venture Partners IX Overage, L.P.
Its: General Partner

By: ARCH Venture Partners IX, LLC
Its: General Partner

By: /s/ Mark McDonnell
Name: Mark McDonnell
Title: Managing Director

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

BIOMATICS CAPITAL PARTNERS, L.P.

By: /s/ Boris Nikolic
Name: Boris Nikolic
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

GV 2015, L.P.
By: GV 2015 GP, L.L.C.
Its: General Partner

By: /s/ Daphne M. Chang
Name: Daphne M. Chang
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

GV 2019, L.P.
By: GV 2019 GP, L.P., its General Partner
By: GV 2019, L.L.C., its General Parnter

By: /s/ Daphne M. Chang
Name: Daphne M. Change
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

MERCK SHARP & DOHME CORP.

By: /s/ Benjamin Thorner
Name: Benjamin Thorner
Title: SVP and Head of BD&L

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

MADRONE OPPORTUNITY FUND, L.P.
by its General Partner:

Madrone Capital Partners, LLC

By: /s/ Greg Penner
Name: Greg Penner
Title: Manager

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

HUBER FAMILY QTIP TRUST U/A/D 09/19/2012

By: /s/ Jeffrey T. Huber
Name: Jeffrey T. Huber
Title: Trustee

MAYWOOD TRUST U/A/D 09/19/2012

By: /s/ Jeffrey T. Huber
Name: Jeffrey T. Huber
Title: Trustee

THE JEFFREY T. HUBER 2018
GRANTOR RETAINED ANNUITY TRUST

By: /s/ Jeffrey T. Huber
Name: Jeffrey T. Huber
Title: Trustee

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

ABSOLUTE PARTNERS MASTER FUND LIMITED

By: Blue Pool Capital Limited, its investment manager

By: /s/ Henry Li
Name: Henry Li
Title: Partner and General Counsel

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

ABG-GRAIL LIMITED

By: /s/ Pang Andrew Chee On
Name: Pang Andrew Chee On
Title: Director

ALLY BRIDGE INTEGRITY1 LIMITED

By: /s/ Pang Andrew Chee On
Name: Pang Andrew Chee On
Title: Director

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

Executed for and on behalf of **Scottish Mortgage Investment Trust pie** acting through its agent, Baillie Gifford & Co.

By: /s/ Pete Singlehurst
Name: Pete Singlehurst
Title: Authorised Signatory, Baillie Gifford +6

Executed for and on behalf of **Monks Investment Trust pie** acting through its agent, Baillie Gifford & Co.

By: /s/ Pete Singlehurst
Name: Pete Singlehurst
Title: Authorised Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

THE SCHIEHALLION FUND LIMITED,
acting through its agent, Baillie Gifford Overseas Limited

By: /s/ Tom Slater
Name: Tom Slater
Title: Authorised Signatory

IN WITNESS WHEREOF, the patties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

6 DIMENSIONS CAPITAL, L.P.
By: 6 Dimensions Capital GP, LLC
Its: General Partner

By: /s/ Christina Chung
Authorized Signatory: Christina Chung
Title: Chief Financial Officer

6 DIMENSIONS AFFILIATES FUND, L.P.
By: 6 Dimensions Capital GP, LLC
Its: General Partner

By: /s/ Christina Chung
Authorized Signatory: Christina Chung
Title: Chief Financial Officer

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

SUTTER HILL VENTURES, A CALIFORNIA LIMITED PARTNERSHIP

By: /s/ Jeffrey W. Bird
Name: Jeffrey W. Bird
Title: Managing Director

SUTTER HILL ASSOCIATES, LLC

By: /s/ Robert Yin
Name: Robert Yin
Title: Director of Finance

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

M31 Navigator Fund L.P.

By: /s/ Lei Zhong
Name: Lei Zhong
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

JOHNSON & JOHNSON UK TREASURY COMPANY LIMITED

By: /s/ Luc Freyne
Name: Luc Freyne
Title: Director

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INYESJQR:

LAKE BLEU PRIME HEALTHCARE MASTER FUND LIMITED

By: /s/ Bin Li
Name: Bin Li
Title: Director

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

SCGC CAPITAL HOLDING COMPANY LIMITED

By: /s/ Zewang Ni
Name: Zewang Ni
Title: Director

WEST FOUNTAIN GLOBAL FUND LIMITED PARTNERSHIP

By: /s/ Zhiwu Yuan
Name: Zhiwu Yuan
Title: Authorized officer of West Fountain Capital Management Limited, its General Partner

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

THE GROWTH FUND OF AMERICA

By: Capital Research and Management Company, for and on behalf of The Growth Fund of America

By: /s/ Walter R. Burkley
Name: Walter R. Burkley
Title: Authorized Signatory

SMALLCAP WORLD FUND, INC.

By: Capital Research and Management Company, for and on behalf of SMALLCAP World Fund, Inc.

By: /s/ Walter R. Burkley
Name: Walter R. Burkley
Title: Authorized Signatory

AMERICAN FUNDS INSURANCE SERIES - GROWTH FUND

By: Capital Research and Management Company, for and on behalf of American Funds Insurance Series - Growth Fund

By: /s/ Walter R. Burkley
Name: Walter R. Burkley
Title: Authorized Signatory

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

SAGO CYCAS INVESTMENT LIMITED

By:	/s/ David Wallerstein
Name:	David Wallerstein
Title:	Authorized Signatory

SCHEDULE A

INVESTORS

Series A Preferred

Name and Address
Illumina, Inc.
ARCH Venture Fund VIII, L.P.
Explore Holdings LLC
Biomatics Capital Partners, L.P.
Sutter Hill Ventures, a California Limited Partnership
Sutter Hill Associates, LLC, a California limited liability company
GV 2015, L.P.
Huber Family QTIP Trust U/A/D 09/19/2012
The Rastetter Family Trust DTD Sept. 2, 2010, William and Marisa Rastetter, Trustees
ABeeC, LLC

Name and Address
Emerson Collective Investments, LLC
F&W Investments LP - Series 2015
José Baselga
George Golumbeski

Series B Preferred

Johnson & Johnson UK Treasury Company Limited
Merck Sharp & Dohme Corp.
Bristol-Myers Squibb Company
Arch Venture Fund IX Overage, L.P.
Q Healthcare Holding LLC
Scottish Mortgage Investment Trust plc
Celgene Switzerland LLC
Amazon.com NV Investment Holdings LLC
Jubilee Vantage Limited
Sago Cycas Investment Limited
GV 2015, L.P.
Foresite Capital Fund III, L.P.

Lombard International Assurance S.A. – 1502-122912/PCP47082
Lombard International Assurance S.A. – 1502-122913/PCP47083
Lombard International Assurance S.A. – 1502-122914/PCP47084
Edgewood Capital Partners VIII, LLC
DEZ-IT (a), L.L.C.
Alexandria Equities, LLC
Monks Investment Trust PLC

McKesson Ventures LLC
Varian Medical Systems, Inc.
The Investment 2002 Trust dated November 11, 2002
Huber Family QTIP Trust U/A/D 09/19/2012
Kravis Investment Partners LLC
Sutter Hill Ventures, a California Limited Partnership
Sutter Hill Associates, LLC

SV Angel VI LP
Centaurus Capital LP
Dentsu Ventures Global Fund I
JenCap GR
Fidelity Funds SICAV in respect of Fidelity Funds - Asian Special Situations (F/ANS)
Amino Capital Special Opportunity Fund II, L.P.
Techview Investments Ltd.
Prime Overseas Investments and Enterprises SA
Memorial Sloan Kettering Cancer Center 405 Lexington Avenue, Third Floor New York, NY 10174
Waycross Ventures, LLC

ZPark Capital II, L.P. (DBA Amino Capital)
Fidelity Funds SICAV in respect of Fidelity Funds Asian Equity (F/ASEQ)
Fidelity Funds SICAV in respect of Fidelity Funds - Global Health Care (F/HLT)
Fidelity Active Strategy - Asia Fund (FSAS)
Jaspal S. Athwal and Sumanjit K. Athwal, Trustees of the Athwal Family Revocable Trust Dated October 29, 2013
Blue Water Life Science Fund LP
Glenwood Partners II, LP
Issam Faza
Stephens Investment Management LLC

Paul H. Stephens & Eleanor M. Stephens TTEES U/T/A DTD 7/6/98
Fidelity Global Health Care Fund (FCHC)
Kacher Revocable Trust
Illumina, Inc.
Madrone Opportunity Fund, L.P.
Rainbow Horizon Limited
SCGC Capital Holding Company Limited
West Fountain Global Fund Limited Partnership
The Mark Foundation for Cancer Research
Kwan Chee Chan

Longwood Fund IV LP
Denlux Capital Inc.
PWP R1 L.P.
Hal Barron
Hans Bishop
Duane Family Trust
M31 Navigator Fund LP
Wai Kwun Rossa Chiu
Yuk Ming Dennis Lo
Denlux Diagnostics Invest Inc.
Decheng Capital China Life Sciences USD Fund II, L.P.
Decheng Capital China Life Sciences USD Fund I, L.P.

Series C Preferred

ABG-Grail Limited
Lake Bleu Prime Healthcare Master Fund Limited
Ally Bridge Integrity1 Limited
HH RSV-XXIX Holdings Limited

6 Dimensions Capital, L.P.
6 Dimensions Affiliates Fund, L.P.
Absolute Partners Master Fund Limited
Danny Lap Lee
Van RH Sternbergh III
Advanced Overseas Limited
Deepbay Holdings Ltd.
Barnaby Joll
Henry Hoi Yan Li
Catherine Jung Lee Zaman

Tammy Tim Ming Poon
SCC Growth 2010 Holdco B, Ltd.
SCC Growth IV 2018-I, L.P.
Huangpu River Capital SPC
WuXi NextCode Genomics, Inc.
Horizon Force Limited
CRF Investment Holdings Company Ltd.
CMS Technology Limited Partnership

Series D Preferred

Milky Way Investments Group Limited
PSP Public Credit I Inc.
CPP Investment Board PMI-1 Inc.
The Growth Fund of America
SMALLCAP World Fund, Inc.

American Funds Insurance Series – Growth Fund
The Schiehallion Fund Limited
Illumina, Inc.
Q Healthcare Holding LLC
Huangpu River Capital SPC
SCC Growth IV 2018-I, L.P.
GV 2019, L.P.
Sago Cycas Investment Limited
West Fountain Global Fund Limited Partnership

GRAIL

Detect cancer early, when it can be cured.

November 24, 2017

Jennifer Cook
Via Email

Dear Jennifer:

I am excited to offer you the opportunity to join GRAIL!

GRAIL's mission is to save lives by detecting cancer early, when it can be cured. We have the opportunity to change the understanding of biology, rewrite the practice of healthcare and, most importantly, to save millions of lives.

We are currently building the best Team in the world because we are working on this most important and exciting challenge. On behalf of the Team, I am thrilled to have you join to innovate, collaborate, and enable us to deliver on our promise.

We are pleased to extend to you (the Employee) this offer of employment with GRAIL, Inc. (the Company) based on the terms and conditions set forth below.

This offer is for the position of Chief Executive Officer. You will be responsible for such duties as are normally associated with this position and as may be assigned to you by the Company's Board of Directors. You will report to the Board of Directors and your employment start date will be January 2, 2018 (the "Start Date").

The Company's Board of Directors has also appointed you to serve as a member of the Board commencing on the Start Date.

For full-time regular employment, your annual base salary will be $650,000 USD, less applicable withholdings.

Your salary will be payable every other week, one week in arrears and subject to standard payroll deductions and withholdings. Your first paycheck will be prorated based on your employment start date.

You will be entitled to receive the Company's standard benefits, in accordance with GRAIL's policies, the applicable plan documents, and benefit plan provisions. Please note that the Company may modify benefits from time to time as it deems necessary.

You will be eligible to participate in GRAIL's Variable Compensation Plan ("VCP"). If your hire date is on or before October 1, you will be eligible to participate in the current year VCP on a prorated basis. If your hire date is after October 1, you will be eligible to fully participate in the following year's VCP. Your VCP target is 50% of your base salary. You must continue to be employed by GRAIL on the date of payment to be eligible to receive a VCP payment. Details of the plan will be provided to you in the near future.

In connection with the commencement of your employment, and subject to approval by the Company's Board of Directors, the Company will grant you an option to purchase 16,797,000 shares of the Company's common stock equal to approximately 3% of the Company's fully diluted outstanding shares with an exercise price per share equal to the fair market value of one share of the Company's common stock on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company, your stock option will vest over a period of four years, with 25% vesting upon the first anniversary of the vesting commencement date and 1/48th vesting at the end of each month thereafter. The Company will also grant you an option to purchase 5,599,000 shares of the Company's common stock equal to approximately 1% of the Company's fully diluted outstanding shares with an exercise price per share equal to the fair market value of the Company's common stock on the date of the grant, as determined by the Board of Directors.Subject to your continuing service with the Company, this stock option will vest upon the achievement of certain performance criteria to be established within sixty days of your date of hire by mutual agreement between you and the Board of Directors of the Company (the "Board").

As an added incentive, the Company will pay you a sign on bonus of one million dollars ($1,000,000) in a single sum with your first paycheck following your date of hire. The payment will be processed through our payroll department, with all appropriate taxes withheld. If you voluntarily terminate your employment or are terminated for Cause (as defined below) prior to the date which marks your first twelve (12) months of employment, you owe to Company and agree to pay to Company the entire amount paid to you, net of applicable taxes, within 10 business days following the termination of your employment. If you voluntarily terminate your employment or are terminated for Cause on or after the date which marks your first twelve (12) months of employment but prior to the date which marks your first twenty-four (24) months of employment, you owe to Company and agree to pay to Company fifty percent (50%) of the entire amount paid to you, net of applicable taxes, within 10 business days following the termination of your employment.

Your employment will be at-will, which means it may be terminated at any time by you or the Company with or without notice or cause. By accepting this offer of employment you agree that your employment is terminable at-will. Any prior representations to the contrary are

hereby superseded by this offer. This at-will employment relationship cannot be changed except by written agreement signed by the Chairman of the Board of the Company. Please also note the terms of your employment including reporting relationships may change based on business needs.

If, at any time, the Company or any of its affiliates terminates your employment with the Company or its affiliates, respectively, without Cause (excluding as a result of death or disability) or you resign your employment for Good Reason, then you will receive the following severance benefits from the Company contingent upon a fully executed and irrevocable Separation and Release Agreement (as defined below):

1) a lump-sum severance payment equal to twelve (12) months of base salary paid on the 61st day following your termination;

2) reimbursement for twelve (12) months (the "**Covered Period**") of the cost of your health benefits (provided that you elect continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("**COBRA**"), within the time period prescribed pursuant to COBRA for you and your eligible dependents) until the earliest of (A) the last day of the Covered Period, (B) the date upon which you and/or your eligible dependents becomes covered under similar plans or (C) the date upon which you cease to be eligible for coverage under COBRA (such reimbursements, the "**COBRA Premiums**"). However, if the Company determines in its sole discretion that it cannot pay the COBRA Premiums without potentially violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), the Company will in lieu thereof provide to you a taxable monthly payment in an amount equal to the monthly COBRA premium that you would be required to pay to continue your group health coverage in effect on the date of your termination of employment (which amount will be based on the premium for the first month of COBRA coverage), which payments will be made regardless of whether you elect COBRA continuation coverage and will commence on the month following your termination of employment and will end on the earlier of (x) the date upon which you obtain other employment, (y) the date the Company has paid an amount equal to the payments for the entire Covered Period, or (z) March 15th of the calendar year following your termination. For the avoidance of doubt, the taxable payments in lieu of COBRA Premiums may be used for any purpose, including, but not limited to continuation coverage under COBRA, and will be subject to all applicable tax withholdings. Your "**Separation and Release Agreement**" will be in a form provided by the Company and must be executed and become irrevocable within 60 days of your termination. This entire subparagraph 2 is referred to as the "**COBRA Benefit Arrangement**"); and

3) an additional twelve (12) months of time vesting service for all outstanding options.

If, within twenty-four (24) months after or within three months before the completion of a Change of Control, the Company or its successor terminates your employment with the Company without Cause (excluding death or disability) or you resign from such employment for Good Reason (a "**Qualifying Termination**"), then you will instead of the severance benefits set out directly above, receive the following severance benefits from the Company contingent upon a fully executed and irrevocable Separation and Release Agreement (as referred to above):

1) a lump-sum severance payment equal to twenty-four (24) months of base salary paid on the 61st day following your termination;

2) a lump sum payment equal to 200% of your Target Bonus (based on assuming target achievement level) for the then-current fiscal year;

3) the COBRA Benefit Arrangement with a Covered Period of twenty-four (24) months;and

4) accelerated vesting as to one hundred percent (100%) of the then-unvested portion of all of your outstanding Company equity awards, including awards that would otherwise vest only upon satisfaction of performance criteria with vesting of any performance-based awards as if all applicable performance criteria were achieved at target levels.

For the avoidance of doubt, if a Qualifying Termination occurs prior to a Change of Control, then any unvested portion of your outstanding equity awards will remain outstanding for up to three months so that any additional benefits that may be due can be provided if a Change of Control occurs within three months following the Qualifying Termination under this paragraph. However, in no event will your equity awards remain outstanding beyond the equity award's original expiration date or to the extent terminated under the Equity Plan. If no Change of Control occurs within three months of the Qualifying Termination, any unvested portion of your equity awards automatically will be forfeited permanently without having vested.

For purposes of this agreement, "**Good Reason**" means, your resignation within thirty (30) days following the end of the Cure Period (as defined below), without your express written consent, of one or more of the following: (i) a material diminution by the Company in your base salary; provided, however, that, a reduction of base salary that (combined with all prior reductions) totals ten percent (10%) or less and also applies to substantially all other senior executives of the Company will not constitute "Good Reason;" (ii) a material reduction of your authority, duties, or responsibilities relative to your authority, duties, or responsibilities in effect immediately prior to such reduction, provided, however, that continued employment following a Change of Control with substantially the same responsibility with respect to the Company's business and operations will not constitute "Good Reason" (for example, "Good Reason" does not exist if you are employed by the Company with substantially the same responsibilities with respect to the Company's business that you had immediately prior to the Change of Control regardless of whether your title is revised to reflect your placement within the overall corporate hierarchy or whether you provide services to a subsidiary, affiliate, business unit or otherwise); (iii) the relocation of your principal work location to a facility or a location more than thirty-five (35) miles from your prior work location; or (iv) the Company's material breach of its employment agreement with you. In order for an event to qualify as Good Reason, you must not terminate employment with the Company without first providing the Company with written notice of the acts or omissions constituting the grounds for "Good Reason" within sixty (60) days of the initial existence of the grounds for "Good Reason" and a reasonable cure period of thirty (30) days following the date of written notice (the "**Cure Period**"), and such grounds must not have been cured during such time.

For purpose of this agreement, "**Cause**" means: (i) an intentional act of fraud, embezzlement, theft or any other material violation of law that occurs during or in the course of your employment with Company; (ii) intentional damage to Company's assets; (iii) intentional disclosure of Company's confidential information contrary to Company policies; (iv) intentional breach of a material term of this Agreement; (v) intentional engagement in any competitive activity which would constitute a breach of your duty of loyalty or of your obligations to Company; (vi) intentional breach of any of Company's policies; (vii) the willful and continued failure to substantially perform your duties for Company (other than as a result of incapacity due to physical or mental illness); or (viii) willful conduct by you that is demonstrably and materially injurious to Company, monetarily or otherwise.

For purpose of this agreement, "**Change of Control**" means: a Corporate Transaction as defined in the Equity Plan; provided that to the extent that any amount constituting deferred compensation (as defined in Section 409A of the Code) would become payable under this arrangement by reason of a Corporate Transaction, such event in that case represents a change in control transaction described in U.S. Treasury Regulation 1.409A-3(i)(5)(v) or 1.409A- 3(i)(5)(vii).

To the extent (i) any payments to which you become entitled under this agreement, or any agreement or plan referenced herein, in connection with your termination of employment with the Company constitute deferred compensation subject to Section 409A of the Internal Revenue Code of 1986, as amended (the "**Code**") and (ii) you are deemed at the time of such termination of employment to be a "specified" employee under Section 409A of the Code, then such payment or payments will not be made or commence until the earlier of (i) the expiration of the six (6)-month period measured from the date of your separation from service and (ii) the date of your death following such separation from service; provided, however, that such deferral will be effected only to the extent required to avoid adverse tax treatment to you, including (without limitation) the additional twenty percent (20%) tax for which you would otherwise be liable under Section 409A(a)(l)(B) of the Code in the absence of such deferral. Upon the expiration of the applicable deferral period, any payments which would have otherwise been made during that period (whether in a single sum or in installments) in the absence of this paragraph will be paid to you or your beneficiary in one lump sum (without interest). To the extent that any provision of this agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that all payments hereunder are exempt from Section 409A to the maximum permissible extent, and for any payments where such construction is not tenable, that those payments comply with Section 409A to the maximum permissible extent. To the extent any payment under this agreement may be classified as a "short-term deferral" within the meaning of Section 409A, such payment will be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Payments pursuant to this agreement (or referenced in this agreement) are intended to constitute separate payments for purposes of Section l. 409A-2(b)(2) of the regulations under Section 409A. No severance or separation payments payable to you until you have a "separation from service" within the meaning of Section 409A.

In the event that the severance and other benefits provided for in this agreement or otherwise payable to you (i) constitute "parachute payments" within the meaning of Section

280G of the Code and (ii) but for this paragraph, would be subject to the excise tax imposed by Section 4999 of the Code, then your severance and other benefits under this agreement shall be payable either (i) in full, or (ii) as to such lesser amount which would result in no portion of such severance and other benefits being subject to the excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by you on an after-tax basis, of the greatest amount of severance benefits under this agreement, notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Any reduction shall be made in the following manner: first a pro-rata reduction of (i) cash payments subject to Section 409A of the Code as deferred compensation and (ii) cash payments not subject to Section 409A of the Code, and second a pro rata cancellation of (i) equity-based compensation subject to Section 409A of the Code as deferred compensation and (ii) equity-based compensation not subject to Section 409A of the Code, with equity all being reduced in reverse order of vesting and equity not subject to treatment under Treasury regulation 1.280G- Q & A 24(c) being reduced before equity that is so subject. Unless the Company and you otherwise agree in writing, any determination required under this paragraph shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon you and the Company for all purposes. For purposes of making the calculations required by this paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and you shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this paragraph. The Accountants shall deliver to the Company and you sufficient documentation for you to rely on it for purpose of filing your tax returns. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this paragraph.

In addition, the Company hereby agrees that, for purposes of determining whether any severance payments and other benefits would be subject to the excise tax under Section 4999 of the Code, any restrictive covenants that you are subject to shall be treated as an agreement for the performance of personal services. The Company hereby agrees to indemnify you, defend you, and hold you harmless from and against any adverse impact, tax, penalty, or excise tax resulting from the Company or the Accountants' attribution of a value to any such restrictive covenants that is less than the total compensation amount that would be disclosed under Item 402(c) of Securities and Exchange Commission Regulation S-K if you had been a "named executive officer" of the Company in the year prior to year of the event that triggers the excise tax under Section 4999 of the Code, to the extent the use of such lesser amount results in a larger excise tax under Section 4999 of the Code than you would have been subject to had the Company or the Accountants attributed a value to any such restrictive covenants that is at least equal to the total compensation amount disclosed under Item 402(c) of Securities and Exchange Commission Regulation S-K for such year.

Your employment is and continues to be at-will, which means it may be terminated at any time by you or the Company with or without notice or cause. By accepting this amended and

restated offer of employment you agree that your employment is terminable at-will. Any prior representations to the contrary are hereby superseded by this offer. This at-will employment relationship cannot be changed except by written agreement signed by the Chairman of the Board of the Company. Please also note the terms of your employment including reporting relationships may change based on business needs.

As a Company employee you will be expected to abide by all Company policies and procedures and sign and comply with the Company' s standard form of Proprietary Information and Invention Agreement, which, among other things, prohibits unauthorized use or disclosure of the Company's proprietary information. This employment offer is also contingent on all of the following: (1) providing proof of your eligibility to work in the United States, (2) signing of the Proprietary Information and Invention Agreement, the Arbitration Agreement and any other new hire paperwork on or before your first day of employment and (3) satisfactory results of a background check which the Company may initiate at a later date, pursuant to a form of notice and consent that you agree to complete and sign.

If the foregoing accurately reflects our agreement, please so indicate no later than November 27, 2017.

On behalf of all GRAILers, I look forward to welcoming you to the incredible GRAIL journey!

Sincerely,

/s/ Bill Rastetter

GRAIL, Inc.
Bill Rastetter
Chief Executive officer, GRAIL

Accepted:

/s/ Jennifer Cook 11/24/17

Jennifer Cook Date

SEPARATION AND GENERAL RELEASE AGREEMENT

THIS SEPARATION AND GENERAL RELEASE AGREEMENT (the "Agreement") is entered into as of the first date on the signature page hereto by and between GRAIL, Inc., a Delaware corporation (the "Company"), and Jennifer Cook ("you") (together, the "Parties").

R E C I T A L S

WHEREAS, you are employed by the Company in the position of Chief Executive Officer, pursuant. to that certain offer letter between you and the Company, dated November 24, 2017 (the "Offer Letter");

WHEREAS, as set forth in the Offer Letter, you were appointed to serve as a member of the Board of Directors of the Company (the "Board of Directors") effective January 2, 2018;and

WHEREAS, the Parties now wish to terminate the Offer Letter, their employment relationship and your service as a member of the Board of Directors, all effective as of June 6, 2019.

NOW THEREFORE, in consideration of the mutual covenants and agreements set forth hereinafter, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, hereby agree as follows:

AGREEMENT

1. TERMINATION OF EMPLOYMENT RELATIONSHIP. Your employment relationship with the Company as Chief Executive Officer of the Company shall terminate on June 6, 2019 (the "Resignation Date"). You hereby resign from your employment as an officer of the Company and any other position you may hold with the Company (and its Affiliates) effective as of the Resignation Date, and you agree that you will execute any and all documents necessary to effect such resignation(s). For purposes of this Agreement, "Affiliate" of any particular entity or person means any other entity or person controlling, controlled by or under common control with such particular entity or person, where "control" means the possession, directly or indirectly, of the power to direct the management and policies of an entity or person whether through the ownership of voting securities, contract or otherwise. Any entity or person with beneficial ownership of more than 20% of the voting power of another entity or person shall be deemed to be an Affiliate of such entity or person.

2. TERMINATION OF DIRECTOR SERVICE. Your service as a member of the Board of Directors shall terminate on the Resignation Date. You hereby tender your resignation from the Board of Directors effective as of the Resignation Date, and you agree that you will execute any and all documents necessary to effect such resignation.

3. SEPARATION BENEFITS. Provided that you timely execute this Agreement and do not revoke the general release of claims set out in Section (5) below, as of the Effective

Date (defined in Section (7(d)) below), you shall be entitled to receive the following payments and benefits in connection with your resignation from employment with the Company:

a. A lump sum of (i) $1,137,500, which constitutes the equivalent of twenty-one (21) months of your annual base salary in effect as of the Resignation Date plus (ii) $853,125, which constitutes the equivalent of 1.75 times the amount of your 2019 target bonus, which lump sum shall be paid on the 61st day following the Resignation Date.

b. All unvested stock options, restricted stock units and other stock-based awards subject to time-based vesting held by you on the Resignation Date (the "Time-Based Awards") shall immediately accelerate and become exercisable or nonforfeitable with respect to six (6) months of additional vesting as of the Resignation Date (computed without regard to any one-year "cliff"). For avoidance of doubt, Time-Based Awards include all grants designated with a "1" in the vesting column set forth on Exhibit A attached hereto; i.e., as of the Resignation Date, out of an aggregate of 16,797,000 shares of Class A common stock: (i) 5,948,936 shares were vested; (ii) 10,848,064 shares remained unvested; and (iii) accelerated vesting shall be with respect to an additional 2,449,562 shares of Class A common stock. Any Time-Based Awards that are not vested as of the Resignation Date (after taking into account the accelerated vesting provided for herein) shall expire and be cancelled as of the Resignation Date. You shall have until twenty (24) months after the Resignation Date to exercise the Time-Based Awards as to the vested shares. Any vested Time-Based Awards that are unexercised as of the twenty-four (24) month anniversary of the Resignation Date shall expire and be cancelled as of such twenty-four (24) month anniversary. The Time-Based Awards shall continue to be governed in all other respects by the terms and conditions of the Company's 2016 Equity Incentive Plan, as amended, and the applicable equity award agreements.

c. All unvested stock options, restricted stock units and other stock-based awards subject to performance-based vesting held by you on the Resignation Date (the "Performance-Based Awards") shall immediately terminate and be canceled as of the Resignation Date. For avoidance of doubt, Performance-Based Awards include all grants designated with a "2" in the vesting column set forth on Exhibit A attached hereto; i.e., as of the Resignation Date, all Performance-Based Awards (an aggregate of 5,599,000 shares of Class A common stock) shall immediately terminate.

d. Provided that you timely elect continuation coverage under the Company's group health plan pursuant to the Consolidated Omnibus Reconciliation Act of 1986, as amended ("COBRA"), the Company will directly pay COBRA premiums for you and your eligible dependents for a period beginning on the first day of the month following the Resignation Date and ending on the earlier of (A) the eighteen (18) month anniversary of the Resignation Date, (B) the date upon which you (or, as to coverage for an eligible dependent, such dependent) becomes covered under similar plans or (C) the date upon which you cease to be eligible for coverage under COBRA.

4. EQUITY. The Parties acknowledge and agree that all equity awards held by you as of the date hereof are set forth on Exhibit A attached hereto.

5. RELEASE AND WAIVER.

a. In exchange for the consideration described in Section 3 of this Agreement, you hereby forever release and discharge the Company and its parents, Affiliates, successors, and assigns, as well as each of its past and present officers, directors, employees, agents, attorneys, and stockholders (collectively, the "Company Released Parties"), from any and all claims, charges, complaints, liens, demands, causes of action, obligations, damages, and liabilities, known or unknown, suspected or unsuspected, that you had, now have, or may hereafter claim to have against the Company Released Parties arising out of, or relating in any way to, your employment with, or resignation from, the Company, or otherwise relating to any of the Company Released Parties from the beginning of time to the Effective Date (as defined in Section (7(d)) of this Agreement). Your release specifically extends to, without limitation, any and all claims or causes of action for wrongful termination, breach of an express or implied contract, breach of the covenant of good faith and fair dealing, breach of fiduciary duty, fraud, misrepresentation, defamation, slander, infliction of emotional distress, disability, loss of future earnings, and any claims under any applicable state, federal, or local statutes and regulations, including, but not limited to, the Civil Rights Act of 1964, as amended, the Equal Pay Act of 1963, as amended, the Fair Labor Standards Act, as amended, the Age Discrimination in Employment Act of 1967, as amended, the Americans with Disabilities Act of 1990, as amended, the Rehabilitation Act of 1973, as amended, the Employee Retirement Income Security Act of 1974, as amended, the Worker Adjustment and Retraining Notification Act, as amended, Section 806 of the Sarbanes-Oxley Act, the Dodd-Frank Act, the Family and Medical Leave Act, as amended, and the California Family Rights Act, as amended, the California Fair Employment and Housing Act, as amended and California Labor Code Section 1400 *et seq.*; provided, however, that this Release does not waive, release or otherwise discharge any claim or cause of action arising from a breach by the Company of this Agreement or that cannot legally be waived, including, but not limited to, any claim for unpaid wages, workers' compensation benefits, unemployment benefits and any claims for indemnification under applicable law.

b. For the purpose of implementing a full and complete release, you understand and agree that this Agreement is intended to include all claims, if any, which you may have and which you do not now know or suspect to exist in your favor against the Company Released Parties and this Agreement extinguishes those claims. Accordingly, you expressly waive all rights afforded by Section 1542 of the Civil Code of the State of California ("Section 1542") and any similar statute or regulation in any other applicable jurisdiction. Section 1542 states as follows:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY.

c. This Agreement shall not prevent you from filing a charge with the Equal Employment Opportunity Commission (or similar state or local agency) or from voluntarily communicating with, or participating in any investigation or proceeding that may be conducted

by, any governmental agency, regulatory authority or self-regulatory organization concerning possible violations of law, including providing documents or other information in that connection to any governmental agency, regulatory authority or self-regulatory organization, in each case without notice to the Company or any other Company Released Party.

6. CONSULTATION WITH ATTORNEY/VOLUNTARY AGREEMENT. You acknowledge that (a) the Company has advised you of your right to consult with an attorney of your own choosing prior to executing this Agreement, (b) you have carefully read and fully understand all of the provisions of this Agreement, (c) you are entering into this Agreement, including the releases set forth in this Agreement, knowingly, freely and voluntarily in exchange for good and valuable consideration and (d) this Agreement applies to and covers all claims against the Company and the other Company Released Parties, including those under the Age Discrimination in Employment Act of 1967, as amended, whether or not you know or suspect them to exist at the present time.

7. CONSIDERATION AND REVOCATION PERIODS.

a. You acknowledge that you have been given at least twenty-one (21) calendar days to consider the terms of this Agreement, although you may sign it sooner. You agree that any modifications, material or otherwise, made to this Agreement, do not restart or affect in any manner the original twenty-one (21) calendar day consideration period, which began to run on the date when the Company provided this Agreement to you.

b. You have seven (7) calendar days from the date on which you sign this Agreement to revoke your consent to the terms of this Agreement. Such revocation must be in accordance with the notices provisions in Section (19) of this Agreement. Notice of such revocation must be received within the seven (7) calendar days referenced above.

c. In the event of such revocation by you, this Agreement shall be null and void in its entirety and neither you nor the Company shall have any rights or obligations under this Agreement.

d. Provided that you do not revoke this Agreement pursuant to Section (7(b)) above, this Agreement shall become effective on the eighth (8^{th}) calendar day after the date on which you sign it (the "Effective Date").

8. CONTINUING OBLIGATIONS AND COVENANTS.

a. To the fullest extent permitted by law, at no time subsequent to the execution of this Agreement will you pursue, or cause or knowingly permit the prosecution, in any state, federal or foreign court, or before any local, state, federal or foreign administrative agency, or any other tribunal, of any charge, claim or action of any kind, nature and character whatsoever, known or unknown, which you may now have, have ever had, or may in the future have against Company Released Parties, which is based in whole or in part on any matter released by this Agreement.

(i) Nothing in this Agreement shall prohibit you from filing a charge or complaint with a government agency where, as a matter of law, the parties may not restrict

your ability to file such administrative complaints. However, you understand and agree that while this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement.

(ii) Nothing in this Agreement shall prohibit or impair the Parties from complying with all applicable laws, nor shall this Agreement be construed to obligate either Party to commit (or aid or abet in the commission of) any unlawful act.

b. You hereby acknowledge that you are bound by that certain Employee Confidential Information and Invention Assignment Agreement that you signed upon commencement of your employment with the Company (the "Confidentiality Agreement") and that as a result of your employment with the Company you have had access to the Company's Confidential Information (as defined in the Confidentiality Agreement), that you will hold all Confidential Information in strictest confidence and that you will not make use of such Confidential Information on behalf of anyone. You further confirm that you have delivered to the Company all documents and data of any nature containing or pertaining to such Confidential Information and that you have not taken with you any such documents or data or any reproduction thereof.

c. During the period ending on the twenty-one (21) month anniversary of the Resignation Date, you agree that you will not, directly or indirectly:

(i) solicit away any employees or consultants of the Company for your own benefit or for the benefit of any other person or entity, nor will you encourage or assist others to do so; or

(ii) (A) use the Company's trade secrets or Confidential Information to solicit away any existing customer, vendor, supplier, licensor, lessor or lessee, joint venturer, consultant, agent or business partner of the Company, or encourage or assist others to do so, (B) solicit or encourage any customer, vendor, supplier, licensor, lessor or lessee, joint venturer, consultant, agent or business partner of the Company to cease doing business, or reduce the amount of business such party does, with the Company, or (C) interfere with, disrupt, or attempt to disrupt the business relationships (contractual or otherwise) existing (now or at any time in the future) between the Company and any third party (including any of its customers, vendors, suppliers, licensors, lessors or lessees, joint venturers, consultants, agents and partners).

d. The Parties will collaborate on mutually-agreed upon standard language for written and oral public communications (including, without limitation, press releases and public filings) related to the termination of your employment and Board of Directors service, and any material changes to the agreed-upon language will require the consent of both Parties prior to release. Notwithstanding the foregoing, you agree that you will not, at any time, make, directly or indirectly, any oral or written public statements that are disparaging of the Company, its products or services, or any of its present or former officers, directors or employees. Likewise, the Company agrees to instruct its Board of Directors and senior executives that they shall not, at any time make, directly or indirectly, any oral or written public statements that are disparaging of you or your reputation, provided, however, that any disclosure(s) or other

statement(s) made, directly or indirectly, by or on behalf of the Company or any of its present or former officers, directors, employees or other agents or representatives (each a "Company Representative") to a national securities exchange, governmental agency, regulatory authority or self-regulatory organization or as otherwise required by applicable law about or related to you or your reputation which the applicable Company Representative reasonably believes to be truthful shall not constitute a violation of this Section (8(d)).

e. You agree to enter into lock up agreements with the underwriters if required in connection with any initial public offering ("IPO") by the Company and in connection with any subsequent public offering commencing within one year of the IPO, with respect to (i) all shares of common stock, par value $0.0001 per share, of the Company ("Shares") and (ii) all securities convertible into or exchangeable or exercisable for Shares ("Securities") in each case owned or beneficially owned by you, including Shares and Securities owned, or beneficially owned, by any of your immediate family members, by trusts of which your immediate family members are a beneficiary, and any corporation, partnership or other entity over which you exercise control. The terms of such lock up agreement shall be substantially identical to the terms of the lock up agreements entered into by other executive officers of the Company. You further agree not to transfer any such Shares or Securities unless the transferee thereof agrees to be bound by the provisions of this paragraph.

f. You agree that, within five (5) business days following the Resignation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Resignation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

9. COOPERATION. You agree that you will cooperate with the Company, including executing documents and providing requested information, as may reasonably be required to give effect to the provisions of this Agreement or for the Company to comply with applicable securities laws, and in connection with any litigation or other proceedings in which the Company or any of its Affiliates may from time to time be involved and which is related or otherwise relevant to your service to the Company or its Affiliates.

10. INDEMNIFICATION. The Parties agree that nothing in this Agreement shall preclude or limit any of your rights to indemnification under applicable law.

11. RETURN OF COMPANY PROPERTY. Within five (5) business days following the Resignation Date, or on such earlier date as requested by the Company, you shall return to the Company (i) all books, records, lists and other written, typed, printed or recorded materials (in any medium) that contain any Confidential Information and (ii) all physical property of the Company, including, but not limited to, devices, credit cards, cardkey passes, door and file keys, computer access codes, flash drives or disks and instructional manuals, and any computer, tablet or mobile phone. At the request of the Company, you shall certify to the Company that you have used your best efforts to comply with the foregoing.

12. REPRESENTATIONS AND ACKNOWLEDGMENTS. You make the following representations and acknowledgments, each of which is an important consideration to the Company's willingness to enter into this Agreement:

a. You represent and acknowledge that neither the Company nor any other Company Released Party owes you any wages, commissions, bonuses, sick pay, personal leave pay, severance pay, vacation pay or other compensation, benefits or payments or form of remuneration of any kind or nature, other than that specifically provided for in this Agreement.

b. You acknowledge that the Company is not entering into this Agreement because it believes that you have any cognizable legal claim against any of the Company Released Parties. If you elect not to sign this Agreement, the fact that this Agreement was offered will not be understood as an indication that any of the Company Released Parties believed that you were treated unlawfully in any respect.

13. DEFEND TRADE SECRETS ACT. You are hereby provided notice that under the Defend Trade Secrets Act of 2016 ("DTSA"): (a) no individual will be held criminally or civilly liable under federal or state trade secrets law for the disclosure of a trade secret (as defined in the Economic Espionage Act) that (i) is made in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney, and made solely for the purpose of reporting or investigating a suspected violation of law, or (ii) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal so that it is not made public; and (b) an individual who pursues a lawsuit for retaliation by an employer for reporting a suspected violation of the law may disclose the trade secret to such individual's attorney and use the trade secret information in the court proceeding, if the individual files any document containing the trade secret under seal and does not disclose the trade secret, except as permitted by court order. Nothing in this Agreement is intended to conflict with the DTSA or create liability for disclosures of trade secrets that are expressly allowed by such section. Further, it shall not be a violation of this Agreement for you to (i) provide testimony or access to confidential information in response to a valid subpoena, court order, regulatory request, or other legal process; provided, however, before making any such disclosure, other than to any governmental agency or regulatory authority or any self-regulatory organization, you shall give the Company written notice of your intended disclosure and afford the Company a reasonable opportunity to protect the Company's interests, or (ii) participate in any investigation or proceeding that may be conducted by any governmental agency or regulatory authority or any self-regulatory organization.

14. CODE SECTION 409A COMPLIANCE. Notwithstanding any provision to the contrary in this Agreement, no payment or distribution under this Agreement that constitutes an item of deferred compensation under Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"), and becomes payable by reason of your termination of employment will be made to you unless your termination of employment constitutes a "separation from service" (as the term is defined in Treasury Regulations issued under Section 409A of the Code). For purposes of this Agreement, each amount to be paid or benefit to be provided shall be construed as a separate identified payment for purposes of Section 409A of the Code. It is intended that this Agreement shall comply with the provisions of Section 409A of the Code and

the Treasury Regulations relating thereto so as not to subject you to the payment of additional taxes and interest under Section 409A of the Code. In furtherance of this intent, the Agreement shall be interpreted, operated, and administered, and payments hereunder reported, in a manner consistent with these intentions. To the extent that any reimbursable expenses hereunder are deemed to constitute compensation to you, such expenses shall be paid or reimbursed promptly, but not later than by December 31 of the year following the year in which such expenses were incurred. The amount of such expenses eligible for reimbursement in one calendar year shall not affect the amount of expenses eligible for reimbursement in any other calendar year, and your right to reimbursement of any such expenses shall not be subject to liquidation or exchange for any other benefit.

15. ARBITRATION AND GOVERNING LAW.

a. For the avoidance of doubt, the Arbitration Agreement between you and the Company, dated December 5, 2017, shall remain in full force and effect.

b. This Agreement as well as any disputes and claims to be arbitrated under the Arbitration Agreement will be governed by and construed in accordance with the laws of the State of California without giving effect to any principles of conflict of laws that would lead to the application of the laws of another jurisdiction.

16. SUCCESSORS AND ASSIGNS. You agree that this Agreement (in whole or in part) will be binding upon, and pass to the benefit of, the successors and assigns of the Company.

17. AMENDMENTS. This Agreement may not be amended or modified other than by a written instrument signed by an authorized representative of both Parties.

18. COUNTERPARTS. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument. Facsimile and .pdf signatures will suffice as original signatures.

19. NOTICES. All notices hereunder shall be in writing and delivered personally or sent by United States registered or certified mail, postage prepaid and return receipt requested:

If to the Company:

GRAIL, Inc.
1525 O'Brien Dr.
Menlo Park, California 94025
Attention: General Counsel

If to you:

Jennifer Cook
at the most recent address in the payroll records of the Company

20. SEVERABILITY. If any provision of this Agreement is invalid, illegal or unenforceable in any respect, such provision will be enforced to the maximum extent possible, given the fundamental intentions of the Parties when entering into this Agreement. To the extent

such provision cannot be so enforced, it will be stricken from this Agreement and the remainder of this Agreement will be enforced as if such invalid, illegal or unenforceable provision had never been contained in this Agreement.

21. ENTIRE AGREEMENT. Except as otherwise provided herein, and except for the Confidentiality Agreement, dated January 2, 2018, and the Arbitration Agreement, dated December 5, 2017, the Company's 2016 Equity Incentive Plan (as amended), and the applicable award agreements between the Company and you made pursuant to, or consistent with, the terms of the Company's 2016 Equity Incentive Plan, each of which shall remain in full force and effect, this Agreement sets forth the entire agreement and understanding of the Parties relating to the subject matter hereof and supersedes all prior discussions, agreements, and understandings of every kind and nature between the Parties hereto and neither Party shall be bound by any term or condition other than as expressly set forth or provided for in this Agreement. For clarity, the Parties acknowledge and agree that except as otherwise provided on the terms of the documents, you shall have no post-employment termination rights under, and shall not be entitled to any post-employment termination benefits under or otherwise pursuant to: the Offer Letter; the Company's Variable Compensation Plan (VCP); the Company's health and wellbeing benefits program, including medical, dental and vision insurance plans (CIGNA, Kaiser, MetLife); the GRAIL 40l(k) Plan; the Company's MetLife Employer Paid Basic Life Insurance, Long-term Disability Insurance and Short-term Disability Insurance; eflex FSA flexible spending account; and any and all other plans, policies, programs, agreements and arrangements provided for in the GRAIL 2019 Benefits program document.

[*Signature page follows.*]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the first date set forth below.

GRAIL, INC.

By: /s/ Patrick Broderick

Name: Patrick Broderick

Title: General Counsel, Corporate Secretary and Chief Compliance Officer

Date: June 6, 2019

JENNIFER COOK

Date:

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the first date set forth below.

GRAIL, INC.	**JENNIFER COOK**
By: _____	/s/ Jennifer Cook
Name: Patrick Broderick	
Title: General Counsel, Corporate Secretary and Chief Compliance Officer	
Date: _____	Date: June 6, 2019

EXHIBIT A

All Company equity held by you as of the Resignation Date is set forth below:

Grant Date	Grant Amount*	Grant Price	Early Exer-cisable?	Exer-cised	Vested	Unvested	Vest Start Date	Type	Vest Schedule
01/02/2018	16,559,000	$0.42	Yes	476,191	5,864,645	10,694,355	01/02/2018	NQ	1
01/02/2018	238,000	$0.42	Yes	69,416	84,291	153,709	01/02/2018	ISO	1
01/02/2018	5,599,000	$0.42	Yes	0	0	5,599,000	04/19/2017	NQ	2
Total	22,396,000				5,948,936	16,447,064			

1. For so long as Optionee continuously provides services to the Company (or any Subsidiary or Parent of the Company) as an employee, officer, director, contractor or consultant, the Shares subject to this Option will vest as follows: (a) prior to the first one (1) year anniversary of the Vesting Start Date, none of the Shares will be vested; (b) 1/4 of the Shares will be vested on the one (1) year anniversary of the Vesting Start Date; and (c) thereafter, this Option will become vested with respect to an additional 1/48 of the Shares when Optionee completes each month of continuous service following the first one (1) year anniversary of the Vesting Start Date.

2. Subject to the option holder's continuous service to the Company through the date of achievement of the relevant milestone, the shares subject to the option shall vest as follows:

   (A) 50% of the shares subject to the option will vest on each date that the Board of Directors or Compensation Committee determines that one of the following milestones has been achieved:

      (i) the Company has completed an initial public offering of the Company's Class A common stock on a recognized United States or international stock exchange at an offering price to the public per share of at least $4.0085;

      (ii) the Company's market capitalization, measured by the closing trading price of the Company's Class A common stock on a public trading exchange or such other mechanism(s) as the Board or Compensation Committee in good faith determines appropriate, exceeds $3 billion for a period of at least six consecutive months; and

      (iii) the Company delivers and sells at least 50,000 tests of a multi-cancer diagnostic product on a single geographic continent (the "***First Continent***"); and

   (B) 100% of the shares subject to the option (or if applicable, all remaining shares) will vest on the date that the Board of Directors or Compensation Committee determines that one of the following milestones has been achieved:

      (i) the Company has completed an initial public offering of the Company's Class A common stock on a recognized United States or international stock exchange at an offering price to the public per share corresponding to a pre-money valuation for the Company of at least $3 billion;

      (ii) the Company's market capitalization, measured by the closing trading price of the Company's Class A common stock on a public trading exchange or such other mechanism(s) as the Board or Compensation Committee in good faith determines appropriate, exceeds $5 billion for a period of at least six consecutive months; and

(iii) the Company delivers and sells at least 50,000 tests of a multi-cancer diagnostic product on a single geographic continent in addition to the First Continent.

For clarity, the shares subject to the option may become vested through achievement of a combination of the milestones described in paragraphs (A) and (B) above. For example, achievement of two of the milestones described in paragraph (A) would result in vesting of 100% of the shares subject to the option, as would achievement solely of any one of the milestones described in paragraph (B).

GRAIL

Detect cancer early when it can be cured.

June 6, 2019

Hans Bishop
Via Email

Dear Hans:

I am excited to offer you the opportunity to join GRAIL!

GRAIL's mission is to save lives by detecting cancer early, when it can be cured. We have the opportunity to change the understanding of biology, rewrite the practice of healthcare and, most importantly, to save millions of lives.

We are currently building the best Team in the world because we are working on this most important and exciting challenge. On behalf of the Team, I am thrilled to have you join to innovate, collaborate, and enable us to deliver on our promise.

We are pleased to extend to you (the "**Employee**") this offer of employment with GRAIL, Inc. (the "**Company**") based on the terms and conditions set forth below.

This offer is for the position of Chief Executive Officer. You will be responsible for such duties as are normally associated with this position and as may be assigned to you by the Company's Board of Directors. You will report to the Board of Directors and your employment start date will be June 6, 2019 (your "**Start Date**").

You are currently a member of the Company's Board of Directors (the "**Board**") and will continue to serve on the Board.

For full-time regular employment, your annual base salary will be $650,000 USD.

Your salary will be payable every other week, one week in arrears. Your first paycheck will be prorated based on your employment start date.

You will be entitled to 6 weeks of vacation per year and will receive the Company's standard benefits, in accordance with GRAIL's policies, the applicable plan documents, and benefit plan provisions. Please note that the Company may modify benefits from time to time as it deems necessary.

You will be eligible to participate in GRAIL' s Variable Compensation Plan ("**VCP**"). If your hire date is on or before October 1, you will be eligible to participate in the current year VCP on a prorated basis. If your hire date is after October 1, you will be eligible to fully participate in the following year's VCP. Your VCP target is 100% of your base salary. Except as otherwise set forth in this offer letter with respect to certain employment terminations, you must continue to be employed by GRAIL on the date of payment to be eligible to receive a VCP payment. Details of the plan are enclosed. Within thirty (30) days following your first date of employment with the Company, you and the Board will mutually agree to the performance objectives that must be achieved in order for you to earn incentive compensation under the VCP with respect to the current fiscal year.

Within fifteen (15) days following your first date of employment with the Company, you will be granted an option to purchase 8,371,157 shares of the Company's Class A common stock, which is equal to 1.25% of the Company's fully diluted outstanding equity (includes the share reserve of all equity plans) (the "**Fully Diluted Equity**") on the date of grant of the option with an exercise price per share equal to the fair market value of one share of the Company's common stock on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company, your stock option will vest on the twelve (12) month anniversary of your Start Date. Upon any termination of your service with the Company (except for a termination by the Company for Cause (as defined below)), you will have until the earlier of (i) the date that is 10 years following the date of grant of the option and (ii) the date that is 5 years following your last date of service with the Company to exercise the option to the extent that it is vested. The option will be immediately exercisable as of the date of grant, such that you have the right to exercise the entire option before it becomes vested. On the same grant date, the Company will also grant you restricted stock units ("**RSUs**") with respect to 25,113,470 shares of the Company's Class A common stock, which is equal to 3.75% of the Company's Fully Diluted Equity on the date of grant of the RSUs. Subject to your continuing service with the Company, your RSUs representing 2.5% of the Fully Diluted Equity will vest on the second anniversary of your Start Date, and your RSUs representing 1.25% of the Fully Diluted Equity will vest on the third anniversary of your Start Date. "Service" for purposes of the option and the RSUs (including vesting and equity term continuation) will include service as an employee, officer, director, contractor, consultant or advisor to the Company or any of its subsidiaries or parents. Your stock option and RSUs will be subject to the terms of the Company's equity incentive plan and forms of stock option and RSU grant agreements thereunder. In the event that your RSUs vest and are settled at a time when the Company' s Class A common stock is not publicly traded or at a time when you are prohibited by the Company, its underwriters or applicable law from selling your shares, your RSU grant agreements will provide that your employment and income tax withholding obligations may be satisfied by surrendering to the Company shares of Class A common stock that would otherwise be issuable under the RSUs, having an aggregate fair market value that does not exceed the maximum withholding rate then applicable to you.

The Company will reimburse to you or pay on your behalf an amount of up to $35,000 for your attorneys' fees related to this employment agreement and the agreements referenced in this employment agreement.

As an added incentive, the Company will pay you a sign on bonus of three million dollars ($3,000,000) in a single sum with your first paycheck following your date of hire. The payment will be processed through our payroll department, with all appropriate taxes withheld. If you voluntarily terminate your employment without Good Reason (as defined below) or are terminated for Cause (as defined below) prior to the date which marks your first twelve (12) months of employment, you owe to Company and agree to pay to Company 50% of the entire after-tax amount received by you, (i.e. amount net of applicable taxes), within 30 business days following the termination of your employment.

In addition, subject to you remaining continuously employed as an employee of the Company through each relevant bonus payment date, you will be eligible to receive the following bonuses: (i) upon the approval by the Board of a strategic plan for the Company following your commencement of employment with the Company, you will receive a bonus of $3,500,000; and (ii) upon the achievement of the performance objectives that are mutually agreed upon by you and the Board within the first 90 days after your commencement of employment with the Company, you will receive a bonus of $3,500,000.

If at any time, the Company or any of its affiliates terminates your employment with the Company or its affiliates, respectively, without Cause (excluding as a result of death or disability) or you resign your employment for Good Reason, then you will receive the following severance benefits from the Company contingent upon a fully executed and irrevocable Separation and Release Agreement (as defined below):

1) a lump-sum severance payment equal to twelve (12) months of base salary plus twelve (12) months of your target bonus under the VCP or otherwise for the year of your employment termination plus your target bonus prorated for the number of days of employment in the year of your employment termination, paid on the 61st day following your termination;

2) reimbursement for twelve (12) months (the "**Covered Period**") of the cost of your health benefits (provided that you elect continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("**COBRA**"), within the time period prescribed pursuant to COBRA for you and your eligible dependents) until the earlier of (A) the last day of the Covered Period or (B) the date upon which you cease to be eligible for coverage under COBRA (such reimbursements, the "**COBRA Premiums**"). However, if the Company determines in its sole discretion that it cannot pay the COBRA Premiums without potentially violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), the Company will in lieu thereof provide to you a taxable monthly payment in an amount equal to the monthly COBRA premium that you would be required to pay to continue your group health coverage in effect on the date of your termination of employment (which amount will be based on the premium for the first month of COBRA coverage), which payments will be made regardless of whether you elect COBRA continuation coverage and will commence on the month following your termination of employment and will end on the date the Company has paid an amount equal to the payments for the entire Covered Period. For the avoidance of doubt, the taxable payments in lieu of COBRA Premiums may be used for any purpose, including, but not limited to continuation coverage under COBRA. Your "**Separation and Release Agreement**" will be in a form provided by the Company, will provide for, without limitation, a mutual nondisparagement provision, and must be executed and become irrevocable within 60 days of your termination. This entire subparagraph 2 is referred to as the "**COBRA Benefit Arrangement**"); and

3) an additional twelve (12) months of time vesting service for all of your outstanding Company equity awards, including awards that would otherwise vest only upon satisfaction of performance criteria with vesting of any performance-based awards as if all applicable performance criteria were achieved at target levels (the "**Total Equity**").

If, upon or within twenty-four (24) months after or within three months before the completion of a Change of Control, the Company or its successor terminates your employment with the Company without Cause (excluding death or disability) or you resign from such employment for Good Reason (a "**Qualifying Termination**"), then you will instead of the severance benefits set out directly above, receive the following severance benefits from the Company contingent upon a fully executed and irrevocable Separation and Release Agreement (as referred to above):

1) a lump-sum severance payment equal to twenty-four (24) months of base salary plus your target bonus prorated for the number of days of employment in the year of your employment termination, paid on the 61st day following your termination;

4) a lump sum payment equal to 200% of your target bonus (based on assuming target achievement level) for the then-current fiscal year, paid on the 61st day following your termination;

5) the COBRA Benefit Arrangement with a Covered Period of twenty-four (24) months; and

6) accelerated vesting as to one hundred percent (100%) of the then-unvested Total Equity.

For the avoidance of doubt, if a Qualifying Termination occurs prior to a Change of Control, then any unvested portion of your outstanding equity awards will remain outstanding for up to three months so that any additional benefits that may be due can be provided if a Change of Control occurs within three months following the Qualifying Termination under this paragraph. However, in no event will your equity awards remain outstanding beyond the equity award's original expiration date or to the extent terminated under the Equity Plan, provided that in the event that any of the Total Equity expires or terminates prior to the Change of Control when the vesting acceleration set forth in the prior paragraph would have occurred upon a Change of Control, the Company will pay you in cash for the value of such accelerated and terminated Total Equity upon the Change of Control. If no Change of Control occurs within three months of the Qualifying Termination, any unvested portion of your equity awards automatically will be forfeited permanently without having vested.

In addition, in the event that your service with the Company terminates due to death or Disability (as defined below), you will receive an additional twelve (12) months of time vesting service with respect to your Total Equity. In the event that you provide service to the Company until the completion of a Change of Control, you will receive accelerated vesting as to one hundred percent (100%) of the then-unvested Total Equity. "**Disability**" means that you are unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that can be expected to last for a continuous period of not less than 12 months. In the event that you have completed twenty-four (24) months of service with the Company and your employment ends for any reason, including a resignation for any reason but excluding a termination by the Company for Cause, you will be provided with the opportunity to provide up to twelve (12) months of service to the Company as a Board member, advisor or consultant, such that you become fully vested in the Total Equity.

For purposes of this agreement, "**Good Reason**" means, your resignation within thirty (30) days following the end of the Cure Period (as defined below), without your express written consent, of one or more of the following: (i) a material diminution by the Company in your base salary; provided, however, that, a reduction of base salary that (combined with all prior reductions) totals less than ten percent (10%) and also applies to all other senior executives of the Company will not constitute "Good Reason;" (ii) a material reduction of your authority, duties, or level or scope of responsibilities, including without limitation any requirement that you report to any person(s) other than the Board, relative to your authority, duties, or responsibilities in effect immediately prior to such reduction; (iii) the relocation of

your principal work location to a facility or a location more than thirty-five (35) miles from your prior work location; or (iv) the Company's material breach of its employment agreement with you. In order for an event to qualify as Good Reason, you must not terminate employment with the Company without first providing the Company with written notice of the acts or omissions constituting the grounds for "Good Reason" within ninety (90) days of the initial existence of the grounds for "Good Reason" and a reasonable cure period of thirty (30) days following the date of written notice (the "**Cure Period**"), and such grounds must not have been cured during such time.

For purpose of this agreement, "**Cause**" means: (i) an intentional act of fraud, embezzlement, theft or any other material violation of law that occurs during or in the course of your employment with Company; (ii) intentional damage to Company's material assets; (iii) intentional unauthorized disclosure of Company's confidential information contrary to Company's written policies; (iv) intentional breach of a material term of this Agreement; (v) intentional engagement in any competitive activity which would constitute a breach of your duty of loyalty or of your obligations to Company; (vi) intentional breach of any of Company's material written policies; (vii) the willful and repeated or persistent failure to perform your reasonably assigned duties for Company (other than as a result of incapacity due to physical or mental illness); or (viii) willful conduct by you that is demonstrably and materially injurious to Company, monetarily or otherwise; provided that you will be provided with written notice of any event constituting Cause within 90 days of its initial occurrence and with respect to clauses (iv), (v), (vi) and (vii), you will be provided with 30 days within which to cure such event following provision of such notice.

For purpose of this agreement, "**Change of Control**" means: a Corporate Transaction as defined in the Equity Plan; provided that to the extent that any amount constituting deferred compensation (as defined in Section 409A of the Code) would become payable under this arrangement by reason of a Corporate Transaction, such event in that case represents a change in control transaction described in U.S. Treasury Regulation 1.409A-3(i)(5)(v) or 1.409A- 3(i)(5)(vii).

To the extent (i) any payments to which you become entitled under this agreement, or any agreement or plan referenced herein, in connection with your termination of employment with the Company constitute deferred compensation subject to Section 409A of the Internal Revenue Code of 1986, as amended (the "**Code**") and (ii) you are deemed at the time of such termination of employment to be a "specified" employee under Section 409A of the Code, then such payment or payments will not be made or commence until the earlier of (i) the expiration of the six (6)-month period measured from the date of your separation from service and (ii) the date of your death following such separation from service; provided, however, that such deferral will be effected only to the extent required to avoid adverse tax treatment to you, including (without limitation) the additional twenty percent (20%) tax for which you would otherwise be liable under Section 409A(a)(l)(B) of the Code in the absence of such deferral. Upon the expiration of the applicable deferral period, any payments which would have otherwise been made during that period (whether in a single sum or in installments) in the absence of this paragraph will be paid to you or your beneficiary in one lump sum (without interest). To the extent that any provision of this agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that all payments hereunder are exempt from Section 409A to the maximum permissible extent, and for any payments where such construction is not tenable, that those payments comply with Section 409A to the maximum permissible extent. To the extent any payment under this agreement may be classified as a "short-term deferral" within the meaning of Section 409A, such payment will be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Payments pursuant to this agreement (or referenced in this agreement) are intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the regulations w1der Section 409A. No severance or separation payments payable to you until you have a "separation from service" within the meaning of Section 409A.

In the event that the severance and other benefits provided for in this agreement or otherwise payable to you (i) constitute "parachute payments" within the meaning of Section 280G of the Code and (ii) but for this paragraph, would be subject to the excise tax imposed by Section 4999 of the Code, then your severance and other benefits under this agreement shall be payable either (i) in full, or (ii) as to such lesser amount which would result in no portion of such severance and other benefits being subject to the excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by you on an after-tax basis, of the greatest amount of severance benefits under this agreement, notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Any reduction shall be made in the following manner: first a pro-rata reduction of (i) cash payments subject to Section 409A of the Code as deferred compensation and (ii) cash payments not subject to Section 409A of the Code, and second a pro rata cancellation of (i) equity-based compensation subject to Section 409A of the Code as deferred compensation and (ii) equity-based compensation not subject to Section 409A of the Code, with equity all being reduced in reverse order of vesting and equity not subject to treatment under Treasury regulation 1.2800- Q & A 24(c) being reduced before equity that is so subject. Unless the Company and you otherwise agree in writing, any determination required under this paragraph shall be made in writing by the Company's independent public accountants (the "**Accountants**"), whose determination shall be conclusive and binding upon you and the Company for all purposes. For purposes of making the calculations required by this paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and you shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this paragraph. The Accountants shall deliver to the Company and you sufficient documentation for you to rely on it for purpose of filing your tax returns. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this paragraph.

All amounts payable under this employment agreement will be subject to applicable withholdings and deductions.

Your employment is and continues to be at-will, which means it may be terminated at any time by you or the Company with or without notice or cause. By accepting this offer of employment, you agree that your employment is terminable at-will. Any prior representations to the contrary are hereby superseded by this offer. This at-will employment relationship cannot be changed except by written agreement signed by the Chairman of the Board of the Company.

As a Company employee you will be expected to abide by all Company policies and procedures and sign and comply with the Company's standard form of Proprietary Information and Invention Agreement, which, among other things, prohibits unauthorized use or disclosure of the Company's proprietary information. This employment offer is also contingent on all of the following: (1) providing proof of your eligibility to work in the United States, (2) signing of the Proprietary Information and Invention Agreement, the Arbitration Agreement and any other new hire paperwork on or before your first day of employment and (3) satisfactory results of a background check which the Company may initiate at a later date, but no later than 30 days following your Start Date, pursuant to a form of notice and consent that you agree to complete and sign.

On behalf of all GRAILers, I look forward to welcoming you to the incredible GRAIL journey!

Sincerely,

/s/ Catherine Friedman

GRAIL, Inc.

Accepted:

/s/ Hans Bishop	6 June 2019
Hans Bishop	Date

GRAIL

Detect cancer early, when it can be cured.

August 27, 2020

Gautam Kollu
gautam.kollu@gmail.com
DELIVERED VIA DOCUSIGN

Dear Gautam:

As you know, you and GRAIL, Inc. (the "Company") are parties to an offer letter agreement, dated November 15, 2019 (the "Prior Offer Letter"), which sets forth the terms of your current employment arrangement with the Company.

GRAIL's mission is to save lives by detecting cancer early, when it can be cured. We have the opportunity to change the understanding of biology, rewrite the practice of healthcare and, most importantly, to save millions of lives.

We are currently building the best Team in the world because we are working on this most important and exciting challenge. On behalf of the Team, I am thrilled to have you join to innovate, collaborate, and enable us to deliver on our promise.

We are pleased to extend to you (the "Employee") this offer of continued employment with "Company" based on the terms and conditions set forth below in this amended and restated offer letter agreement (the "Agreement"). This Agreement amends and supersedes in its entirety the Prior Offer letter, effective as of the date hereof.

This offer is for the position of Chief Commercial Officer based in Menlo Park, CA. You will be responsible for such duties as may be assigned to you by management. You will report to the Chief Executive Officer, Hans Bishop.

For full-time regular employment, your annual base salary will be $400,000.00 USD, less applicable withholdings.

Your salary will be payable every other week, one week in arrears and subject to standard payroll deductions and withholdings. Your first paycheck will be prorated based on your employment start date.

You will be entitled to receive the Company's standard benefits in accordance with GRAIL's policies, the applicable plan documents, and benefit plan provisions. Please note that the Company may modify benefits from time to time as it deems necessary.

You will be eligible to participate in GRAIL's Variable Compensation Plan ("VCP"). If your hire date is on or before October 1, you will be eligible to participate in the current year VCP on a prorated basis. If your hire date is after October 1, you will not be eligible to participate in the current year's VCP, but will be eligible to fully participate in the following year's VCP. Your VCP target is 50% of your base salary. You must continue to be employed by GRAIL on the date of payment in order to earn a VCP payment. Details of the VCP will be provided to you in the near future.

Pursuant to the Prior Offer Letter, and subject to approval by the Company's Board of Directors, the Company granted you an option to purchase 5,641,351 shares of the Company's Class A common stock with an exercise price equal to the fair market value on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company, your stock option will continue to vest over a period of four years, with 25% vesting upon the first anniversary of the vesting commencement date and 1/48th vesting monthly thereafter. Your stock option will be subject to the terms and conditions of the Company's 2016 Equity Incentive Plan (or any successor plan, the "Equity Plan") and that certain Notice of Stock Option Grant and Stock Option Agreement, dated as of December 18, 2019 (the "Time-Based Option Agreement"), which you were required to sign as a condition of receiving the stock option.

Pursuant to the Equity Plan and that other certain Notice of Stock Option Grant and Stock Option Agreement, dated as of December 18, 2019 (the "Performance-Based Option Agreement" and, together with the Time-Based Option Agreement, the "Option Agreements"), the Company also granted you an option to purchase 1,762,922 shares of the Company's Class A common stock with an exercise price per share equal to the fair market value of one share of the Company's Class A common stock on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company, this stock option will commence vesting upon the date the Company's Board of Directors determines in its reasonable discretion that the Company has, within 10 years from the date of grant of such stock options, delivered at least 250,000 multi-cancer blood tests for Commercial Use (as defined below) outside a protocol-controlled setting over a 3 year period, with 1/36th of this option vesting monthly over a period of three years, commencing from the date of the Company's Board of Directors determination. "Commercial Use" means that the tests are being distributed (whether free of charge, partial charge or full charge) in order to lead to or facilitate a sale of the tests, and such distribution is not for a study, research, publication or other non-sale purpose. Within thirty (30) days following notification from the Company's CEO that the Company believes the Commercial Use Objective has been achieved, the Company's Board of Directors will make a determination regarding whether this Commercial Use objective has been achieved.

Under the Prior Offer Letter, as an added incentive, you were eligible for a one-time sign on payment in the amount of one hundred and forty thousand dollars ($140,000). The Company paid this amount to you in a lump sum following your commencement of employment with the Company. The payment was processed through our payroll department, with all appropriate taxes withheld. If you had been terminated for Cause prior to the date which marked the conclusion of your first twelve (12) months of employment, then you would have been required to repay a pro-rated portion of this signing bonus to the Company within 60 business days following your final day of employment.

In the event of your termination of employment by the Company without Cause or your resignation for Good Reason, in each case prior to the consummation of an initial public offering of the Company's capital stock, the vested portion of any stock options you hold will be exercisable for a period of at least twenty-four (24) months (or the earlier of the expiration of the original term of such stock options and the termination of such stock options upon a Change of Control (as defined below) in accordance with the Equity Plan, if earlier). In the event of your termination of employment by the Company without Cause or your resignation for Good Reason, in each case following the consummation of an initial public offering of the Company's capital stock, the vested portion of any stock options you hold will be exercisable in accordance with the terms of the Equity Plan and your stock option agreements.

If, at any time, the Company or any of its affiliates terminates your employment with the Company or its affiliates, respectively, without Cause (excluding as a result of death or disability) or you resign your employment for Good Reason, then you will be eligible to receive the following severance

benefits from the Company contingent upon you providing the Company with a fully executed and irrevocable Separation and Release Agreement (as defined below):

1) a lump-sum severance payment equal to twelve (12) months of base salary paid on the 61st day following your termination;

2) a lump sum payment equal to 100% of your Target Bonus (based on a corporate performance multiplier of 100%) for the then-current fiscal year; paid on the 61st day following your termination;

3) reimbursement for twelve (12) months (the "Covered Period") of the cost of your health benefits (provided that you elect continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), within the time period prescribed pursuant to COBRA for you and your eligible dependents) until the earliest of (A) the last day of the Covered Period, (B) the date upon which you and/or your eligible dependents becomes covered under similar plans or (C) the date upon which you cease to be eligible for coverage under COBRA (such reimbursements, the "COBRA Premiums"). However, if the Company determines in its sole discretion that it cannot pay the COBRA Premiums without potentially violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), the Company will in lieu thereof provide to you a taxable monthly payment in an amount equal to the monthly COBRA premium that you would be required to pay to continue your group health coverage in effect on the date of your termination of employment (which amount will be based on the premium for the first month of COBRA coverage), which payments will be made regardless of whether you elect COBRA continuation coverage and will commence on the month following your termination of employment and will end on the earlier of (x) the date upon which you obtain other employment, (y) the date the Company has paid an amount equal to the payments for the entire Covered Period, or (z) March 15th of the calendar year following your termination. For the avoidance of doubt, the taxable payments in lieu of COBRA Premiums may be used for any purpose, including, but not limited to continuation coverage under COBRA, and will be subject to all applicable tax withholdings. This entire subparagraph 2 is referred to as the "COBRA Benefit Arrangement"; and

4) accelerated vesting as to a number of shares subject to any option, restricted stock unit or any other form of equity that has been granted to you equal to 12 months of additional vesting (which includes the performance-based awards to the extent that the applicable objective has been achieved during your employment with the Company).

Your "Separation and Release Agreement" will be in substantially the form attached as Exhibit A to this offer letter and must be executed and become irrevocable within 60 days of your termination.

If, during the period beginning three (3) months before the announcement of the signing of a definitive agreement to consummate a Change of Control and ending twelve (12) months after the closing of the Change of Control, the Company or its successor terminates your employment with the Company without Cause (excluding death or disability) or you resign from such employment for Good Reason (a "Qualifying Termination"), then you will instead of the severance benefits set out directly above, receive the following severance benefits from the Company contingent upon you providing the Company with a fully executed and irrevocable Separation and Release Agreement (as referred to above):

1) a lump-sum severance payment equal to twelve (12) months of base salary paid on the 61st day following your termination;

2) a lump sum payment equal to 100% of your Target Bonus (based on a corporate performance multiplier of 100%) for the then-current fiscal year; paid on the 61st day following your termination;

3) the COBRA Benefit Arrangement with a Covered Period of twelve (12) months; and

4) accelerated vesting as to one hundred percent (100%) of the then-unvested portion of all of your outstanding Company equity awards, including awards that would otherwise vest only upon satisfaction of performance criteria with vesting of any performance-based awards as if all applicable performance criteria were achieved at target levels.

For the avoidance of doubt, if a Qualifying Termination occurs prior to the closing of a Change of Control, then any unvested portion of your outstanding equity awards will remain outstanding for up to three months so that any additional benefits that may be due can be provided if a Change of Control closes within three months following the Qualifying Termination under this paragraph. However, in no event will your equity awards remain outstanding beyond the equity award's original expiration date or to the extent terminated under the Company's 2016 Equity Incentive Plan (or any successor plan). If no Change of Control closes within three months of the Qualifying Termination, any unvested portion of your equity awards automatically will be forfeited permanently without having vested.

Notwithstanding anything to the contrary in the Company's 2016 Equity Incentive Plan (or any successor plan) or any equity award agreements, if unvested Company equity awards are not assumed by an acquirer or the successor entity in a Change in Control or other merger, consolidation or similar transaction involving the Company, your unvested Company equity awards shall accelerate in full as of immediately prior to the closing of such transaction.

For purposes of this Agreement, "Good Reason" means your resignation within thirty (30) days following the end of the Cure Period (as defined below), based on one or more of the following events taking place without your consent: (i) a diminution by the Company in your base salary and target bonus by more than 10%; (ii) a material reduction of your authority, duties, or responsibilities (including reporting responsibilities) relative to your authority, duties, or responsibilities in effect immediately prior to such reduction; (iii) the relocation of your principal work location to a facility or a location more than thirty-five (35) miles from your prior work location; (iv) the Company's material breach of this Agreement or any other employment or compensation-related agreement with you; or (v) the Company's failure to obtain the assumption of this Agreement by any acquiror or successor entity following a Change of Control. In order for an event to qualify as Good Reason, you must not terminate employment with the Company without first providing the Company with written notice of the acts or omissions constituting the grounds for Good Reason within sixty (60) days of the initial existence of the grounds for Good Reason and a reasonable cure period of thirty (30) days following the date of written notice (the "Cure Period"), and such grounds must not have been cured during such time.

For purpose of this Agreement, "Cause" means: (i) an intentional act of fraud, embezzlement, theft or any other material violation of law that occurs during or in the course of your employment with the Company; (ii) the willful and continued failure to substantially perform your material lawful duties for the Company (other than as a result of incapacity due to physical or mental illness or disability); (iii) intentional material breach of any of the Company's material policies, this Agreement or any agreements you enter with the Company that causes harm to the Company; or (iv) your commission of any tortious act, unlawful act or malfeasance that is demonstrably and materially injurious to the Company, monetarily or otherwise; provided that, in the case of clauses (ii) and (iii) above, you receive a written notice from the Company which describes the basis for the Company's belief that you have engaged in conduct constituting Cause with thirty (30) days to take corrective action.

For purposes of the severance benefits provided for in this Agreement, “Change of Control” means a “Corporate Transaction” as defined in the Company’s 2016 Equity Incentive Plan, but without regard to any qualifier that purports to exclude a transaction that does represent a change in control transaction described in U.S. Treasury Regulation 1.409A-3(i)(5)(v) or 1.409A-3(i)(5)(vii).

To the extent (i) any payments to which you become entitled under this Agreement, or any agreement or plan referenced herein, in connection with your termination of employment with the Company constitute deferred compensation subject to Section 409A of the Code and (ii) you are deemed at the time of such termination of employment to be a “specified” employee under Section 409A of the Code, then such payment or payments will not be made or commence until the earlier of (i) the expiration of the six (6)-month period measured from the date of your separation from service and (ii) the date of your death following such separation from service; provided, however, that such deferral will be effected only to the extent required to avoid adverse tax treatment to you, including (without limitation) the additional twenty percent (20%) tax for which you would otherwise be liable under Section 409A(a)(1)(B) of the Code in the absence of such deferral. Upon the expiration of the applicable deferral period, any payments which would have otherwise been made during that period (whether in a single sum or in installments) in the absence of this paragraph will be paid to you or your beneficiary in one lump sum (without interest). To the extent that any provision of this Agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that all payments hereunder are exempt from Section 409A to the maximum permissible extent, and for any payments where such construction is not tenable, that those payments comply with Section 409A to the maximum permissible extent. To the extent any payment under this Agreement may be classified as a “short-term deferral” within the meaning of Section 409A, such payment will be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Payments pursuant to this Agreement (or referenced in this Agreement) are intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the regulations under Section 409A. No severance or separation payments payable to you until you have a “separation from service” within the meaning of Section 409A.

In the event that the severance and other benefits provided for in this Agreement or otherwise payable to you (i) constitute “parachute payments” within the meaning of Section 280G of the Code and (ii) but for this paragraph, would be subject to the excise tax imposed by Section 4999 of the Code, then your severance and other benefits under this Agreement shall be payable either (i) in full, or (ii) as to such lesser amount which would result in no portion of such severance and other benefits being subject to the excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by you on an after-tax basis, of the greatest amount of severance benefits under this Agreement, notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Any reduction shall be made in the following manner: first a pro-rata reduction of (i) cash payments subject to Section 409A of the Code as deferred compensation and (ii) cash payments not subject to Section 409A of the Code, and second a pro rata cancellation of (i) equity-based compensation subject to Section 409A of the Code as deferred compensation and (ii) equity-based compensation not subject to Section 409A of the Code, with equity all being reduced in reverse order of vesting and equity not subject to treatment under Treasury regulation 1.280G- Q & A 24(c) being reduced before equity that is so subject. Unless the Company and you otherwise agree in writing, any determination required under this paragraph shall be made in writing by the Company’s independent public accountants (the “Accountants”), whose determination shall be conclusive and binding upon you and the Company for all purposes. For purposes of making the calculations required by this paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable,

good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and you shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this paragraph. The Accountants shall deliver to the Company and you sufficient documentation for you to rely on it for purpose of filing your tax returns. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this paragraph.

Your employment will continue to be at-will, which means it may be terminated at any time by you or the Company with or without notice or cause. Any prior representations to the contrary are hereby superseded by this Agreement. This at-will employment relationship cannot be changed except by written agreement signed by the CEO of the Company. Please also note the terms of your employment including reporting relationships may change based on business needs.

To ensure the timely and economical resolution of disputes that may arise in connection with your employment with the Company, you and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, your employment, or the termination of your employment, including but not limited to statutory claims, will be resolved to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California conducted by JAMS, Inc. or its successor ("JAMS") under JAMS' then applicable rules and procedures for employment disputes (available upon request and also currently available at http://www.jamsadr.com/rules-employment-arbitration/). By agreeing to this arbitration procedure, both you and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. You will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this section, whether by you or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity and may not preside over any form of representative or class proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that you or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of court fees that would be required of you if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

As a Company employee you will be expected to abide by all Company policies and procedures and sign and comply with (or, as applicable, continue to be bound by) the Company's standard form of Proprietary Information and Invention Agreement, which, among other things, prohibits unauthorized use or disclosure of the Company's proprietary information. Under the Prior Offer Letter, your employment offer was also contingent on all of the following: (1) providing proof of your eligibility to work in the United States, (2) signing of the Proprietary Information and Invention Agreement, the Arbitration Agreement and any other new hire paperwork on or before your first day of employment and (3) satisfactory results of a background check which the Company may initiate at a later date, pursuant to a form of notice and consent that you agreed to complete and sign. The terms of this Agreement cannot be changed (except for those changes expressly reserved to the Company's discretion in this Agreement) without a written modification signed by you and a duly authorized officer of the Company. The terms

herein supersede any other agreements or promises made to you by anyone, whether oral or written, and they are governed by the laws of the state of California without regard to conflicts of laws principles.

If the foregoing accurately reflects our agreement, please so indicate no later than three business days from receipt of this Agreement.

On behalf of all GRAILers, I look forward to welcoming you to the incredible GRAIL journey!

Sincerely,

/s/ Hans Bishop

Hans Bishop
Chief Executive Officer
GRAIL, Inc.

Accepted:

/s/ Gautam Kollu	August 27, 2020
Gautam Kollu	Date

GRAIL

Detect cancer early, when it can be cured.

October 2, 2019

Matthew P. Young
mattpyoung@comcast.net
DELIVERED VIA DOCUSIGN

Dear Matthew:

I am excited to offer you the opportunity to join GRAIL!

GRAIL's mission is to save lives by detecting cancer early, when it can be cured. We have the opportunity to change the understanding of biology, rewrite the practice of healthcare and, most importantly, to save millions of lives.

We are currently building the best Team in the world because we are working on this most important and exciting challenge. On behalf of the Team, I am thrilled to have you join to innovate, collaborate, and enable us to deliver on our promise.

We are pleased to extend to you (the "Employee") this offer of employment with GRAIL, Inc. (the "Company") based on the terms and conditions set forth below (the "Agreement").

This offer is for the position of Chief Operating Officer and Chief Financial Officer based in Menlo Park, CA. You will be responsible for such duties as may be assigned to you by management. You will report to Hans Bishop, the Company's CEO, as your direct manager.

For full-time regular employment, your annual base salary will be $630,000.00 USD, less applicable withholdings.

Your salary will be payable every other week, one week in arrears and subject to standard payroll deductions and withholdings. Your first paycheck will be prorated based on your employment start date.

You will be entitled to receive the Company's standard benefits in accordance with GRAIL's policies, the applicable plan documents, and benefit plan provisions. The Company offers U.S. employees a flexible time off policy intended only for vacation and personal time off and does not apply to paid or unpaid leaves of absence discussed in other Company policies. Since there is no accrual or tracking of vacation, there is no vacation payout at end of employment. Please note that the Company may modify benefits from time to time as it deems necessary.

You will be eligible to participate in GRAIL's Variable Compensation Plan ("VCP"). If your hire date is on or before September 30, you will be eligible to participate in the current year VCP on a prorated basis. If your hire date is on or after October 1, you will not be eligible to participate in the current year's VCP, but will be eligible to fully participate in the following year's VCP. Your VCP target is 50% of your base salary. You must continue to be employed by GRAIL on the date of payment in order to earn a VCP payment. Details of the VCP will be provided to you in the near future.

On your first date of employment, the Company will grant you an option to purchase 5,230,200 shares of the Company's Class A common stock (which represents the right to purchase 0.75% of the Company's total outstanding equity on a fully-diluted basis as of the date of grant, including (without limitation) all of the issued shares, warrants, options and any other rights to receive or purchase shares and the share reserve of all of the Company's equity plans ("Fully Diluted Equity")) with an exercise price equal to the fair market value on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company, your stock option will vest over a period of four years, with 25% vesting upon the first anniversary of the vesting commencement date and 1/48th vesting at the end of each month thereafter. The vesting commencement date for this option and the RSUs described herein will be your first date of employment with the Company. On your first date of employment, the Company will also grant you restricted stock units ("RSUs") with respect to 5,230,200 shares of the Company's Class A common stock (which represents the right to receive 0.75% of the Company's Fully-Diluted Equity as of the date of grant). Subject to your continuing service with the Company, your RSUs will vest over a period of four years, with 25% vesting upon the first anniversary of the vesting commencement date and 1/16th vesting quarterly thereafter. If, as of the second anniversary of the vesting commencement date, the shares of the Company's Class A common stock are not publicly traded and freely tradable by you, then you shall be permitted to satisfy the income and employment tax withholding obligations arising out of vesting of the initial 50% of such RSUs via "net withholding" pursuant to which that number of shares of Class A common stock having a fair market value equal to your income and employment tax withholding obligations as of the date of vesting will be withheld by the Company, and at your request, the Company will use its commercially reasonable efforts to purchase your shares and/or find a buyer for your shares of Class A common stock in order for you to pay all of the applicable taxes that arise from the vesting of your RSUs and which exceed the amount of taxes satisfied via "net withholding." Thereafter, if the shares of the Company's Class A common stock are not publicly traded and freely tradable by you, such "net withholding" shall be permitted only with the Company's advance consent and in any event, the Company will help you make arrangements to enable you to pay all of the applicable taxes that arise from the vesting of your RSUs, including (without limitation) assisting you in identifying a buyer for your shares. Your stock option and RSUs will be subject to the terms and conditions of the Company's 2016 Equity Incentive Plan and your stock option and RSU grant agreements, which you will be required to sign as a condition of receiving the stock option and RSUs.

On your first date of employment, the Company will also grant you an option to purchase 1,743,300 shares of the Company's Class A common stock (which represents the right to purchase 0.25% of the Company's Fully-Diluted Equity as of the date of grant) with an exercise price per share equal to the fair market value of one share of the Company's Class A common stock on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company through the consummation of the Company's IPO (and provided such IPO is consummated within 10 years from the date of grant of the stock option),

your stock option will commence vesting upon the IPO's consummation over a period of four years, with 1/48th vesting upon each monthly anniversary of such vesting commencement date.

On your first date of employment, the Company will also grant you an option to purchase 1,743,300 shares of the Company's Class A common stock (which represents the right to purchase 0.25% of the Company's Fully-Diluted Equity as of the date of grant) with an exercise price per share equal to the fair market value of one share of the Company's Class A common stock on the date of the grant, as determined by the Board of Directors. Subject to your continuing service with the Company, this stock option will become vested upon the date the Company's Board of Directors determines in its reasonable discretion that the Company has, within 10 years from the date of grant of such stock options, delivered at least 250,000 multi-cancer diagnostic blood tests for commercial use outside a protocol-controlled setting, and 1/36th of this option will vest monthly over a period of three years, commencing from the date of the Company's Board of Directors determination that the Company has delivered at least 250,000 multi-cancer diagnostic blood tests for commercial use outside a protocol-controlled setting (the "Commercial Use Objective"). "Commercial use" means that the tests are being distributed (whether free of charge, partial charge or full charge) in order to lead to or facilitate a sale of the tests, and such distribution is not for a study, research, publication or other non-sale purpose. Within thirty (30) days following notification from the Company's CEO that the Company believes the Commercial Use Objective has been achieved, the Company's Board of Directors will make a determination regarding whether this Commercial Use Objective has been achieved.

With respect to the options, you will have the right to early exercise any of the unvested options, commencing on the date of grant of the options. In the event of your termination of employment by the Company without Cause or your resignation for Good Reason, in each case prior to the consummation of an initial public offering of the Company's capital stock, the vested portion of any stock options you hold will be exercisable for a period of at least twenty-four (24) months (or the earlier of the expiration of the original term of such stock options and the termination of such stock options upon a Change of Control (as defined below) in accordance with the Equity Plan, if earlier). In the event of your termination of employment by the Company without Cause or your resignation for Good Reason, in each case following the consummation of an initial public offering of the Company's capital stock, the vested portion of any stock options you hold will be exercisable in accordance with the terms of the Equity Plan and your stock option agreements.

As an added incentive, you will be eligible for a one-time sign on payment in the amount of two million dollars ($2,000,000). The Company will pay this amount to you within 30-45 days after you commence employment with the Company. The payment will be processed through our payroll department, with all appropriate taxes withheld. If you voluntarily terminate your employment without Good Reason (as defined below) or are terminated for Cause (as defined below), in either case prior to the date which marks your first twelve (12) months of employment, then you will be required to repay an after-tax pro-rated portion of this signing bonus to the Company within 60 business days following your final day of employment. The pro-rated amount that you would be required to repay to the Company will be equal to the product of the after-tax amount of $2,000,000 multiplied by the number of months remaining until the first anniversary of your start date, divided by twelve.

If, at any time, the Company or any of its affiliates terminates your employment with the Company or its affiliates, respectively, without Cause (excluding as a result of death or disability)

or you resign your employment for Good Reason, then you will be eligible to receive the following severance benefits from the Company contingent upon you providing the Company with a fully executed and irrevocable Separation and Release Agreement (as defined below):

1) a lump-sum severance payment equal to twelve (12) months of base salary paid on the 61st day following your termination;

2) a lump sum payment equal to 100% of your Target Bonus (based on assuming target achievement level) for the then-current fiscal year; paid on the 61st day following your termination;

3) reimbursement for twelve (12) months (the "Covered Period") of the cost of your health benefits (provided that you elect continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), within the time period prescribed pursuant to COBRA for you and your eligible dependents) until the earliest of (A) the last day of the Covered Period, (B) the date upon which you and/or your eligible dependents becomes covered under similar plans or (C) the date upon which you cease to be eligible for coverage under COBRA (such reimbursements, the "COBRA Premiums"). However, if the Company determines in its sole discretion that it cannot pay the COBRA Premiums without potentially violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), the Company will in lieu thereof provide to you a taxable monthly payment in an amount equal to the monthly COBRA premium that you would be required to pay to continue your group health coverage in effect on the date of your termination of employment (which amount will be based on the premium for the first month of COBRA coverage), which payments will be made regardless of whether you elect COBRA continuation coverage and will commence on the month following your termination of employment and will end on the date the Company has paid an amount equal to the payments for the entire Covered Period. For the avoidance of doubt, the taxable payments in lieu of COBRA Premiums may be used for any purpose, including, but not limited to continuation coverage under COBRA, and will be subject to all applicable tax withholdings. This entire subparagraph 2 is referred to as the "COBRA Benefit Arrangement"); and

4) accelerated vesting as to a number of shares subject to an option, RSUs or any other form of equity that has been granted to you equal to 12 months of additional vesting (which includes the performance-based awards to the extent that the applicable objective has been achieved during your employment with the Company).

Your "Separation and Release Agreement" will be in substantially the form attached as Exhibit A to this offer letter (as updated to reflect the severance benefits in this offer letter) and must be executed and become irrevocable within 60 days of your termination.

If, during the period beginning three (3) months before the announcement of the signing of a definitive agreement to consummate a Change of Control and ending twelve (12) months after the closing of the Change of Control, the Company or its successor terminates your employment with the Company without Cause (excluding death or disability) or you resign from such employment for Good Reason (a "Qualifying Termination"), then you will instead of the severance benefits set out directly above, receive the following severance benefits from the Company contingent upon you providing the Company with a fully executed and irrevocable Separation and Release Agreement (as referred to above):

1) a lump-sum severance payment equal to twelve (12) months of base salary paid on the 61st day following your termination;

2) a lump sum payment equal to 100% of your Target Bonus (based on assuming target achievement level) for the then-current fiscal year; paid on the 61st day following your termination;

3) the COBRA Benefit Arrangement with a Covered Period of twelve (12) months; and

4) accelerated vesting as to one hundred percent (100%) of the then-unvested portion of all of your outstanding Company equity awards, including awards that would otherwise vest only upon satisfaction of performance criteria with vesting of any performance-based awards as if all applicable performance criteria were achieved at target levels.

For the avoidance of doubt, if a Qualifying Termination occurs prior to the closing of a Change of Control, then any unvested portion of your outstanding equity awards will remain outstanding for up to three months so that any additional benefits that may be due can be provided if a Change of Control closes within three months following the Qualifying Termination under this paragraph. However, in no event will your equity awards remain outstanding beyond the equity award's original expiration date or to the extent terminated under the Company's 2016 Equity Incentive Plan (or any successor plan). If no Change of Control closes within three months of the Qualifying Termination, any unvested portion of your equity awards automatically will be forfeited permanently without having vested.

Notwithstanding anything to the contrary in the Company's 2016 Equity Incentive Plan (or any successor plan) or any equity award agreements, if unvested Company equity awards are not assumed by an acquirer or the successor entity in a Change in Control or other merger, consolidation or similar transaction involving the Company, your unvested Company equity awards shall accelerate in full as of immediately prior to the closing of such transaction.

For purposes of this Agreement, "Good Reason" means your resignation within thirty (30) days following the end of the Cure Period (as defined below), based on one or more of the following events taking place without your consent: (i) a diminution by the Company in your base salary and target bonus by more than 10%; (ii) a material reduction of your authority, duties, or responsibilities (including reporting responsibilities) relative to your authority, duties, or responsibilities in effect immediately prior to such reduction; (iii) the relocation of your principal work location to a facility or a location more than thirty-five (35) miles from your prior work location; (iv) the Company's material breach of this agreement or any other employment or compensation-related agreement with you; or (v) the Company's failure to obtain the assumption of this Agreement by any acquiror or successor entity following a Change of Control. In order for an event to qualify as Good Reason, you must not terminate employment with the Company without first providing the Company with written notice of the acts or omissions constituting the grounds for Good Reason within sixty (60) days of the initial existence of the grounds for Good Reason and a reasonable cure period of thirty (30) days following the date of written notice (the "Cure Period"), and such grounds must not have been cured during such time.

For purpose of this Agreement, "Cause" means: (i) an intentional act of fraud, embezzlement, theft or any other material violation of law that occurs during or in the course of your employment with the Company; (ii) the willful and continued failure to substantially perform

your material lawful duties for the Company (other than as a result of incapacity due to physical or mental illness or disability); or (iii) intentional material breach of any of the Company's material policies, this Agreement or any agreements you enter with the Company that causes harm to the Company or (iv) your commission of any tortious act, unlawful act or malfeasance that is demonstrably and materially injurious to the Company, monetarily or otherwise; provided that, in the case of clauses (ii) and (iii) above, you receive a written notice from the Company which describes the basis for the Company's belief that you have engaged in conduct constituting Cause with thirty (30) days to take corrective action.

For purposes of the severance benefits provided for in this Agreement, "Change of Control" means a "Corporate Transaction" as defined in the Company's 2016 Equity Incentive Plan, but without regard to any qualifier that purports to exclude a transaction that does represent a change in control transaction described in U.S. Treasury Regulation 1.409A-3(i)(5)(v) or 1.409A-3(i)(5)(vii).

To the extent (i) any payments to which you become entitled under this Agreement, or any agreement or plan referenced herein, in connection with your termination of employment with the Company constitute deferred compensation subject to Section 409A of the Code and (ii) you are deemed at the time of such termination of employment to be a "specified" employee under Section 409A of the Code, then such payment or payments will not be made or commence until the earlier of (i) the expiration of the six (6)-month period measured from the date of your separation from service and (ii) the date of your death following such separation from service; provided, however, that such deferral will be effected only to the extent required to avoid adverse tax treatment to you, including (without limitation) the additional twenty percent (20%) tax for which you would otherwise be liable under Section 409A(a)(1)(B) of the Code in the absence of such deferral. Upon the expiration of the applicable deferral period, any payments which would have otherwise been made during that period (whether in a single sum or in installments) in the absence of this paragraph will be paid to you or your beneficiary in one lump sum (without interest). To the extent that any provision of this Agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that all payments hereunder are exempt from Section 409A to the maximum permissible extent, and for any payments where such construction is not tenable, that those payments comply with Section 409A to the maximum permissible extent. To the extent any payment under this Agreement may be classified as a "short-term deferral" within the meaning of Section 409A, such payment will be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A. Payments pursuant to this Agreement (or referenced in this Agreement) are intended to constitute separate payments for purposes of Section 1.409A- 2(b)(2) of the regulations under Section 409A. No severance or separation payments payable to you until you have a "separation from service" within the meaning of Section 409A.

In the event that the severance and other benefits provided for in this Agreement or otherwise payable to you (i) constitute "parachute payments" within the meaning of Section 280G of the Code and (ii) but for this paragraph, would be subject to the excise tax imposed by Section 4999 of the Code, then your severance and other benefits under this Agreement shall be payable either (i) in full, or (ii) as to such lesser amount which would result in no portion of such severance and other benefits being subject to the excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999, results in the receipt by you on an after-tax basis, of the greatest amount of severance benefits under this Agreement,

notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. Any reduction shall be made in the following manner: first a pro-rata reduction of (i) cash payments subject to Section 409A of the Code as deferred compensation and (ii) cash payments not subject to Section 409A of the Code, and second a pro rata cancellation of (i) equity-based compensation subject to Section 409A of the Code as deferred compensation and (ii) equity- based compensation not subject to Section 409A of the Code, with equity all being reduced in reverse order of vesting and equity not subject to treatment under Treasury regulation 1.280G- Q & A 24(c) being reduced before equity that is so subject. Unless the Company and you otherwise agree in writing, any determination required under this paragraph shall be made in writing by the Company's independent public accountants (the "Accountants"), whose determination shall be conclusive and binding upon you and the Company for all purposes. For purposes of making the calculations required by this paragraph, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and you shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this paragraph. The Accountants shall deliver to the Company and you sufficient documentation for you to rely on it for purpose of filing your tax returns. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this paragraph.

Your employment will be at-will, which means it may be terminated at any time by you or the Company with or without notice or cause. Any prior representations to the contrary are hereby superseded by this offer. This at-will employment relationship cannot be changed except by written agreement signed by the CEO of the Company. Please also note the terms of your employment including reporting relationships may change based on business needs.

To ensure the timely and economical resolution of disputes that may arise in connection with your employment with the Company, you and the Company agree that any and all disputes, claims, or causes of action, in law or equity, arising from or relating to the enforcement, breach, performance, negotiation, execution, or interpretation of this Agreement, your employment, or the termination of your employment, including but not limited to statutory claims, will be resolved to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California conducted by JAMS, Inc. or its successor ("JAMS") under JAMS' then applicable rules and procedures for employment disputes (available upon request and also currently available at http://www.jamsadr.com/rules-employment-arbitration/). By agreeing to this arbitration procedure, both you and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. You will have the right to be represented by legal counsel at any arbitration proceeding. In addition, all claims, disputes, or causes of action under this section, whether by you or the Company, must be brought in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The arbitrator may not consolidate the claims of more than one person or entity and may not preside over any form of representative or class proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that you or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS'

arbitration fees in excess of the amount of court fees that would be required of you if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

As a Company employee you will be expected to abide by all Company policies and procedures and sign and comply with the Company's standard form of Proprietary Information and Invention Agreement, which, among other things, prohibits unauthorized use or disclosure of the Company's proprietary information. This employment offer is also contingent on all of the following: (1) providing proof of your eligibility to work in the United States and (2) signing of the Proprietary Information and Invention Agreement, the Arbitration Agreement and any other new hire paperwork on or before your first day of employment, pursuant to a form of notice and consent that you agree to complete and sign. The terms of this Agreement cannot be changed (except for those changes expressly reserved to the Company's discretion in this Agreement) without a written modification signed by you and a duly authorized officer of the Company. The terms herein supersede any other agreements or promises made to you by anyone, whether oral or written, and they are governed by the laws of the state of California without regard to conflicts of laws principles.

If the foregoing accurately reflects our agreement, please so indicate no later than three business days from receipt of this offer letter.

On behalf of all GRAILers, I look forward to welcoming you to the incredible GRAIL journey!

Sincerely,

/s/ Hans Bishop
Hans Bishop
Chief Executive Officer
GRAIL, Inc.

Accepted:

DocuSigned by:

/s/ Matthew P. Young	10/5/2019
Matthew Young	Date

10/28/19
Start Date (should be on a Monday)

TRANSITION AGREEMENT

This Transition Agreement (this "**Agreement**") is made and entered into as of October 12, 2017, by and between GRAIL, Inc., a Delaware corporation (the "**Company**"), and Jeffrey T. Huber ("**you**").

RECITALS

A. On February 10, 2016, the Company and you entered into a certain Offer Letter to Become Chief Executive Officer of Grail, Inc. effective February 29, 2016 (your "**Employment Agreement**").

B. You became Chief Executive Officer of the Company on February 29, 2016 and were replaced as Chief Executive Officer effective on August 2, 2017, but have remained employed by the Company pending agreement on the terms of your transition.

C. This Agreement terminates and supersedes your Employment Agreement and provides the terms for your separation as an employee of the Company and your continuation of service as a member and Vice Chairman of the Board of Directors of the Company (the "**Board**").

NOW, THEREFORE, in consideration of the foregoing recitals and the mutual promises hereinafter set forth, you and the Company hereby agree as follows:

1. Termination of Employment and Continuation as Vice Chairman of the Board.

The Company and you agree that your employment with the Company has been terminated without cause effective on the date of this Agreement (the "**Separation Date**"). Notwithstanding the provision of your Employment Agreement that provides that, if your employment with the Company terminates for any reason, your membership on the Board shall also terminate, the Company has agreed that you may continue to serve on as a member of the Board and as Vice Chairman of the Board until such time as the Board votes to remove you from the Board, with or without Cause (as defined below), at which time you agree to submit (and, in any event, will automatically be deemed to have submitted) your resignation from the Board and you will cease to be a member of the Board. While you serve as a member of the Board, you will receive the same compensation as other non-employee members of the Board receive for their Board service, excluding fees they may receive for service on committees or as Board Chair. While you serve on the Board, the Board, in consultation with the Chief Executive Officer of the Company, will determine your role and responsibilities as Vice Chairman and the protocol for your interactions with the management of the Company. You will not receive any additional compensation as Vice Chairman. For purposes of the Company's Voting Agreement dated February 28, 2017, as amended July 11, 2017, and as may be further amended (the "**Voting Agreement**"), you will be considered to occupy one of the Board seats allocated to the At-Large Directors.

2. Separation Payments and Benefits.

In accordance with your Employment Agreement, you will receive the following separation payments and benefits:

a. Accrued Compensation. The Company will promptly pay you (i) any unpaid portion of your base salary at the rate of $500,000 per year through the Separation Date, plus (ii) the value of all unused PTO earned through the Separation Date and (iii) any earned but unpaid annual bonus for 2016. In addition, the Company will promptly reimburse you for any reasonable business expenses incurred during your employment in accordance with the Company's expense reimbursement policy.

b. Severance Payment. The Company will pay you a severance payment equal to a total of $1,312,500, payable in equal monthly installments over a period of 18 months from the Separation Date.

c. Accrued Bonus. The Company will pay you an amount equal to the pro-rata portion of your annual bonus for 2017, at the actual achievement level, through the Separation Date, which will be calculated as of the end of 2017. This payment will be made no later than (x) two and one half months following the end of 2017 and (y) such earlier time when other bonuses are generally paid to senior executives of the Company.

d. COBRA. Subject to your timely and proper election for COBRA coverage, you will be entitled to the continuation of your then-effective group health, dental and vision benefits for you and your COBRA-eligible dependents, at Company cost for all premiums, for 18 months under COBRA, *provided that,* if the Company determines that it cannot provide such continued health benefits without potentially violating applicable law or incurring additional expense for non compliance under applicable law (including, without limitation, Section 2716 of the Public Health Service Act), the Company will provide to you in lieu thereof a lump-sum payment in an amount equal to 18 months of such continued health benefits, which payment will be made regardless of whether you elect COBRA continuation coverage.

Receipt of the payments and benefits described in paragraphs (b) through (d) above shall be conditioned in its entirety upon your) execution of a release of claims in the form attached as Exhibit A (the "**Release**"), the Release becoming irrevocable and your continued compliance with the terms thereof. The Release must be executed and become irrevocable within 30 days of your Separation Date. The first installment of the payments described in item (b) of this paragraph, and if applicable, the cash payment described in item (d) of this paragraph, will be paid out in a lump sum on the first business day after the 30th day following the Separation Date.

3. Acceleration of Initial Time-Based Equity Award.

Immediately after the Release becomes irrevocable, the vesting of your Initial Time-Based Equity Award of 11,428,571 restricted shares of the Company's Class B Common Stock, which were purchased by you for cash, will accelerate by an incremental 12 months such that your total vested shares as of the Separation Date will be 31/48ths of the total Award or 7,380,952 vested shares, and the balance of this Award will continue to vest monthly on the 29th day of each month after the Separation Date (or if there is no such date in a given month, then on the last day of such month) for so long as you continue to serve as a member of the Board until this Award is fully vested. If the Release has become irrevocable and you are subsequently removed from the Board without Cause (as defined below), the remaining balance (if any) of unvested shares under this Award will accelerate and this Award will be fully vested. Unvested restricted shares that are held by you upon the termination of your service on the Board for any reason may be repurchased by the Company, at its option, at your original purchase price of $0.24 per share (as adjusted for any subsequent stock splits, combinations or recapitalizations, dividends and distributions (whether such dividends and distributions are in cash or securities), payable in cash no later than 90 days following the effective date of the termination of service on the Board.

4. Initial Milestone-Based Equity Award.

So long as you continue to serve as a member of the Board following the date the Release becomes irrevocable, you will remain eligible for vesting of your Initial Milestone-Based Equity Award of 5,714,286 restricted shares of the Company's Class B Common Stock, which were purchased by you for cash, as follows:

a. 2,857,143 of the shares subject to the Initial Milestone-Based Equity Award will vest, subject to your continued service on the Board at such time, on the earlier to occur of (i) February 29, 2020 and (ii) the date of the closing of a "Transformative Transaction"; and

b. 2,857,143 of the shares subject to the Initial Milestone-Based Equity Award will vest, subject to your continued service on the Board at such time, on the earlier to occur of (i) February 29, 2020 and (ii) the date of the closing of a "Transformative Transaction."

A single Transformative Transaction cannot result in the vesting of more than 50% of the shares subject to the Initial Milestone-Based Equity Award. For purposes of the vesting of the Initial Milestone-Based Equity Award, a "**Transformative Transaction**" includes, by way of example and not limitation, a Qualified IPO (as defined in the Company's Series A Preferred Stock financing documents) or such other event or transaction the Board determines in its discretion to constitute a Transformative Transaction. Unvested restricted shares that are held by you upon the termination of your service on the Board for any reason may be repurchased by the Company, at its option, at your original purchase price of $0.24 per share (as adjusted for any subsequent stock splits, combinations or recapitalizations, dividends and distributions (whether such dividends and distributions are in cash or securities), payable in cash no later than 90 days following the effective date of your termination of your service on the Board.

5. Inducement Equity Award; Initial Incentive Equity Award.

The Company acknowledges that each of (i) your Inducement Equity Award of 2,857,143 shares of Class B Common Stock, which were issued to you at no cost on or about April 15, 2016, and (ii) the Incentive Equity Award of 4,989,397 shares of Class B Common Stock, which were issued to you at no cost on or about February 7, 2017, is fully vested.

6. Additional Incentive Equity Awards.

So long as you continue to serve as a member of the Board following the date the Release becomes irrevocable, you will also be eligible to receive additional Incentive Equity Awards (each an "**Incentive Award**") that will be delivered, at the election of the Company, in the form of (x) fully vested shares of Class B Common Stock, (y) if there are no shares of Class B Common Stock then outstanding, such class of shares or other form of consideration into which the Class B Common Stock has been converted, or (z) cash. You will be eligible to receive the Incentive Awards in the amounts set forth below based upon the closing of up to two Qualifying Events described below, provided that the Qualifying Event is commenced while you are in service on the Board and is completed on or before February 29, 2026, where the per-share valuation of a common stock equivalent share based on the Company's total number of common stock equivalent shares (including shares issuable with respect to then outstanding convertible securities, options and warrants) outstanding immediately prior to the Qualifying Event equals or exceeds one or more of the valuation thresholds set forth below, in each case as appropriately adjusted for splits, combinations, recapitalizations, dividends and distributions (whether such dividends and distributions are in cash or securities): (i) a private equity financing of at least $500 million in cash proceeds to the Company at least 25% of which is received from new investors, (ii) a Qualified IPO, or the Company's shares of common stock otherwise become publicly traded on the Nasdaq or New York Stock Exchange (a "**Qualified Public Listing**"), (iii) achieving a public trading valuation based on the closing prices of the Company's publicly traded common stock for a period of at least 30 consecutive trading days on a national securities exchange or national electronic trading market, or (iv) a Change of Control of the Company (each, a **"Qualifying Event**"):

(A) An Incentive Award having an aggregate value of $65 million upon the closing of the first Qualifying Event at a per-share valuation equal to or greater than 20X the Series A Preferred Stock price per common stock equivalent share; and

(B) An additional Incentive Award having an aggregate value of $65 million upon the closing of the first Qualifying Event at a per-share valuation equal to or greater than 40X the Series A Preferred Stock price per common stock equivalent share.

A single Qualifying Event may result in one or two Incentive Awards. For example, if the first Qualifying Event is at a per-share valuation equal to or greater than 40X per share of Series A Preferred Stock, you would receive two Incentive Awards having a total value of $130 million (one Incentive Award because the per-share valuation was equal to or greater than 20X the Series A price and a second Incentive Award because the per-share valuation was equal to or greater than 40X the Series A price). However, the total value of both such Incentive Awards that may be awarded will not exceed $130 million. The issuance of

Incentive Awards to you will occur upon the closing of the Qualifying Event, and the Company may, at its election, “net settle” any Incentive Award by reducing the amount of the Incentive Award as necessary to cover any required withholding taxes at the applicable minimum withholding rates and will pay such withholding taxes on your behalf to the appropriate tax authorities. In the event that the Company elects to satisfy an Incentive Award through the issuance of shares of Class B Common Stock or other shares into which the Class B Common Stock has been converted pursuant to clause (x) or (y) above at a time when the Company is privately held, then the number of shares to be awarded will be equal to the quotient of $65 million divided by the per-share valuation of the Qualifying Event.

7. Section 409A

Except as otherwise expressly provided herein, to the extent any expense reimbursement or the provision of any in-kind benefit under this Agreement (or otherwise referenced herein) is determined to be subject to (and not exempt from) Section 409A of the Internal Revenue Code, the amount of any such expenses eligible for reimbursement, or the provision of any in-kind benefit, in one calendar year will not affect the expenses eligible for reimbursement or in kind benefits to be provided in any other calendar year, in no event will any expenses be reimbursed after the last day of the calendar year following the calendar year in which you incurred such expenses, and in no event will any right to reimbursement or the provision of any in-kind benefit be subject to liquidation or exchange for another benefit.

To the extent that any provision of this Agreement is ambiguous as to its exemption or compliance with Section 409A, the provision will be read in such a manner so that all payments hereunder are exempt from Section 409A to the maximum permissible extent, and for any payments where such construction is not tenable, that those payments comply with Section 409A to the maximum permissible extent. To the extent any payment under this Agreement may be classified as a “short-term deferral” within the meaning of Section 409A, such payment will be deemed a short-term deferral, even if it may also qualify for an exemption from Section 409A under another provision of Section 409A.

Payments pursuant to this Agreement (or referenced in this Agreement) are intended to constitute separate payments for purposes of Section 1.409A-2(b)(2) of the regulations under Section 409A. The termination of your employment on the Separation Date shall be considered and deemed a “separation from service: for purposes of Section 409A.

8. Your Liquidity Rights

The Company agrees that the Board will consider in good faith providing you a liquidity opportunity in connection with a subsequent financing in which there is excess investor demand and may, in its discretion, offer you a one-time opportunity to sell to the Company some or all of the 7,500,000 shares of Series A Preferred Stock and/or the 997,879 shares of Series B Preferred Stock that you have purchased from the Company at a fair market value price to be mutually agreed between the Company and you, for an aggregate sales price of up to $15 million. The Company will provide you reasonable advance notice of future financings where this opportunity may be offered to you. The Liquidity Rights for Common Stock provided in Section 4(g) of your Employment Agreement are hereby terminated and of no further force or effect.

9. Company Repurchase Right.

The Company’s repurchase right provided in Section 4(i) of your Employment Agreement to repurchase all but not less than all of your vested and outstanding Common Stock on the fifth anniversary of the date your Continued Service (as defined in your Employment Agreement) ceases, is hereby terminated and of no further force or effect.

10. Conversion of Class B Common Shares.

If your service on the Board ceases for any reason, the Company shall have the right at any time thereafter, but not the obligation, by resolution of the Board to convert all of the outstanding shares of Class B Common Stock held directly, indirectly or beneficially by you, by your legal representative, or by any trust or other entity to which you have transferred such shares, including but not limited to the Maywood Trust U/A/D 09/19/2012, or any successor trust or entity (collectively, such holders other than you are referred to herein as your "**Related Holders**" and the shares of Class B Common Stock held by you and the Related Holders collectively are referred to herein as "**Your Shares**"), to Class A Common Stock at the ratio of 0.44 shares of Class A Common Stock for each 0.42 shares of Class B Common Stock (the "**Conversion Ratio**")**.** Immediately before the effective date of any Qualified IPO, Qualified Public Listing, or Change in Control (as defined below) (each an "**Automatic Conversion Event**"), all of Your Shares of Class B Common Stock shall be automatically converted to Class A Common Stock at the Conversion Ratio. In addition, upon any transfer of Your Shares of Class B Common Stock by you or by any of your Related Holders, other than a transfer to another Related Holder for your estate planning purposes where which you retain sole voting power with respect to the shares and such Related Holder agrees in writing to be bound by the provisions of this paragraph 10 and paragraph 11 of this Agreement, the transferred shares will be automatically converted from Class B Common Stock to Class A Common Stock at the Conversion Ratio. The grant by you of a voting proxy to anyone other than as provided in paragraph 11 below, or the occurrence of any event or circumstance that causes you to no longer hold sole voting power, with respect to shares of Class B Common Stock held by you or by a Related Holder shall be deemed equivalent to a transfer of such shares, and shall cause such shares of Class B Common Stock to be automatically converted to Class A Common Stock at the Conversion Ratio. You and the undersigned Related Holder agree to approve an amendment to the Company's Restated Certificate of Incorporation that is proposed and approved by the Board in order to give effect to the foregoing provisions of this paragraph 10, and to take such other actions as may be requested by the Board to effect the conversion of Your Shares in accordance with this paragraph 10.

11. Voting of Shares Controlled by You; Grant of Proxy.

You and your Related Holders will continue to be bound by the Voting Agreement, and will vote, or cause to be voted, all shares of Company stock owned by you, or over which you have voting control, as required by the Voting Agreement. In addition, until such time as there is an Automatic Conversion Event, with respect to all matters submitted to a vote of the stockholders of the Company that are not governed by the Voting Agreement, you and your Related Holders agree to vote, or cause to be voted, all of Your Shares of Class B Common Stock with respect to such matters as recommended by a majority of the Board. To secure your obligations to vote Your Shares of Class B Common Stock in accordance with the preceding sentence, you and your Related Holders hereby constitute and appoint as your proxy, and hereby grant a power of attorney to, the person then serving as Chief Executive Officer of the Company or to such other person as may be designated by the Board, with full power of substitution, and hereby authorize such person to represent and vote all of Your Shares of Class B Common Stock (whether in person, by proxy, or by written consent) with respect to matters not governed by the Voting Agreement. This proxy is irrevocable and coupled with an interest.

12. Definitions

The following terms have the meaning set forth below wherever they are used in this Agreement:

"***Cause***" means the occurrence of any of the following: (A) your willful conduct (including a failure to act) or gross negligence that causes material and demonstrable injury, monetarily or otherwise, to the Company; (B) your conviction of, or a plea of nolo contenders to, a crime constituting a felony under the laws of the United States or any state thereof involving moral turpitude; (C) your willful commission of any act of fraud, misappropriation or embezzlement with respect to the Company; (D) your willful material breach of your fiduciary duties to the Company or its

subsidiaries or affiliates; (E) your repeated failure to attempt in good faith to perform your duties as a Board member or follow the reasonable written direction of the Board with respect to your services as Vice Chairman; and (F) any action or inaction that constitutes a material breach of a provision of this Agreement or any confidentiality or other agreement by and between you and the Company, which breach causes material and demonstrable injury, monetarily or otherwise, on the Company. Any determination that you have engaged in conduct for which the Board wishes to terminate your service will be made after a meeting of the non-employee directors of the Board at which you will be invited to appear, with counsel, to respond to the allegations set forth in the written notice to you of such meeting (which notice will provide sufficient specificity to allow you to respond to such allegations), and in the case of the events described in (A), (D), (E) or (F), to the extent substantially the same event for which you were given such notice and opportunity to respond and a reasonable opportunity to cure did not occur previously within the prior 6 months, a reasonable opportunity to cure any action or inaction that is the basis for the Board intent to terminate your service. For purposes of this Agreement, an act (or failure to act) will be considered "willful" only if done (or failed to be done) by you intentionally and in bad faith.

"***Change in Control***" means a change in control transaction described in U.S. Treasury Regulation 1.409A-3(i)(5)(v), 1.409A-3(i)(5)(vi), or 1.409A-3(i)(5)(vii).

13. Expenses.

The Company will, in accordance with applicable Company policies and guidelines, reimburse you for all reasonable and necessary expenses incurred by you in connection with your performance of services on behalf of the Company as a Board member.

14. Confidential Information and Other Company Policies.

You will continue to protect the Company's confidential information in accordance with the confidential information agreement you signed as an employee, and will comply any other policies and programs adopted by the Company that are applicable to its Board members, as such policies and programs may be amended from time to time.

15. Indemnification.

The Company will indemnify you against actions, suits, claims, legal proceedings and the like as provided in and under the terms of your Indemnity Agreement dated February 10, 2016. In addition, you will be covered by a director and officer liability insurance policy maintained by the Company, and the terms of your coverage under that insurance policy will be no less favorable than those terms offered under that policy to any other director or officer of the Company. The Company represents and covenants that it will maintain an effective director and officer liability insurance policy during your tenure as a director.

16. Arbitration.

You and the Company agree to submit to mandatory binding arbitration, in San Francisco County, California, any and all claims arising out of or related to this Agreement, your service as a Board member or the termination thereof, or your employment with the Company or the termination thereof, except that each party may, at its or his option, seek injunctive relief in court related to the improper use, disclosure or misappropriation of a party's proprietary, confidential or trade secret information. YOU AND THE COMPANY HEREBY WAIVE ANY RIGHTS TO TRIAL BY JURY IN REGARD TO SUCH CLAIMS. This agreement to arbitrate does not restrict your right to file administrative claims you may bring before any government agency where, as a matter of law, the parties may not restrict your ability to file such claims (including, but not limited to, the National Labor Relations Board, the Equal Employment Opportunity Commission and the Department of Labor). However, you and the Company agree that, to the fullest extent permitted by law, arbitration will be the exclusive remedy for the subject matter of such administrative claims. The arbitration will be conducted through the American Arbitration Association,

provided that (i) the arbitrators will have no authority to make any ruling or judgment that would confer any rights with respect to the trade secrets, confidential and proprietary information or other intellectual property of the Company upon you or any third party and (ii) this arbitration provision will not preclude the Company from seeking legal and equitable relief from any court having jurisdiction with respect to any disputes or claims relating to or arising out of the misuse or misappropriation of the Company's intellectual property. The arbitrator will issue a written decision that contains the essential findings and conclusions on which the decision is based. The parties acknowledge that they are hereby waiving any rights to trial by jury in any action, proceeding or counterclaim brought by either of the parties against the other in connection with any matter whatsoever arising out of or in any way connected with this Agreement.

17. Additional Agreements.

You will continue to be bound by the Voting Agreement and that certain Right of First Refusal and Co-Sale Agreement, dated as of February 28, 2017, by and among the Company and the other parties thereto, as amended, the grant relating to your Initial Time-Based Equity Award, as amended by this Agreement, and the grant relating to your Initial Milestone-Based Equity Award, as amended by this Agreement. To the extent that there is any inconsistency between the terms of either of such grants and the terms of this Agreement, the terms of this Agreement will take precedence and will be deemed to have amended such grants.

18. Miscellaneous.

a. Absence of Conflicts. You represent that your execution of this Agreement and the performance of your duties under this Agreement will not breach any other agreement as to which you are a party.

b. Successors. This Agreement is binding on and may be enforced by the Company and its successors and assigns and is binding on and may be enforced by you and your heirs and legal representatives. This Agreement is binding on and you and your successors and assigns, including Related Holders, and may be enforced by the Company and its successors and assigns. Any successor to the Company or substantially all of its business (whether by purchase, merger, consolidation or otherwise) will in advance assume in writing and be bound by all of the Company's obligations under this Agreement.

c. Notices. Notices under this Agreement must be in writing and will be deemed to have been given when personally delivered or either (i) two business days after mailed by U.S. registered or certified mail, return receipt requested and postage prepaid or (ii) confirmed by the recipient as received via electronic mail or facsimile. Mailed notices to you will be addressed to you at the home address which you have most recently communicated to the Company in writing. Notices to the Company will be addressed to the Chairman of the Board at the Company's corporate headquarters.

d. Waiver. No provision of this Agreement will be modified or waived except in writing signed by you and an officer of the Company duly authorized by its Board. No waiver by either party of any breach of this Agreement by the other party will be considered a waiver of any other breach of this Agreement.

e. Severability. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement will continue in full force and effect without such provision.

f. Withholding. All sums payable to you hereunder will be reduced by all federal, state, local and other withholding and similar taxes and payments required by applicable law.

g. Entire Agreement; Employment Agreement Superseded. This Agreement represents the entire agreement between the parties concerning the subject matter of your service with

the Company and supersedes your Employment Agreement, which is hereby terminated and of no further force or effect. This Agreement may be amended, or any of its provisions waived, only by a written document executed by both parties in the case of an amendment, or by the party against whom the waiver is asserted.

h. Governing Law. This Agreement will be governed by the laws of the State of California without reference to conflict-of-laws provisions.

i. Survival. The provisions of this Agreement will survive the termination of your service on the Board for any reason to the extent necessary to enable the parties to enforce their respective rights under this Agreement.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties have executed this Transition Agreement as of the date first written above.

COMPANY:

GRAIL, Inc.

/s/ William Rastetter

By: William Rastetter
Chief Executive Officer

Accepted and agreed to this October 12, 2017

By: /s/ Jeffrey T. Huber

Jeffrey T. Huber

11 Maywood Lane
Menlo Park, CA 94025

The undersigned is a "Related Holder" as defined in paragraph 10 of this Agreement, and by signing below acknowledges and agrees to be bound by the provisions of paragraphs 10 and 11 of this Agreement:

Maywood Trust U/A/D 09/19/2012

By: /s/ Jeffrey T. Huber

Jeffrey T. Huber, Trustee

[SIGNATURE PAGE TO TRANSITION AGREEMENT]

Exhibit A

RELEASE

In consideration of the termination benefits described herein (the "**Benefits**") provided and to be provided to me by GRAIL, Inc., or any successor thereof (the "**Company**") pursuant to my Transition Agreement with the Company dated October __, 2017 (the "**Transition Agreement**")**,** and in connection with the termination of my employment, I agree to the following general release (the "**Release**")**.**

1. On behalf of myself, my heirs, executors, administrators, successors and assigns, hereby fully and forever generally release and discharge the Company, its current, former and future parents, subsidiaries, affiliated companies, related entities, employee benefit plans and their fiduciaries, predecessors, successors, officers, directors, shareholders, agents, employees and assigns from any and all claims, causes of action, and liabilities up through the date of my execution of the Release. The claims subject to this release include, but are not limited to, those relating to my employment with the Company and/or any predecessor to the Company and the termination of such employment. All such claims (including related attorneys' fees and costs) are barred without regard to whether those claims are based on any alleged breach of a duty arising in statute, contract or tort. This expressly includes waiver and release of any rights and claims arising under any and all laws, rules, regulations and ordinances, including, but not limited to: Title VII of the Civil Rights Act of 1964; the Older Workers Benefit Protection Act; the Americans With Disabilities Act; the Age Discrimination in Employment Act; the Fair Labor Standards Act; the National Labor Relations Act; the Family and Medical Leave Act; the Employee Retirement Income Security Act of 1974, as amended; the Workers Adjustment and Retraining Notification Act; the California Fair Employment and Housing Act (if applicable); the provisions of the California Labor Code (if applicable); the Equal Pay Act of 1963; and any similar law of any other state or governmental entity. The parties agree to apply California law in interpreting the Release. Accordingly, I further waive any rights under Section 1542 of the Civil Code of the State of California or any similar state statute. Section 1542 states: "**A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which, if known to him or her, must have materially affected his or her settlement with the debtor**." This Release does not extend to, and has no effect upon, my rights under the Transition Agreement and any benefits that have accrued, and to which I have become vested or otherwise entitled to, under any employee benefit plan, program or policy sponsored or maintained by the Company, as modified by the Transition Agreement, or to my right to indemnification by the Company and continued coverage by the Company's director's and officer's insurance.

2. In understanding the terms of the Release and my rights, I have been advised to consult with an attorney of my choice prior to executing the Release. I understand that nothing in the Release will prohibit me from exercising legal rights that are, as a matter of law, not subject to waiver such as: (a) my rights under applicable workers' compensation laws; (b) my right, if any, to seek unemployment benefits; (c) my right to indemnity under California Labor Code section 2802 or other applicable state-law right to indemnity; and (d) my right to file a charge or complaint with a government agency such as but not limited to the Equal Employment Opportunity Commission, the National Labor Relations Board, the Department of Labor, the California Department of Fair Employment and Housing or other applicable state or federal agency. Moreover, I will continue to be indemnified for my actions taken while employed by the Company to the same extent as other then-current or former directors and officers of the Company under the Company's Certificate of Incorporation and Bylaws and the Indemnification Agreement between me and the Company, if any, and I will continue to be covered by the Company's directors and officers liability insurance policy as in effect from time to time to the same extent as are other then-current or former directors and officers of the Company, each subject to the requirements of the laws of the State of Delaware. To the fullest extent permitted by law, any dispute regarding the scope of this general release shall be resolved through binding arbitration as set forth below and the arbitration provision set forth in the Transition Agreement.

3. I understand and agree that the Company will not provide me with the Benefits unless I execute the Release. I also understand that I have received or will receive, regardless of the execution of the Release, all wages owed to me together with any accrued but unused vacation pay, less applicable withholdings and deductions, earned through my termination date.

4. In my existing and continuing obligations to the Company, I have returned to the Company all Company documents (and all copies thereof) and other Company property that I have had in my possession at any time, including but not limited to Company files, notes, drawings, records, business plans and forecasts, financial information, specification, computer-recorded information, tangible property (including, but not limited to, computers, laptops, pagers, etc.), credit cards, entry cards, identification badges and keys and any materials of any kind which contain or embody any proprietary or confidential information of the Company (and all reproductions thereof), except for those items that are necessary or appropriate for me to fulfill my duties and responsibilities as a member of the Board of Directors of the Company. I understand that, even if I did not sign the Release, I am still bound by any and all confidential/proprietary/trade secret information, non-disclosure and inventions assignment agreement(s) signed by me in connection with my employment with the Company, or with a predecessor or successor of Company pursuant to the terms of such agreement(s).

5. I represent and warrant that I am the sole owner of all claims relating to my employment with the Company and/or with any predecessor of the Company and that I have not assigned or transferred any claims relating to my employment to any other person or entity.

6. I agree to keep the Benefits and the provisions of the Release and the Transition Agreement confidential and not to reveal its contents to anyone except my lawyer, my accountant, my spouse or other immediate family member and/or my financial consultant, or as required by legal process or applicable law or as necessary to enforce the provisions of the Transition Agreement.

7. I understand and agree that the Release will not be construed at any time as an admission of liability or wrongdoing by either the Company or myself.

8. For a period of three (3) years from the Effective Date, I agree that I will not make any negative or disparaging statements or comments, either as fact or as opinion, about the Company, its employees, officers, directors, shareholders, vendors, products or services, business, technologies, market position or performance. For a period of three (3) years from the Effective Date, the Company (including its subsidiaries) will not make, and agrees to use commercially reasonable efforts to cause the officers, directors, employees and spokespersons of the Company to refrain from making, any negative or disparaging statements or comments, either as fact or as opinion, about me (or authorizing any statements or comments to be reported as being attributed to the Company). Nothing in this paragraph will prohibit me or the Company from providing truthful information in response to a subpoena or other legal process.

9. Any controversy or claim arising out of or relating this Release, its enforcement, arbitrability, or interpretation, or because of an alleged breach, default or misrepresentation in connection with any of its provisions, will be submitted to arbitration consistent with the terms of the Transition Agreement.

10. As a condition of my receipt of the Benefits, I agree that, upon reasonable notice (after taking into account, to the extent reasonably practicable, my other personal and business commitments) and without the necessity of the Company obtaining a subpoena or court order, I will provide reasonable cooperation to the Company in connection with any suit, action or proceeding (or any appeal from any suit, action or proceeding), or the decision to commence on behalf of the Company any suit, action or proceeding, any investigation and/or any defense of any claims asserted against the Company or any of the Company's current or former directors, officers, employees, partners, stockholders, agents or representatives of any of the foregoing, and any ongoing or future investigation or dispute or claim of any kind involving the Company that relates to events occurring during my employment as to which I may

have relevant information and any other matter for which I was responsible or had knowledge of through date of my termination of employment. Such cooperation may include, but will not be limited to, providing background information within my knowledge; aiding in the drafting of declarations; executing declarations or similar documents; testifying or otherwise appearing at investigation interviews, depositions, arbitrations or court hearings; and preparing for the above-described or similar activities. Upon the reasonable request of the Company, I agree to cooperate with the transition of my job responsibilities on any termination of employment and cooperate in providing information on matters on which I was involved while an employee.

11. I acknowledge that I have been given at least twenty-one (21) calendar days in which to consider whether to execute the Release, no one hurried me into executing the Release during that period and no one coerced me into executing the Release. I understand that the offer of the Benefits and the Release will expire on the twenty-second (22nd) calendar day after my employment termination date if I have not accepted it by that time. I further understand that the Company's obligations under the Release and the Transition Agreement will not become effective or enforceable until the eighth (8th) calendar day after the date I have signed the Release and delivered it to the Company (the "Effective Date") and that in the seven (7) day period following the date I deliver a signed copy of the Release to the Company I understand that I may revoke my acceptance of the Release. I understand that the Benefits will become available to me at such time after the Effective Date.

12. In executing the Release, I acknowledge that I have not relied upon any statement made by the Company, or any of its representatives or employees, with regard to the Release unless the representation is specifically included herein. Furthermore, the Release and the Transition Agreement contain our entire understanding regarding eligibility for the Benefits and supersede any or all prior representations and agreements regarding the subject matter of the Release. However, the Release does not modify, amend or supersede written Company agreements that are consistent with enforceable provisions of the Release such as the Transition Agreement, my proprietary information and invention assignment agreement, and any stock, stock option and/or stock purchase agreements between the Company and me that are consistent with the Transition Agreement. Once effective and enforceable, the Release can be changed only by another written agreement signed by me and an authorized representative of the Company.

13. Should any provision of the Release be determined by an arbitrator, court of competent jurisdiction or government agency to be wholly or partially invalid or unenforceable, the legality, validity and enforceability of the remaining parts, terms or provisions are intended to remain in full force and effect. Specifically, should a court, arbitrator or agency conclude that a particular claim may not be released as a matter of law, it is the intention of the parties that the general release and the waiver of unknown claims above will otherwise remain effective to release any and all other claims. I acknowledge that I have been advised by legal counsel and have obtained sufficient information to intelligently exercise my own judgment regarding the terms of the Release before executing the Release.

14. The Benefits provided and to be provided to me by the Company consist of the applicable benefits and payments in accordance with the Transition Agreement.

[SIGNATURE PAGE TO RELEASE FOLLOWS]

EMPLOYEE'S ACCEPTANCE OF RELEASE

BEFORE SIGNING MY NAME TO THE RELEASE, I STATE THE FOLLOWING: I HAVE READ THE RELEASE, I UNDERSTAND IT AND I KNOW THAT I AM GIVING UP IMPORTANT RIGHTS. I HAVE OBTAINED SUFFICIENT INFORMATION TO INTELLIGENTLY EXERCISE MY OWN JUDGMENT. I HAVE BEEN ADVISED THAT I SHOULD CONSULT WITH AN ATTORNEY BEFORE SIGNING IT, AND, AFTER DOING SO, I HAVE SIGNED THE RELEASE KNOWINGLY AND VOLUNTARILY.

EFFECTIVE UPON EXECUTION BY EMPLOYEE AND THE COMPANY.

EMPLOYEE:

Executed this 12th day of October, 2017.

/s/ Jeffrey T. Huber

Jeffrey T. Huber

COMPANY:

Agreed and Accepted:

GRAIL, Inc..

/s/ William Rastetter

By: William Rastetter
Title: Chief Executive Officer
Date: October 13, 2017

GRAIL, INC.

August 27, 2020

Jeffrey T. Huber
5 Betty Lane
Atherton, CA 94027

Re: Amendment to Transition Agreement

Dear Jeff,

This letter of amendment (this "**Amendment**") amends that certain Transition Agreement by and between you and GRAIL, Inc., a Delaware corporation (the "**Company**"), dated as of October 12, 2017 (the "**Transition Agreement**"), as set forth below. Capitalized terms used but not otherwise defined herein shall have the respective meanings ascribed to them in the Transition Agreement.

1. Additional Incentive Equity Awards. Section 6 of the Transition Agreement is hereby deleted in its entirety and replaced as follows:

"6. Additional Incentive Equity Awards. You are hereby granted an award with an aggregate potential value of up to $78 million (the "**Incentive Award**"), that you may earn based on the achievement of the performance goals set forth below (each, a "**Qualifying Event**") and your continued service as a member of the Board through the applicable Vesting Date (as defined below), *provided, that* continued Board service through the Vesting Date shall not be required in the event that you are involuntarily removed from the Board without Cause, you are unable to stand for reelection to the Board due to Board-imposed director term limits or your Board service terminates due to your death or disability (as determined by the Board in good faith) (in any case described in this proviso, an "**Involuntary Termination**"). The Incentive Award, to the extent earned in accordance with the terms and conditions set forth below, will be delivered, at the election of the Company, in the form of (x) fully vested shares of Class B Common Stock, (y) if there are no shares of Class B Common Stock then outstanding (including, for the avoidance of doubt, if your shares of Class B Common Stock have converted to Class A Common Stock pursuant to Section 10 hereof), such class of shares or other form of consideration into which the Class B Common Stock has been converted, or (z) cash, and in any case of the foregoing (x), (y), or (z), issued or paid to you no later than 10 days following the applicable Vesting Date (or such later date as may be mutually agreed by the Company and you but not later than March 15th of the year following the applicable Vesting Date). For the avoidance of doubt, if a Change of Control (as defined below) occurs and the Company (or any successor of the Company in a Change in Control (a "**Successor**")) becomes a subsidiary of the acquiror in such Change of Control, then any Incentive Award that becomes payable following such Change of Control shall be paid, at the election of the Company (i) in cash, or (ii) if the Company's Class B Common Stock (or securities into which the Class B Common Stock has previously been converted) is converted in whole or in part into securities of the ultimate parent company of the Company ("***Parent Company Securities***") in connection with such Change of Control, in the form of Parent Company Securities (and the provisions of Section 6(e) below shall apply to any such payment in the form of Parent Company Securities).

a. A Qualifying Event means any one or more of the following:

i. $19.5 million of the Incentive Award shall be earned upon the achievement by the Company (including any Successor) of cumulative Net Revenue (as defined below) of $500 million or more in any period of four consecutive Company or Successor fiscal quarters, or any

period of four consecutive fiscal quarters of the Company and Successor combined (each a "**Measurement Period**");

ii. $19.5 million of the Incentive Award shall be earned upon the achievement by the Company (including any Successor) of cumulative Net Revenue of $750 million or more in any Measurement Period;

iii. $19.5 million of the Incentive Award shall be earned upon achievement by the Company and (including any Successor) of cumulative Net Revenue of $1.5 billion or more in any Measurement Period; and

iv. $19.5 million of the Incentive Award shall be earned upon the achievement by the Company (including any Successor) of cumulative Net Revenue of $2 billion or more in any Measurement Period.

b. In the event of a Change in Control of the Company, the Incentive Award shall remain outstanding and eligible to vest based on Net Revenue following the Change in Control (in accordance with the post-Change in Control definition of Net Revenue) pursuant to the terms of this Agreement (as amended) unless otherwise mutually agreed between you and any Successor. For example, if the Company achieves a total of $200 million of Net Revenue in the second and third quarters of calendar year 2022, and is acquired in a Change in Control on September 30, 2022, and the acquiring company achieves a total of $300 million of Net Revenue (in accordance with the post-Change in Control definition of Net Revenue) in its next two fiscal quarters, that total achievement of $500 million of Net Revenue in four consecutive quarters constituting a Measurement Period will constitute a Qualifying Event for which the first $19.5 million of the Incentive Award shall be earned and payable (assuming such increment has not previously been earned and paid). A single Qualifying Event may result in one or more than one installment of the Incentive Award being earned. For example, if the first Qualifying Event includes achievement of Net Revenue of $1.5 billion or more, then you will earn, on the applicable Vesting Date, the total of the first three installments of the Incentive Award ($58.5 million) corresponding to the first three Qualifying Events. For clarity, in no event may any installment of the Incentive Award be earned or paid more than once (*i.e.*, in no event may the attainment of any applicable Net Revenue target result in payment of more than a single $19.5 million installment, even if attained in more than one Measurement Period), and in no event will the aggregate Incentive Award payable pursuant to this Section 6 exceed $78 million.

c. Any amounts earned pursuant to the foregoing, shall become vested upon: (i) filing of the Company's (or its Successor's) quarterly report on Form 10-Q for the last fiscal quarter of the applicable Measurement Period or, if the applicable Measurement Period ends with the last fiscal quarter of the Company (or its Successor), the annual report on Form 10-K for the fiscal year, if the Company or its Successor is then a public reporting company; or (ii) if the Company or its Successor is not then a public reporting company, the presentation to the Board or its Audit Committee of the Company's or its Successor's financial statements for the fiscal quarter in which the portion of the Incentive Award is earned, and such vesting and delivery of the applicable portion of the vested amount of the Incentive Award shall, in any event, occur no later than 60 days following the end of the applicable fiscal quarter (any such date on which any portion of the Incentive Award becomes vested as described in the preceding clauses (i) and (ii), a "**Vesting Date**"), in each case, subject to your continued service as a member of the Board through the applicable Vesting Date (except as expressly provided below). The payment, if any, of any earned portion of the Incentive Award following the applicable Vesting Date shall be subject to recoupment or "clawback" as may be required by applicable law, stock exchange rules or by any Company policy that is applicable generally to executive officers and/or members of the Board of Directors as a result of a financial

restatement by the Company (or its Successor), provided that you shall remain eligible to earn the Incentive Award for the duration of this Agreement.

d. The Incentive Award shall lapse to the extent unvested, and you will forfeit any and all rights in or to any then-unvested portion of the Incentive Award, on the first to occur of: (i) the date your service on the Board terminates for any reason other than an Involuntary Termination, and (ii) the 10th anniversary of the date of this Amendment. For clarity, if your Board service terminates due to an Involuntary Termination, the Incentive Award shall remain outstanding and eligible to vest as provided above (without regard to any continued service requirement), and shall lapse on the 10th anniversary of the date of this Amendment to the extent not vested on or prior to such 10th anniversary. Notwithstanding anything herein to the contrary, the Company or its Successor may at any time, in the Company's or its Successor's sole discretion, cause the Incentive Award to accelerate and become fully vested and payable (to the extent not previously vested and paid) and, following the payment to you of any such accelerated amount, the Company (or, if applicable, its Successor) shall have no further obligations to you under this Section 6.

e. In the event that the Company or its Successor elects to deliver any portion of the Incentive Award through the issuance of Class B Common Stock or other shares into which the Class B Common Stock has been converted in accordance herewith at a time when such shares are not publicly traded on a national securities exchange, the number of shares to be issued shall be based on the fair market value of such shares as of the applicable Vesting Date, as determined by the Board based on the Company's most recent valuation of its Class B Common Stock or other shares into which the Class B Common Stock has been converted (as applicable) in accordance with Section 409A of the Internal Revenue Code of 1986, as amended (such code section, "**Section 409A**"), as prepared by an independent third-party. In the event that the Company or its Successor elects to deliver any portion of the Incentive Award through the issuance of Class B Common Stock or other shares into which the Class B Common Stock has been converted in accordance herewith at a time when such shares are publicly traded on a national securities exchange, the number of shares to be issued shall be determined by reference to the 30-day volume weighted average per share closing price ending on the last trading day immediately prior to the issuance of such shares, as reported in *The Wall Street Journal* or equivalent source, as determined by the Board, and the shares shall be registered for resale at the time of issuance (or, if a resale registration statement with respect to such shares is not then in effect, the Company will use its commercially reasonable efforts to file a registration statement covering the resale of such shares and cause such registration statement to become effective as promptly as practicable and you agree to cooperate with the Company as reasonably requested in connection therewith). If the issuance of shares to you as contemplated by this Section 6(e) is being made in reliance on a private placement exemption from the registration requirements of the Securities Act of 1933, as amended, you agree, at the request of the Company, to provide the Company with a customary investor representation statement to confirm compliance with such exemption.

f. For purposes of this Section 6, the capitalized terms below shall have the following meanings:

(a) "**Affiliate**" shall mean any person or entity which at the time in question directly or indirectly controls, is controlled by, or is under common control with the Company. For the purposes of the foregoing, "control" means the possession, directly or indirectly, of: (i) more than 50% of the voting interests of an entity; or (ii) the power to direct or cause the direction of the management or policies of an entity, whether through the ownership of voting interests, by agreement with respect to the voting of voting interests, by other agreement conferring control over management or policy decisions, by virtue of the power to control the composition of the

board of directors or managers, or otherwise. The terms “controlling” and “controlled” will have correlative meanings.

(b) “**Net Revenue**”

(i) **Prior to a Change in Control**, Net Revenue shall mean the consolidated net revenue of the Company and its Operational Affiliates determined under Generally Accepted Accounting Principles as set forth in its financial statements, which shall be audited annually and reviewed quarterly by an independent public accountant of national standing.

(ii) **Following a Change in Control**, Net Revenue shall mean the consolidated net revenue derived by the Company and its Successor and their respective Affiliates, from the Sales (as defined below) of the Company’s products, services, technology or intellectual property, including but not limited to the Company’s Galleri multi-cancer early detection test and any other products or services that are based in whole or in part on the Company’s technology or intellectual property as they existed immediately prior to or as they may be amended, enhanced or further developed following the Change in Control (collectively, “**Grail Products or Services**”). For this purpose, “**Sales**” shall mean and include any and all revenue from any sale, distribution, lease, license, provision, performance, or other transfer, making available, or exploitation of the Grail Products or Services in question (with the terms “Sell” and “Sold” having correlative meanings), and shall be determined as the gross amount invoiced or otherwise charged by the Successor and its Affiliates for the Sales of any product or service that includes Grail Products or Services, less only the following items to the extent actually taken or incurred with respect to such Sale and all in accordance with standard allocation procedures, allowance methodologies, and accounting methods consistently applied in accordance with generally accepted accounting principles in the United States at the time in question (except as otherwise provided below):

i. credits or allowances for returns, damaged or non-conforming products, rejections, recalls, or billing corrections;

ii. freight, postage, shipping and insurance, handling, and other transportation costs, provided that such items are passed on to the purchaser (or other acquirer) at cost;

iii. sales, use, value added, and other similar taxes (excluding income taxes), tariffs, customs duties, surcharges, and other governmental charges levied on the production, sale, transportation, delivery, use, or performance of such Grail Products or Services that are actually paid to the governmental authority;

iv. any quantity, cash, or other trade discounts, rebates, price reductions or charge backs; and

v. sales commissions or collection costs and

vi. if any Grail Product or Services are bundled with one or more products or component of the Successor or another party (“**Bundled Product**”), then Net Revenue for such Bundled Product shall be multiplied by the fraction A/(A

+B), where A is the value of the Grail Product or Services, and B is the value of the products or component of Successor or another party, in each case as determined in good faith by the Board, and such resulting amount shall be the "Net Revenue" for the Bundled Product.

For purposes of calculating Net Revenue for a Grail Product or Service in question, a Sale will be deemed to occur consistent with the Successor's or its Affiliate's standard revenue recognitions policies as applied to its similar products and services in similar channels and countries.

If after a Change in Control (i) a Grail Product or Service is Sold in a manner that is not an arm's-length transaction; (ii) a Grail Product or Service is Sold in-kind or for non-cash consideration; or (iii) if there is not sufficient information available to determine such average Net Revenue, the Company or its Successor will notify you in writing at or before the time it is obligated to provide you with (or file with the Securities and Exchange Commission if it is a publicly reporting company) the financial statements for the relevant quarter, and you and the Company or its Successor will negotiate in good faith an appropriate Net Revenue value, taking into consideration the fair market value of such Grail Product or Service and the Net Revenue received by the Company or its Successor the fair value of other similar products or services; provided, however, that any discounting on Grail Products or Services in connection with participation in a patient registry program in exchange for patient outcomes or reporting or the provision of Grail Products or Services in accordance with a clinical trials, demonstration pilots or other introductory rates to new customers shall be deemed to be arm's-length transactions to the extent that the Company or its Successor provides similar discounts generally on other products and services in similar circumstances.

Notwithstanding the foregoing, after a Change in Control, the Company or its Successor may exclude from any calculation of Net Revenue any revenue attributable to any company or asset acquired by the Company or its Successor after the date of the Change in Control, in each case, solely to the extent that such company or asset generates revenues that are unrelated to Grail Products or Services that were offered by the Company, its Successor, or their respective Affiliates, prior to such acquisition, as determined in good faith by the Board.

(c) "**Operational Affiliates**" means Affiliates of the Company under the Company's control (for so long as they remain Affiliates of the Company under the Company's control) materially engaged in operational aspects of the Company's business, which operational aspects include laboratory operations, marketing, and distribution.

g. If the Company or its Successor is not a public reporting company, within 60 days after the end of each fiscal quarter in which any portion of the Incentive Award remains outstanding and eligible to vest, the Company shall provide to you for your review the Company's most recent unaudited quarterly income statement and annual audited financial statements (in each case, subject to your agreeing to customary confidentiality requirements). In addition, if the Company has undergone a Change in Control, whether or not the Company or its Successor is a public reporting company, the Company or its Successor shall provide you a detailed explanation of any revenues that were excluded from Net Revenue for purposes of determining whether a portion of the Incentive Award was earned.

h. If the Company undergoes a Change in Control, thereafter for so long as any portion of the Incentive Award remains outstanding, you may, at your expense, not more often than once every

four quarters have a certified public accountant audit the financial records of the Company (or its Successor), to determine the Net Revenue for any and all fiscal quarters that have not been previously audited by you, and the Company or its Successor will promptly make available its books and records as may be reasonably requested by your designated certified public accountant to perform the audit (subject to customary confidentiality conditions), and will make reasonably available knowledgeable personnel of the Company or its Successor to answer questions reasonably posed by the accountant in connection with the audit. If any audit reveals that Net Revenue has been understated by more than 5% for any quarter, the Company or its Successor will promptly pay the reasonable fees and expenses of your accountant in performing the audit."

2. Conversion of Class B Common Shares. The following sentence is hereby added to the end of Section 10 of the Transition Agreement:

a. "For purposes of this Agreement, (i) "**Qualified IPO**" or "Qualified IPO (as defined in the Company's Series A Preferred Stock financing documents)" means the closing of the sale of shares of Class A Common Stock to the public at a price of at least $3.00 per share (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Class A Common Stock), in a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $50,000,000 of gross proceeds to the Company; and (ii) "**Qualified Public Listing**" means a Qualified IPO or the Company's shares of common stock otherwise becoming publicly traded on the Nasdaq or New York Stock Exchange. "

3. Definitions. The definition of "Change in Control" set forth in Section 12 of the Transition Agreement is hereby deleted in its entirety and replaced with the following:

a. " "**Change in Control**" means (i) the closing of a merger, consolidation, liquidation or reorganization of the Company into or with another company or other legal entity, after which merger, consolidation, liquidation or reorganization the capital stock of the Company outstanding prior to consummation of the transaction is not converted into or exchanged for or does not represent more than 50% of the aggregate voting power of the surviving or resulting entity; (ii) the direct or indirect acquisition by any person (as the term "person" is used in Section 13(d)(3) or 14(d)(2) of the Securities Exchange Act of 1934, as amended) of more than 50% of the voting capital stock of the Company, in a single or series of related transactions; (iii) the sale, exchange, or transfer of all or substantially all of the Company's assets (other than a sale, exchange, or transfer to one or more entities where the stockholders of the Company immediately before such sale, exchange or transfer retain, directly or indirectly, at least a majority of the beneficial interest in the voting stock of the entities to which the assets were transferred). Notwithstanding the foregoing, for the avoidance of doubt, the following events shall not constitute a "Change in Control": (A) a transaction (other than a sale of all or substantially all of the Company's assets) in which the holders of the voting securities of the Company immediately prior to the merger or consolidation hold, directly or indirectly, at least a majority of the voting securities in the successor corporation or its parent immediately after the merger or consolidation; (B) a sale, lease, exchange or other transaction in one transaction or a series of related transactions of all or substantially all of the Company's assets to an Affiliate of the Company; (C) an initial public offering of any of the Company's securities; (D) a reincorporation of the Company solely to change its jurisdiction; or (E) a transaction undertaken for the primary purpose of creating a holding company that will be owned in substantially the same proportion by the persons who held the Company's securities immediately before such transaction."

4. Successors. The following sentence is hereby added to the end of Section 18(b) of the Transition Agreement:

a. " If and to the extent that this Agreement would not transfer to and become (or remain) the obligation of the Successor in a Change in Control or would be or become the obligation of an entity controlling directly or indirectly less than 75%. of the Company's pre-closing assets immediately after such Change in Control, the Company shall require the Successor (and, if the Company ceases in the Change in Control to own or control directly or indirectly 75% of the its pre-closing assets, one or more Affiliates of the Successor that collectively control directly or indirectly at least 75% of the Company's pre-closing assets) to expressly assume (or guarantee the obligations under) this Agreement in writing and provide a copy of the assumption (or guarantee) to you prior to or contemporaneously with the closing of Change in Control, it being understood that if the Company (or an entity with which the Company merges or consolidates) owns or controls directly or indirectly 75% of the Company's pre-closing assets immediately after the Change in Control (and the Company or such entity with which the Company merges or consolidates continues to be obligated under this Agreement by operation of law or otherwise), then no such express assumption (or guarantee) will be required irrespective of whether the Company (or entity with which the Company merges or consolidates) is a subsidiary of a parent company Successor."

5. No Other Amendment. This Amendment, as of the date hereof, shall be and hereby is incorporated into and forms a part of the Transition Agreement. Except as expressly set forth above, all of the terms and conditions of the Transition Agreement remain in full force and effect.

Signature Page

Please sign this letter below to indicate your acceptance of this Amendment and return to it the Company.

Very truly yours,

/s/ Hans Bishop
Hans Bishop
Chief Executive Officer
GRAIL, Inc.

I have read and understood this Amendment and hereby acknowledge, accept, and agree to the terms as set forth above as of the date first above written:

/s/ Jeffrey T. Huber
Jeffrey T. Huber

Date signed: August 27, 2020

(*Signature Page to Amendment to Transition Agreement*)

CONSULTING AGREEMENT

This Consulting Agreement ("***Agreement***") is made as of May 10, 2016 ("***Effective Date***"), by and between **Grail, Inc**., a Delaware corporation ("***Company***"), and **Richard Klausner** ("***Consultant***").

Company desires to have Consultant perform consulting services as an independent contractor to the Company and Consultant desires to perform such services for Company, subject to and in accordance with the terms and conditions of this Agreement.

NOW, THEREFORE, the parties agree as follows:

1. SERVICES.

1.1 Performance of Services. Consultant will provide advice and consult with the Company on technical, business and strategic matters, as agreed from time to time (the "***Services***"), it being understood that the Services are expected to require approximately three (3) days per week of Consultant's time.

1.2 Payment. Subject to the terms and conditions of this Agreement, as sole consideration for the performance of the Services, Company will issue equity to Consultant as described on Exhibit A. In addition, Company will reimburse Consultant for reasonable expenses incurred by Consultant in connection with performing Services, in connection with the Company's expense reimbursement policies and procedures as specified by the Company from time to time.

2. RELATIONSHIP OF PARTIES.

2.1 Independent Contractor. Consultant is an independent contractor and nothing in this Agreement will be construed as establishing an employment or agency relationship between Company and Consultant. Consultant has no authority to bind Company by contract or otherwise. Consultant will perform Services under the general direction of Company, but Consultant will determine, in Consultant's sole discretion, the manner and means by which Services are accomplished, subject to the requirement that Consultant will at all times comply with applicable law.

2.2 Taxes and Employee Benefits. Consultant will report to all applicable government agencies as income all compensation received by Consultant pursuant to this Agreement. Consultant will be solely responsible for the payment of all withholding taxes, social security, workers' compensation, unemployment and disability insurance or similar items required by any government agency. Consultant will not be entitled to any benefits paid or made available by Company to its employees, including, without limitation, any vacation or illness payments, or to participate in any plans, arrangements or distributions made by Company pertaining to any bonus, stock option, profit sharing, insurance or similar benefits. Consultant will indemnify and hold Company harmless from and against all damages, liabilities, losses, penalties, fines, expenses and costs (including reasonable fees and expenses of attorneys and other professionals) arising out of or relating to any obligation imposed by law on Company to pay any withholding taxes, social security, unemployment or disability insurance or similar items in connection with compensation received by Consultant pursuant to this Agreement.

2.3 Liability Insurance. Consultant acknowledges that Company will not carry any liability insurance on behalf of Consultant. Consultant will maintain in force adequate liability insurance to protect Consultant from claims of personal injury (or death) or tangible or intangible property damage (including loss of use) that arise out of any act or omission of Consultant.

3. OWNERSHIP AND INTELLECTUAL PROPERTY RIGHTS. Consultant agrees that all Consultant Work Product (meaning inventions, trademarks, designs, techniques, written documents, emails, and the like) will be the sole and exclusive property of Company. Consultant hereby irrevocably transfers and assigns to Company, and agrees to irrevocably transfer and assign to Company, all right, title and interest in and to the Consultant Work Product, including all worldwide patent rights (including patent applications and disclosures), copyright rights, mask work rights, trade secret rights, know-how, and any and all other intellectual property or proprietary rights (collectively, "***Intellectual Property Rights***") therein. At Company's request and expense, during and after the term of this Agreement, Consultant will assist and cooperate with Company in all respects and will execute documents, and, subject to the reasonable availability of Consultant, give testimony and take such further acts reasonably requested by Company to enable Company to acquire, transfer, maintain, perfect and enforce its Intellectual Property Rights and other legal protections for the Consultant Work Product. Consultant hereby appoints the officers of Company as Consultant's attorney-in-fact to execute documents on behalf of Consultant for this limited purpose.

4. CONFIDENTIAL INFORMATION. For purposes of this Agreement, "***Confidential Information***" means and will include: (i) any information, materials or knowledge regarding Company and its business; financial condition, products, programming techniques, customers, suppliers, technology or research and development that is disclosed to Consultant or to which Consultant has access in connection with performing Services; (ii) the Consultant Work Product; and (iii) the terms and conditions of this Agreement. Confidential Information will not include any information that: (a) is or becomes part of the public domain through no fault of Consultant; (b) was rightfully in Consultant's possession at the time of disclosure, without restriction as to use or disclosure; or (c) Consultant rightfully receives from a third party who has the right to disclose it and who provides it without restriction as to use or disclosure. Consultant agrees to hold all Confidential Information in strict confidence, not to use it in any way, commercially or otherwise, except in performing Services, and not to disclose it to others. Consultant further agrees to take all actions reasonably necessary to protect the confidentiality of all Confidential Information.

5. WARRANTIES.

5.1 No Pre-existing Obligations. Consultant represents and warrants that Consultant has no pre-existing obligations or commitments (and will not assume or otherwise undertake any obligations or commitments) that would be in conflict or inconsistent with or that would hinder Consultant's performance of its obligations under this Agreement.

5.2 Performance Standard. Consultant represents and warrants that the Services will be performed in a thorough and professional manner, consistent with high professional and industry standards by individuals with the requisite training, background, experience, technical knowledge and skills to perform the Services.

5.3 Non-infringement. Consultant represents and warrants that the Consultant Work Product will not infringe, misappropriate or violate the rights of any third party, including, without limitation, any Intellectual Property Rights or any rights of privacy or rights of publicity, except to the extent any portion of the Consultant Work Product is created, developed or supplied by Company or by a third party on behalf of Company.

5.4 Competitive Activities. During the term of this Agreement, Consultant will keep Company reasonably informed of Consultants activities that are competitive with the types and kinds of business being conducted by Company.

5.5 Non-Solicitation of Personnel. During the term of this Agreement and for a period of one (1) year thereafter, Consultant will not directly or indirectly solicit the services of any Company employee or consultant for Consultant's own benefit or for the benefit of any other person or entity.

5. OMITTED.

6. TERM AND TERMINATION.

6.1 Term. This Agreement will commence on the Effective Date and, unless terminated earlier in accordance with the terms of this Agreement, will remain in force and effect for as long as Consultant is performing Services.

6.2 Termination for Breach. Either party may terminate this Agreement if the other party breaches any material term of this Agreement and fails to cure such breach within thirty (30) days following written notice thereof from the non-breaching party.

6.3 Termination for Convenience. Company may terminate this Agreement at any time, for any reason or no reason, upon at least ten (10) days written notice to Consultant.

6.4 Effect of Termination.

(a) Upon the expiration or any termination of this Agreement for any reason, Consultant will promptly deliver to Company all Consultant Work Product, including all work in progress on any Consultant Work Product not previously delivered to Company, if any.

(b) Upon the expiration or any termination of this Agreement (except termination of this Agreement pursuant by Company pursuant to Section 7.2 for breach by Consultant), Company will pay Consultant any amounts that are due and payable under Section 1.2 for Services performed by Consultant prior to the effective date of expiration or termination.

(c) Upon the expiration or termination of this Agreement for any reason, Consultant will promptly notify Company of all Confidential Information in Consultant's possession or control and will promptly deliver all such Confidential Information to Company, at Consultant's expense and in accordance with Company's instructions.

6.5 Survival. The provisions of Sections 2.2, 3, 4, 5.3, 7.4, 7.5, 8 and 9 will survive the expiration or termination of this Agreement.

7. LIMITATION OF LIABILITY. IN NO EVENT WILL COMPANY BE LIABLE FOR ANY SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY KIND IN CONNECTION WITH THIS AGREEMENT, EVEN IF COMPANY HAS BEEN INFORMED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES.

8. GENERAL.

8.1 No Election of Remedies. Except as expressly set forth in this Agreement, the exercise by Company of any of its remedies under this Agreement will be without prejudice to its other remedies under this Agreement or available at law or in equity.

8.2 Assignment. Consultant may not assign or transfer any of Consultant's rights or delegate any of Consultant's obligations under this Agreement, in whole or in part, without Company's express prior written consent. Any attempted assignment, transfer or delegation, without such consent, will be void. Subject to the foregoing, this Agreement will be binding upon and will inure to the benefit of the parties permitted successors and assigns.

8.3 Equitable Remedies. Because the Services are personal and unique and because Consultant will have access to Confidential Information of Company, Company will have the right to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief, without having to post a bond or other consideration, in addition to all other remedies that Company may have for a breach of this Agreement.

8.4 Attorneys' Fees. If any action is necessary to enforce the terms of this Agreement, the substantially prevailing party will be entitled to reasonable attorneys' fees, costs and expenses in addition to any other relief to which such prevailing party may be entitled.

8.5 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of California, excluding that body of law pertaining to conflict of laws. Any legal action or proceeding arising under this Agreement will be brought exclusively in the federal. or state courts located in the Northern District of California and the parties hereby irrevocably consent to the personal jurisdiction and venue therein.

8.6 Severability. If any provision of this Agreement is held invalid or unenforceable by a court of competent jurisdiction, the remaining provisions of the Agreement will remain in full force and effect, and the provision affected will be construed so as to be enforceable to the maximum extent permissible by law.

8.7 Notices. All notices required or permitted under this Agreement will be in writing and delivered by confirmed facsimile transmission, by courier or overnight delivery service, or by certified mail, and in each instance will be deemed given upon receipt. All notices will be sent to the addresses set forth on the signature pages hereto or to such other address as may be specified by either party to the other in accordance with this Section 9.7.

8.8 Entire Agreement. This Agreement constitutes the complete and exclusive understanding and agreement of the parties with respect to the subject matter hereof and supersedes all prior understandings and agreements, whether written or oral, with respect to the subject matter hereof. Any waiver, modification or amendment of any provision of this Agreement will be effective only if in writing and signed by the parties hereto.

8.9 Waiver. The waiver of any breach of any provision of this Agreement will not constitute a waiver of any subsequent breach of the same other provisions hereof.

8.10 Counterparts. This Agreement may be executed in counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

IN WITNESS WHEREOF, the parties have signed this Agreement as of the Effective Date.

COMPANY:

Grail, Inc.

By: /s/ Jeff Huber

Name: Jeff Huber

Title: CEO

Address:
200 Cardinal way, 2nd Floor
Redwood City, CA 94063

CONSULTANT:

Richard Klausner

Signature: /s/ Richard Klausner

EXHIBIT A

Equity Consideration

In consideration of Consultant's performance of the Services, Consultant will be granted an option to purchase up to 876,000 shares of the Company's Class A Common Stock (the "***Advisory Consulting Service Award***") under the Company's 2016 Equity Incentive Plan (the "***Plan***") at the fair market value of the Company's Class A Common Stock, as determined by the Board of Directors (the "***Board***") on the date it approves such grant. The Advisory Consulting Service Award will have vesting and exercise terms as set forth below:

Advisory Consulting Service Award:

Shares:	876,000 shares of Class A Common Stock of the Company.
Vesting:	The Advisory Consulting Service Award will vest in 48 equal monthly installments from the Vesting Start Date, subject to your Continued Consulting Service (as defined below).
Exercise Schedule:	Immediately exercisable, subject to the terms of the Stock Option Agreement
"***Vesting Start Date***"	February 6, 2016
"***Continued Consulting Service***"	Providing advice and consultation service under the Consulting Agreement as requested by the Company, up to three (3) days per week. For clarity, Continued Consulting Service does not include service as a director of the Company.

In addition, it is acknowledged that Consultant is also expected to be granted an additional stock option under the Plan that will be exercisable for 584,000 shares of the Company's Class A Common Stock (the "***Board Service Award***") at the fair market value of the Company's Class A Common Stock, as determined by the Board on the date it approves such grant. The Board Service Award will have vesting and exercise terms as set forth below.

Board Service Award:

Shares:	584,000 shares of Class A Common Stock of the Company.
Vesting:	The Board Service Award will vest in 48 equal monthly installments from the Vesting Start Date, subject to your Continued Board Service (as defined below).
Exercise Schedule:	Immediately exercisable, subject to the terms of the Stock Option Agreement
"***Vesting Start Date***"	February 6, 2016
"***Continued Board Service***"	Providing service as a director of the Company.

For clarity, it is acknowledged that the vesting arrangements for the Advisory Consulting Service Award and Board Service Award are independent, and Consultant may continue to vest into one award while no longer being eligible to vest into the other. For example, if Consultant ceases to provide Services under this Agreement, Consultant would no longer be performing Continued Consulting Service and would no longer be entitled to vest into the Advisory Consulting Service Award, but if Consultant was continuing to serve as a director, he would continue to vest into the Board Service Award.

FIRST AMENDMENT TO
CONSULTING AGREEMENT

This First Amendment (the "**Amendment**") to that certain Consulting Agreement, dated May 10, 2016 (the "**Agreement**"), by and among Richard Klausner ("**Consultant**") and GRAIL, Inc., a Delaware corporation ("**GRAIL**"), is made effective as of August 7, 2020 (the "**Amendment Effective Date**"). Each of Consultant and GRAIL is sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**."

BACKGROUND

WHEREAS, Consultant and GRAIL entered into the Agreement, pursuant to which Consultant provides certain services to GRAIL on the terms and conditions set forth therein.

WHEREAS, Consultant and GRAIL now desire to amend the Agreement, all as set forth herein.

NOW THEREFORE, in consideration of the various promises and covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which is acknowledged by both Parties, the Parties agree as follows:

AGREEMENT

1. **Definitions**. Unless otherwise defined in this Amendment, initially capitalized terms used herein shall have the meanings given to them in the Agreement.

2. **Exhibit A**. Exhibit A of the Agreement is hereby amended to include the additional consideration set forth on Exhibit A attached.

3. **No Other Modifications**. Except as specifically set forth in this Amendment, the terms and conditions of the Agreement shall remain in full force and effect. This Amendment and the Agreement as amended by this Amendment constitute and contain the entire understanding and agreement of the Parties respecting the subject matter of this Amendment, and supersedes any and all prior or contemporaneous negotiations, correspondence, understandings and agreements between the Parties, whether oral or written, regarding such subject matter. No waiver, modification or amendment of any provision of this Amendment will be valid or effective unless made in writing and signed by a duly authorized officer of each party. The failure of either Party to assert a right hereunder or to insist upon compliance with any term or condition of this Amendment will not constitute a waiver of that right or excuse similar subsequent failure to perform any such term or condition.

4. **Miscellaneous**. This Amendment may be executed in any number of counterparts (including by facsimile or electronic transmission), each of which need not contain the signature of more than one Party, but all such counterparts taken together will constitute one and the same agreement. This Amendment shall be governed by and interpreted in accordance with the

laws of the State of California without reference to its choice of laws or conflict of laws provisions.

IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed by their respective duly authorized representatives as of the Amendment Effective Date, each copy of which will for all purposes be deemed to be an original.

GRAIL, Inc.:		**CONSULTANT:**	
By:	/s/ Hans Bishop	By:	/s/ Richard Klausner
Name:	Hans Bishop	Name:	Richard Klausner
Title:	CEO		

EXHIBIT A

Equity Consideration

In consideration of Consultant's performance of the Services, Consultant will be granted an additional option to purchase up to 1,400,000 shares of the Company's Class A Common Stock (the "Additional Consulting Award") under the Company's 2016 Equity Incentive Plan (or such successor plan, the "Plan") at the fair market value of the Company's Class A Common Stock, as determined by the Board of Directors (the "Board") or the Compensation Committee of the Board on the date it approves such grant. The Additional Consulting Award will have vesting and exercise terms as set forth below:

Twenty-five percent (25%) of the shares under the Additional Consulting Award shall vest on the first anniversary of the Amendment Effective Date and 1/48th of the shares under the Additional Consulting Award shall vest monthly thereafter subject to your Continued Consulting Service (as defined below). The grant shall be early exercisable.

"Continued Consulting Service" shall mean providing advice and consultation service under the Consulting Agreement as requested by the Company, up to three (3) days per week. For clarity, Continued Consulting Service does not include service as a director of the Company.

For clarity, it is acknowledged that the vesting arrangements for the Advisory Consulting Service Award, the Additional Consulting Award and Board Service Award are independent, and Consultant may continue to vest into one award while no longer being eligible to vest into the other. For example, if Consultant ceases to provide Services under this Agreement, Consultant would no longer be performing Continued Consulting Service and would no longer be entitled to vest into the Advisory Consulting Service Award or the Additional Consulting Award, but if Consultant was continuing to serve as a director, he would continue to vest into the Board Service Award.

GRAIL, INC.

2016 EQUITY INCENTIVE PLAN

(as amended and/or restated from time to time)

(Incorporating herein any amendments approved through May 7, 2020)

1. Purposes of the Plan. The purposes of this Plan are to attract and retain the best available personnel, to provide additional incentives to Employees, Directors and Consultants and to promote the success of the business of the Company.

2. Definitions. The following definitions shall apply as used herein and, except as defined otherwise in an Award Agreement, in the Award Agreements.

"Administrator" means the Board and any Committee or individual appointed to administer the Plan under Section 4.

"Award" means an award described in Section 6.

"Award Agreement" means the written agreement evidencing the grant of an Award, including any amendments thereto.

"Board" means the Board of Directors of the Company.

"Class A Common Stock" means the Class A common stock, $0.001 par value, of the Company.

"Class B Common Stock" means the Class B common stock, $0.001 par value, of the Company.

"Code" means the Internal Revenue Code of 1986, as amended.

"Committee" means any committee that is composed of at least two members of the Board.

"Common Stock" means the Class A Common Stock and the Class B Common Stock.

"Company" means GRAIL, Inc., a Delaware corporation, or any successor entity.

"Consultant" means any person other than an Employee or a Director (solely with respect to rendering services in such person's capacity as a Director), who is engaged by the Company or any Subsidiary to render consulting or advisory services to the Company or such Subsidiary.

"Corporate Transaction" means any of the following transactions:

(i) any person (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act, other than any person who currently owns more than a majority of the combined voting power of the outstanding Common Stock, becoming the beneficial owner (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 50% of the combined voting power of the then outstanding voting securities of the Company, except that any change in the ownership of the stock of the Company as a result of a private financing of the Company that is approved by the Board will not be considered a Corporate Transaction;

(ii) a consolidation or merger of the Company with or into another entity, unless the stockholders of the Company immediately before such consolidation or merger own, directly or indirectly, a majority of the combined voting power of the outstanding voting securities of the corporation or other entity resulting from such consolidation or merger;

(iii) the sale, lease or other disposition of all or substantially all of the assets of the Company; or

(iv) the liquidation, dissolution or winding up of the entity.

For the avoidance of doubt, a transaction will not constitute a Corporate Transaction if: (1) its sole purpose is to change the jurisdiction of the Company's incorporation, or (2) its sole purpose is to create a holding company that will be owned in substantially the same proportions by the persons who held the Company's securities immediately before such transaction.

"Director" means a member of the Board or the board of directors of any Subsidiary.

"Effective Time" shall have the meaning set forth in Section 13(a).

"Employee" means an employee of the Company or any Subsidiary (including a Director who is also an employee).

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Fair Market Value" means, as of any date, the value of an applicable class of Common Stock determined as follows:

(i) if the class of Common Stock is listed on one or more established stock exchanges or national market systems, including without limitation The Nasdaq Global Select Market, The Nasdaq Global Market or The Nasdaq Capital Market of The Nasdaq Stock Market LLC, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on the principal exchange or system on which the class of Common Stock is listed (as determined by the Administrator) on the date of determination (or, if no closing sales price or closing bid was reported on that date, as applicable, on the last trading date such closing sales price or closing bid was reported), as reported in The Wall Street Journal or such other source as the Administrator deems reliable;

(ii) if the class of Common Stock is regularly quoted on an automated quotation system (including the OTC Bulletin Board) or by a recognized securities dealer, its Fair Market Value shall be the closing sales price for such stock as quoted on such system or by such securities dealer on the date of determination, but if selling prices are not reported, the Fair Market Value of a such a share of Common Stock shall be the mean between the high bid and low asked prices for such Common Stock on the date of determination (or, if no such prices were reported on that date, on the last date such prices were reported), as reported in The Wall Street Journal or such other source as the Administrator deems reliable; or

(iii) if neither (i) nor (ii) above applies, the fair market value determined by the Board using any measure of value that the Board determines to be appropriate (including, as it considers appropriate, relying on appraisals), and with respect to Options and SARs, in a manner consistent with the valuation principles under Section 409A of the Code, except as the Board may determine otherwise.

"Grantee" means an individual who holds an Award.

"Incentive Stock Option" means an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code.

"Non-Qualified Stock Option" means an Option not intended to qualify as an Incentive Stock Option.

"Option" means an option to purchase Shares.

"Parent" means a "parent corporation" of the Company, whether now or hereafter existing, as defined in Section 424(e) of the Code.

"Plan" means this 2016 Equity Incentive Plan, as such may be amended or restated from time to time.

"Public Offering" means a firm commitment public offering of the Common Stock pursuant to a registration statement filed with, and declared effective by, the Securities and Exchange Commission

"Restricted Stock" means Shares issued under the Plan subject to restrictions determined by the Administrator and set forth in the applicable Award Agreement.

"Restricted Stock Units" means an Award based on the value of Common Stock that is an unfunded and unsecured promise to deliver Shares, cash, or other property upon the attainment of specified vesting or performance conditions, as determined by the Administrator and set forth in the applicable Award Agreement.

"SAR" means a stock appreciation right entitling the Grantee to Shares or cash compensation, as determined by the Administrator and set forth in the applicable Award Agreement, measured by appreciation in the value of a class of Common Stock.

"Securities Act" means the Securities Act of 1933, as amended.

"Service Provider" means an Employee, Director, or Consultant.

"Share" means a share of Common Stock.

"Subsidiary" means a "subsidiary corporation" of the Company, whether now or hereafter existing, as defined in Section 424(f) of the Code.

"Unrestricted Stock" means Shares issued under the Plan that are not subject to vesting, forfeiture or similar restrictions pursuant to the applicable Award Agreement. For the sake of clarity, Shares that are only subject to restrictions on transfer, right of first refusal, market stand-off and other similar restrictions shall not, by virtue of such restrictions, be deemed to be "Restricted Stock."

3. **Stock Subject to the Plan.**

(a) Reserved Shares. Subject to the provisions of Sections 11 and 12 of this Plan, (i) the maximum aggregate number of Shares which may be issued pursuant to all Awards is **162,432,821** Shares, which may be shares of Class A Common Stock or Class B Common Stock, and (ii) the maximum aggregate number of Shares which may be issued pursuant to Incentive Stock Options is **162,432,821** Shares. The Shares may be authorized, but unissued, or reacquired Common Stock.

The number of Shares available for grant and issuance under the Plan shall automatically be increased on January 1, of each calendar year during the term of the Plan, if and to the extent necessary to cause the unallocated Share reserve (i.e., the total number of Shares issuable under this Plan, less the sum of the number of Shares issued pursuant to previously-granted Awards and the number of Shares reserved for issuance pursuant to then-outstanding Awards) to equal four percent (4%) of the Company's Fully-Diluted Capitalization as of the preceding December 31. For clarity, if the unallocated Share reserve on December 31 exceeds four percent (4%) of the Company's Fully-Diluted Capitalization as of the preceding December 31, then no automatic adjustment to the Share reserve will occur. In the event of an increase to the Share reserve as a result of this paragraph, there shall also be an equivalently-sized automatic increase in the number of shares that may be issued pursuant to Incentive Stock Options. For purposes of the foregoing, "Fully-Diluted Capitalization" means all shares of Common Stock issued and outstanding at the applicable time, assuming full conversion or exercise of all then issued and outstanding securities of the Company that are exercisable for or convertible into Common Stock of the Company, plus all shares of Common Stock reserved for issuance upon exercise of stock options or stock awards to be granted in the future under this Plan or any other stock option or equity incentive plan of the Company, and also including all shares reserved for issuance under the Company's equity incentive plans (including without limitation the then-current unallocated Share reserve under this Plan).

For example, if on December 31 the Fully-Diluted Capitalization is 200,000,000 shares and the total number of Shares issuable under the Plan is 40,000,000 Shares, with 35,000,000 of such Shares having been issued pursuant to previously-granted Awards and/or remaining reserved for issue pursuant to then-outstanding awards (such that the unallocated Share reserve is 5,000,000 Shares), then on January 1, the number of shares available for grant and issuance under the Plan would automatically increase to 43,000,000 Shares, corresponding to an unallocated Share reserve of 8,000,000 shares, or 4% of the 200,000,000 share Fully-Diluted Capitalization on the preceding December 31.

(b) Shares Returned to Plan. Any Shares covered by an Award (or portion of an Award) which is forfeited, canceled or expires (whether voluntarily or involuntarily) shall be deemed not to have been issued for purposes of determining the maximum aggregate number of Shares which may be issued under the Plan. Shares that actually have been issued under the Plan pursuant to an Award shall not be returned to the Plan and shall not become available for future issuance under the Plan, except that if Shares are forfeited, repurchased, redeemed or retained by the Company upon the exercise of or purchase of Shares under an Award in order to satisfy the exercise price or purchase price for the Award or any tax withholding due with respect to the exercise or purchase by the Company, such Shares shall become available for future grant under the Plan.

4. **Administration of the Plan.**

(a) Administration by the Board. Subject to Sections 4(b) and 4(c), the Plan will be administered by the Board. The Board shall have authority to grant Awards and determine recipients and terms thereof, to determine Fair Market Value, and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Board shall have full discretionary authority to construe and interpret the terms of the Plan and any Award Agreements entered into under the Plan and to determine all facts necessary to administer the Plan and any Award Agreements. All decisions by the Board shall be made in the Board's sole discretion and shall be final and binding on all persons having or claiming any interest in the Plan or in any Award. No director or person acting pursuant to the authority delegated by the Board shall be liable for any action or determination relating to or under the Plan that is made in good faith.

(b) Appointment of Committees. To the extent permitted by applicable law, the Board may delegate any or all of its powers under the Plan to one or more Committees. All references in the Plan to the "Administrator" shall mean the Board or a Committee of the Board or the officers referred to in Section 4(c) to the extent that the Board's powers or authority under the Plan have been delegated to such Committee or officers.

(c) Delegation to Officers. To the extent permitted by applicable law, the Board may delegate to one or more officers of the Company the power to grant Awards, subject to any limitations under the Plan, to Employees, and to exercise such other powers under the Plan as the Board may determine, *provided,* that the Board shall fix certain material terms of the Awards to be granted by such officers (including the exercise price of such Awards, which may include a formula by which the exercise price will be determined) and the maximum number of Shares (as defined below) subject to Awards that the officers may grant; *provided further, however*, that no officer shall be authorized to grant Awards to himself or herself.

(d) Indemnification. In addition to such other rights of indemnification as they may have, members of the Board and any Committee (and any individuals to whom authority to act for the Board is delegated) shall be defended and indemnified by the Company to the extent permitted by law against all reasonable expenses, including attorneys' fees, actually and necessarily incurred in connection with the defense of any claim, investigation, action, suit or proceeding, or in connection with any appeal therein, to which they or any of them may be a party by reason of any action taken or failure to act under or in connection with the Plan, or any Award granted hereunder, and against all amounts paid by them in settlement thereof (*provided* such settlement is approved by the Company) or paid by them in satisfaction of a judgment in any such claim, investigation, action, suit or proceeding, except in relation to matters as to which it shall be adjudged in such claim, investigation, action, suit or proceeding that such person is liable for gross negligence, bad faith or intentional misconduct. Upon the institution of any such action, suit, or proceeding, any such indemnified person against whom a claim is made shall notify the Company in writing and give the Company the opportunity, within thirty (30) days after such notice and at its own expense, to handle and defend the same before such indemnified person undertakes to handle it on his or her own behalf.

5. Eligibility for Awards. Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants. Incentive Stock Options may be granted only to Employees.

6. Types and Terms of Awards.

(a) General. Awards may be made under the Plan in the form of (i) Options, (ii) SARs, (iii) Restricted Stock, (iv) Restricted Stock Units, and (v) Unrestricted Stock. For clarification, any shares of Common Stock acquired pursuant to an Award shall also be considered to be part of the Award for the purposes of this Plan.

(b) Conditions of Awards. Subject to the terms of the Plan, the Administrator shall determine the provisions, terms, and conditions of each Award including, but not limited to, the Award vesting schedule, restrictions and restriction periods, repurchase provisions, rights of first refusal, forfeiture provisions, form of payment (cash, Shares (including the class of Common Stock), or other consideration) upon settlement of the Award, payment contingencies, and satisfaction of any performance criteria. The Administrator may determine the effect on an Award of the disability, death, termination or other cessation of employment, authorized leave of absence or other change in the employment of the Grantee. All of the terms and conditions of an Award shall be as set forth in the applicable Award Agreement or in this Plan, and any such restrictions shall be in addition to any other restrictions that may be set forth in the Company's Certificate of Incorporation, Bylaws or, to the extent a Grantee is required by its terms to be party thereto, any other of the Company's governing documents (e.g., to the extent required to be party to the Company's voting agreement or right of first refusal and co-sale agreement, as in effect from time to time).

(c) Discretion of Administrator. Except as otherwise provided by the Plan, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award need not be identical, and the Administrator need not treat Grantees uniformly.

7. **Options and SARs.**

(a) General. The Administrator may grant Options and SARs under the Plan and determine the number of Shares to be covered by each Option and/or SAR, the exercise price and such other terms, conditions and limitations applicable to the exercise of each Option and/or SAR, as it deems necessary or advisable. Subject to Section 7(g), Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

(b) Exercise Price. The exercise price per Share subject to an Option or SAR shall be determined by the Administrator at the time of grant but shall not be less than 100% of the Fair Market Value on the date of grant. If an Employee owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10% of the combined voting power of all classes of stock of the Company or any Subsidiary or Parent of the Company, and an Incentive Stock Option is granted to such Employee, the exercise price of such Incentive Stock Option shall not be less than 110% of the Fair Market Value on the grant date. Notwithstanding the foregoing, Options may be granted with a per Share exercise price other than as required above as a substitution for a stock option or stock appreciation right in accordance with and pursuant to Section 424 of the Code, in the case of an Incentive Stock Option, and pursuant to Section 409A of the Code, in the case of a Non-Qualified Stock Option.

(c) Term of Options and SARs. The term of each Option and SAR shall be fixed by the Administrator and set forth in the Award Agreement; *provided*, *however*, that no Option or SAR shall be exercisable more than ten (10) years after the date of grant. If an Employee owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10% of the combined voting power of all classes of stock of the Company or any Subsidiary or Parent of the Company, and an Incentive Stock Option is granted to such Employee, the term of such Option shall be no more than five (5) years from the date of grant. In the case of an Incentive Stock Option, the term of the Option shall expire no later than three (3) months after the Employee ceases to be an Employee, except that, if an Employee ceases to be an Employee because of a disability or the Employee dies while the Option is outstanding, the term of the Option shall expire no earlier than six (6) months and no later than one year after the Employee becomes disabled or dies.

(d) Exercisability; Rights of a Stockholder. Options and SARs shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator and set forth in the Award Agreement; *provided, however*, that the Administrator may at any time accelerate the exercisability of all or any portion of any Option or SAR. A Grantee shall have the rights of a stockholder only as to Shares acquired upon the exercise of an Option or SAR and not as to Shares underlying an unexercised Option or SAR.

(e) Exercise of Options and SARs. Options and SARs may be exercised by delivery to the Company of a written notice of exercise in such form of notice (including electronic notice) and manner of delivery as is specified by the Administrator, together with payment in full as specified in subsection (f) for the number of Shares for which the Option or SAR is exercised. Shares subject to the Option will be delivered by the Company as soon as practicable following exercise. An Option may not be exercised for a fraction of a Share.

(f) Payment Upon Exercise. No Shares shall be delivered pursuant to any exercise of an Option or SAR until payment in full of all required tax withholding, and in the case of an Option, the aggregate exercise price. Payment may be made either by certified or bank check, or such other means as the Administrator may accept, including without limitation, promissory note, surrender of shares and services rendered. As determined by the Administrator, in its sole discretion, at or after grant, payment in full or in part may be made in the form of previously acquired Shares based on the Fair Market Value on the date of

exercise. Subject to the approval of the Administrator, Options may be exercised pursuant to such cashless exercise procedures as may be approved and implemented by the Administrator from time to time, including without limitation pursuant to broker-assisted exercise transactions and/or net exercise procedures.

(g) Annual Limit on Incentive Stock Options. Each Option shall be designated in the Award Agreement as either an Incentive Stock Option or a Non-Qualified Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Grantee during any calendar year (under all plans of the Company and any Subsidiary or Parent) exceeds $100,000, such Options shall be treated as Non-Qualified Stock Options. For purposes of this Section 7(g), Incentive Stock Options shall be taken into account in the order in which they were granted. The Fair Market Value of the Shares shall be determined as of the time the Option with respect to such Shares is granted.

(h) Early Exercise. The Award Agreement for an Option or SAR may, but need not, include a provision whereby the Grantee may elect at any time while an Employee, Director or Consultant to exercise any part or all of the Option prior to full vesting. Consistent with Section 9(a) and for clarification, in addition to any other restrictions set forth in this Plan and the Award Agreement (including any right of first refusal, market stand-off and other similar restrictions required by the Plan, or as the Administrator determines to be appropriate and are included in the applicable Award Agreement), all Awards and any shares acquired pursuant to the exercise of any Awards, whether vested or unvested, shall not, without the prior written consent of the Board, be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution.

8. **Restricted Stock, Restricted Stock Units and Unrestricted Stock.**

(a) General. The Administrator shall determine the terms and conditions of each Award Agreement for Restricted Stock, Restricted Stock Units and Unrestricted Stock. Subject to Section 9(a), Award Agreements for Restricted Stock and Restricted Stock Units shall include such restrictions as the Administrator may impose, which restrictions may lapse separately or in combination at such time or times, in such installments or otherwise, as the Administrator may deem appropriate.

(b) Stock Certificates. The Company may require that any stock certificates issued in respect of Shares of Restricted Stock shall be deposited in escrow by the Grantee, together with a stock power endorsed in blank, with the Company (or its designee). Following the expiration of the applicable restriction periods, the Company (or such designee) shall deliver the certificates no longer subject to such restrictions to the Grantee or if the Grantee has died, to the beneficiary designated, in a manner determined by the Administrator, by a Grantee. In the absence of an effective designation by a Grantee, the designated beneficiary shall be the Grantee's estate.

(c) Forfeiture and the Option to Purchase. Except as otherwise determined by the Administrator, upon a Grantee's termination of employment or service (as determined under criteria established by the Administrator) for any reason during the applicable restriction period, the Company (or its designee) shall have the right, but shall not be obligated, to repurchase all or part of Shares of Restricted Stock still subject to restriction at their issue price or other stated or formula price (or to require forfeiture of such Shares if issued at no cost) from the Grantee.

9. **General Provisions Applicable to Awards.**

(a) Transferability of Awards. Except as the Administrator may otherwise determine or expressly provide to the contrary in a specific Award Agreement, and in addition to any other restrictions set forth in this Plan and the Award Agreement, all Awards and any shares acquired pursuant to any

Awards, whether vested or unvested, shall not, without the prior written consent of the Board, be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution, or to the extent required by law. References to a Grantee, to the extent relevant in the context, shall include references to authorized transferees.

(b) Withholding. The Grantee must satisfy all applicable federal, state, and local or other income and employment tax withholding obligations before the Company will deliver stock certificates or otherwise recognize ownership of Shares under an Award. The Company may decide to satisfy the withholding obligations through additional withholding on salary or wages. If the Company elects not to or cannot withhold from other compensation, the Grantee must pay the Company the full amount, if any, required for withholding or, if permitted by the Administrator in its discretion, have a broker tender to the Company cash equal to the withholding obligations.

(c) Amendment of Awards. The Administrator may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or realization, and converting an Incentive Stock Option to a Non-Qualified Stock Option. The Grantee's consent to such action shall be required unless (A) the Administrator determines that the action, taking into account any related action, would not materially and adversely affect the Grantee's rights under the Plan or (B) the change is permitted under Section 11 or 12 hereof.

10. **Conditions Upon Issuance of Shares.**

(a) General. If at any time the Administrator determines that the delivery of Shares pursuant to the exercise, vesting or any other provision of an Award is or may be unlawful under applicable laws, the vesting or right to exercise an Award or to otherwise receive Shares pursuant to the terms of an Award Agreement shall be suspended until the Administrator determines that such delivery is lawful, and shall be further subject to the approval of counsel for the Company with respect to such compliance. The Company shall have no obligation to effect any registration or qualification of the Shares under federal or state laws.

(b) Securities Law Compliance. As a condition to the exercise of an Award or the receipt of Shares pursuant to an Award, the Company may require (i) the person exercising such Award (A) to make such representations and agreements as the Company may consider appropriate to avoid violation of the Securities Act or comparable state law, and (B) to agree to market standoff obligations in connection with any public offering of Shares of the Company, and (ii) that the certificates evidencing such Shares bear appropriate legends restricting transfer, including without limitation the restrictions set forth in Section 9(a), this Section 10(b), Section 10(c) and as otherwise set forth in any Award Agreement.

(c) Repurchase Rights. Except to the extent determined otherwise by the Administrator, until such time as a class of Common Stock is first registered under Section 12 of the Exchange Act, in addition to and without limitation of the transfer restrictions set forth in Section 9(a), and following the Grantee’s receipt of the consent of the Board pursuant to Section 9(a), the Company shall also have the right of first refusal with respect to any proposed disposition by the Grantee (or any successor in interest) of any Shares issued under the Plan. Such right of first refusal shall be exercisable in accordance with the terms established by the Administrator and set forth in the document evidencing such right.

11. Adjustments. In the event of any stock split, reverse stock split, stock dividend, recapitalization, combination or exchange of shares, reclassification of shares, spin-off or other similar change in capitalization or event, or any dividend or distribution to holders of Shares other than an ordinary cash dividend, (i) the number and class of securities available under this Plan, (ii) the number and class of securities and exercise price per Share of each outstanding Option and SAR, (iii) the number of Shares subject to and the repurchase price per Share subject to each outstanding Restricted Stock Award and Restricted Stock Unit Award, and (iv) the terms of each other outstanding Award shall be equitably adjusted by the Company (or substituted Awards may be made, if applicable) in the manner determined by the Administrator; *provided, however,* that each adjustment to Non-Qualified Stock Options or SAR shall satisfy the requirements of Treas. Reg. § 1.409A-1(b)(5)(v)(D) (or any successor regulation) and each adjustment to Incentive Stock Options shall satisfy the requirements of Treas. Reg. § 1.424-1 (or any successor regulation); and provided, further, that the Administrator will make any adjustment to an Award as is required by Section 25102(o) of the California Corporations Code to the extent that the Company is relying upon the exemption afforded thereby with respect to the Award.

12. Corporate Transactions. The Administrator may provide, in its discretion, with respect to the treatment of each outstanding Award (either separately for each Award or uniformly for all Awards), upon the consummation of a Corporate Transaction (such time to be referred to as the "Effective Time"), for any of the following:

(a) any or all outstanding Options and SARs shall become vested and immediately exercisable, in whole or in part;

(b) any or all outstanding Restricted Stock or Restricted Stock Units shall become non-forfeitable, in whole or in part;

(c) any or all outstanding Options and SARs shall be cancelled in exchange for substitute stock options in a manner consistent with the requirements of Treas. Reg. § 1.409A-1(b)(5)(v)(D) (or any successor regulation), in the case of a Non-Qualified Stock Option or SAR, and Treas. Reg. § 1.424-1(a) (or any successor regulations), in the case of an Incentive Stock Option;

(d) any Option shall be cancelled in exchange for cash and/or other substitute

consideration with a value equal to (A) the number of Shares subject to that Option, multiplied by (B) the difference, if any, between the Fair Market Value per Share on the date of the Corporate Transaction and the exercise price of that Option; provided, that if the Fair Market Value per Share on the date of the Corporate Transaction does not exceed the exercise price of any such Option, the Administrator may cancel that Option without any payment of consideration therefor;

(e) any Restricted Stock or Restricted Stock Units shall be cancelled in exchange for restricted stock of or restricted stock units in respect of the capital stock of any successor corporation;

(f) any Restricted Stock shall be redeemed for cash and/or other substitute consideration with a value equal to the Fair Market Value of an unrestricted Share on the date of the Corporate Transaction; or

(g) any Restricted Stock Unit shall, subject to Section 16, be cancelled in exchange for cash and/or other substitute consideration with a value equal to the Fair Market Value per Share on the date of the Corporate Transaction.

In taking any of the actions permitted under this Section 12, the Administrator shall not be obligated to treat all Grantees, all Awards, all Awards held by a Grantee, or all Awards of the same type identically.

13. **Effective Date and Term of Plan; Stockholder Approval.**

(a) Adoption of Plan. The Plan shall become effective upon its adoption by the Board. It shall continue in effect for a term of ten (10) years from the date of adoption unless sooner terminated.

(b) Stockholder Approval. No Option or SAR granted under the Plan may be exercised, no Shares shall be issued under the Plan, and no Restricted Stock Unit shall be settled, until the Plan is approved by the Company's stockholders. If such stockholder approval is not obtained within twelve (12) months after the date of the Board's adoption of the Plan, then all Awards previously granted under the Plan shall terminate and cease to be outstanding, and no further Awards shall be granted under the Plan.

14. **Amendment, Suspension or Termination of the Plan.**

(a) General. Subject to the terms of the Plan, the Board may at any time and from time to time, alter, amend, suspend or terminate the Plan, in whole or in part; *provided* that the Board shall obtain stockholder approval of any Plan amendment to the extent necessary to comply with applicable law, rule or regulation. In addition, in no event shall an amendment increase the maximum number of shares of Common Stock with respect to which Awards may be granted under the Plan without stockholder approval.

(b) Limitation on Grants of Awards. No Award may be granted during any suspension of the Plan or after termination of the Plan.

(c) No Effect on Outstanding Awards. Except as set forth in Section 14(b) no suspension or termination of the Plan shall materially and adversely affect any rights under Awards outstanding at the time of such suspension or termination.

15. **No Employment or Services Rights.** The Plan shall not confer upon any Grantee any right to employment or service with the Company or any Subsidiary or Parent, nor shall it interfere in any way with the right of the Company or any Subsidiary or Parent to terminate the Grantee's employment or service at any time.

16. **Compliance with Code Section 409A.** It is intended that the provisions of the Plan comply with Section 409A of the Code ("Section 409A"), and all provisions of the Plan shall be construed and interpreted in a manner consistent with the requirements for avoiding taxes or penalties under Section 409A. If an Award that is subject to Section 409A is payable upon a Corporate Transaction which is not a permissible payment event or time (as described in Treas. Reg. § 1.409A-3) then, for purposes of payment of such Award, no Corporate Transaction shall be deemed to have occurred with respect to that Award unless and until there occurs a change in the ownership or effective control of the Company, or in the ownership of a substantial portion of the assets of the Company (within the meaning in accordance with Treas. Reg. § 1.409A-3(i)(5)). To the extent required or advisable to avoid a violation of Section 409A, no discretion to require payment of an Award that is subject to Section 409A upon a Corporate Transaction shall be exercised if not set forth in writing by the time required under Section 409A. If an Award is subject to Section 409A, any payment made to a Grantee who is a "specified employee" of the Company or any Subsidiary shall not be made before such date as is six months after the Grantee's "separation from service" to the extent required to avoid the adverse consequences of Section 409A of the Code. For purposes of this Section 16, the terms "separation from service" and "specified employee" shall have the meanings set forth in Section 409A and the applicable Treasury regulations. Nothing in this Plan or in an Award Agreement shall be interpreted or construed to transfer any liability for any tax (including a tax or penalty due as a result of a failure to comply with Section 409A) to the Company or to any other individual or entity, and the Company shall have no liability to a Grantee, or any other party, if an Award that is intended to be exempt from, or compliant with, Section 409A is not so exempt or compliant.

17. Construction. Captions and titles contained herein are for convenience only and shall not affect the meaning or interpretation of any provision of the Plan. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term "or" is not intended to be exclusive, unless the context clearly requires otherwise.

18. Severability. If any provision of the Plan or any Award is, becomes, or is deemed to be invalid, illegal, or unenforceable in any jurisdiction or as to any Grantee, such provision shall be construed or deemed amended to conform with applicable laws, or if the provision cannot be so construed or deemed amended without, in the sole discretion of the Administrator, materially altering the intent of the Plan or the Award, such provision shall be severed as to the jurisdiction or Grantee and the remainder of the Plan and any such Award shall remain in full force and effect.

19. Governing Law. The validity and construction of the Plan and any Award Agreements thereunder shall be governed by the laws of the State of Delaware**,** excluding any conflicts or choice of law rules or principles that might otherwise refer construction or interpretation of any provision of the Plan or an Award Agreement to the substantive law of another jurisdiction.

UNITED KINGDOM SCHEDULE

The Sections of the Plan as amended by the provisions of this Schedule will apply to Awards granted to Grantees who are resident in the United Kingdom.

1. Consultant

The definition of “Consultant” will be deleted.

2. Director

The definition of “Director” will be deleted.

3. Employee

The definition of “Employee” will be amended to read:

"Employee" means an employee of the Company or any Subsidiary (including a member of the Board or the board of directors of any Subsidiary who is also an employee).

4. Incentive Stock Option

The definition of "Incentive Stock Option" will be deleted.

5. Non-Qualified Stock Option

The definition of "Non-Qualified Stock Option" will be deleted.

6. Service Provider

The definition of "Service Provider" will be deleted.

7. Section 5

Section 5 will be amended to read:

“Awards may only be granted to Employees.”

8. Section 7(a)

The last two sentences of Section 7(a) will be deleted.

9. Section 7(b)

The second sentence of Section 7(b) will be deleted.

10. Section 7(c)

The last two sentences of section 7(c) will be deleted.

11. Section 7(g)

Section 7(g) will be deleted.

12. Section 7(h)

The words “, Director or Consultant” in Section 7(h) will be deleted.

13. Section 9(c)

The words “, and converting an Incentive Stock Option to a Non-Qualified Stock Option” in Section 9(c) will be deleted.

14. Section 11

The first proviso in Section 11 will not apply.

15. Section 12 (c)

The words “,in the case of a Non-Qualified Stock Option or SAR, and Treas. Reg. § 1.424-1(a) (or any successor regulations), in the case of an Incentive Stock Option” in Section 12 (c) will be deleted.

16. Section 16

Section 16 will not apply.

STOCK OPTION AGREEMENT

GRAIL, INC.

2016 EQUITY INCENTIVE PLAN

This Stock Option Agreement (this "***Agreement***") is made and entered into as of the date of grant (the "***Date of Grant***") set forth on the Notice of Stock Option Grant attached as the facing page to this Agreement (the "***Grant Notice***") by and between GRAIL, Inc., a Delaware corporation (the "***Company***"), and the optionee named on the Grant Notice ("***Optionee***"). Capitalized terms not defined in this Agreement shall have the meaning ascribed to them in the Company's 2016 Equity Incentive Plan, as amended from time to time (the "***Plan***"), or in the Grant Notice, as applicable.

1. GRANT OF OPTION. The Company hereby grants to Optionee an option (this "***Option***") to purchase up to the total number of shares of Class A Common Stock of the Company, $0.001 par value per share (the "***Common Stock***"), set forth in the Grant Notice as the Shares (the "***Shares***") at the Exercise Price Per Share set forth in the Grant Notice (the "***Exercise Price***"), subject to all of the terms and conditions of the Grant Notice, this Agreement and the Plan. If designated as an Incentive Stock Option in the Grant Notice, this Option is intended to qualify as an incentive stock option (the "***ISO***") within the meaning of Section 422 of the Internal Revenue Code of 1986, as amended (the "***Code***"), as opposed to a Non-Qualified Stock Option ("***NQSO***").

2. EXERCISE PERIOD.

2.1. Exercise Period of Option. Subject to the conditions set forth in this Agreement and the "Tax Status and Exercise Schedule" indicated in the Grant Notice, all or part of this Option may be exercised either as it vests or at any time after the Date of Grant. Shares purchased by exercising this Option may be subject to the Repurchase Option as set forth in Section 7 below. This Option will become vested during its term as to portions of the Shares in accordance with the Vesting Schedule set forth in the Grant Notice. Notwithstanding any provision in the Plan or this Agreement to the contrary, on or after Optionee's Termination Date (as defined in Section 7.1 below), this Option may not be exercised with respect to any Shares that are Unvested Shares on Optionee's Termination Date.

2.2. Vesting of Option Shares. Shares with respect to which this Option is vested at a given time pursuant to the Vesting Schedule set forth in the Grant Notice are "***Vested Shares***." Shares with respect to which this Option is not vested at a given time pursuant to the Vesting Schedule set forth in the Grant Notice are "***Unvested Shares***."

2.3. Expiration. The Option shall expire on the Expiration Date set forth in the Grant Notice or earlier as provided in Section 3 below.

3. TERMINATION.

3.1. Partial Acceleration Upon a Termination without Cause or a Resignation for Good Reason. Upon Optionee's Termination (as defined in Section 7.1 below) (i) by the Company without Cause (excluding as a result of death or Disability (as defined in Section 3.3 below)) or (ii) by Optionee for Good Reason (in each case as defined below), then subject to Optionee's execution and non-revocation of a release of claims substantially in the form attached as Exhibit A (the "***Release***") to Optionee's employment offer letter with the Company (the "***Offer Letter***"), (i) Optionee will immediately

service vest in that portion of the Option (or a portion of the Unvested Shares received in respect of exercising the Option) that Optionee would have vested in over the next 12 months had Optionee continued in employment or other service during such period (provided that, for the avoidance of doubt, any portion of the Option that is subject to performance-based vesting criteria that has not been achieved on or prior Optionee's Termination shall be forfeited) and (ii) any remaining portion of the Option that is unvested as of the Termination Date will be forfeited. Any portion of the Option that remains outstanding following Optionee's Termination pursuant to this subsection 3.1 or subsection 3.2 may be exercised by Optionee (i) no later than twenty four (24) months after Optionee's Termination Date if such Termination Date is prior to the consummation of a Public Offering or (ii) no later than three (3) months after Optionee's Termination Date if such Termination Date is on or following the consummation of a Public Offering (but, in each case, in no event may this Option be exercised after the Expiration Date). "***Cause***" means: (a) an intentional act of fraud, embezzlement, theft or any other material violation of law that occurs during or in the course of Optionee's employment with the Company; (b) the willful and continued failure to substantially perform Optionee's material lawful duties for the Company (other than as a result of incapacity due to physical or mental illness or disability); or (c) intentional material breach of any of the Company's material policies, the Offer Letter or any agreements Optionee enters with the Company that causes harm to the Company or (d) Optionee's commission of any tortious act, unlawful act or malfeasance that is demonstrably and materially injurious to the Company, monetarily or otherwise; provided that, in the case of clauses (b) and (c) above, Optionee receives a written notice from the Company which describes the basis for the Company's belief that Optionee has engaged in conduct constituting Cause with thirty (30) days to take corrective action. "***Good Reason***" means Optionee's resignation within thirty (30) days following the end of the Cure Period (as defined below), based on one or more of the following events taking place without Optionee's consent: (A) a diminution by the Company in Optionee's base salary and target bonus by more than 10%; (B) a material reduction of Optionee's authority, duties, or responsibilities (including reporting responsibilities) relative to Optionee's authority, duties, or responsibilities in effect immediately prior to such reduction; (C) the relocation of Optionee's principal work location to a facility or a location more than thirty-five (35) miles from Optionee's prior work location; (D) the Company's material breach of the Offer Letter or any other employment or compensation-related agreement with Optionee; or (E) the Company's failure to obtain the assumption of this Agreement by any acquiror or successor entity following a Change of Control. In order for an event to qualify as Good Reason, Optionee must not terminate employment with the Company without first providing the Company with written notice of the acts or omissions constituting the grounds for Good Reason within sixty (60) days of the initial existence of the grounds for Good Reason and a reasonable cure period of thirty (30) days following the date of written notice (the "***Cure Period***"), and such grounds must not have been cured during such time.

3.2. **Vesting Acceleration in Connection With a Change in Control.** Upon a Termination by the Company without Cause (excluding as a result of death or Disability) or a resignation for Good Reason, in each case, upon or within twelve (12) months after, or within three months before, the completion of a Change of Control (as such term is defined in the Offer Letter), then subject to Optionee's execution and non-revocation of the Release, any portion of Optionee's Option (or any Unvested Shares received in respect of exercising the Option) that was not vested prior to such Change of Control will vest in full on the date of such Termination. In the case of a Termination pursuant to this subsection 3.2, the Option will be exercisable for the applicable period set forth in subsection 3.1.

3.3. **Termination Because of Death or Disability.** If Optionee is Terminated because of Optionee's death or Disability (or if Optionee dies within three (3) months of the date of Optionee's Termination), then (a) on and after Optionee's Termination Date, this Option shall expire immediately with respect to any Shares that are Unvested Shares and may not be exercised with respect to any Shares that are Unvested Shares on Optionee's Termination Date and (b) this Option, to the extent (and only to the extent) that it is exercisable with respect to Vested Shares on Optionee's Termination Date, may be exercised by Optionee (or Optionee's legal representative) no later than twelve (12) months after Optionee's Termination Date, but in no event later than the Expiration Date. "***Disability***" means that Optionee is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months.

3.4. **Termination for Any Other Reason.** If Optionee is Terminated for any reason other than those set forth in subsections 3.1 through 3.2, then (a) on and after Optionee's Termination Date, this Option shall expire immediately with respect to any Shares that are Unvested Shares and may not be exercised with respect to any Shares that are Unvested Shares on Optionee's Termination Date and (b) this Option, to the extent (and only to the extent) that it is exercisable with respect to Vested Shares on Optionee's Termination Date, may be exercised by Optionee no later than three (3) months after Optionee's Termination Date (but in no event may this Option be exercised after the Expiration Date).

Any exercise of this Option beyond (i) three (3) months after the date Optionee ceases to be an employee when Optionee's Termination is for any reason other than Optionee's death or disability, within the meaning of Section 22(e)(3) of the Code; or (ii) twelve (12) months after the date Optionee ceases to be an employee when the termination is for Optionee's disability, within the meaning of Section 22(e)(3) of the Code, is deemed to be an NQSO.

3.5. **No Obligation to Employ.** Nothing in the Plan or this Agreement shall confer on Optionee any right to continue in the employ of, or other relationship with, the Company or any Parent or Subsidiary of the Company, or limit in any way the right of the Company or any Parent or Subsidiary of the Company to terminate Optionee's employment or other relationship at any time, with or without cause.

4. **MANNER OF EXERCISE.**

4.1. **Stock Option Exercise Notice and Agreement.** To exercise this Option, Optionee (or in the case of exercise after Optionee's death or incapacity, Optionee's executor, administrator, heir or legatee, as the case may be) must deliver to the Company an executed Stock Option Exercise Notice and Agreement in the form attached hereto as **Annex A**, or in such other form as may be approved by the Committee from time to time (the "***Exercise Agreement***") and payment for the shares being purchased in accordance with this Agreement. The Exercise Agreement shall set forth, among other things, (i) Optionee's election to exercise this Option, (ii) the number of Shares being purchased, (iii) any representations, warranties and agreements regarding Optionee's investment intent and access to information as may be required by the Company to comply with applicable securities laws in connection with any exercise of this Option, and (iv) any other agreements required by the Company. If someone other than Optionee exercises this Option, then such person must submit documentation reasonably

acceptable to the Company verifying that such person has the legal right to exercise this Option and such person shall be subject to all of the restrictions contained herein as if such person were Optionee.

4.2. **Limitations on Exercise.** This Option may not be exercised unless such exercise is in compliance with all applicable federal and state securities laws, as they are in effect on the date of exercise.

4.3. **Payment.** The Exercise Agreement shall be accompanied by full payment of the Exercise Price for the shares being purchased in cash (by check or wire transfer), or where permitted by law:

(a) by cancellation of indebtedness of the Company owed to Optionee;

(b) by surrender of shares of the Company that are free and clear of all security interests, pledges, liens, claims or encumbrances and: (i) for which the Company has received "full payment of the purchase price" within the meaning of SEC Rule 144 (and, if such shares were purchased from the Company by use of a promissory note, such note has been fully paid with respect to such shares) or (ii) that were obtained by Optionee in the public market;

(c) by participating in a formal cashless exercise program implemented by the Committee in connection with the Plan;

(d) provided that a public market for the Common Stock exists, subject to compliance with applicable law, by exercising as set forth below, through a "same day sale" commitment from Optionee and a broker-dealer whereby Optionee irrevocably elects to exercise this Option and to sell a portion of the Shares so purchased sufficient to pay the total Exercise Price, and whereby the broker- dealer irrevocably commits upon receipt of such Shares to forward the total Exercise Price directly to the Company; or ßby any combination of the foregoing or any other method of payment approved by the Committee that constitutes legal consideration for the issuance of Shares.

4.4. **Tax Withholding.** Prior to the issuance of the Shares upon exercise of the Option, Optionee must pay or provide for any applicable federal, state and local withholding obligations of the Company. If the Committee permits, Optionee may provide for payment of withholding taxes upon exercise of the Option by requesting that the Company retain the minimum number of Shares with a Fair Market Value equal to the minimum amount of taxes required to be withheld; or to arrange a mandatory "sell to cover" on Participant's behalf (without further authorization); but in no event will the Company withhold Shares or "sell to cover" if such withholding would result in adverse accounting consequences to the Company. In case of stock withholding or a sell to cover, the Company shall issue the net number of Shares to Optionee by deducting the Shares retained from the Shares issuable upon exercise.

4.5. **Issuance of Shares.** Provided that the Exercise Agreement and payment are in form and substance satisfactory to counsel for the Company, the Company shall issue the Shares issuable upon a valid exercise of this Option registered in the name of Optionee, Optionee's authorized assignee, or Optionee's legal representative, and shall deliver certificates representing the Shares with the appropriate legends affixed thereto.

5. COMPLIANCE WITH LAWS AND REGULATIONS. The Plan and this Agreement are intended to comply with Section 25102(o) of the California Corporations Code ("***Section 25102(o)***") and Rule 701 *et seq*. promulgated by the Securities and Exchange Commission under the Securities Act ("***Rule 701***"). Any provision of this Agreement that is inconsistent with Section 25102(o) or Rule 701 shall, without further act or amendment by the Company or the Committee, be reformed to comply with the requirements of Section 25102(o) and/or Rule 701. The exercise of this Option and the issuance and transfer of Shares shall be subject to compliance by the Company and Optionee with all applicable requirements of federal and state securities laws and with all applicable requirements of any stock exchange on which the Common Stock may be listed at the time of such issuance or transfer. Optionee understands that the Company is under no obligation to register or qualify the Shares with the SEC, any state securities commission or any stock exchange to effect such compliance.

6. NONTRANSFERABILITY OF OPTION. This Option may not be transferred in any manner other than by will or by the laws of descent and distribution, and, with respect to NQSOs, by instrument to a testamentary trust in which the options are to be passed to beneficiaries upon the death of the trustor (settlor) or a revocable trust, or by gift to "immediate family" as that term is defined in 17 C.F.R. 240.16a-1(e), and may be exercised during the lifetime of Optionee only by Optionee or in the event of Optionee's incapacity, by Optionee's legal representative. The terms of this Option shall be binding upon the executors, administrators, successors and assigns of Optionee.

7. COMPANY'S REPURCHASE OPTION FOR UNVESTED SHARES. If Optionee is Terminated for any reason, or no reason, including without limitation, Optionee's death, Disability, voluntary resignation or termination by the Company with or without cause and Optionee has acquired Unvested Shares by exercising this Option, then the Company and/or its assignee(s) shall have the option to repurchase all or a portion of Optionee's Unvested Shares (as defined in Section 2.2 of this Agreement) as of the Termination Date on the terms and conditions set forth in this Section 7 (the "***Repurchase Option***").

7.1. Termination and Termination Date. For purposes of this Agreement, "***Termination***" is defined as the cessation of the employment relationship such that Optionee is no longer an employee, officer, director, contractor, consultant or advisor to the Company or any of its Subsidiaries or Parents. In case of any dispute as to whether Optionee is Terminated, the Committee shall have discretion to determine whether Optionee has been Terminated and the effective date of such Termination (the "***Termination Date***").

7.2. Exercise of Repurchase Option. Subject to the foregoing provisions of this Section, at any time within ninety (90) days after Optionee's Termination Date, the Company and/or its assignee(s), may elect to repurchase any or all of Optionee's Unvested Shares by giving Optionee written notice of exercise of the Repurchase Option.

7.3. Calculation of Repurchase Price for Unvested Shares. The Company or its assignee shall have the option to repurchase from Optionee (or from Optionee's personal representative as the case may be) the Unvested Shares at Optionee's Exercise Price, as such may be proportionately adjusted for any stock split or similar change in the capital structure of the Company as set forth in Section 2.2 of the Plan (the "***Repurchase Price***").

7.4. Payment of Repurchase Price. The Repurchase Price shall be payable, at the option of the Company or its assignee, by check or by cancellation of all or a portion of any outstanding

indebtedness owed by Optionee to the Company and/or such assignee, or by any combination thereof. The Repurchase Price shall be paid without interest within the term of the Repurchase Option as described in Section 7.2.

7.5. Right of Termination Unaffected. Nothing in this Agreement shall be construed to limit or otherwise affect in any manner whatsoever the right or power of the Company (or any Parent or Subsidiary of the Company) to terminate Optionee's employment or other relationship with Company (or any Parent or Subsidiary of the Company) at any time, for any reason or no reason, with or without cause.

8. RESTRICTIONS ON TRANSFER.

8.1. Disposition of Shares. Optionee hereby agrees that Optionee shall make no disposition of any of the Shares (other than as permitted by this Agreement) unless and until:

(a) Optionee shall have notified the Company of the proposed disposition and provided a written summary of the terms and conditions of the proposed disposition;

(b) Optionee shall have complied with all requirements of this Agreement applicable to the disposition of the Shares;

(c) Optionee shall have provided the Company with written assurances, in form and substance satisfactory to counsel for the Company, that (i) the proposed disposition does not require registration of the Shares under the Securities Act or under any applicable state securities laws or (ii) all appropriate actions necessary for compliance with the registration requirements of the Securities Act or of any exemption from registration available under the Securities Act (including Rule 144) or applicable state securities laws have been taken; and

(d) Optionee shall have provided the Company with written assurances, in form and substance satisfactory to the Company, that the proposed disposition will not result in the contravention of any transfer restrictions applicable to the Shares pursuant to the provisions of the regulations promulgated under Section 25102(o), Rule 701 or under any other applicable securities laws or adversely affect the Company's ability to rely on the exemption(s) from registration under the Securities Act or under any other applicable securities laws for the grant of the Option, the issuance of Shares thereunder or any other issuance of securities under the Plan.

8.2. Restriction on Transfer. Optionee shall not transfer, assign, grant a lien or security interest in, pledge, hypothecate, encumber or otherwise dispose of any of the Shares which are subject to the Company's Repurchase Option or the Right of First Refusal described below, except as permitted by this Agreement.

8.3. Transferee Obligations. Each person (other than the Company) to whom the Shares are transferred by means of one of the permitted transfers specified in this Agreement must, as a condition precedent to the validity of such transfer, acknowledge in writing to the Company that such person is bound by the provisions of this Agreement and that the transferred Shares are subject to (i) both the Company's Repurchase Option and the Company's Right of First Refusal granted hereunder and (ii)

the market stand-off provisions of Section 9 below, to the same extent such Shares would be so subject if retained by Optionee.

9. MARKET STANDOFF AGREEMENT. Optionee agrees that, subject to any early release provisions that apply pro rata to stockholders of the Company according to their holdings of Common Stock (determined on an as-converted into Common Stock basis), Optionee will not, for a period of up to one hundred eighty (180) days (plus up to an additional thirty five (35) days to the extent reasonably requested by the Company or such underwriter(s) to accommodate regulatory restrictions on the publication or other distribution of research reports or earnings releases by the Company, including NASD and NYSE rules) following the effective date of the registration statement filed with the SEC relating to the initial underwritten sale of Common Stock of the Company to the public under the Securities Act (the "***IPO***"), directly or indirectly sell, offer to sell, grant any option for the sale of, or otherwise dispose of any Common Stock or securities convertible into Common Stock, except for: (i) transfers of Shares permitted under Section 10.6 hereof so long as such transferee furnishes to the Company and the managing underwriter their written consent to be bound by this Section 9 as a condition precedent to such transfer; and (ii) sales of any securities to be included in the registration statement for the IPO. For the avoidance of doubt, the provisions of this Section shall only apply to the IPO. The restricted period shall in any event terminate two (2) years after the closing date of the IPO. In order to enforce the foregoing covenant, the Company shall have the right to place restrictive legends on the certificates representing the Shares subject to this Section and to impose stop transfer instructions with respect to the Shares until the end of such period. Optionee further agrees to enter into any agreement reasonably required by the underwriters to implement the foregoing restrictions on transfer. For the avoidance of doubt, the foregoing provisions of this Section shall not apply to any registration of securities of the Company (a) under an employee benefit plan or (b) in a merger, consolidation, business combination or similar transaction.

10. COMPANY'S RIGHT OF FIRST REFUSAL. Unvested Shares may not be sold or otherwise transferred, or pledged by Optionee or made subject to a security interest, pledge or other lien without the Company's prior written consent, which may be withheld in the Company's sole and absolute discretion. Before any Vested Shares held by Optionee or any transferee of such Vested Shares (either sometimes referred to herein as the "***Holder"***) may be sold or otherwise transferred (including, without limitation, a transfer by gift or operation of law), the Company and/or its assignee(s) will have a right of first refusal to purchase the Vested Shares to be sold or transferred (the "***Offered Shares")*** on the terms and conditions set forth in this Section (the "***Right of First Refusal"***).

10.1. Notice of Proposed Transfer. The Holder of the Offered Shares will deliver to the Company a written notice (the "***Notice***") stating: (i) the Holder's bona fide intention to sell or otherwise transfer the Offered Shares; (ii) the name and address of each proposed purchaser or other transferee (the "***Proposed Transferee"***); (iii) the number of Offered Shares to be transferred to each Proposed Transferee; (iv) the bona fide cash price or other consideration for which the Holder proposes to transfer the Offered Shares (the "***Offered Price"***); and (v) that the Holder acknowledges this Notice is an offer to sell the Offered Shares to the Company and/or its assignee(s) pursuant to the Company's Right of First Refusal at the Offered Price as provided for in this Agreement.

10.2. Exercise of Right of First Refusal. At any time within thirty (30) days after the date of the Notice, the Company and/or its assignee(s) may, by giving written notice to the Holder, elect to purchase all (or, with the consent of the Holder, less than all) the Offered Shares proposed to be

transferred to any one or more of the Proposed Transferees named in the Notice, at the purchase price, determined as specified below.

10.3. **Purchase Price**. The purchase price for the Offered Shares purchased under this Section will be the Offered Price, *provided* that if the Offered Price consists of no legal consideration (as, for example, in the case of a transfer by gift) then the purchase price will be the fair market value of the Offered Shares as determined in good faith by the Committee. If the Offered Price includes consideration other than cash, then the value of the non-cash consideration, as determined in good faith by the Committee, will conclusively be deemed to be the cash equivalent value of such non-cash consideration.

10.4. **Payment.** Payment of the purchase price for the Offered Shares will be payable, at the option of the Company and/or its assignee(s) (as applicable), by check or by cancellation of all or a portion of any outstanding purchase money indebtedness owed by the Holder to the Company (or to such assignee, in the case of a purchase of Offered Shares by such assignee) or by any combination thereof. The purchase price will be paid without interest within sixty (60) days after the Company's receipt of the Notice, or, at the option of the Company and/or its assignee(s), in the manner and at the time(s) set forth in the Notice.

10.5. **Holder's Right to Transfer.** If all of the Offered Shares proposed in the Notice to be transferred to a given Proposed Transferee are not purchased by the Company and/or its assignee(s) as provided in this Section, then the Holder may sell or otherwise transfer such Offered Shares to each Proposed Transferee at the Offered Price or at a higher price, *provided* that (i) such sale or other transfer is consummated within ninety (90) days after the date of the Notice, (ii) any such sale or other transfer is effected in compliance with all applicable securities laws, and (iii) each Proposed Transferee agrees in writing that the provisions of this Section will continue to apply to the Offered Shares in the hands of such Proposed Transferee. If the Offered Shares described in the Notice are not transferred to each Proposed Transferee within such ninety (90) day period, then a new Notice must be given to the Company pursuant to which the Company will again be offered the Right of First Refusal before any Shares held by the Holder may be sold or otherwise transferred.

10.6. **Exempt Transfers.** Notwithstanding anything to the contrary in this Section, the following transfers of Vested Shares will be exempt from the Right of First Refusal: (i) the transfer of any or all of the Vested Shares during Optionee's lifetime by gift or on Optionee's death by will or intestacy to any member(s) of Optionee's "Immediate Family" (as defined below) or to a trust for the benefit of Optionee and/or member(s) of Optionee's Immediate Family, *provided* that each transferee or other recipient agrees in a writing satisfactory to the Company that the provisions of this Section will continue to apply to the transferred Vested Shares in the hands of such transferee or other recipient; (ii) any transfer of Vested Shares made pursuant to a statutory merger, statutory consolidation of the Company with or into another corporation or corporations or a conversion of the Company into another form of legal entity (except that the Right of First Refusal will continue to apply thereafter to such Vested Shares, in which case the surviving corporation of such merger or consolidation or the resulting entity of such conversion shall succeed to the rights of the Company under this Section unless the agreement of merger or consolidation or conversion expressly otherwise provides); or (iii) any transfer of Vested Shares pursuant to the winding up and dissolution of the Company. As used herein, the term "***Immediate Family"*** will mean Optionee's spouse, the lineal descendant or antecedent, father, mother, brother or sister, child, adopted child, grandchild or adopted grandchild of Optionee or Optionee's spouse, or the spouse of any of the above or Spousal Equivalent, as defined herein. As used herein, a person is deemed to be a "***Spousal Equivalent"*** provided the following circumstances are true: (i) irrespective of whether or not Optionee and the Spousal Equivalent are the same sex, they are the sole spousal equivalent of the other for the last twelve (12) months, (ii) they intend to remain so indefinitely, (iii) neither are married to anyone else, (iv) both are at least 18 years of age and mentally competent to consent to contract, (v) they are not related by blood to a degree of closeness that which would prohibit legal marriage in the state in which they legally reside, (vi) they are jointly responsible for each other's common welfare and financial obligations, and (vii) they reside together in the same residence for the last twelve (12) months and intend to do so indefinitely.

10.7. **Termination of Right of First Refusal.** The Right of First Refusal will terminate as to all Shares: (i) on the effective date of the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the SEC under the Securities Act (other than a registration statement relating solely to the issuance of Common Stock pursuant to a business combination or an employee incentive or benefit plan); (ii) on any transfer or conversion of Shares made pursuant to a statutory merger or statutory consolidation of the Company with or into another corporation or corporations if the common stock of the surviving corporation or any direct or indirect parent corporation thereof is registered under the Exchange Act; or (iii) on any transfer or conversion of Shares made pursuant to a statutory conversion of the Company into another form of legal entity if the common equity (or comparable equity security) of entity resulting from such conversion is registered under the Exchange Act.

10.8. **Encumbrances on Vested Shares.** Optionee may grant a lien or security interest in, or pledge, hypothecate or encumber Vested Shares only if each party to whom such lien or security interest is granted, or to whom such pledge, hypothecation or other encumbrance is made, agrees in a writing satisfactory to the Company that: (i) such lien, security interest, pledge, hypothecation or encumbrance will not adversely affect or impair the Right of First Refusal or the rights of the Company and/or its assignee(s) with respect thereto and will not apply to such Vested Shares after they are acquired by the Company and/or its assignees under this Section; and (ii) the provisions of this Agreement will continue to apply to such Vested Shares in the hands of such party and any transferee of such party. Optionee may not grant a lien or security interest in, or pledge, hypothecate or encumber, any Unvested Shares.

10.9. **Effect of Company Co-Sale Agreement.** If Optionee is, or at any time hereafter becomes, a party to or otherwise bound by (i) the Company's Right of First Refusal and Co-Sale Agreement, dated as of January 8, 2016, by and among the Company and certain stockholders of the Company, as such may be amended and/or restated from time to time and/or (ii) any other agreement that is a successor to or replacement of such agreement (collectively, the "***Company Co-Sale Agreement***"), and in the event of any conflict or inconsistency between the provisions of Section 9 hereof and/or this Section 10.9 and any provisions in the Company Co-Sale Agreement granting the Company and/or other security holders of the Company rights of first refusal and/or co-sale rights with respect to any or all of the Shares or imposing market stand-off restrictions, Optionee agrees with the Company that the terms and conditions of the Company Co-Sale Agreement shall apply, govern, supersede and prevail over (and in lieu of) the provisions of Section 9 hereof and/or of this Section 10.9 (as applicable) so long as the Company Co-Sale Agreement is in effect and Optionee is a party to or bound thereby. If the Company Co-Sale Agreement is no longer in effect or if Optionee is not a party to or bound thereby, then the provisions of this Section 10.9 shall apply in full force and effect until termination of the Right of First Refusal and the provisions of Section 9 hereof shall apply in full force and effect in accordance with its terms.

11. **RIGHTS AS A STOCKHOLDER.** Optionee shall not have any of the rights of a stockholder with respect to any Shares unless and until such Shares are issued to Optionee. Subject to the terms and conditions of this Agreement, Optionee will have all of the rights of a stockholder of the Company with respect to the Shares from and after the date that Shares are issued to Optionee pursuant to, and in accordance with, the terms of the Exercise Agreement until such time as Optionee disposes of the Shares or the Company and/or its assignee(s) exercise(s) the Repurchase Option or the Right of First Refusal. Upon an exercise of the Repurchase Option or the Right of First Refusal, Optionee will have no further rights as a holder of the Shares so purchased upon such exercise, other than the right to receive payment for the Shares so purchased in accordance with the provisions of this Agreement, and Optionee will promptly surrender the stock certificate(s) evidencing the Shares so purchased to the Company for transfer or cancellation.

12. **ESCROW.** As security for Optionee's faithful performance of this Agreement, Optionee agrees, immediately upon receipt of the stock certificate(s) evidencing the Shares, to deliver such certificate(s) to the Secretary of the Company or other designee of the Company (the "***Escrow Holder***"), who is hereby appointed to hold such certificate(s) and to take all such actions and to effectuate all such transfers and/or releases of such Shares as are in accordance with the terms of this Agreement. Optionee and the Company agree that Escrow Holder will not be liable to any party to this Agreement (or to any other party) for any actions or omissions unless Escrow Holder is grossly negligent or intentionally

fraudulent in carrying out the duties of Escrow Holder under this Agreement. Escrow Holder may rely upon any letter, notice or other document executed with any signature purported to be genuine and may rely on the advice of counsel and obey any order of any court with respect to the transactions contemplated by this Agreement and will not be liable for any act or omission taken by Escrow Holder in good faith reliance on such documents, the advice of counsel or a court order. The Shares will be released from escrow upon termination of both the Repurchase Option and the Right of First Refusal.

13. COMPANY CO-SALE AGREEMENT AND VOTING AGREEMENT. As a material inducement and consideration for the Company to enter into this Agreement, Optionee hereby agrees that if the Company requests Optionee to enter into and become a party to, (a) the Company Co- Sale Agreement (and to subject the Shares to the rights of first refusal held by the Company and other Company investors thereunder and the co-sale rights of other investors thereunder) and/or (b) the Company Voting Agreement (pursuant to which Optionee would agree to vote all shares of Company stock held by Optionee for the election of directors and in favor of certain material transactions (such as mergers or sales of the Company), then Optionee will enter into such agreements and execute and deliver signature pages thereto (as requested by the Company) in such capacities and at such time as the Company requests.

14. RESTRICTIVE LEGENDS AND STOP-TRANSFER ORDERS.

14.1. Legends. Optionee understands and agrees that the Company will place the legends set forth below or similar legends on any stock certificate(s) evidencing the Shares, together with any other legends that may be required by state or U.S. Federal securities laws, the Company's Certificate of Incorporation or Bylaws, any other agreement between Optionee and the Company, or any agreement between Optionee and any third party (and any other legend(s) that the Company may become obligated to place on the stock certificate(s) evidencing the Shares under the terms of any agreement to which the Company is or may become bound or obligated):

(a) THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES ARE SUBJECT TO RESTRICTIONS ON TRANSFERABILITY AND RESALE AND MAY NOT BE TRANSFERRED OR RESOLD EXCEPT AS PERMITTED UNDER THE SECURITIES ACT AND APPLICABLE STATE SECURITIES LAWS, PURSUANT TO REGISTRATION OR EXEMPTION THEREFROM. INVESTORS SHOULD BE AWARE THAT THEY MAY BE REQUIRED TO BEAR THE FINANCIAL

RISKS OF THIS INVESTMENT FOR AN INDEFINITE PERIOD OF TIME. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER TO THE EFFECT THAT ANY PROPOSED TRANSFER OR RESALE IS IN COMPLIANCE WITH THE SECURITIES ACT AND ANY APPLICABLE STATE SECURITIES LAWS.

(b) THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON RESALE AND TRANSFER, INCLUDING THE REPURCHASE OPTION AND RIGHT OF FIRST REFUSAL HELD BY THE ISSUER AND/OR ITS ASSIGNEE(S) AS SET FORTH IN A STOCK OPTION AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER

OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH SALE AND TRANSFER RESTRICTIONS, INCLUDING THE REPURCHASE OPTION AND RIGHT OF FIRST REFUSAL, ARE BINDING ON TRANSFEREES OF THESE SHARES.

(c) THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A MARKET STANDOFF RESTRICTION AS SET FORTH IN A CERTAIN STOCK OPTION AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. AS A RESULT OF SUCH AGREEMENT, THESE SHARES MAY NOT BE TRADED FOR A PERIOD AFTER THE EFFECTIVE DATE OF CERTAIN PUBLIC OFFERINGS OF THE COMMON STOCK OF THE ISSUER HEREOF. SUCH RESTRICTION IS BINDING ON TRANSFEREES OF THESE SHARES.

Optionee agrees that if Optionee becomes a party to (i) the Company Co-Sale Agreement or (ii) (A) the Company's Voting Agreement dated as of January 8, 2016 by and among the Company and certain stockholders and other investors in the Company, as such may be amended and/or restated from time to time and/or (B) any other voting agreement that is a successor to or replacement of such Voting Agreement (collectively, the "***Company Voting Agreement***"), then the stock certificate(s) evidencing the Shares shall, in addition, bear any additional legends required under the Company Co-Sale Agreement and/or the Company Voting Agreement, as applicable.

14.2. **Stop-Transfer Instructions.** Optionee agrees that, to ensure compliance with the restrictions imposed by this Agreement, the Company may issue appropriate "stop-transfer" instructions to its transfer agent, if any, and if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

14.3. **Refusal to Transfer.** The Company will not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares, or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares have been so transferred.

15. **CERTAIN TAX CONSEQUENCES.** Set forth below is a brief summary as of the Effective Date of the Plan of some of the federal tax consequences of exercise of the Option and disposition of the Shares. THIS SUMMARY IS NECESSARILY INCOMPLETE, AND THE TAX LAWS AND REGULATIONS ARE SUBJECT TO CHANGE. OPTIONEE SHOULD CONSULT A TAX ADVISER BEFORE EXERCISING THE OPTION OR DISPOSING OF THE SHARES.

15.1. **Exercise of ISO.** If the Option qualifies as an ISO, there will be no regular federal income tax liability upon the exercise of the Option, although the excess, if any, of the Fair Market Value of the Shares on the date of exercise over the Exercise Price will be treated as a tax preference item for federal alternative minimum tax purposes and may subject Optionee to the alternative minimum tax in the year of exercise.

15.2. **Exercise of Nonqualified Stock Option.** If the Option does not qualify as an ISO, there may be a regular federal income tax liability upon the exercise of the Option. Optionee will be treated as having received compensation income (taxable at ordinary income tax rates) equal to the

excess, if any, of the Fair Market Value of the Shares on the date of exercise over the Exercise Price. If Optionee is a current or former employee of the Company, the Company may be required to withhold from Optionee's compensation or collect from Optionee and pay to the applicable taxing authorities an amount equal to a percentage of this compensation income at the time of exercise.

15.3. Disposition of Shares. The following tax consequences may apply upon disposition of the Shares.

(a) Incentive Stock Options. If the Shares are held for more than twelve (12) months after the date of purchase of the Shares pursuant to the exercise of an ISO and are disposed of more than two (2) years after the Date of Grant, any gain realized on disposition of the Shares will be treated as long term capital gain for federal income tax purposes. If Vested Shares purchased under an ISO are disposed of within the applicable one (1) year or two (2) year period, any gain realized on such disposition will be treated as compensation income (taxable at ordinary income rates in the year of the disposition) to the extent of the excess, if any, of the Fair Market Value of the Shares on the date of exercise over the Exercise Price. To the extent the Shares were exercised prior to vesting coincident with the filing of an 83(b) Election, the amount taxed because of a disqualifying disposition will be based upon the excess, if any, of the fair market value on the date of vesting over the exercise price.

(b) Nonqualified Stock Options. If the Shares are held for more than twelve (12) months after the date of purchase of the Shares pursuant to the exercise of an NQSO, any gain realized on disposition of the Shares will be treated as long term capital gain.

15.4. Section 83(b) Election for Unvested Shares. With respect to Unvested Shares, which are subject to the Repurchase Option, unless an election is filed by Optionee with the Internal Revenue Service (and, if necessary, the proper state taxing authorities), **within thirty (30) days** of the purchase of the Unvested Shares, electing pursuant to Section 83(b) of the Code (and similar state tax provisions, if applicable) to be taxed currently on any difference between the Exercise Price of the Unvested Shares and their Fair Market Value on the date of purchase, there may be a recognition of taxable income (including, where applicable, alternative minimum taxable income) to Optionee, measured by the excess, if any, of the Fair Market Value of the Unvested Shares at the time they cease to be Unvested Shares, over the Exercise Price of the Unvested Shares.

16. GENERAL PROVISIONS.

16.1. Interpretation. Any dispute regarding the interpretation of this Agreement shall be submitted by Optionee or the Company to the Committee for review. The resolution of such a dispute by the Committee shall be final and binding on the Company and Optionee.

16.2. Entire Agreement. The Plan, the Grant Notice and the Exercise Agreement are each incorporated herein by reference. This Agreement, the Grant Notice, the Plan and the Exercise Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede all prior undertakings and agreements with respect to such subject matter.

17. NOTICES. Any and all notices required or permitted to be given to a party pursuant to the provisions of this Agreement will be in writing and will be effective and deemed to provide such party sufficient notice under this Agreement on the earliest of the following: (i) at the time of personal delivery, if delivery is in person; (ii) at the time an electronic confirmation of receipt is received, if delivery is by email; (iii) at the time of transmission by facsimile, addressed to the other party at its facsimile number specified herein (or hereafter modified by subsequent notice to the parties hereto), with confirmation of receipt made by both telephone and printed confirmation sheet verifying successful transmission of the facsimile; (iv) one (1) business day after deposit with an express overnight courier for United States deliveries, or two (2) business days after such deposit for deliveries outside of the United States, with proof of delivery from the courier requested; or (v) three (3) business days after deposit in the United States mail by certified mail (return receipt requested) for United States deliveries. Any notice for delivery outside the United States will be sent by email, facsimile or by express courier. Any notice not delivered personally or by email will be sent with postage and/or other charges prepaid and properly addressed to Optionee at the last known address or facsimile number on the books of the Company, or at such other address or facsimile number as such other party may designate by one of the indicated means of notice herein to the other parties hereto or, in the case of the Company, to it at its principal place of business. Notices to the Company will be marked "Attention: Chief Financial Officer." Notices by facsimile shall be machine verified as received.

18. SUCCESSORS AND ASSIGNS. The Company may assign any of its rights under this Agreement including its rights to purchase Shares under both the Right of First Refusal and Repurchase Option. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth herein, this Agreement shall be binding upon Optionee and Optionee's heirs, executors, administrators, legal representatives, successors and assigns.

19. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the internal laws of the State of California as such laws are applied to agreements between California residents entered into and to be performed entirely within California. If any provision of this Agreement is determined by a court of law to be illegal or unenforceable, then such provision will be enforced to the maximum extent possible and the other provisions will remain fully effective and enforceable.

20. FURTHER ASSURANCES. The parties agree to execute such further documents and instruments and to take such further actions as may be reasonably necessary to carry out the purposes and intent of this Agreement.

21. TITLES AND HEADINGS. The titles, captions and headings of this Agreement are included for ease of reference only and will be disregarded in interpreting or construing this Agreement. Unless otherwise specifically stated, all references herein to "sections" and "exhibits" will mean "***sections***" and "***exhibits***" to this Agreement.

22. COUNTERPARTS. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered will be deemed an original, and all of which together shall constitute one and the same agreement.

23. SEVERABILITY. If any provision of this Agreement is determined by any court or arbitrator of competent jurisdiction to be invalid, illegal or unenforceable in any respect, such provision will be enforced to the maximum extent possible given the intent of the parties hereto. If such clause or

provision cannot be so enforced, such provision shall be stricken from this Agreement and the remainder of this Agreement shall be enforced as if such invalid, illegal or unenforceable clause or provision had (to the extent not enforceable) never been contained in this Agreement. Notwithstanding the forgoing, if the value of this Agreement based upon the substantial benefit of the bargain for any party is materially impaired, which determination as made by the presiding court or arbitrator of competent jurisdiction shall be binding, then both parties agree to substitute such provision(s) through good faith negotiations.

* * * * *

Attachments:

Annex A: Form of Stock Option Exercise Notice and Agreement

ANNEX A

FORM OF STOCK OPTION EXERCISE NOTICE AND AGREEMENT

STOCK OPTION EXERCISE NOTICE AND AGREEMENT

GRAIL, INC.
2016 EQUITY INCENTIVE PLAN

NOTE:** ***You must sign this Notice on Page 3 before submitting it to GRAIL, Inc. (the "Company") AND, if requested to do so by the Company, you must also sign the then-current signature pages to the Company's then-current Company Co-Sale Agreement and Company Voting Agreement (as those terms are defined in the Stock Option Agreement) before submitting this Notice to the Company.

OPTIONEE INFORMATION: *Please provide the following information about yourself ("**Optionee**")*:

Name: _____

Social Security Number: _____

Address: _____

Employee Number: _____

Email Address: _____

OPTION INFORMATION: *Please provide this information on the option being exercised (the "**Option**")*:

Grant No.

Date of Grant:

Type of Stock Option:

Option Price per Share: $_____

☐ Nonqualified (NQSO)

Total number of shares of Class A Common Stock ("***Common*** ☐ Incentive (ISO) ***Stock***") of the Company subject to the Option:

EXERCISE INFORMATION:

Number of shares of Common Stock of the Company for which the Option is now being exercised [_____]. (These shares are referred to below as the "***Purchased Shares***.")

Total Exercise Price Being Paid for the Purchased Shares: $_____

Form of payment enclosed ***[check all that apply]***:

☐Check for $_____, payable to "***GRAIL, Inc.***"

☐Certificate(s) for _____ shares of Common Stock of the Company. These shares will be valued as of the date this notice is received by the Company. ***[Requires Company consent.]***

AGREEMENTS, REPRESENTATIONS AND ACKNOWLEDGMENTS OF OPTIONEE: By signing this Stock Option Exercise Notice and Agreement, Optionee hereby agrees with, and represents to, the Company as follows:

1. **Terms Governing.** I acknowledge and agree with the Company that I am acquiring the Purchased Shares by exercise of this Option subject to all other terms and conditions of the Notice of Stock Option Grant and the Stock Option Agreement that govern the Option, including without limitation the terms of the Company's 2016 Equity Incentive Plan, as it may be amended (as amended, the "***Plan***").

2. **Investment Intent; Securities Law Restrictions.** I represent and warrant to the Company that I am acquiring and will hold the Purchased Shares for investment for my account only, and not with a view to, or for resale in connection with, any "distribution" of the Purchased Shares within the meaning of the Securities Act of 1933, as amended (the "***Securities Act***"). I understand that the Purchased Shares have not been registered under the Securities Act by reason of a specific exemption from such registration requirement and that the Purchased Shares must be held by me indefinitely, unless they are subsequently registered under the Securities Act or I obtain an opinion of counsel (in form and substance satisfactory to the Company and its counsel) that registration is not required. I acknowledge that the Company is under no obligation to register the Purchased Shares under the Securities Act or under any other securities law.

3. **Restrictions on Transfer: Rule 144.** I will not sell, transfer or otherwise dispose of the Purchased Shares in violation of the Securities Act, the Securities Exchange Act of 1934, or the rules promulgated thereunder (including Rule 144 under the Securities Act described below "Rule 144")) or of any other applicable securities laws. I am aware of Rule 144, which permits limited public resales of securities acquired in a non-public offering, subject to satisfaction of certain conditions, which include (without limitation) that: (a) certain current public information about the Company is available; (b) the resale occurs only after the holding period required by Rule 144 has been met; (c) the sale occurs through an unsolicited "broker's transaction;" and (d) the amount of securities being sold during any three-month period does not exceed specified limitations. I understand that the conditions for resale set forth in Rule 144 have not been satisfied and that the Company has no plans to satisfy these conditions in the foreseeable future.

4. **Access to Information; Understanding of Risk in Investment.** I acknowledge that I have received and had access to such information as I consider necessary or appropriate for deciding whether to invest in the Purchased Shares and that I had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the issuance of the Purchased Shares. I am aware that my investment in the Company is a speculative investment that has limited liquidity and is subject to the risk of complete loss. I am able, without impairing my financial condition, to hold the Purchased Shares for an indefinite period and to suffer a complete loss of my investment in the Purchased Shares.

5. **Rights of First Refusal; Repurchase Options; Market Stand-off.** I acknowledge that the Purchased Shares remain subject to the Company's Right of First Refusal, the Company's Repurchase Option (with respect to unvested Purchased Shares) and the market stand-off covenants (sometimes referred to as the "lock-up"), all in accordance with the applicable Notice of Stock Option Grant and the Stock Option Agreement that govern the Option.

6. **Form of Ownership.** I acknowledge that the Company has encouraged me to consult my own adviser to determine the form of ownership of the Purchased Shares that is appropriate for me. In the event that I choose to transfer my Purchased Shares to a trust, I agree to sign a Stock Transfer Agreement. In the event that I choose to transfer my Purchased Shares to a trust that is not an eligible revocable trust, I also acknowledge that the transfer will be treated as a "disposition" for tax purposes. As a result, the favorable ISO tax treatment will be unavailable and other unfavorable tax consequences may occur.

7. **Investigation of Tax Consequences.** I acknowledge that the Company has encouraged me to consult my own adviser to determine the tax consequences of acquiring the Purchased Shares at this time.

8. **Other Tax Matters.** I agree that the Company does not have a duty to design or administer the Plan or its other compensation programs in a manner that minimizes my tax liabilities. I will not make any

claim against the Company or its Board, officers or employees related to tax liabilities arising from my options or my other compensation. In particular, I acknowledge that my options (including the Option) are exempt from Section 409A of the Internal Revenue Code only if the exercise price per share is at least equal to the fair market value per share of the Common Stock at the time the option was granted by the Board. Since shares of the Common Stock are not traded on an established securities market, the determination of their fair market value was made by the Board and/or by an independent valuation firm retained by the Company. I acknowledge that there is no guarantee in either case that the Internal Revenue Service will agree with the valuation, and I will not make any claim against the Company or its Board of Directors, officers or employees in the event that the Internal Revenue Service asserts that the valuation was too low.

9. **Spouse Consent.** I agree to seek and obtain the consent of my spouse to the extent required by the Company to enforce the foregoing.

10. **Agreement to Enter into Co-Sale and Voting Agreements.** Pursuant to the Stock Option Agreement, if requested to do so by the Company, I agree to enter into and execute the then-current Company CoSale Agreement and the then-current Company Voting Agreement concurrently with my exercise of the Option or at any other time I am requested to do so by the Company. I acknowledge that by entering into the Company Co-Sale Agreement I will be subjecting the Purchased Shares to the rights of first refusal, co-sale rights and all the other provisions of the Company Co-Sale Agreement and that by entering into the Voting Agreement I will be subjected to voting and other obligations and covenants regarding all Company shares I own and all other provisions of the Company Voting Agreement, in addition to the right of first refusal, repurchase option and market stand-off provisions described above.

11. **Tax Withholding.** As a condition of exercising this Option, I agree to make adequate provision for foreign, federal, state or other tax withholding obligations, if any, which arise upon the grant, vesting or exercise of this Option, or disposition of the Purchased Shares, whether by withholding, direct payment to the Company, or otherwise.

IMPORTANT NOTE: UNVESTED PURCHASED SHARES ARE SUBJECT TO REPURCHASE BY THE COMPANY. PLEASE CONSULT WITH YOUR TAX ADVISER CONCERNING THE ADVISABILITY OF FILING AN 83(b) ELECTION WITH THE INTERNAL REVENUE SERVICE WHICH MUST BE FILED WITHIN THIRTY (30) DAYS AFTER THE PURCHASE OF SHARES TO BE EFFECTIVE.

A form of Election under Section 83(b) is attached hereto as Exhibit 1 for reference. With respect to an NQSO, unless an 83(b) election is timely filed with the Internal Revenue Service (and, if necessary, the proper state taxing authorities), electing pursuant to Section 83(b) of the Internal Revenue Code (and similar state tax provisions, if applicable) to be taxed currently on any difference between the purchase price of the Unvested Purchased Shares and their fair market value on the date of purchase, there may be a recognition of taxable income to you, measured by the excess, if any, of the Fair Market Value of the Unvested Purchased Shares at the time they cease to be Unvested Purchased Shares, over the purchase price of the Unvested Purchased Shares.

Furthermore, to the extent the Purchased Shares were purchased upon exercise of an ISO, Optionee acknowledges that Optionee may be subject to federal and state income taxes as a result of a Disqualifying Disposition of the Purchased Shares, with any gain realized on (a) Vested Shares initially purchased under an ISO subject to a Disqualifying Disposition treated as compensation income (taxable at ordinary income rates in the year of the disposition) to the extent of the excess, if any, of the Fair Market Value of the Shares on the date of exercise over the Exercise Price and (b) Unvested Shares initially purchased under an ISO (and regardless of whether an 83(b) election is timely filed with the Internal Revenue Service) subject to a Disqualifying Disposition treated as compensation income (taxable at ordinary income rates in the year of the

disposition) to the extent of the excess, if any, of the Fair Market Value on the date of vesting over the Exercise Price.

The undersigned hereby executes and delivers this Stock Option Exercise Notice and Agreement and agrees to be bound by its terms

SIGNATURE: **DATE:**

Optionee's Name:

Attachments:

Exhibit 1 – Section 83(b) Election Form

[Signature Page to Stock Option Exercise Notice and Agreement]

EXHIBIT 1

SECTION 83(b) ELECTION

ELECTION UNDER SECTION 83(B) OF THE INTERNAL REVENUE CODE

The undersigned Taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended, to include the excess, if any, of the fair market value of the property described below at the time of transfer over the amount paid for such property, as compensation for services in the calculation of: (1) regular gross income; (2) alternative minimum taxable income; or (3) disqualifying disposition gross income, as the case may be.

1. TAXPAYER'S NAME: _____

   TAXPAYER'S ADDRESS: _____

   _____

   SOCIAL SECURITY NUMBER: _____

2. The property with respect to which the election is made is described as follows: _____ shares of Class A Common Stock, par value $0.001 per share, of GRAIL, Inc., a Delaware corporation (the "***Company***"), which were transferred upon exercise of an option by the Company, which is Taxpayer's employer or the corporation for whom the Taxpayer performs services.

3. The date on which the shares were transferred was pursuant to the exercise of the option was _____, _____ and this election is made for calendar year _____.

4. The shares received upon exercise of the option are subject to the following restrictions: The Company may repurchase all or a portion of the shares at the Taxpayer's original purchase price under certain conditions at the time of Taxpayer's termination of employment or services.

5. The fair market value of the shares (without regard to restrictions other than restrictions which by their terms will never lapse) was $ _____ per share x _____ shares = $_____ at the time of exercise of the option.

6. The amount paid for such shares upon exercise of the option was $_____ per share x _____ shares = $_____.

7. The Taxpayer has submitted a copy of this statement to the Company.

8. The amount to include in gross income is $_____. [The result of the amount reported in Item 5 minus the amount reported in Item 6.]

*THIS ELECTION MUST BE FILED WITH THE INTERNAL REVENUE SERVICE ("**IRS**"), AT THE OFFICE WHERE THE TAXPAYER FILES ANNUAL INCOME TAX RETURNS, WITHIN 30 DAYS AFTER THE DATE OF TRANSFER OF THE SHARES, AND MUST ALSO BE FILED WITH THE TAXPAYER'S INCOME TAX RETURNS FOR THE CALENDAR YEAR. THE ELECTION CANNOT BE REVOKED WITHOUT THE CONSENT OF THE IRS.*

Dated:

Taxpayer's Signature

NOTICE OF RESTRICTED STOCK UNIT GRANT

GRAIL, INC.

2016 EQUITY INCENTIVE PLAN

The participant named below ("***Participant***") has been granted restricted stock units ("***RSUs***") to purchase shares of Class A Common Stock, $0.001 par value per share (the "***Common Stock***"), of Grail, Inc., a Delaware corporation (the "***Company***"), pursuant to the Company's 2016 Equity Incentive Plan, as amended from time to time (the "***Plan***") on the terms, and subject to the conditions, described below and in the RSU Agreement attached hereto as Exhibit A, including its annexes (the "***RSU Agreement***"). The provisions of the Plan shall control in the event of a conflict among the provisions of the Plan, this Agreement and any descriptive materials provided to you.

Participant:
Maximum Number of Shares of Common Stock Subject to the Award (the "***Shares***"):
Date of Grant: [l]
Vesting Start Date: [l]

Vesting Schedule: For so long as Participant continuously provides services to the Company (or any Subsidiary or Parent of the Company) as an employee, officer, director, contractor or consultant, the RSUs will vest as follows: (a) _____; each such date a "***Vesting Date***."

General; Agreement: By their signatures below, Participant and the Company agree that the RSUs are granted under and governed by this Notice of Restricted Stock Unit Grant (this "***Grant Notice***") and by the provisions of the Plan and the RSU Agreement. The Plan and RSU Agreement are incorporated herein by reference. Capitalized terms used but not defined herein shall have the meanings given to them in the Plan or in the RSU Agreement, as applicable. By signing below, Participant acknowledges receipt of a copy of this Grant Notice, the Plan and the RSU Agreement, represents that Participant has carefully read and is familiar with their provisions, and hereby accepts the RSUs subject to all of their respective terms and conditions. Participant acknowledges that there will be tax consequences upon vesting of the RSUs and the disposition of the underlying Shares and that Participant should consult with a tax adviser. Participant agrees and acknowledges that the Vesting Schedule may change prospectively in the event that Participant's service status changes between full and part time status in accordance with the Company policies relating to work schedules and vesting of equity awards.

Restricted Stock Unit

Execution and Delivery: This Grant Notice may be executed and delivered electronically whether via the Company's intranet or the Internet site of a third party or via email or any other means of electronic delivery specified by the Company. By Participant's acceptance hereof (whether written, electronic or otherwise), Participant agrees, to the fullest extent permitted by law, that in lieu of receiving documents in paper format, Participant accepts the electronic delivery of any documents that the Company (or any third party the Company may designate), may deliver in connection with this grant (including the Plan, this Grant Notice, the RSU Agreement, the information described in Rules 701(e)(2), (3), (4) and (5) under the Securities Act (the "701 Disclosures"), account statements, or other communications or information) whether via the Company's intranet or the Internet site of such third party or via email or such other means of electronic delivery specified by the Company.

GRAIL, INC.

By:	_____	Participant Signature:	/ _____
Typed Name:		Participant's Name:	
Title:	Chief Executive Officer		

Exhibit A

RSU Agreement

RESTRICTED STOCK UNIT AGREEMENT

GRAIL, INC.

2016 EQUITY INCENTIVE PLAN

This RSU Agreement (this "***Agreement***") is made and entered into as of the date of grant (the "***Date of Grant***") set forth on the Notice of Restricted Stock Unit Grant attached as the facing page to this Agreement (the "***Grant Notice***") by and between Grail, Inc., a Delaware corporation (the "***Company***"), and the Participant named on the Grant Notice (the "***Participant***"). Capitalized terms not otherwise defined in this Agreement shall have the meaning ascribed to them in the Company's 2016 Equity Incentive Plan, as amended from time to time (the "***Plan***"), or in the Grant Notice, as applicable.

In consideration of the promises and mutual covenants contained herein, and for other good and valuable consideration, the parties hereto agree as follows.

1. **GRANT OF RESTRICTED STOCK UNITS**. The Company hereby grants to the Participant restricted stock units in the amount set forth in the Grant Notice, pursuant to the provisions of the Plan, the terms of which are incorporated herein, and further subject to the terms and conditions hereinafter set forth ("***RSUs***"). Each RSU shall represent the right to receive one share of Class A Common Stock of the Company, $0.001 par value per share (the "***Common Stock***") upon the vesting of such RSU, as determined in accordance with and subject to the terms of this Agreement, the Grant Notice and the Plan.

2. **VESTING AND TERMINATION.**

(a) **In General**. Subject to the provisions of the Plan and the limitations contained in this Agreement, the RSUs will vest and become exercisable in accordance with the vesting schedule set forth in the Grant Notice; *provided* Participant has not incurred a Termination of Service on or prior to the applicable Vesting Date. Vesting will cease upon the Participant's Termination of Service (except as set forth below in Sections 2(b) through (e)), and any unvested portion of RSUs will be forfeited.

(b) **Partial Acceleration Upon a Termination of Service without Cause or a Resignation for Good Reason, or Due to Death or Disability**. Notwithstanding the foregoing and any other provisions of the Plan to the contrary, upon the Participant's Termination of Service (i) by the Company without Cause, (ii) by the Participant for Good Reason or (iii) due to Participant's death or Disability (as each such term is defined in Participant's offer of employment dated _____ (the "***Employment Agreement***")), then Participant will immediately vest in a number of RSUs that Participant would have vested in over the next 12 months had Participant continued in employment or other service during such period.

(c) **Vesting Acceleration Upon a Change in Control**. Notwithstanding the foregoing and any other provisions of the Plan to the contrary, upon a Termination of Service by the Company without Cause (excluding as a result of death or disability) or a resignation for

Good Reason upon or within twenty-four (24) months after, or within three months before, the completion of a Change of Control (as such term is defined in the Employment Agreement), then any portion of the Participant's RSUs that was not vested prior to such Change of Control will vest in full on the date of such Termination of Service.

(d) **Termination of Service as an Employee for Any Reason Except for Cause Upon Completion of Twenty-Four Months of Service**. Notwithstanding the foregoing and any other provisions of the Plan to the contrary, in the event the Participant has completed twenty-four (24) months of service with the Company, upon a Termination of Service for any reason other than by the Company for Cause, Participant will be provided with the opportunity to transition from serving as an employee and officer of the Company to serving as a Board member, advisor or consultant for up to twelve (12) months of additional bona fide service to the Company, during which period the RSUs will continue to vest so long as Participant does not have a Termination of Service during such 12-month period; *provided* that the Board may elect to terminate such 12-month period of service early, in which case, unless such termination is for Cause, any RSUs that would have vested had Participant continued to provide services during the entire 12-month period will immediately accelerate and vest. For the avoidance of doubt, in the event that Participant elects to continue to serve as a Board member, advisor or consultant after a termination of employment by the Company without Cause, or by Participant for Good Reason, it will not be deemed a Termination of Service and Participant will not be entitled to accelerated vesting under Section 2(b) hereof.

For purposes of this Agreement, "***Termination of Service***" is defined as the cessation of the employment relationship such that the Participant is no longer an employee, officer, director, contractor, consultant or advisor to the Company or any of its Subsidiaries or Parents.

3. **TERMS AND CONDITIONS**. It is understood and agreed that the RSU evidenced hereby is subject to the following terms and conditions:

(a) **No Right to Continued Service**. Nothing in the Plan or this Agreement shall be construed as giving the Participant the right to be retained in the employ of, or to continue to provide services to, the Company or any Parent or Subsidiary of the Company, or limit in any way the right of the Company or any Parent or Subsidiary of the Company to terminate Participant's employment or other relationship at any time, with or without cause.

(b) **No Right to Future Awards**. Any award granted under the Plan shall be a one-time award that does not constitute a promise of future grants. The Company, in its sole discretion, maintains the right to make available future grants under the Plan.

4. **ISSUANCE OF SHARES**. Subject to Section 12(b), the Company will deliver to Participant a number of Shares equal to the number of RSUs subject to the Award that become vested in accordance with the terms of this Agreement, as soon as practicable (but, in any event no later than sixty (60) days) following the date on which such RSUs become vested; *provided* that, notwithstanding anything in the Plan to the contrary, any remaining right to a distribution of the Shares will be forfeited if the Company terminates Participant's service for Cause prior to the date on which the Shares are distributed to Participant. Any Shares issued to Participant under

this Agreement are subject to the restrictions on transfer and other restrictions as set forth in this Agreement and the Plan.

5. **[DIVIDEND EQUIVALENTS**.[1] If a dividend is declared on Shares during the period commencing on the Date of Grant and ending on the date on which the Shares underlying the RSUs are distributed to the Participant pursuant to this Agreement, the Participant shall be eligible to receive the dividend that the Participant would have received had the Shares underlying the RSUs been held by the Participant as of the time at which such dividend was declared in the same form as is provided to other shareholders of the Company (a "***Dividend Equivalent***"), which Dividend Equivalent will be paid to the Participant as soon as reasonably practicable (and in no event later than 30 days) after the applicable Vesting Date of the corresponding RSUs. For clarity, no Dividend Equivalent will be paid with respect to any RSUs that are forfeited.]

6. **COMPLIANCE WITH LAWS AND REGULATIONS.** The Plan and this Agreement are intended to comply with: (i) Section 25102(o) of the California Corporations Code ("***Section 25102(o)***") and (ii) Rule 701 *et seq*. promulgated by the Securities and Exchange Commission under the Securities Act ("***Rule 701***"), Regulation D or any other applicable exemption from registration under the Securities Act (collectively, the "***Registration Exemptions***"). Any provision of this Agreement that is inconsistent with Section 25102(o) or does not comply with a Registration Exemption shall, without further act or amendment by the Company or the Committee, be reformed to comply with the requirements of Section 25102(o) and/or a Registration Exemption. The settlement of the RSUs and the issuance and transfer of Shares shall be subject to compliance by the Company and the Participant with all applicable requirements of federal and state securities laws and with all applicable requirements of any stock exchange on which the Common Stock may be listed at the time of such issuance or transfer. Participant understands that the Company is under no obligation to register or qualify the Shares with the SEC, any state securities commission or any stock exchange to effect such compliance.

7. **TRANSFER OF RSUs**. Except as may be permitted by the Committee, neither the RSUs nor any right with respect to the RSUs shall be assignable, alienable, saleable or transferable by the Participant other than by will or the applicable law of descent and distribution or by instrument to a testamentary trust in which the RSUs are to be passed to beneficiaries upon the death of the trustor (settlor) or a revocable trust, or by gift to "immediate family" as that term is defined in 17 C.F.R. 240.16a-1(e). The terms of the RSUs shall be binding upon the executors, administrators, successors and assigns of Participant. This provision shall not apply to any RSUs that have been fully settled and shall not preclude forfeiture of any of the RSUs in accordance with the terms herein.

8. **RESTRICTIONS ON SHARES ISSUED UPON SETTLEMENT OF RSUs**. To the extent that Shares are issued to the Participant hereunder which are not registered under the U.S. Securities Act of 1933, as amended from time to time, and the rules, regulations and guidance thereunder, pursuant to an effective registration statement, the stock certificates

[1] **Note to GRAIL**: Please confirm that participants are eligible to receive dividend equivalents.

evidencing such Shares may bear such restrictive legend as the Company deems to be required or advisable under applicable law.

(a) **Disposition of Shares.** Participant hereby agrees that Participant shall make no disposition of any of the Shares (other than as permitted by this Agreement) unless and until:

(i) Participant shall have notified the Company of the proposed disposition and provided a written summary of the terms and conditions of the proposed disposition;

(ii) Participant shall have complied with all requirements of this Agreement applicable to the disposition of the Shares;

(iii) Participant shall have provided the Company with written assurances, in form and substance satisfactory to counsel for the Company, that (i) the proposed disposition does not require registration of the Shares under the Securities Act or under any applicable state securities laws or (ii) all appropriate actions necessary for compliance with the registration requirements of the Securities Act or of any exemption from registration available under the Securities Act (including Rule 144) or applicable state securities laws have been taken; and

(iv) Participant shall have provided the Company with written assurances, in form and substance satisfactory to the Company, that the proposed disposition will not result in the contravention of any transfer restrictions applicable to the Shares pursuant to the provisions of the regulations promulgated under Section 25102(o), Rule 701 or under any other applicable securities laws or adversely affect the Company's ability to rely on the exemption(s) from registration under the Securities Act or under any other applicable securities laws for the grant of the RSUs, the issuance of Shares thereunder or any other issuance of securities under the Plan.

(b) **Restriction on Transfer.** Participant shall not transfer, assign, grant a lien or security interest in, pledge, hypothecate, encumber or otherwise dispose of any of the Shares which are subject to the Company's Right of First Refusal described below, except as permitted by this Agreement.

(c) **Transferee Obligations.** Each person (other than the Company) to whom the Shares are transferred by means of one of the permitted transfers specified in this Agreement must, as a condition precedent to the validity of such transfer, acknowledge in writing to the Company that such person is bound by the provisions of this Agreement and that the transferred Shares are subject to the Company's Right of First Refusal granted hereunder and the market stand-off provisions of Section 9 below, to the same extent such Shares would be so subject if retained by Participant.

9. **MARKET STANDOFF AGREEMENT.** Participant agrees that, subject to any early release provisions that apply pro rata to stockholders of the Company according to their

holdings of Common Stock (determined on an as-converted into Common Stock basis), Participant will not, for a period of up to one hundred eighty (180) days (plus up to an additional thirty five (35) days to the extent reasonably requested by the Company or such underwriter(s) to accommodate regulatory restrictions on the publication or other distribution of research reports or earnings releases by the Company, including NASDAQ and NYSE rules) following the effective date of the registration statement filed with the SEC relating to the initial underwritten sale of Common Stock of the Company to the public under the Securities Act (the "***IPO***"), directly or indirectly sell, offer to sell, grant any option for the sale of, or otherwise dispose of any Common Stock or securities convertible into Common Stock, except for: transfers of Shares permitted under Section 10(f) hereof so long as such transferee furnishes to the Company and the managing underwriter their written consent to be bound by this Section 9 as a condition precedent to such transfer; and sales of any securities to be included in the registration statement for the IPO. For the avoidance of doubt, the provisions of this Section shall only apply to the IPO. The restricted period shall in any event terminate two (2) years after the closing date of the IPO. In order to enforce the foregoing covenant, the Company shall have the right to place restrictive legends on the certificates representing the Shares subject to this Section and to impose stop transfer instructions with respect to the Shares until the end of such period. Participant further agrees to enter into any agreement reasonably required by the underwriters to implement the foregoing restrictions on transfer. For the avoidance of doubt, the foregoing provisions of this Section shall not apply to any registration of securities of the Company (a) under an employee benefit plan or (b) in a merger, consolidation, business combination or similar transaction.

10. **COMPANY'S RIGHT OF FIRST REFUSAL.** Before any Shares held by Participant or any transferee of such Shares (either sometimes referred to herein as the "***Holder***") may be sold or otherwise transferred (including, without limitation, a transfer by gift or operation of law), the Company and/or its assignee(s) will have a right of first refusal to purchase the Shares to be sold or transferred (the "***Offered Shares***") on the terms and conditions set forth in this Section (the "***Right of First Refusal***").

(a) **Notice of Proposed Transfer.** The Holder of the Offered Shares will deliver to the Company a written notice (the "***Notice***") stating: the Holder's bona fide intention to sell or otherwise transfer the Offered Shares; the name and address of each proposed purchaser or other transferee (the "***Proposed Transferee***"); the number of Offered Shares to be transferred to each Proposed Transferee; the bona fide cash price or other consideration for which the Holder proposes to transfer the Offered Shares (the "***Offered Price***"); and that the Holder acknowledges this Notice is an offer to sell the Offered Shares to the Company and/or its assignee(s) pursuant to the Company's Right of First Refusal at the Offered Price as provided for in this Agreement.

(b) **Exercise of Right of First Refusal.** At any time within thirty (30) days after the date of the Notice, the Company and/or its assignee(s) may, by giving written notice to the Holder, elect to purchase all (or, with the consent of the Holder, less than all) the Offered Shares proposed to be transferred to any one or more of the Proposed Transferees named in the Notice, at the purchase price, determined as specified below.

(c) **Purchase Price.** The purchase price for the Offered Shares purchased under this Section will be the Offered Price, *provided* that if the Offered Price consists of no legal consideration (as, for example, in the case of a transfer by gift) then the purchase price will be the fair market value of the Offered Shares as determined in good faith by the Committee. If the Offered Price includes consideration other than cash, then the value of the non-cash consideration, as determined in good faith by the Committee, will conclusively be deemed to be the cash equivalent value of such non-cash consideration.

(d) **Payment.** Payment of the purchase price for the Offered Shares will be payable, at the option of the Company and/or its assignee(s) (as applicable), by check or by cancellation of all or a portion of any outstanding purchase money indebtedness owed by the Holder to the Company (or to such assignee, in the case of a purchase of Offered Shares by such assignee) or by any combination thereof. The purchase price will be paid without interest within sixty (60) days after the Company's receipt of the Notice, or, at the option of the Company and/or its assignee(s), in the manner and at the time(s) set forth in the Notice.

(e) **Holder's Right to Transfer.** If all of the Offered Shares proposed in the Notice to be transferred to a given Proposed Transferee are not purchased by the Company and/or its assignee(s) as provided in this Section, then the Holder may sell or otherwise transfer such Offered Shares to each Proposed Transferee at the Offered Price or at a higher price, *provided* that such sale or other transfer is consummated within ninety (90) days after the date of the Notice, any such sale or other transfer is effected in compliance with all applicable securities laws, and each Proposed Transferee agrees in writing that the provisions of this Section will continue to apply to the Offered Shares in the hands of such Proposed Transferee. If the Offered Shares described in the Notice are not transferred to each Proposed Transferee within such ninety (90) day period, then a new Notice must be given to the Company pursuant to which the Company will again be offered the Right of First Refusal before any Shares held by the Holder may be sold or otherwise transferred.

(f) **Exempt Transfers.** Notwithstanding anything to the contrary in this Section, the following transfers of Shares will be exempt from the Right of First Refusal: the transfer of any or all of the Shares during Participant's lifetime by gift or on Participant's death by will or intestacy to any member(s) of Participant's "Immediate Family" (as defined below) or to a trust for the benefit of Participant and/or member(s) of Participant's Immediate Family, *provided* that each transferee or other recipient agrees in a writing satisfactory to the Company that the provisions of this Section will continue to apply to the transferred Shares in the hands of such transferee or other recipient; any transfer of Shares made pursuant to a statutory merger, statutory consolidation of the Company with or into another corporation or corporations or a conversion of the Company into another form of legal entity (except that the Right of First Refusal will continue to apply thereafter to such Shares, in which case the surviving corporation of such merger or consolidation or the resulting entity of such conversion shall succeed to the rights of the Company under this Section unless the agreement of merger or consolidation or conversion expressly otherwise provides); or any transfer of Shares pursuant to the winding up and dissolution of the Company. As used herein, the term "***Immediate Family***" will mean Participant's spouse, the lineal descendant or antecedent, father, mother, brother or sister, child,

adopted child, grandchild or adopted grandchild of Participant or Participant's spouse, or the spouse of any of the above or Spousal Equivalent, as defined herein. As used herein, a person is deemed to be a "***Spousal Equivalent***" provided the following circumstances are true: (i) irrespective of whether or not Participant and the Spousal Equivalent are the same sex, they are the sole spousal equivalent of the other for the last twelve (12) months, (ii) they intend to remain so indefinitely, (iii) neither are married to anyone else, (iv) both are at least 18 years of age and mentally competent to consent to contract, (v) they are not related by blood to a degree of closeness that which would prohibit legal marriage in the state in which they legally reside, (vi) they are jointly responsible for each other's common welfare and financial obligations, and (vii) they reside together in the same residence for the last twelve (12) months and intend to do so indefinitely.

(g) **Termination of Right of First Refusal.** The Right of First Refusal will terminate as to all Shares: on the effective date of the first sale of Common Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the SEC under the Securities Act (other than a registration statement relating solely to the issuance of Common Stock pursuant to a business combination or an employee incentive or benefit plan) (the "**IPO Date**"); on any transfer or conversion of Shares made pursuant to a statutory merger or statutory consolidation of the Company with or into another corporation or corporations if the common stock of the surviving corporation or any direct or indirect parent corporation thereof is registered under the Exchange Act; or on any transfer or conversion of Shares made pursuant to a statutory conversion of the Company into another form of legal entity if the common equity (or comparable equity security) of entity resulting from such conversion is registered under the Exchange Act.

(h) **Encumbrances on Shares.** Participant may grant a lien or security interest in, or pledge, hypothecate or encumber Shares only if each party to whom such lien or security interest is granted, or to whom such pledge, hypothecation or other encumbrance is made, agrees in a writing satisfactory to the Company that: such lien, security interest, pledge, hypothecation or encumbrance will not adversely affect or impair the Right of First Refusal or the rights of the Company and/or its assignee(s) with respect thereto and will not apply to such Shares after they are acquired by the Company and/or its assignees under this Section; and the provisions of this Agreement will continue to apply to such Shares in the hands of such party and any transferee of such party.

(i) **Effect of Company Co-Sale Agreement**. If Participant is, or at any time hereafter becomes, a party to or otherwise bound by (i) the Company's Right of First Refusal and Co-Sale Agreement, dated as of January 8, 2016, by and among the Company and certain stockholders of the Company, as such may be amended and/or restated from time to time and/or (ii) any other agreement that is a successor to or replacement of such agreement (collectively, the "***Company Co-Sale Agreement***"), and in the event of any conflict or inconsistency between the provisions of Section 9 hereof and/or this Section 10(i) and any provisions in the Company Co-Sale Agreement granting the Company and/or other security holders of the Company rights of first refusal and/or co-sale rights with respect to any or all of the Shares or imposing market stand-off restrictions, Participant agrees with the Company that the terms and conditions of the

Company Co-Sale Agreement shall apply, govern, supersede and prevail over (and in lieu of) the provisions of Section 9 hereof and/or of this Section 10(i) (as applicable) so long as the Company Co-Sale Agreement is in effect and Participant is a party to or bound thereby. If the Company Co-Sale Agreement is no longer in effect or if Participant is not a party to or bound thereby, then the provisions of this Section 10(i) shall apply in full force and effect until termination of the Right of First Refusal and the provisions of Section 9 hereof shall apply in full force and effect in accordance with its terms.

11. **RIGHTS AS A STOCKHOLDER.** Participant shall not have any rights of a stockholder with respect to the RSUs unless and until the RSUs are vested and Shares are issued to Participant. Subject to the terms and conditions of this Agreement, Participant will have all of the rights of a stockholder of the Company with respect to the Shares issued in respect of the RSUs from and after the date that the Shares are delivered to Participant hereunder until such time Participant disposes of the Shares or the Company and/or its assignee(s) exercise(s) the Right of First Refusal. Upon an exercise of the Right of First Refusal, Participant will have no further rights as a holder of the Shares so purchased upon such exercise, other than the right to receive payment for the Shares so purchased in accordance with the provisions of this Agreement, and Participant will promptly surrender the stock certificate(s) evidencing the Shares so purchased to the Company for transfer or cancellation. The RSUs are an unfunded promise by the Company to deliver Shares subject to the terms hereunder and Participant is an unsecured creditor of the Company. Nothing contained in this Agreement, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between Participant and the Company or any other person.

12. **TAX LIABILITY; WITHHOLDING REQUIREMENTS**.

(a) The Participant shall be solely responsible for any applicable taxes (including, without limitation, income and excise taxes) and penalties, and any interest that accrues thereon, that the Participant incurs in connection with the receipt, vesting or settlement of any RSUs granted hereunder.

(b) The Company may withhold any tax (or other governmental obligation) that becomes due with respect to the RSUs and take such action as it deems appropriate to ensure that all applicable withholding, income or other taxes, which are the sole and absolute responsibility of the Participant, are withheld or collected from the Participant. The Participant shall make arrangements satisfactory to the Company to enable the Company to satisfy all such withholding requirements. To the extent any RSUs vest before the IPO Date, the Participant may provide for payment of withholding taxes upon settlement of such RSUs by requesting that the Company retain the minimum number of Shares with a Fair Market Value equal to the minimum amount of taxes required to be withheld. In case of stock withholding, the Company shall issue the net number of Shares to the Participant by deducting the Shares retained from the Shares issuable upon exercise. If the Participant elects to satisfy any such withholding requirement pursuant to the preceding sentence, the Company shall remit to the Internal Revenue Service and appropriate state and local revenue agencies, for the credit of the Participant, an amount of cash

withholding equal to the Fair Market Value of the Shares transferred to the Company as provided above.

13. **ESCROW.** As security for Participant's faithful performance of this Agreement, Participant agrees, immediately upon receipt of the stock certificate(s) evidencing the Shares, to deliver such certificate(s) to the Secretary of the Company or other designee of the Company (the "***Escrow Holder***"), who is hereby appointed to hold such certificate(s) and to take all such actions and to effectuate all such transfers and/or releases of such Shares as are in accordance with the terms of this Agreement. Participant and the Company agree that Escrow Holder will not be liable to any party to this Agreement (or to any other party) for any actions or omissions unless Escrow Holder is grossly negligent or intentionally fraudulent in carrying out the duties of Escrow Holder under this Agreement. Escrow Holder may rely upon any letter, notice or other document executed with any signature purported to be genuine and may rely on the advice of counsel and obey any order of any court with respect to the transactions contemplated by this Agreement and will not be liable for any act or omission taken by Escrow Holder in good faith reliance on such documents, the advice of counsel or a court order. The Shares will be released from escrow upon termination of the Right of First Refusal.

14. **COMPANY CO-SALE AGREEMENT AND VOTING AGREEMENT**. As a material inducement and consideration for the Company to enter into this Agreement, Participant hereby agrees that if the Company requests Participant to enter into and become a party to, (a) the Company Co-Sale Agreement (and to subject the Shares to the rights of first refusal held by the Company and other Company investors thereunder and the co-sale rights of other investors thereunder) and/or (b) the Company Voting Agreement (pursuant to which Participant would agree to vote all shares of Company stock held by Participant for the election of directors and in favor of certain material transactions (such as mergers or sales of the Company), then Participant will enter into such agreements and execute and deliver signature pages thereto (as requested by the Company) in such capacities and at such time as the Company requests.

15. **RESTRICTIVE LEGENDS AND STOP-TRANSFER ORDERS.**

(a) **Legends.** Participant understands and agrees that the Company will place the legends set forth below or similar legends on any stock certificate(s) evidencing the Shares, together with any other legends that may be required by state or U.S. Federal securities laws, the Company's Certificate of Incorporation or Bylaws, any other agreement between Participant and the Company, or any agreement between Participant and any third party (and any other legend(s) that the Company may become obligated to place on the stock certificate(s) evidencing the Shares under the terms of any agreement to which the Company is or may become bound or obligated):

(i)THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES ARE SUBJECT TO RESTRICTIONS ON TRANSFERABILITY AND RESALE AND MAY NOT BE TRANSFERRED OR RESOLD EXCEPT AS PERMITTED UNDER THE SECURITIES ACT AND APPLICABLE STATE SECURITIES LAWS,

PURSUANT TO REGISTRATION OR EXEMPTION THEREFROM. INVESTORS SHOULD BE AWARE THAT THEY MAY BE REQUIRED TO BEAR THE FINANCIAL RISKS OF THIS INVESTMENT FOR AN INDEFINITE PERIOD OF TIME. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER TO THE EFFECT THAT ANY PROPOSED TRANSFER OR RESALE IS IN COMPLIANCE WITH THE SECURITIES ACT AND ANY APPLICABLE STATE SECURITIES LAWS.

(ii)THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON RESALE AND TRANSFER, INCLUDING THE RIGHT OF FIRST REFUSAL HELD BY THE ISSUER AND/OR ITS ASSIGNEE(S) AS SET FORTH IN A RSU AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH SALE AND TRANSFER RESTRICTIONS, INCLUDING THE RIGHT OF FIRST REFUSAL, ARE BINDING ON TRANSFEREES OF THESE SHARES.

(iii)THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A MARKET STANDOFF RESTRICTION AS SET FORTH IN A CERTAIN RSU AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. AS A RESULT OF SUCH AGREEMENT, THESE SHARES MAY NOT BE TRADED FOR A PERIOD AFTER THE EFFECTIVE DATE OF CERTAIN PUBLIC OFFERINGS OF THE COMMON STOCK OF THE ISSUER HEREOF. SUCH RESTRICTION IS BINDING ON TRANSFEREES OF THESE SHARES.

Participant agrees that if the Participant becomes a party to (i) the Company Co-Sale Agreement or (ii) (A) the Company's Voting Agreement dated as of January 8, 2016 by and among the Company and certain stockholders and other investors in the Company, as such may be amended and/or restated from time to time and/or (B) any other voting agreement that is a successor to or replacement of such Voting Agreement (collectively, the "***Company Voting Agreement***"), then the stock certificate(s) evidencing the Shares shall, in addition, bear any additional legends required under the Company Co-Sale Agreement and/or the Company Voting Agreement, as applicable.

(b) **Stop-Transfer Instructions.** Participant agrees that, to ensure compliance with the restrictions imposed by this Agreement, the Company may issue appropriate "stop-transfer" instructions to its transfer agent, if any, and if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) **Refusal to Transfer.** The Company will not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares, or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares have been so transferred.

16. **NOT SALARY, PENSIONABLE EARNINGS OR BASE PAY**. The Participant acknowledges that the RSUs shall not be included in or deemed to be a part of (a) salary, normal salary or other ordinary compensation, (b) any definition of pensionable or other earnings (however defined) for the purpose of calculating any benefits payable to or on behalf of the Participant under any pension, retirement, termination or dismissal indemnity, severance benefit, retirement indemnity or other benefit arrangement of the Company or any Subsidiary or (c) any calculation of base pay or regular pay for any purpose.

17. **RECOUPMENT/CLAWBACK**. The grant of these RSUs (including any amounts or benefits arising from the RSUs) shall be subject to recoupment or "clawback" as may be required by applicable law, stock exchange rules or by any applicable Company policy or arrangement the Company has in place from time to time.

18. **REFERENCES**. References herein to rights and obligations of the Participant shall apply, where appropriate, to the Participant's legal representative or estate without regard to whether specific reference to such legal representative or estate is contained in a particular provision of this Agreement.

19. **GENERAL PROVISIONS.**

(a) **Interpretation.** Any dispute regarding the interpretation of this Agreement shall be submitted by Participant or the Company to the Committee for review. The resolution of such a dispute by the Committee shall be final and binding on the Company and Participant.

(b) **Entire Agreement.** The Plan and the Grant Notice are each incorporated herein by reference. This Agreement, the Grant Notice, and the Plan constitute the entire agreement of the parties with respect to the subject matter hereof and supersede all prior undertakings and agreements with respect to such subject matter.

20. **NOTICES.** Any and all notices required or permitted to be given to a party pursuant to the provisions of this Agreement will be in writing and will be effective and deemed to provide such party sufficient notice under this Agreement on the earliest of the following: (i) at the time of personal delivery, if delivery is in person; (ii) at the time an electronic confirmation of receipt is received, if delivery is by email; (iii) at the time of transmission by facsimile, addressed to the other party at its facsimile number specified herein (or hereafter modified by subsequent notice to the parties hereto), with confirmation of receipt made by both telephone and printed confirmation sheet verifying successful transmission of the facsimile; (iv) one (1) business day after deposit with an express overnight courier for United States deliveries, or two (2) business days after such deposit for deliveries outside of the United States, with proof of delivery from the courier requested; or (v) three (3) business days after deposit in the United States mail by certified mail (return receipt requested) for United States deliveries. Any notice for delivery outside the United States will be sent by email, facsimile or by express courier. Any notice not delivered personally or by email will be sent with postage and/or other charges prepaid and properly addressed to Participant at the last known address or facsimile number on the books of the Company, or at such other address or facsimile number as such other party may designate

by one of the indicated means of notice herein to the other parties hereto or, in the case of the Company, to it at its principal place of business. Notices to the Company will be marked "Attention: Chief Financial Officer." Notices by facsimile shall be machine verified as received.

21. **AMENDMENT; WAIVER**. No amendment or modification of any provision of this Agreement that has a material adverse effect on the Participant shall be effective unless signed in writing by or on behalf of the Company and the Participant; *provided* that the Company may amend or modify this Agreement without the Participant's consent in accordance with the provisions of the Plan or as otherwise set forth in this Agreement. No waiver of any breach or condition of this Agreement shall be deemed to be a waiver of any other or subsequent breach or condition, whether of like or different nature. Any amendment or modification of or to any provision of this Agreement, or any waiver of any provision of this Agreement, shall be effective only in the specific instance and for the specific purpose for which made or given.

22. **SUCCESSORS AND ASSIGNS.** The Company may assign any of its rights under this Agreement including its rights to purchase Shares under the Right of First Refusal. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth herein, this Agreement shall be binding upon Participant and Participant's heirs, executors, administrators, legal representatives, successors and assigns.

23. **GOVERNING LAW.** This Agreement shall be governed by and construed in accordance with the internal laws of the State of California as such laws are applied to agreements between California residents entered into and to be performed entirely within California. If any provision of this Agreement is determined by a court of law to be illegal or unenforceable, then such provision will be enforced to the maximum extent possible and the other provisions will remain fully effective and enforceable.

24. **FURTHER ASSURANCES.** The parties agree to execute such further documents and instruments and to take such further actions as may be reasonably necessary to carry out the purposes and intent of this Agreement.

25. **TITLES AND HEADINGS.** The titles, captions and headings of this Agreement are included for ease of reference only and will be disregarded in interpreting or construing this Agreement. Unless otherwise specifically stated, all references herein to "sections" and "exhibits" will mean "sections" and "exhibits" to this Agreement.

26. **COUNTERPARTS.** This Agreement may be executed in any number of counterparts, each of which when so executed and delivered will be deemed an original, and all of which together shall constitute one and the same agreement.

27. **SEVERABILITY**. If any provision of this Agreement is determined by any court or arbitrator of competent jurisdiction to be invalid, illegal or unenforceable in any respect, such provision will be enforced to the maximum extent possible given the intent of the parties hereto. If such clause or provision cannot be so enforced, such provision shall be stricken from this Agreement and the remainder of this Agreement shall be enforced as if such invalid, illegal or

unenforceable clause or provision had (to the extent not enforceable) never been contained in this Agreement. Notwithstanding the forgoing, if the value of this Agreement based upon the substantial benefit of the bargain for any party is materially impaired, which determination as made by the presiding court or arbitrator of competent jurisdiction shall be binding, then both parties agree to substitute such provision(s) through good faith negotiations.

* * * * *

Exhibit 10.16

Certain information (indicated by asterisks) has been omitted from this document because it is both not material and would likely cause competitive harm to the registrant if publicly disclosed.

***Text Omitted for Confidential Treatment. The redacted information has been excluded because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

AMENDED AND RESTATED SUPPLY AND COMMERCIALIZATION AGREEMENT

This Amended and Restated Supply and Commercialization Agreement (this "**Agreement**") effective as of February 28, 2017, (the "**Effective Date**") is entered into between Illumina, Inc., a Delaware corporation, having a place of business at 5200 Illumina Way, San Diego, CA 92122 ("**Illumina**") and GRAIL, Inc., a Delaware corporation, having a place of business at 200 Cardinal Way, 2nd Floor, Redwood City, CA 94063 ("**GRAIL**"). Illumina and GRAIL may each be referred to individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

A. Illumina develops, manufactures, and sells products for, among other things, the analysis of nucleic acids;

B. GRAIL desires that Illumina supply GRAIL with products and grant GRAIL certain rights, and Illumina agrees to provide such products and grant such rights, on the terms set forth in this Agreement;

C. Illumina and GRAIL entered into that certain Supply and Commercialization Agreement effective as of January 7, 2016 (the "Original Agreement" and the "Original Effective Date"); and

D. Illumina and GRAIL desire to amend and restate the Original Agreement as set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained in this Agreement, the foregoing recitals, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. DEFINITIONS

The following capitalized terms will have the following meanings:

1.1 "**Advisors**" means, with respect to a Party, its and its Affiliates' attorneys, accountants, financial advisors, and other similar advisors.

1.2 "**Affiliate**" means, with respect to a Party or other party, any person or entity which at the time in question directly or indirectly controls, is controlled by, or is under common control with, such Party or other party. For the purposes of this definition, Section 1.4, and Section 1.38, "control" means the possession, directly or indirectly, of: (a) more than 50% of the voting interests of an entity; or (b) the power to direct or cause the direction of the management or policies of an entity, whether through the ownership of voting interests, by agreement with respect to the voting of voting interests, by other agreement conferring control over management or policy decisions, by virtue of the power to control the composition of the board of directors or managers, or otherwise. The terms "controlling" and "controlled" will have correlative meanings. Notwithstanding the foregoing, for purposes of this Agreement: (x) Helix Holdings I, LLC, and its subsidiaries, successors, and members are not Affiliates of Illumina; and (y) Illumina Innovation Fund I, L.P and its subsidiaries, successors, and partners are not Affiliates of Illumina.

1.3 "**Assignment and Assumption Agreement**" has the meaning set forth in Section 7.1.

1.4 "**Change in Control**" means the occurrence of any of the following:

(a) the sale, transfer, assignment, or other disposition of securities of GRAIL (or any Affiliate of GRAIL that controls GRAIL) representing a majority of the voting power of GRAIL's outstanding voting securities (or a majority of the voting power of the outstanding voting securities of any Affiliate of GRAIL that controls GRAIL) in any one transaction or a series of related transactions;

(b) any transaction or series of related transactions in which the holders of the outstanding securities of GRAIL (or any Affiliate of GRAIL that controls GRAIL) immediately before such transaction(s), do not, immediately after such transaction(s), retain control of GRAIL (or any Affiliate of GRAIL that controls GRAIL);

(c) any direct or indirect acquisition of GRAIL or any Affiliate of GRAIL that controls GRAIL by means of merger, consolidation, exchange or contribution of equity, or other form of reorganization in one transaction or a series of related transactions with or into another entity;

(d) the liquidation or dissolution of GRAIL or any Affiliate of GRAIL that controls GRAIL; or

(e) any direct or indirect sale, transfer, or other disposition of all or substantially all of the assets of GRAIL to which this Agreement relates.

1.5 "**Claims**" has the meaning set forth in Section 11.1.

1.6 "**Collaboration IP**" has the meaning set forth in Section 7.5(b).

1.7 "**Competitor of Illumina**" means any person or entity that develops, sells, or otherwise commercializes or has announced its intention to develop, sell, or otherwise commercialize nucleic acid sequencing instruments, or any Affiliate of any such person or entity.

1.8 "**Confidential Information**" means all information and know-how and any tangible embodiments thereof provided by or on behalf of the Disclosing Party to the Receiving Party in the course of performing under this Agreement (including under the Original Agreement prior to the Effective Date), which may include data, knowledge, practices, processes, ideas, research plans, formulations, or manufacturing techniques, marketing and business plans, financial information, personnel information, and other information relating to the Disclosing Party or to its present or future products, sales, suppliers,

customers, employees, investors or business; provided however that Confidential Information specifically excludes any information which:

(a) at the time of disclosure is generally available to the public;

(b) after disclosure becomes generally available to the public by publication or otherwise through no fault of the Receiving Party or its Representatives or Advisors;

(c) the Receiving Party can show was in its possession or in the possession of its Representatives prior to the time of disclosure by the Disclosing Party and which was not acquired, directly or indirectly, from the Disclosing Party or its Representatives, and which is held by the Receiving Party free of any obligation of confidence to any Third Party;

(d) the Receiving Party can show was received by it after the time of disclosure by the Disclosing Party from a Third Party who had a lawful right to disclose it to the Receiving Party and who did not require the Disclosing Party to hold it in confidence; or

(e) the Receiving Party can show was developed by or for the Receiving Party or its Representatives without any use of the Disclosing Party's Confidential Information or violation of this Agreement.

1.9 "**Development IP**" has the meaning set forth in Section 8.4(c).

1.10 "**Disclosing Party**" means a Party who discloses its Confidential Information to the other Party.

1.11 "**Exclusivity Period**" has the meaning set forth in Section 6.2.

1.12 "**Executives**" has the meaning set forth in Section 14.2.

1.13 "**Force Majeure**" has the meaning set forth in Section 14.9.

1.14 "**Forecast**" and "**Forecast Due Date**" have the meanings set forth in Section 3.4(a).

1.15 "**GAAP**" means generally accepted accounting principles in the United States at the time in question.

1.16 "**GRAIL Confidential Information**" means all Confidential Information disclosed by or on behalf of GRAIL to Illumina and its Affiliates. For clarity, GRAIL Confidential Information does not include any Illumina Intellectual Property Rights or Illumina Confidential Information that is included in, combined with, or disclosed with GRAIL Confidential Information.

1.17 "**GRAIL Intellectual Property Rights**" means all Intellectual Property Rights owned or controlled (including under license) by GRAIL or its Affiliate.

1.18 "**GRAIL In-Licenses**" has the meaning set forth in Section 8.3(a).

1.19 "**Illumina Confidential Information**" means all Confidential Information disclosed by or on behalf of Illumina or its Affiliates to GRAIL or its Affiliates. For clarity, Illumina Confidential Information does not include any GRAIL Intellectual Property Rights or GRAIL Confidential Information that is included in, combined with, or disclosed with Illumina Confidential Information.

1.20 "**Illumina Intellectual Property Rights**" means all Intellectual Property Rights owned or controlled (including under license) by Illumina or its Affiliate.

1.21 "**Illumina Know-How**" has the meaning set forth in Section 8.1(a).

1.22 "**Illumina Technology**" means any and all Technology owned or controlled (including under license) by Illumina or its Affiliate.

1.23 **"Improvements**" has the meaning set forth in Section 8.2(a).

1.24 "**Initial Term**" has the meaning set forth in Section 13.1.

1.25 "**Intellectual Property Rights**" means all rights in patent, copyrights, trade secrets, know-how, trademark, service mark, and trade dress rights, and other industrial or intellectual property rights under the laws of any jurisdiction, whether registered or not, and including all applications or rights to apply therefor and registrations thereto.

1.26 "**Joint Collaboration IP**" has the meaning set forth in Section 7.5(b).

1.27 "**K2 Development IP**" has the meaning set forth in Section 7.2(c).

1.28 "**Law**" means: (a) all statutes, statutory instruments, regulations, ordinances, or legislation to which a Party is subject; (b) common law and the law of equity as applicable to a Party; (c) binding court orders, judgments or decrees; (d) industry code of practice, guidance, policy, or standards, in each case to the extent enforceable by a governmental or regulatory authority as law; and (e) applicable policies, rules, or orders made or given by a governmental or regulatory authority.

1.29 **"List Price**" means, in each case on the date of determination, Illumina's prevailing list price for the Product or Service Contract in question in the jurisdiction where the Product is to be shipped.

1.30 "**Losses**" has the meaning set forth in Section 11.1.

1.31 "**Mediation Request**" has the meaning set forth in Section 14.2(c)

1.32 "**MSK Agreement**" means the Joint Development and Sponsored Research Agreement entered into by and between Illumina and Memorial Sloan Kettering Cancer Center dated as of September 4, 2015, together with any amendments thereto.

1.33 "**Notice**" has the meaning set forth in Section 14.8.

1.34 "**Net Sales**" for arm's-length Sales of any Oncology Service or Oncology Product means the gross amount invoiced or otherwise charged by GRAIL or its Operational Affiliate for the Sale of such Oncology Service or Oncology Product, less the following items to the extent actually taken or incurred and separately accounted for in the invoice with respect to such Sale and all in accordance with standard allocation procedures, allowance methodologies, and accounting methods consistently applied in accordance with GAAP (except as otherwise provided below):

(a) credits or allowances for returns, rejections, recalls, or billing corrections;

(b) separately itemized and invoiced freight, postage, shipping and insurance, handling, and other transportation costs, provided that such items are passed on to the purchaser (or other acquirer) at cost;

(c) sales, use, value added, and other similar taxes (excluding income taxes), tariffs, customs duties, surcharges, and other governmental charges levied on the production, sale, transportation, delivery, use, or performance of such Oncology Service or Oncology Product that are incurred at time of the transaction, are directly related to the transaction, and are actually paid to the governmental authority; and

(d) any reasonable and customary quantity, cash, or other trade discounts, rebates, or charge backs; provided that the aggregate deductions under this clause (d) and clause (a) above shall not exceed, in any calendar year, [***]% of the gross amount invoiced or otherwise received for the Sale of such Oncology Service or Oncology Product.

For clarity, no deductions may be made for sales commissions or collection costs. For purposes of calculating Net Sales, a Sale will be deemed to occur upon GRAIL invoicing or otherwise charging the customer or other recipient for the Oncology Product or Oncology Service in question. GRAIL's or its Operational Affiliate's Sale of Oncology Service or Oncology Product to an Affiliate will not be included in Net Sales (unless such Affiliate is an end-user of such Oncology Service or Oncology Product), and Net Sales for such Oncology Service or Oncology Product will be recognized upon sale, transfer, or other disposition to a Third Party.

If: (a) an Oncology Service or Oncology Product is Sold in a manner that is not an arm's-length transaction; or (b) an Oncology Service or Oncology Product is Sold in-kind or for non-cash consideration, Net Sales for such transaction will equal the average Net Sales for such Oncology Service or Oncology Product in the applicable country during the preceding calendar quarter. If there is not sufficient information available to determine such average Net Sales price, Illumina and GRAIL will negotiate in good faith an appropriate Net Sales value, taking into consideration the fair market value of such Oncology Service or Oncology Product and the Net Sales of similar Oncology Services or Oncology Products in similar countries.

If an Oncology Product is used by or on behalf GRAIL or its Operational Affiliate to perform an Oncology Service, Net Sales for such transaction will equal the greater of: (a) the average Net Sales for such Oncology Product in the applicable country during the preceding calendar quarter; or (b) the Net Sales from the Sale of such Oncology Service. If there is not sufficient information available to determine the average Net Sales price for such Oncology Product in the applicable country during the preceding calendar quarter, Illumina and GRAIL will negotiate in good faith an appropriate Net Sales value for purposes of this calculation, taking into consideration, among other relevant factors, the fair market value of such Oncology Product and the Net Sales of similar Oncology Products in countries similarly situated with respect to the market for such Oncology Product and similar Oncology Products. Any Dispute as to the Net Sales value of any Oncology Product or Oncology Service will be resolved pursuant to the expedited Dispute resolution proceedings of Section 14.2(c).

1.35 "**Oncology**" means: (i) the prevention, immunization, risk assessment, detection, screening, diagnosis, staging, treatment, therapy, palliative care, cure, surveillance, monitoring, or prognosis of, for, or concerning cancer or cancer patients; (ii) any other testing of, for, or concerning cancer or cancer patients; and (iii) any research or development of or concerning any of the foregoing, or otherwise concerning cancer or cancer patients.

1.36 "**Oncology Products**" means all products Sold in, for use in, or having applications in the field of Oncology. As used in this definition, "products" includes any tangible or intangible item, material, composition, or device, including kits, nucleotides, buffers, reagents, equipment, instruments, hardware, software, and any component of any of the foregoing.

1.37 "**Oncology Services**" means all Services Sold in, or for use in, or having applications in the field of Oncology. As used in this Agreement, "Service" includes any work or service of any kind performed by or on behalf of GRAIL or its Operational Affiliate, including genotyping services, sequencing services, screening services, diagnostic services, other testing services, interpretation services, maintenance services, software or data provided as a service, research services, development services, collaborative services, and clinical trial services.

1.38 "**Operational Affiliates**" means Affiliates of GRAIL under GRAIL's control (for so long as they remain Affiliates of GRAIL under GRAIL's control) materially engaged in operational aspects of GRAIL's business, which operational aspects include laboratory operations, marketing, and distribution; provided however that no such Affiliate will be an Operational Affiliate if any Competitor of Illumina, or any Affiliate of any Competitor of Illumina, has any ownership interest in such Affiliate or any right to otherwise receive proceeds, or access to Intellectual Property Rights, from the operations of such Affiliate.

1.39 "**Option**" has the meaning set forth in Section 8.3(b).

1.40 “**Option IP**” has the meaning set forth in Section 8.3(a).

1.41 “**Option Period**” has the meaning set forth in Section 8.3(b).

1.42 “**Original Agreement**” and “**Original Effective Date**” have the meanings set forth in the Recitals.

1.43 “**Other IP**” has the meaning set forth in Section 8.7(c).

1.44 “**Other Oncology Revenue**” means all revenue generated by, and all consideration received by, GRAIL or any of its Operational Affiliates from or in connection with any activities in or directed to the field of Oncology, or otherwise arising from or attributable to the field of Oncology, other than revenue generated, or consideration received, from or in connection with the Sale of Oncology Products and Oncology Services. For example, and without limitation, Other Oncology Revenue includes revenues generated from the licensing (or granting of similar rights) under GRAIL Intellectual Property Rights excluding GRAIL In-Licenses in the field of Oncology. If GRAIL or its Operational Affiliate receives non- cash consideration (including shares of equity or in- kind contribution of goods or services), or consideration in a transaction that is not at arm’s length (including any transfer of Technology or Intellectual Property Rights to an Affiliate), from any activities in or directed to the field of Oncology, or otherwise arising from or attributable to the field of Oncology (other than the Sale of Oncology Products and Oncology Services) such consideration will be included in Other Oncology Revenue based on the fair market value of such consideration, as determined by the good faith negotiation of the Parties. Any Dispute as to the fair market value of such consideration will be resolved pursuant to the expedited Dispute resolution proceedings of Section 14.2(c). Notwithstanding the foregoing, Other Oncology Revenue does not include consideration received as reimbursement for costs incurred pursuant to a collaboration with a Third Party (including overhead and personnel costs), reimbursement for GRAIL’s purchase of equipment or supplies, payments received in the form of grants for research from governmental entities or non- profit organizations, or Intellectual Property Rights received as part of a collaboration (though Royalty may be due resulting from the exploitation of such Intellectual Property Rights, as otherwise required by this Agreement), or payments received for purchase of GRAIL shares at fair market value (provided that any premium would not be excluded).

1.45 “**Product(s)**” means the Illumina products that are offered for sale under or purchased under this Agreement.

1.46 “**Purchase Order**” has the meaning set forth in Section 3.3.

1.47 “**Receiving Party**” means a Party who receives Confidential Information from the other Party.

1.48 “**Renewal Term**” has the meaning set forth in Section 13.1.

1.49 “**Representatives**” means, with respect to a Party, its Affiliates, and such Party’s and its Affiliates’ respective directors, officers, employees, and agents.

1.50 “**Royalty**” has the meaning set forth in Section 4.1.

1.51 “**Sale**” means the sale, distribution, lease, license, provision, performance, or other transfer, making available, or exploitation of the product or service in question. The terms “Sell” and “Sold” will have correlative meanings.

1.52 “**Service Contract**” means a separate written agreement that governs the provision of service and maintenance for Illumina instruments (for a separate fee) by Illumina or its Affiliate.

1.53 “**Technology**” means any and all: (a) formulae, algorithms, procedures, processes, methods, techniques, ideas, know-how, creations, inventions, discoveries, and improvements (in each case, whether or not patentable and whether or not reduced to practice); (b) technical, scientific,

engineering, manufacturing, or clinical information; (c) specifications, designs, schematics, models, devices, apparatus, prototypes, schematics and development tools; (d) software (including all software implementations of algorithms, models and methodologies, whether in source code or object code) and other works of authorship; (e) compositions, structures, reagents, formulations, assay components, oligonucleotides, probes, and other chemical and biological materials; and (f) any other forms of technology; in each case of (a)-(f) (inclusive) whether or not embodied in any tangible form and including all tangible embodiments of any of the foregoing.

1.54 "**Term**" has the meaning set forth in Section 13.1/

1.55 "**Terms and Conditions**" means, with respect to each Product ordered in each Purchase Order, Illumina's then-current prevailing terms and conditions of sale with respect to such Product (including, with respect to software and software-as-a-service products, any end user license agreements, terms and conditions of use, and similar terms and conditions) in the jurisdiction where the Product is to be shipped.

1.56 "**Third Party**" means any party other than: (a) GRAIL or any of its Affiliates; or (b) Illumina or any of its Affiliates.

1.57 "**Third Party Royalties**" means non-refundable earned royalties that GRAIL or its Operational Affiliate is contractually obligated to pay to a Third Party upon the Sale of an Oncology Product or Oncology Service pursuant to a license agreement entered into at arm's length with such Third Party, under which GRAIL or its Operational Affiliate is granted a license to Sell such an Oncology Product or Oncology Service and, in the absence of such license agreement, the Sale of such an Oncology Product or Oncology Service would infringe upon an issued, unexpired, valid, patent owned or otherwise controlled by such Third Party and licensed to GRAIL or its Operational Affiliate in such license agreement.

2. AMENDMENT AND RESTATEMENT

GRAIL and Illumina hereby amend, restate, and replace the Original Agreement in its entirety with this Agreement, effective as of the Effective Date. For clarity, and without limiting the generality of the foregoing, this Agreement will govern and supersede the Original Agreement with respect to GRAIL's and its Operational Affiliates' rights to use Products purchased from Illumina and its Affiliates under the Original Agreement prior to the Effective Date.

3. PRODUCT SUPPLY TERMS

3.1 Rights to Purchase Products.

(a) During the Term, subject to, and contingent upon GRAIL's and its Operational Affiliates' continued compliance with, the terms and conditions of this Agreement and the applicable Terms and Conditions, GRAIL and its Operational Affiliates may purchase any Products that Illumina makes generally commercially available for purchase by other arm's length end-user customers at the time GRAIL or its Operational Affiliate issues a Purchase Order for such Products. For clarity, the foregoing excludes without limitation the following items, and GRAIL and its Operational Affiliates may not purchase any of the following items under this Agreement unless Illumina consents to such purchase in a separate written document specifically referencing this Section: custom products; products in development or beta testing; product components; products and product components that are sold to any Third Party for incorporation into, or bundling or sale with, one or more Third Party products; products sold in collaboration with one or more Third Parties, or as part of a partnership, joint venture, or similar relationship with one or more Third Parties; products for which Illumina is contractually prohibited from selling to GRAIL and its Operational Affiliates on the terms set forth in this Agreement (including pricing); and Third Party products sold or distributed by or for Illumina or any of its Affiliates. Illumina will provide GRAIL with quotes for any Products pursuant to the procedure set forth in **Exhibit A**. The price for each Product will be based on Illumina's then current List Price for such Product at the time of purchase by

GRAIL or its Operational Affiliate, subject to the discount table set forth in **Exhibit A**. For the avoidance of doubt, List Prices may increase or decrease during the Term in Illumina's sole discretion in the usual course of Illumina's business.

(b) During the Term, GRAIL and its Operational Affiliates may (in its discretion) purchase Service Contracts for sequencing instrument Products purchased under this Agreement, to the extent that Illumina makes Service Contracts for such sequencing instrument Products generally commercially available for purchase by other arm's length end-user customers at the time GRAIL or its Operational Affiliate issues a Purchase Order for such Service Contracts. Each Service Contract will be on Illumina's then current standard Service Contract terms and conditions, and will be offered at the then current List Price for such Service Contract at the time of purchase, subject to the discount table set forth in **Exhibit A**. Each Service Contract will exclusively govern Illumina's maintenance and support obligations with respect to the applicable sequencing instrument product.

(c) The rights granted in this Section 3.1 are personal to GRAIL and its Operational Affiliates and may not be assigned, transferred, further granted, or otherwise conveyed except pursuant to Section 14.6. Any purported assignment, transfer, grant, or other conveyance of any of the rights granted in this Section 3.1 (or any portion of such rights), except pursuant to Section 14.6, is prohibited and will be null, void, and of no effect.

3.2 Incorporation of Terms and Conditions.

(a) Each purchase of Product by GRAIL or its Operational Affiliate under this Agreement is subject to the applicable Terms and Conditions for such Product. Subject to the provisions of this Section 3.2, the Terms and Conditions are incorporated into and made a part of this Agreement with respect to the supply of Products.

(b) To the extent any provision of the Terms and Conditions directly conflicts with a provision in this Agreement, the provision in this Agreement will control.

(c) This Agreement, including the Terms and Conditions as incorporated herein, exclusively governs the ordering, purchase, supply, and use of Products, and overrides any conflicting, amending, or additional terms or conditions contained in any Purchase Orders or similar documents, all of which are hereby rejected and are null and void. Illumina's failure to object to any such terms or conditions will not constitute a waiver by Illumina, nor constitute acceptance by Illumina of such terms or conditions. All of GRAIL's and its Operational Affiliates' purchases of Products from Illumina and its Affiliates must be made under, and will in all cases be governed by, this Agreement.

3.3 Purchase Orders. GRAIL and its Operational Affiliates will order all Product using written purchase orders ("**Purchase Orders**") that will state, at a minimum, the Illumina part number, the Illumina quote number (or other reference number provided by Illumina), the quantity ordered, price, requested delivery date, and address for delivery. All Purchase Orders will be sent to the attention of Illumina Customer Service (via email at [***] or fax at [***]) or to any other person or department designated by Illumina in writing. Acceptance of a Purchase Order occurs only when Illumina provides the purchasing entity a written acceptance, which Illumina shall promptly do in accordance with Section 3.4(e) below. Purchase Orders must be submitted in accordance with this Agreement. All Purchase Orders accepted by Illumina are non-cancelable by the purchasing entity and may not be modified without the prior written consent of Illumina.

3.4 Forecasts.

(a) GRAIL will, on a monthly basis on or before the first day of each calendar month (each, a "**Forecast Due Date**"), provide Illumina with a forecast representing GRAIL's good faith estimate of the type and amount of Products that GRAIL and its Operational Affiliates expect to purchase during the 12 calendar months following that Forecast Due Date, on a month- by- month basis ("**Forecast**"). The [***] of each Forecast is a binding commitment by GRAIL and its Operational Affiliates (on a joint and

several basis) to take receipt of and pay for, and on Illumina to sell (following Illumina's receipt and acceptance of a Purchase Order issued in compliance with this Agreement), that type and quantity of Product. All Forecasts issued under the Original Agreement will continue to apply under this Agreement. Each Forecast after the Effective Date will be accompanied by a Purchase Order for all Products set forth in the [***] of such Forecast (as all Products for the [***] will have already been covered by a prior Purchase Order).

(b) Illumina will use commercially reasonable efforts to accept the delivery dates requested in each Purchase Order in light of Product inventory, manufacturing capacity and build time, and commitments to other customers. Illumina will deliver the forecasted Products that are ordered pursuant to a Purchase Order accepted by Illumina on or before the agreed-upon delivery dates.

(c) GRAIL may only provide one Forecast per calendar month for the cumulative Product needs of GRAIL and all of its Operational Affiliates. If GRAIL and its Operational Affiliates cumulatively provide more than one Forecast in any given calendar month, Illumina may, in its discretion, reject all but the first Forecast.

(d) Illumina has no obligation to provide Product if GRAIL or an Operational Affiliate has not provided a Purchase Order covering such Product by the Forecast Due Date, and the failure to provide a Purchase Order will not relieve GRAIL and its Operational Affiliates of any of its obligations arising from Forecasts. Such failure may, among other things, result in a delay in delivery of Products to GRAIL or its Operational Affiliates.

(e) Illumina will accept Purchase Orders issued in compliance with this Agreement that contain forecasted types and quantities of Product (subject to the Parties reaching agreement on delivery dates as described in paragraph (b) above). Illumina has no obligation to accept Purchase Orders that contain un-forecasted types or quantities of Product. Illumina may, in its discretion, accept Purchase Orders for un-forecasted types or quantities of Product.

3.5 Unauthorized Use.Neither GRAIL nor its Operational Affiliates may use any Product or Illumina Intellectual Property Right conferred to GRAIL or its Operational Affiliate upon the purchase of any Product or otherwise provided to GRAIL by Illumina in any manner or for any purpose not expressly permitted by the applicable Terms and Conditions. Actual knowledge by Illumina or its Affiliates that GRAIL or its Operational Affiliate is using Illumina's or its Affiliates' Intellectual Property Rights or Products in any manner or for any purpose other than as expressly permitted by the applicable Terms and Conditions does not waive or otherwise limit any rights that Illumina or its Affiliates may have as a result of such use of Intellectual Property Rights or Products, including any rights or remedies available under this Agreement, at Law, or in equity. For clarity, any trade usage, course of performance, or course of dealing between Illumina and GRAIL, does not, and may not be construed to, expand the rights granted to GRAIL and its Operational Affiliates in this Agreement. This Agreement limits the exhaustion of patent rights that could otherwise result if the sale of Products to GRAIL and its Operational Affiliates was made without restriction.

3.6 Supply Remedies. In addition to all remedies under the Terms and Conditions, this Agreement, at Law, or in equity, in the event of any material breach of the restrictions on use of Products under this Agreement or the applicable Terms and Conditions, Illumina may notify GRAIL in writing of such breach and require GRAIL to cure such breach within 30 days of the date of such notice. If GRAIL fails to cure such breach within the applicable cure period, Illumina may do any, all, or any combination of the following in addition to all other remedies under the Terms and Conditions, this Agreement, at Law, or in equity: (a) cease further shipments of the Product with respect to which GRAIL or its Operational Affiliate breached the restrictions; (b) terminate any Service Contracts then in effect for the affected Product; or (c) terminate any remaining product warranty for the affected Product.

3.7 Operational Affiliates. For the avoidance of doubt, except with respect to Operational Affiliates to the extent expressly permitted by this Agreement, this Agreement is personal to GRAIL and

the rights regarding purchase and use of Products do not extend to Affiliates of GRAIL. GRAIL will be responsible for any conduct by its Affiliate that constitutes a breach of this Agreement or that would be a breach of this Agreement by GRAIL had GRAIL engaged in such conduct itself. Such conduct will be deemed and is a breach of this Agreement by GRAIL. Without limiting the generality of the foregoing, all restrictions set forth in this Agreement with respect to GRAIL's purchase and use of Products and Illumina Intellectual Property Rights will apply to all Operational Affiliates, and the purchase or use of any Product or use of Illumina Intellectual Property Rights by any Operational Affiliate in violation of any such restriction will be deemed and is a breach of that restriction, and this Agreement, by GRAIL. GRAIL and its Operational Affiliates are jointly and severally liable under this Agreement. GRAIL represents and warrants that is has no Operational Affiliates as of the Effective Date. GRAIL will provide Illumina with written notice each time an entity becomes an Operational Affiliate or ceases to be an Operational Affiliate within 30 days of the occurrence of such event, and will provide Illumina with such information as Illumina may from time to time reasonably request in order to confirm such entity's status as an Operational Affiliate.

4. ROYALTY

4.1 Royalty. As partial consideration for the cumulative contributions of Illumina and its Affiliates to the success of GRAIL, including assistance in the formation of GRAIL and first-mover advantage enabled by Illumina's efforts, the rights granted and covenants made by Illumina in the Original Agreement, and the rights granted and covenants made by Illumina in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, GRAIL and its Operational Affiliates will pay to Illumina the following amounts (collectively, the "**Royalty**"):

(a) [***]% (subject to potential reduction pursuant to Sections 4.2 and 4.3 below) of Net Sales of all Oncology Products and Oncology Services; and

(b) [***]% (subject to potential reduction pursuant to Section 4.2 below) of all Other Oncology Revenue.

In the event of a Change in Control of GRAIL, the foregoing royalties shall not be payable by an entity acquiring Control of GRAIL in the Change in Control with respect to: (a) Net Sales of any Oncology Products or Oncology Services; or (b) Other Oncology Revenue; in each case that was already sold or generated, as applicable, by such entity before the Change in Control without any involvement, improvement, or modification by or on behalf of GRAIL or its Operational Affiliate and without the use of any Technology or Intellectual Property Rights of GRAIL or its Operational Affiliate, and is Sold after the Change in Control without any involvement, improvement, or modification by or on behalf of GRAIL or its Operational Affiliate and without the use of any Technology or Intellectual Property Rights of GRAIL or its Operational Affiliate.

4.2 Royalty Reductions.

(a) If, during any calendar year set forth below, GRAIL and its Operational Affiliates cumulatively pay Royalty to Illumina in amounts equal to the Royalty target amounts set forth below for such calendar year, the Royalty percentage payable pursuant to Sections 4.1(a) and 4.1(b) above for the remainder of such calendar year will be reduced to [***]%. At the end of such calendar year, the Royalty

percentage will automatically (without any action required by either Party) revert to [***]% (subject to potential reduction in the next calendar year as set forth in the first sentence of this Section 4.2(a).

Year	Oncology Revenue Target (USD in Millions)	Royalty Target (USD in Millions)
2017	[***]	[***]
2018	[***]	[***]
2019	[***]	[***]
2020	[***]	[***]
2021	[***]	[***]
2022	[***]	[***]
2023	[***]	[***]
2024	[***]	[***]
2025	[***]	[***]
2026	[***]	[***]
2027	[***]	[***]

(b) Once GRAIL and its Operational Affiliates have cumulatively paid Royalty to Illumina totaling $[***], the Royalty percentage payable pursuant to Sections 4.1(a) and 4.1(b) above will thereafter be reduced to a minimum floor of [***]%, without any further reduction pursuant to Section 4.2(a) or 4.3 or otherwise.

4.3 Anti-Stacking.

(a) Unless the Royalty percentage has been reduced to the minimum floor of [***]% pursuant to Section 4.2(b) above, if GRAIL or its Operational Affiliate pays any Third Party Royalties to one or more Third Parties in any calendar quarter, then GRAIL or such Operational Affiliate may reduce the Royalty payable for such calendar quarter under Section 4.1(a) above by the amount of such payments; provided however, that in no event will the Royalty payable under Section 4.1(a) be less than [***]% of Net Sales of all Oncology Products and Oncology Services (on a cumulative basis). For clarity, Third Party Royalties may only be deducted from Royalty during the calendar quarter during which such Third Party Royalties are actually paid by GRAIL or its Operational Affiliate, and may not be carried forward or otherwise credited toward any future calendar quarter. GRAIL agrees not to (and will ensure that none of its Operational Affiliates) circumvent the foregoing restrictions in this Section 4.3(a) by taking any action (or omitting to take any action), including deferment of payment of any Third Party Royalties beyond the calendar quarter for which they are due.

(b) Within ten days of Illumina's request, GRAIL will provide Illumina with un-redacted copies of any license agreements pursuant to which Royalty has been reduced pursuant to Section 4.3(a) above, and copies of all patents and patent applications under which rights are granted to GRAIL or its Operational Affiliate pursuant to such license agreements. GRAIL will provide such additional information concerning such licenses as Illumina may reasonably request from time to time to confirm the amounts by which GRAIL and its Operational Affiliates have reduced, pursuant to Section 4.3(a), the Royalty payable under Section 4.1(a). GRAIL will be solely responsible for ensuring that it has the right to provide Illumina with all documents and information required by this Section.

4.4 Apportionment.

(a) To the extent any Oncology Product or Oncology Service Sold by GRAIL or its Operational Affiliate has applications outside the field of Oncology, and GRAIL reasonably demonstrates to Illumina that such Oncology Product or Oncology Service is being materially and appropriately used both within and outside the field of Oncology, GRAIL and Illumina will in good faith negotiate the potential apportionment of revenue attributable to such Oncology Product or Oncology Service between the field of

Oncology and such other field(s). In determining the appropriate apportionment (if any) of any such Oncology Product or Oncology Service, the Parties will consider, without limitation: (i) the likelihood that such Oncology Product or Oncology Service is used within and outside the field of Oncology; (ii) the estimated percentage of uses of such Oncology Product or Oncology Service within and outside of the field of Oncology; (iii) the revenue GRAIL and its Affiliates receive from Sale of similar products within and outside the field of Oncology; and (iv) the prices of similar products and services Sold by Third Parties within and outside the field of Oncology.

(b) To the extent that GRAIL reasonably demonstrates to Illumina that certain Other Oncology Revenue is derived in part from the field of Oncology and in part from one or more other field(s), GRAIL and Illumina will in good faith negotiate the potential apportionment of such revenue between the field of Oncology and such other field(s). Specifically, if GRAIL or its Operational Affiliate licenses (or grants similar rights or covenants) under GRAIL Intellectual Property Rights both within and outside of the field of Oncology, GRAIL and Illumina will in good faith negotiate the potential apportionment of revenue received from such arrangement, taking into consideration, without limitation: (i) the likelihood that such GRAIL Intellectual Property Rights are used within and outside the field of Oncology; (ii) the estimated value of uses of such GRAIL Intellectual Property Rights within and outside of the field of Oncology; (iii) the revenue GRAIL and its Affiliates receive from the grant of any licenses, rights, or covenants, or any other exploitation, of the same or similar GRAIL Intellectual Property Rights within and outside the field of Oncology; and (iv) the terms under which Third Parties grant any licenses, rights, or covenants with respect to similar Intellectual Property Rights within and outside the field of Oncology. Upon either Party's request, such allocations may be revised from time to time (no more than once per calendar year) pursuant to good faith negotiations between the Parties in light of the actual activities of the licensee(s) or other recipient(s) of such GRAIL Intellectual Property Rights.

(c) Any Dispute as to any potential apportionment under this Section 4.4 will be resolved pursuant to the expedited Dispute resolution proceedings of Section 14.2(c). Until such potential apportionment is resolved, either by written agreement of the Parties or by the expedited Dispute resolution proceedings of Section 14.2(c), GRAIL and its Operational Affiliates will pay Royalty on 100% of the Net Sales from the Sale of the applicable Oncology Product or Oncology Service, and Royalty on 100% of the applicable Other Oncology Revenue, without apportionment of any kind.

4.5 Royalty Reporting and Payment.

(a) GRAIL will submit a written report to Illumina within 60 days after the close of each calendar quarter during the Term and thereafter (for so long as Oncology Products or Oncology Services are Sold or Other Oncology Revenue is generated) showing on an entity-by-entity, product-by-product, service-by-service, and country-by-country basis: (i) the kind and number of Oncology Services and Oncology Products Sold (including a detailed explanation for any that were not Sold in an arm's-length transaction); (ii) the gross amount invoiced for such Oncology Services and Oncology Products on a product-by-product and service-by-service basis; (iii) the detailed calculation of Net Sales during the quarter on a product-by-product and service-by-service basis; (iv) a detailed calculation of Other Oncology Revenue; (v) the exchange rates used in determining each component of the Royalty; and (vi) the Royalty payable to Illumina, in each case for the subject calendar quarter. If GRAIL or its Operational Affiliate has reduced the Royalty payable by any Third Party Royalties, the report will describe in detail the payee, amount, and basis for such Third Party Royalties. All currency conversions will be made using GRAIL's standard financial reporting procedures which will be consistently applied in accordance with GAAP. GRAIL will provide such additional information concerning the calculation of the Royalty as Illumina may reasonably request from time to time to enable Illumina and its Affiliates to confirm the accuracy of such calculations. The reports for the first three quarters of each year will be unaudited, while the report for the fourth quarter will be audited by GRAIL's primary independent registered certified public accounting firm. Additionally, together with the report for the fourth quarter of each year, GRAIL will submit an audited annual year-end report, which will include the same level of detail as the quarterly reports. If any year-end report reveals that GRAIL underpaid Royalty in any prior quarter of such year, GRAIL will pay such amounts, together with interest thereon calculated pursuant to Section 4.5(b) below, concurrently with such report. If any year-end report reveals that GRAIL overpaid Royalty in any prior quarter of such year, GRAIL may credit such overpayment toward the Royalty owed for the fourth quarter. All such reports will be prepared consistently in accordance with GAAP, except to the extent otherwise expressly required by this Agreement. Together with each such report, GRAIL will include: (i) a letter from an authorized officer of GRAIL certifying that such report is accurate, complete, and has been prepared in accordance with GAAP (except to the extent otherwise expressly required by this Agreement); and (ii) a letter from GRAIL's primary independent registered certified public accounting firm certifying the such report is accurate, complete, and has been prepared in accordance with GAAP (except to the extent otherwise expressly required by this Agreement).

(b) Payment of the Royalty will be made concurrently with each such report. All payments of Royalty will be paid in the United States Dollars, by wire transfer pursuant to the following instructions, or in such other method as Illumina may reasonably designate. GRAIL and its Operational Affiliates may not deduct or withhold any wire transfer fees, bank charges, or any other fees or charges incurred in connection with making such payment. All payments of Royalty are exclusive of and are payable without withholding or deduction for taxes, GST, VAT, customs duties, tariffs, or other similar charges. If GRAIL or its Operational Affiliate fails to make any payment of Royalty before the date it is due, interest will accrue on such payment on a daily basis from the date such payment was originally due at a rate equal to [***]% per month compounded monthly, or the maximum amount allowed by Law, if lower, until paid. GRAIL's and its Operational Affiliates' obligations to pay interest on late payments may not be construed to limit or restrict any other right or remedy which may be available to Illumina.

[***]	[***]
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[***]	[***]
[***]	[***]

4.6 Illumina Audit Rights. GRAIL will keep accurate and correct records of its and its Operational Affiliates' compliance with this Section 4. GRAIL will retain such records for at least three years following the end of the calendar year to which they pertain. All such records will be available no more than once per calendar year during normal business hours for inspection at the expense of Illumina by a qualified Third Party auditor selected by Illumina and reasonably acceptable to GRAIL for the sole purpose of verifying compliance with this Section 4. Such auditor may not disclose to Illumina any information other than information relating to GRAIL's and its Operational Affiliates' compliance with this Section 4. In the event that any such inspection shows an error that resulted in GRAIL underpaying Illumina, GRAIL will pay such amounts to Illumina plus interest pursuant to Section 4.4(b). If any such inspection shows an error that resulted in GRAIL overpaying Illumina, Illumina will refund such overpaid amounts to GRAIL. In the event that GRAIL underpaid Illumina by an amount that is (a) equal to or exceeding [***]% for any applicable annual period, and (b) more than $[***] in the aggregate, GRAIL will pay Illumina's reasonable costs for such audit. Any amount due under this Section will be paid within 30 days after receipt of an invoice describing the amount.

4.7 Additional Clarifications. For the avoidance of doubt: (a) GRAIL's Royalty obligations are in partial consideration for the cumulative contributions of Illumina and its Affiliates to the success of GRAIL, as described in Section 4.1 above, and are not tied solely to any specific grant of Intellectual Property Rights, GRAIL's use of Products, or any other individual factor; and (b) the obligations of GRAIL and its Operational Affiliates under this Section 4 will survive the termination or expiration of this Agreement.

5. COMPLIANCE

5.1 Research Use Only. Except to the extent otherwise expressly set forth in the Terms and Conditions for certain in vitro diagnostic Products, the Products are labeled "For Research Use Only," and GRAIL acknowledges that the Products have not been subjected to any conformity assessment or other regulatory review, or certified, approved, or cleared by any regulatory entity or conformity assessment body, whether foreign or domestic (including the FDA), or otherwise reviewed, cleared, or approved under any Law for any purpose, whether research, commercial, diagnostic, or otherwise.

5.2 Compliance with Laws. GRAIL and its Operational Affiliates will comply with all Laws when using, maintaining, and disposing of Products and otherwise performing their business activities. Without limiting the generality of the preceding sentence, GRAIL and its Operational Affiliates will obtain and maintain all approvals, licenses, consents, authorizations, clearances, and CE marking (including self-certification when applicable) from applicable governmental and regulatory authorities that are necessary for GRAIL and its Operational Affiliates to use, maintain, and dispose of Products and otherwise operate their business.

6. EXCLUSIVITY

6.1 Exclusivity. During the Exclusivity Period, except as provided in the following sentence, Illumina and its Affiliates will not purchase equity, warrants, options, convertible notes, or otherwise loan funds or invest in any Third Party that derives, or is reasonably expected to derive, a principal source of revenue from providing clinical testing services for Screening. "**Screening**" means cancer diagnostic screening of undiagnosed persons. Notwithstanding the foregoing: (a) Illumina will not be in breach of this Section 6.1 by virtue of having purchased equity, warrants, options, or convertible notes, directly or indirectly through an Affiliate, in any Third Party prior to the Effective Date; and (b) Illumina and its Affiliates may purchase equity, warrants, options, or convertible notes in any Third Party in which Illumina or its Affiliate holds equity as of the Effective Date, in amounts no greater than what would be necessary to maintain Illumina's or such Affiliate's ownership position (on as as- converted basis, if applicable) in such Third Party.

6.2 Exclusivity Period. The "**Exclusivity Period**" means the [***] period commencing on the Effective Date; provided, however, that such period will be an extended for up to [***] (to expire on the

[***] of the Effective Date) if: (a) GRAIL and its Operational Affiliates have paid at least $[***] cumulatively to Illumina and its Affiliates for GRAIL's and its Operational Affiliates' purchase of Products from Illumina under this Agreement as of the **[***]** of the Effective Date; and (b) GRAIL and its Operational Affiliates have exclusively purchased and utilized Illumina sequencing instrument Products (including with respect to any sequencing services performed by, for, or on behalf of GRAIL or its Operational Affiliate) at all times prior to the [***] of the Effective Date, and continue to exclusively utilize Illumina sequencing instrument Products at all times prior to the [***] of the Effective Date. GRAIL will promptly provide Illumina with Notice if at any time GRAIL or its Operational Affiliate purchases, acquires, or otherwise utilizes any sequencing instrument other than an Illumina sequencing instrument Product (including with respect to any sequencing services performed by, for, or on behalf of GRAIL or its Operational Affiliate).

7. ASSIGNMENT OF MSK AGREEMENT, K2 ASSAY, DATA, AND COLLABORATIVE EFFORTS

7.1 Assignment of MSK Agreement. Concurrently with the execution of this Agreement, Illumina and GRAIL (together with Memorial Sloan Kettering Cancer Center) have executed the Assignment and Assumption Agreement attached as **Exhibit B** (the "**Assignment and Assumption Agreement**"), in order for Illumina to assign its rights and obligations under the MSK Agreement to GRAIL. A material breach of the Assignment and Assumption Agreement will constitute a breach of this Agreement, subject to the notice and cure provisions set forth herein.

7.2 K2 Assay.

(a) Under the Original Agreement, the Parties engaged in certain Joint Development Activities (as that term is defined in the Original Agreement) with respect to the development of an assay that Illumina intended to commercialize as a liquid biopsy assay. Illumina hereby releases GRAIL from any obligation to continue such Joint Development Activities. Within 30 days of the Effective Date, GRAIL will provide Illumina with a complete and accurate written disclosure of all results of the Joint Development Activities.

(b) In lieu of the Joint Development Activities, GRAIL will complete the development of a modified version of such assay (the "**K2 Assay**"), and deliver the K2 assay to Illumina, pursuant to and in accordance with the Development Plan attached as **Exhibit C** on the timelines set forth in such Development Plan. GRAIL's activities related to such development are referred to in this Agreement as the "**K2 Development Activities**."

(c) GRAIL will retain ownership of any Intellectual Property Rights it generates in the performance of the K2 Development Activities, and in any GRAIL Intellectual Property Rights incorporated into, embodied by, or used in the development of the K2 Assay (collectively, the "**K2 Development IP**"). GRAIL hereby grants and agrees to grant (immediately upon generation) to Illumina and its Affiliates an irrevocable, perpetual, worldwide, fully paid-up and royalty-free, non-exclusive, sub-licensable (except as set forth below), license, under all K2 Development IP to reproduce, display, publish, prepare derivative works of, distribute, make, have made, use (including to perform services), sell, offer to sell, import, and otherwise market, promote, commercialize and exploit products and services incorporating, embodying, or made or performed using, any K2 Development IP, or which would otherwise, in the absence of this license, infringe upon any K2 Development IP. GRAIL represents, warrants, and covenants that it has taken, and will continue to take, all actions necessary to cause each Representative who participates in generating any K2 Development IP to completely and irrevocably assign to GRAIL any and all rights that Representative has or may have in or to any K2 Development IP. During the Exclusivity Period, Illumina may not sub-license K2 Development IP to any Third Party in the field of Screening. For clarity, the Sale of a product or Service (including to a distributor or other reseller), and the grant of rights to purchasers and end-users of such product or Service (including the exhaustion of K2 Development IP upon such Sale), will not be considered a sub-license for the purposes of the foregoing restriction.

(d) GRAIL acknowledges and agrees that its breach of its obligations set forth in Section 7.2 will cause significant delays in Illumina's internal product development and validation efforts.

As such, if GRAIL fails to deliver the K2 Assay deliverables required by this Section 7.2 complete in all material respects on or before [***], and if Illumina provides Notice of such breach within 30 days of [***] and GRAIL fails to cure such breach within 30 days of Illumina providing Notice of such breach, Illumina will invoice GRAIL the amount of $[***], and GRAIL will pay such invoice within 30 days of receipt. Upon GRAIL's payment of such amount, GRAIL will be released from performing the remaining development obligations set forth in Section 7.2. The Parties acknowledge and agree that payment pursuant to this Section 7.2(d) constitutes compensation, and is the sole and complete remedy and cure, for the breach of Section 7.2(b) and the harm caused to Illumina, and not a penalty. The Parties acknowledge and agree that the harm caused to Illumina from such breach would be impossible or very difficult to accurately estimate as of the Effective Date, and that this amount is a reasonable estimate of the anticipated or actual harm that might arise from such a breach.

7.3 GRAIL to Provide Data.

(a) GRAIL will provide Illumina and its Affiliates with access to the following information and data collected or generated from GRAIL's or its Operational Affiliate's sequencing and analysis of fully-characterized (with phenotypic, demographic, and clinical information) plasma and tumor samples from 2,000 metastatic (e.g. Stage 3 or 4) cancer patients in the Circulating Cell-Free Genome Atlas Study (CCGA) (or any iteration, successor, or replacement of such study): [***]. GRAIL will provide such information and data on a rolling basis, within four (4) weeks of generating each set of merged plasma and tumor sequencing results]. The Parties will in good faith determine the mechanism for providing Illumina with prompt access to such information and data, with the goal of providing prompt and complete access in an efficient and practical manner. GRAIL anticipates that the first set of such data will be produced in the second [***], but GRAIL shall deliver data from at least [***] of these plasma samples and the corresponding available tumor data for these samples by [***]. GRAIL shall deliver data from the full 2,000 plasma samples and the corresponding available tumor data for these samples by the end of [***].

(b) GRAIL, on behalf of itself and its Operational Affiliates, hereby grants and agrees to grant (immediately upon generation) to Illumina and its Affiliates an irrevocable, worldwide, fully paid-up and royalty-free, non-exclusive, license, without right to sublicense, to reproduce, display, prepare derivative works of, and use such data obtained under clause (a) above solely for the purpose of internally validating the K2 Assay (and iterations and derivatives of the K2 Assay) and publication of the K2 Assay validation. Except as set forth in (c) below, the foregoing license shall terminate upon, and Illumina will only retain such data until, the date that is 6 months following the delivery of such data and information from the 2,000th patient, after which Illumina shall destroy such data and all copies thereof; provided that Illumina may: (i) retain one copy of such information and data solely for the purpose of supporting publications made by Illumina pursuant to this Section; and (ii) retain summaries, aggregations, or derivatives of such information and data prepared by or for Illumina.

(c) Illumina and its Affiliates may not resell, package, or otherwise share (other than disclosures authorized by Section 9.2) the information or data with any Third Party. Notwithstanding the foregoing restriction, Illumina and its Affiliates may publish summaries, aggregations, or derivatives of such information and data in publications intended to demonstrate validation of the K2 Assay and iterations and derivatives of the K2 Assay, and such publications may be made after the 6 month deadline specified in (b) above after providing the CCGA publication review committee a reasonable opportunity to review and comment, to the extent required by the governing documents of the CCGA as of the Effective Date.

(d) GRAIL will ensure that: (i) such information and data, and the samples from which they were collected or generated, will have been obtained under informed subject consent and with approval of all applicable Institutional Review Boards and other research oversight committees for use consistent with the rights granted to Illumina and its Affiliates in this Section 7.3; (ii) GRAIL has the right to provide the information and data to Illumina for use in accordance with this Section 7.3; and (iii) all

information and data will have been de-identified and anonymized, and will not contain, or be transmitted with, personally identifiable subject information.

(e) GRAIL acknowledges and agrees that its breach of its obligations set forth in Section 7.3 will cause significant delays in Illumina's internal product development and validation efforts. As such, if GRAIL fails to deliver all information and data required by this Section 7.3 from at least [***] patients on or before [***], or all information and data required by this Section 7.3 from 2,000 patients on or before [***], and if Illumina provides Notice of such breach within 30 days of the applicable deadline, and GRAIL fails to cure such breach within 30 days of Illumina providing Notice of such breach, Illumina will invoice GRAIL the amount of $[***] per sample from which information and data was not delivered and GRAIL will pay such invoice within 30 days of receipt. Upon GRAIL's payment of such amount, GRAIL will be released from performing the remaining data transfer obligations set forth in Section 7.3. The Parties acknowledge and agree that such payment constitutes compensation, and is the sole and complete remedy and cure, for the breach of Section 7.3(a) and for the harm caused to Illumina, and not a penalty. The Parties acknowledge and agree that the harm caused to Illumina from such breach would be impossible or very difficult to accurately estimate as of the Effective Date, and that this amount is a reasonable estimate of the anticipated or actual harm that might arise from such a breach.

7.4 Plasma Samples.

(a) GRAIL will collaborate with Illumina in good faith, using its best efforts, to secure 1,000 fully-characterized (with phenotypic, demographic, and clinical information) plasma samples (up to two Streck tubes per sample) from metastatic (e.g. Stage 3 or 4) cancer patients. For clarity, these samples cannot be provided by the CCGA program. There are two options for sourcing: the samples may be sourced from a new GRAIL program ("**Option A**"), or from a Third Party ("**Option B**"). As a collaborator under Option A, GRAIL will provide support for clinical protocol development, sample and clinical operations, identification of clinical trial sites, IRB approval, biobanking, and subject enrollment. In this model, GRAIL would deliver a draft clinical study protocol and informed consent form (ICF) to support the 1,000 patient study deliverable within three (3) months of Illumina's request, with such request to occur no later than [***]. Alternatively under Option B, GRAIL may define a vendor-based program for sample acquisition to be implemented by Illumina. GRAIL and Illumina will equally share any incremental costs of acquiring such samples. Illumina will ultimately determine if the Parties proceed under Option A or Option B.

(b) If any of such samples come from Option A, Illumina may only use such samples internally for purposes of validating the K2 Assay (and iterations and derivatives of the K2 Assay), and Illumina and its Affiliates may not resell, package, or otherwise share (other than disclosures authorized by Section 9.2) the samples or data generated from such samples with any Third Party. Illumina will only retain data obtained from the samples until the date that is 6 months following the delivery of the samples for the [***] patient, after which Illumina shall destroy such data and all copies thereof; provided that Illumina may: (i) retain one copy of such information and data solely for the purpose of supporting publications made by Illumina pursuant to this Section; and (ii) retain summaries, aggregations, or derivatives of such information and data prepared by or for Illumina. Notwithstanding the foregoing restrictions, Illumina and its Affiliates may publish summaries, aggregations, or derivatives of such data in publications intended to demonstrate validation of the K2 Assay and iterations and derivatives of the K2 Assay, and such publications may be made after the 6 month deadline specified in (b) above.

(c) If any of such samples come from Option B, Illumina and its Affiliates may use such samples and data generated from such samples for any purpose (subject to restrictions imposed by such Third Parties), and Illumina will provide GRAIL with: [***]. The Parties will in good faith determine the mechanism for providing GRAIL with prompt access to such information and data, with the goal of providing prompt and complete access in an efficient and practical manner. Illumina, on behalf of itself and its Affiliates, hereby grants and agrees to grant (immediately upon generation) to GRAIL and its Operational Affiliates an irrevocable, worldwide, fully paid-up and royalty-free, non-exclusive, license, without right to sublicense, to reproduce, display, prepare derivative works of, and use such data

internally for the purpose of validating GRAIL's circulating tumor DNA cancer Screening assays, until the date that is 6 months following the delivery of the information and data for the [***] patient . GRAIL and its Operational Affiliates may not resell, package, or otherwise share (other than disclosures authorized by Section 9.2) the information or data with any Third Party. GRAIL will only retain data obtained from the samples until the date that is 6 months following the delivery of the information and data for the [***] patient, after which GRAIL shall destroy such data and all copies thereof; provided that GRAIL may: (i) retain one copy of such information and data solely for the purpose of supporting publications made by GRAIL pursuant to this Section; and (ii) retain summaries, aggregations, or derivatives of such information and data prepared by or for GRAIL. Notwithstanding the foregoing restrictions, GRAIL and its Operational Affiliates may publish summaries, aggregations, or derivatives of such information and data in publications intended to demonstrate validation of GRAIL's circulating tumor DNA cancer Screening assays, and such publications may be made after the 6 month deadline specified above.

(d) In sourcing such samples, the Parties will ensure that: (i) such samples will have been obtained under informed subject consent and with approval of all applicable Institutional Review Boards and other research oversight committees for use consistent with the rights granted in this Section 7.4 to Illumina and its Affiliates, and to the extent set forth in Section 7.4(c), GRAIL and its Operational Affiliates; (ii) Illumina has the right to provide the information and data described in Section 7.4(c), to the extent set forth in Section 7.4(c), to GRAIL for use in accordance with Section 7.4(c). Additionally, Illumina will ensure that any information and data transferred to GRAIL pursuant to Section 7.4(c) will have been de-identified and anonymized, and will not contain, or be transmitted with, personally identifiable subject information.

(e) GRAIL acknowledges and agrees that its failure to secure all samples required by this Section 7.4 will cause significant delays in Illumina's internal product development and validation efforts. As such, if GRAIL fails to secure 1,000 samples on or before [***], and if Illumina provides Notice of such breach within 30 days of [***] and GRAIL fails to secure such samples within 30 days of Illumina providing Notice of such failure, Illumina will invoice GRAIL the amount of $[***] per sample which was not delivered and GRAIL will pay such invoice within 30 days of receipt. Upon GRAIL's payment of such amount, GRAIL will be released from performing the remaining sample sourcing obligations set forth in Section 7.4. The Parties acknowledge and agree that such payment constitutes compensation, and is the sole and complete remedy and cure, for the breach of Section 7.4(a) and for the harm caused to Illumina, and not a penalty. The Parties acknowledge and agree that the harm caused to Illumina from such breach would be impossible or very difficult to accurately estimate as of the Effective Date, and that this amount is a reasonable estimate of the anticipated or actual harm that might arise from such a breach.

7.5 Library Prep Collaboration.

(a) The Parties will collaborate in good faith, using commercially reasonable efforts, to improve both Parties' ctDNA library preparation methods, until the earlier of: (i) 18 months after the Effective Date; or (ii) the date Illumina or GRAIL demonstrates [***], using such methods, and enables the other Party to reproducibly achieve [***]. The Parties intend that such collaboration will at a minimum involve the periodic transfer of know-how concerning such library preparation methods.

(b) "**Collaboration IP**" means Intellectual Property Rights generated by or on behalf of one or both Parties in the performance of the collaboration described in this Section 7.5. Any and all Collaboration IP generated: (i) solely by or on behalf of Illumina will be solely owned by Illumina; (ii) solely by or on behalf of GRAIL will be solely owned by GRAIL; and (iii) jointly by at least one person or entity acting for or on behalf of Illumina and at least one person or entity acting for or on behalf of GRAIL will be jointly owned by the Parties ("**Joint Collaboration IP**").

(c) Subject to the remainder of this Section 7.5, each Party has a joint and undivided interest in any and all Joint Collaboration IP, and each Party may use, license, and otherwise fully exploit Joint Collaboration IP in all fields of use throughout the world without the consent of, or any obligation to account to, the other Party; provided that, except with the prior written consent of the other Party, a Party

may not license Joint Collaboration IP to any third party: (i) that has been identified as a potential infringer of Joint Collaboration IP in a written notice from the other Party; or (ii) against whom the other Party has in good faith initiated an enforcement action (which includes sending a cease and desist or demand letter) with respect to Joint Collaboration IP, provided that the other Party has delivered notice of such action to such Party. Any such purported license will be void and of no effect.

(d) All applications and registrations for Joint Collaboration IP will list both Parties as joint owners. The Parties may take such actions as they may mutually agree in good faith in writing from time to time, at their joint expense, to register, maintain, protect, and enforce Joint Collaboration IP, including filing and prosecuting patent applications for the Joint Collaboration IP, determining whether a particular item of Joint Collaboration IP should be protected by patent or as a joint trade secret, and taking any action in respect of any alleged or actual infringement of the Joint Collaboration IP. Neither Party will have any obligation to share in the expenses of patent prosecution activities unless otherwise agreed in writing; provided however, that a Party that does not pay its half of the expenses relating to patent prosecution activities for Joint Collaboration IP will not have the right to license (or otherwise grant a covenant not to sue or similar right under) such Joint Collaboration IP (but for clarity will have the ability to exhaust such Joint Collaboration IP upon the sale of products and services), and any such purported license (or covenant not to sue or similar right) which has been or is later granted will be void and of no effect. If a Party does not wish to take any such action, or does not respond to the other Party's written request regarding such action within a reasonable period of time after receiving such request (in light of the exigency of the situation), and the requesting Party confirms that the request was received, the other Party may unilaterally take such action at its expense. Notwithstanding the foregoing, each Party agrees that it may be joined in any action that requires the joinder or agreement of all co-owners. If a Party is required to join an action and pays its share of costs and expenses of such action, then it will be entitled to a portion of any proceeds of the action equivalent to the portion of the total costs and expenses it contributed. If a Party is required to join an action but does not pay its share of the costs and expenses of such action, including an action to enforce Joint Collaboration IP against a third party, the proceeds of such action (if any) will inure solely to the Party taking and paying for such action.

(e) Neither Party may take any action (or fail to take any action) that is likely to impair the validity or enforceability of Joint Collaboration IP without the prior written consent of the other Party. Without limiting the generality of the preceding sentence: (i) each Party will maintain information agreed by the Parties in writing to be joint trade secrets as both Parties' Confidential Information, provided however that this restriction will not prevent a Party from selling or otherwise transferring materials embodying a joint trade secret (without disclosing the trade secret) to any Third Party; and (ii) in disclosing a joint trade secret in accordance with the restrictions set forth in subsection (i), a Party may disclose the joint trade secret only pursuant to a written, enforceable, confidentiality agreement having restrictions against further disclosure at least as stringent as those set forth in this Agreement and providing that the recipient of the disclosure may use the joint trade secret only for the limited purpose described in the agreement.

(f) Each Party will reasonably cooperate with the other Party in registering, maintaining, protecting, and enforcing Joint Collaboration IP, and will take such actions and execute such documents as the other Party may reasonably request in connection therewith.

(g) Each Party hereby grants and agrees to grant (immediately upon generation) to the other Party and its Affiliates (in the case of Illumina as the licensee) or Operational Affiliates (in the case of GRAIL as the licensee) an irrevocable, perpetual, worldwide, fully paid-up and royalty-free, non-exclusive, non sub-licensable, license, under all of the granting Party's Collaboration IP, to practice such improved library preparation methods (and derivatives and iterations thereof) and otherwise market, promote, commercialize and exploit products and services incorporating, embodying, or made or performed using, any such Collaboration IP. Each Party represents, warrants, and covenants that it has taken, and will continue to take, all actions necessary to cause each Representative who participates in the collaboration contemplated by this Section to completely and irrevocably assign to such Party any and all rights that Representative has or may have in or to any Collaboration IP. For clarity, the Sale of a

product or Service (including to a distributor or other reseller), and the grant of rights to purchasers and end-users of such product or Service (including the exhaustion of Collaboration IP upon such Sale), will not be considered a sub-license for the purposes of the foregoing restriction.

8. INTELLECTUAL PROPERTY

8.1 Illumina Know-How.

(a) Illumina has disclosed to GRAIL certain protocols, methods, algorithms, software and software code (including software and software code relating to informatics pipelines), know-how, and other Illumina Technology, including information concerning: (i) [***]; (ii) the Joint Development Activities (as defined in the Original Agreement) undertaken pursuant to the Original Agreement; and (iii) the collaboration with the Memorial Sloan Kettering Cancer Center under the MSK Agreement. All such information is referred to in this Agreement collectively as the "**Illumina Know-How**." All such information was disclosed by Illumina to GRAIL pursuant to the side letter agreement entered into between the Parties dated April 19, 2016, which side letter agreement was incorporated into the Original Agreement. For clarity, from and after the Effective Date, this Agreement amends, restates, and replaces such side letter agreement in its entirety.

(b) Subject to, and contingent upon GRAIL's and its Operational Affiliates' continued compliance with, the terms and conditions of this Agreement and the applicable Terms and Conditions, in addition to the rights under Illumina Intellectual Property Rights expressly granted pursuant to the applicable Terms and Conditions, GRAIL's purchase of Products under this Agreement confers upon GRAIL and its Operational Affiliates the personal, non-transferable, non-exclusive, right to use the Illumina Know-How (except as set forth in Section 8.6) (i) in the provision of Services, including without limitation, Oncology Services, and (ii) internally in connection with the use of such Products during the Term. Any purported assignment, transfer, grant, or other conveyance of any of the rights granted in this Section 8.1(b) (or any portion of such rights) is prohibited and will be null, void, and of no effect. GRAIL acknowledges and agrees that the foregoing limited right to use Illumina Know-How granted to GRAIL and its Operational Affiliate pursuant to this Section 8.1 does not include: (i) the right or license to practice under any patent of Illumina or any of its Affiliates, even if such patent concerns or relates to information otherwise included in Illumina Know-How; or (ii) the right or license to make, have made, use, sell, import, or otherwise exploit any products incorporating, embodying, or manufactured using, any Illumina Know-How.

(c) The Illumina Know-How constitutes proprietary and highly confidential Illumina Confidential Information (whether or not marked confidential), and Illumina's rights in Illumina Know-How constitute Illumina Intellectual Property Rights. Without limiting the foregoing, except as expressly authorized pursuant to Section 9.2 or if the information falls within a confidentiality exception pursuant to Section 1.8(a) – (e), GRAIL and its Operational Affiliates may not disclose Illumina Know-How to any Third Party (including any of GRAIL's and its Operational Affiliates' collaborators) without Illumina's prior written consent. GRAIL acknowledges and agrees that no Affiliate of GRAIL that is not an Operational Affiliate has a need to know any Illumina Know-How. GRAIL will promptly notify Illumina upon discovery of any unauthorized disclosure or use of Illumina Know-How, and GRAIL and its Operational Affiliates will cooperate with Illumina and take such actions as Illumina may reasonably request to mitigate the effects of any such disclosure or use.

(d) While Illumina has endeavored not to disclose any Third Party confidential information with the Illumina Know-How, in the event that Illumina notifies GRAIL that Third Party confidential information was inadvertently disclosed to GRAIL, GRAIL will promptly destroy all copies and embodiments of such information and provide written confirmation of such destruction to Illumina; provided that if the confidential information is used by GRAIL in performance of a Service, GRAIL may first seek to obtain the rights necessary to retain the confidential information for use in performance of such Service.

(e) TO THE FULLEST EXTENT PERMITTED BY LAW, THE ILLUMINA KNOW-HOW IS PROVIDED ON AN "AS IS" AND "AS AVAILABLE" BASIS WITHOUT WARRANTY OF ANY KIND, AND ILLUMINA MAKES NO (AND DISCLAIMS ALL) WARRANTIES (EXPRESS, IMPLIED, OR STATUTORY) WITH RESPECT TO THE ILLUMINA KNOW-HOW, INCLUDING WARRANTIES OF MERCHANTABILITY, TITLE, AVAILABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT.

8.2 Improvements.

(a) "**Improvements**" means:

(i) all improvements, enhancements, modifications, or derivatives of or to any Illumina Technology (including the Illumina Know-How) that were generated by or on behalf of GRAIL during the period of time commencing on the Original Effective Date and ending on the Effective Date, and all Intellectual Property Rights embodied therein or related thereto, but excluding any of the foregoing that is also Development IP; or

(ii) all improvements, enhancements, modifications, or derivatives of or to: (i) any Product Sold to GRAIL or its Operational Affiliate under the Original Agreement or this Agreement, or any component or aspect of any such Product; (ii) any Illumina Know-How; or (iii) any other Illumina Technology disclosed or made available to GRAIL in furtherance of the Joint Development Activities (under the Original Agreement), the K2 Development Activities, the library preparation collaboration contemplated by Section 7.5, or otherwise under the Original Agreement or this Agreement; in each case that are generated by or on behalf of GRAIL or its Operational Affiliates after the Effective Date, and all Intellectual Property Rights embodied therein or related thereto.

(b) GRAIL, on behalf of itself and its Operational Affiliates, hereby grants and agrees to grant (immediately upon generation) to Illumina and its Affiliates an irrevocable, perpetual, worldwide, fully paid-up and royalty-free, non-exclusive, sub-licensable (except as set forth below), license, under all Improvements to reproduce, display, publish, prepare derivative works of, distribute, make, have made, use (including to perform services), sell, offer to sell, import, and otherwise market, promote, commercialize and exploit products and services incorporating, embodying, or made or performed using, any of the Improvements, or which would otherwise, in the absence of this license, infringe upon any of the Improvements. GRAIL represents, warrants, and covenants that it has taken, and will continue to take, all actions necessary to cause each Representative who participates in generating any Improvements to completely and irrevocably assign to GRAIL or its Operational Affiliate any and all rights that Representative has or may have in or to any Improvements. During the Exclusivity Period, Illumina may not sub-license Improvements to any Third Party in the field of Screening. For clarity, the Sale of a product or Service (including to a distributor or other reseller), and the grant of rights to purchasers and end-users of such product or Service (including the exhaustion of Improvements upon such Sale), will not be considered a sub-license for the purposes of the foregoing restriction.

(c) From time to time, upon Illumina's request (which request may be made no more than once per quarter), GRAIL will provide written disclosures of information concerning the following categories of Improvements to the extent reasonably necessary to enable Illumina to practice such Improvements: (i) Improvements to [***] and components thereof; and (ii) Improvements to ctDNA library preparation methods (to the extent not addressed in the collaboration described in Section 7.5). Similarly, upon Illumina's request (which request may be made no more than once per quarter), GRAIL will make the necessary personnel available (during normal business hours) for a reasonable level of face to face demonstration and explanation of such Improvements to the extent reasonably necessary to enable Illumina to practice such Improvements.

8.3 Illumina's Sub-License Option.

(a) "**Option IP**" means any Third Party Intellectual Property Rights licensed to GRAIL or any of its Operational Affiliates prior to the Effective Date pursuant to one or more license agreements

(the "**GRAIL In-Licenses**"), including: (i) [***]; and (ii) [***]; but excluding any retail or open-source software licenses.

(b) GRAIL hereby grants to Illumina and its Affiliates an option to receive a non-exclusive sub-license under all rights GRAIL has or may have in any Option IP (the "**Option**"). Illumina may exercise its Option as to any or all Option IP by providing written notice of exercise to GRAIL within one year of the Effective Date (the "**Option Period**"). The Option may be exercised multiple times during the Option Period as to different Option IP.

(c) Any sub-license granted upon exercise of the Option will, subject to the terms of this Section 8.3, be on the most favorable terms permitted by the applicable GRAIL In-License. Without limiting the generality of the foregoing: (i) if the applicable GRAIL In-License requires that GRAIL's sub-licensees pay royalties, Illumina and its Affiliates will not be required to pay any royalty rate greater than that which GRAIL is required to pay upon sale of equivalent licensed products under the GRAIL In-License; and (ii) all terms of any such sub-license will be commercially reasonable, will be negotiated in good faith, and will be at least as favorable to Illumina as the corresponding terms set forth in the applicable GRAIL In-License are favorable to GRAIL. Unless otherwise requested by Illumina, any such sublicense will extend to all fields in which GRAIL has received rights, but excluding Screening during the Exclusivity Period, and will extend to all of Illumina's Affiliates. During the Option Period GRAIL may not amend any GRAIL In-License in any way that would alter the right for GRAIL to grant any sub-license or that would alter any of the rights or other terms that may be extended to Illumina and its Affiliates.

(d) Within ten days of Illumina's request, GRAIL will provide Illumina with un-redacted copies of the GRAIL In-Licenses, and copies of all patents and patent applications covered by such licenses. GRAIL will provide such additional information concerning the GRAIL In-Licenses and Option IP as Illumina may reasonably request from time to time to enable Illumina and its Affiliates to assess the value of the GRAIL In-Licenses and Option IP and receive the full benefit of the Option. GRAIL will be solely responsible for ensuring that it has the right to provide Illumina with all documents and information required by this Section.

(e) GRAIL may not grant any license, sub-license, or other right inconsistent with the Option or which would render the Option ineffective with respect to any Option IP, and any such purported license, sub-license, or other right will be void and of no effect. The Option encumbers the GRAIL In-Licenses and GRAIL's interests in the Option IP, and will be binding on any assignee or other successor in interest of all or any part of the GRAIL In-Licenses or GRAIL's interests in the Option IP, whether or not such successor or assignee has notice of the Option.

8.4 IP Generated by GRAIL under the Original Agreement.

(a) Within 30 days of the Effective Date, GRAIL will provide Illumina with a complete and accurate written disclosure of all Intellectual Property Rights generated by or on behalf of GRAIL prior to the Effective Date, including complete and un-redacted copies of: (i) all patent applications filed or prepared (in any state of completion) prior to the Effective Date; (ii) all invention disclosure documents; and (iii) summary of all trade secret assets constituting Improvements to Illumina Technology generated by or on behalf of GRAIL prior to the Effective Date. Subject to the limitations set forth in Section 1.8, such information is GRAIL Confidential Information (whether or not marked confidential).

(b) GRAIL represents and warrants that no Study IP or Aggregated Patient Data (as those terms are defined in the Original Agreement) was generated by or on behalf of GRAIL under the Original Agreement.

(c) "**Development IP**" means all Intellectual Property Rights that were generated by or on behalf of GRAIL in the performance of the Joint Development Activities under the Original Agreement. As provided in the Original Agreement, all Development IP will be owned solely by Illumina. GRAIL hereby, on its own behalf and on behalf of its Representatives, completely and irrevocably assigns and agrees to assign (immediately upon generation) to Illumina all right, title, and interest that GRAIL and

each of its Representatives has or may have in or to any Development IP. GRAIL represents, warrants, and covenants that it has taken, and will continue to take, all actions necessary to cause each Representative who participated in any Joint Development Activities to completely and irrevocably assign to GRAIL (for assignment to Illumina pursuant to this Section) any and all rights that Representative has or may have in or to any Development IP. GRAIL will assist Illumina in every reasonable way, both during and after the Term, to document, register, obtain, maintain, protect, and enforce the Development IP. Illumina will reimburse GRAIL for all reasonable costs actually incurred by GRAIL in connection with such activities performed at Illumina's request. All Development IP is Illumina Confidential Information. Subject to, and contingent upon GRAIL's and its Operational Affiliates' continued compliance with, the terms and conditions of this Agreement and the applicable Terms and Conditions, in addition to the rights under Illumina Intellectual Property Rights expressly granted pursuant to the applicable Terms and Conditions, GRAIL's purchase of Products under this Agreement confers upon GRAIL and its Operational Affiliates the personal, non-transferable, non-exclusive, right to use the Development IP internally in connection with the use of such Products during the Term. Any purported assignment, transfer, grant, or other conveyance of any of the rights granted in this Section 8.4(c) (or any portion of such rights) is prohibited and will be null, void, and of no effect.

8.5 License to Commercialize Results of Development Activities. Under the Original Agreement, the Parties engaged in certain Joint Development Activities. If Illumina so requests, GRAIL and its Affiliates will grant Illumina and its Affiliates a non-exclusive, royalty-bearing, license on commercially reasonable terms (which the Parties agree to negotiate in good faith), under any GRAIL Intellectual Property Rights, to reproduce, display, publish, prepare derivative works of, distribute, make, have made, use, sell, offer for sale, import, and otherwise commercialize and exploit the results of, and deliverables delivered pursuant to, the Joint Development Activities (including the assay that was being developed pursuant to such activities, commonly referred to by the Parties as the [***] assay) and the K2 Development Activities (including the K2 Assay) and related collaboration pursuant to Section 7.5, or any component of such results or deliverables, and any and all improvements, enhancements, modifications, derivatives, and iterations of or to any such results or deliverables or any component thereof.

8.6 [***]. Notwithstanding anything to the contrary in this Agreement or any Terms and Conditions: (a) neither GRAIL nor any of its Operational Affiliates will receive any rights under any Intellectual Property Rights owned by or licensed to [***] on or prior to the Effective Date, or any improvements, enhancements, modifications, or derivatives of or to such Intellectual Property Rights, or any Technology incorporating, embodying, or relating to such Intellectual Property Rights; and (b) neither GRAIL nor any of its Operational Affiliates may use, practice, or otherwise exploit any of such Technology or Intellectual Property Rights that was included in the Illumina Know-How, or was derived from GRAIL's access to such Illumina Know-How.

8.7 All Rights Reserved.

(a) No Illumina Intellectual Property Rights are assigned or otherwise transferred to GRAIL or its Affiliates under this Agreement. Except as expressly stated in Sections 7 and 8, no license, sublicense, or other right under any Illumina Intellectual Property Rights is granted, expressly, by implication, estoppel, or otherwise, under this Agreement. Except as expressly stated in this Section 8, no GRAIL Intellectual Property Rights are assigned or otherwise transferred to Illumina under this Agreement. Except as expressly stated in Sections 7 and 8, no license, sublicense, or other right under any GRAIL Intellectual Property Rights is granted, expressly, by implication, estoppel, or otherwise, under this Agreement.

(b) The rights under Illumina Intellectual Property Rights conferred to GRAIL and its Operational Affiliates under this Agreement are limited to those use rights expressly conferred in Sections 7 and 8 and the applicable Terms and Conditions upon purchase of each unit of Products under this Agreement, and GRAIL agrees that any use of Products or Illumina Intellectual Property Rights outside the scope of such rights is a prohibited and unauthorized use. Illumina, on behalf of itself and its Affiliates (and their respective successors and assigns), retains all (and does not waive any) rights to enforce

Illumina Intellectual Property Rights and bring suit or proceedings against any person or entity, including GRAIL (and its Affiliates, and their respective successors, and assigns), with respect to any or all prohibited or unauthorized uses of Product or Illumina Intellectual Property Rights. GRAIL agrees that actual knowledge by Illumina, Illumina's Affiliates, or their respective Representatives that GRAIL or its Affiliate is using Product or Illumina Intellectual Property Rights in any prohibited or unauthorized manner does not: (i) waive or otherwise limit any rights under this Agreement or at Law that Illumina, Illumina's Affiliates, or their respective successors and assigns, have to address the prohibited or unauthorized use; or (ii) grant GRAIL or its Affiliate a license or other right under any Illumina Intellectual Property Right, whether expressly by implication, estoppel, or otherwise. Illumina agrees that any use of the GRAIL Intellectual Property Rights except to the extent specifically authorized in this Agreement is a prohibited and unauthorized use. No implied rights under GRAIL Intellectual Property Rights are granted to Illumina pursuant to this Agreement. GRAIL, on behalf of itself and its Affiliates (and their respective successors and assigns), retains all (and does not waive any) rights to enforce GRAIL Intellectual Property Rights and bring suit or proceedings against any person or entity, including Illumina (and its Affiliates, and their respective successors, and assigns), with respect to any or all prohibited or unauthorized uses of GRAIL Intellectual Property Rights. Illumina agrees that actual knowledge by GRAIL, GRAIL's Affiliates, or their respective Representatives that Illumina or its Affiliate is using GRAIL Intellectual Property Rights in any prohibited or unauthorized manner does not: (A) waive or otherwise limit any rights under this Agreement or at Law that GRAIL, GRAIL's Affiliates, or their respective successors and assigns, have to address the prohibited or unauthorized use; or (B) grant Illumina or its Affiliate a license or other right under any GRAIL Intellectual Property Right, whether expressly by implication, estoppel, or otherwise.

(c) GRAIL and its Operational Affiliates are solely responsible for determining whether GRAIL and its Operational Affiliates have all Intellectual Property Rights that are necessary for GRAIL's and its Operational Affiliates' intended uses of the Product, including any rights from Third Parties or any additional rights from Illumina or Illumina's Affiliates that are not expressly granted in this Agreement or in the applicable Terms and Conditions upon the purchase of Product (collectively "**Other IP**"). Illumina makes no representation, warranty, or guarantee that GRAIL's or any of its Operational Affiliates' specific intended uses will not infringe Other IP, and expressly disclaims and excludes any such representation, warranty, or guarantee, and any statement or implication otherwise, to the maximum extent permitted by Law. GRAIL's and its Operational Affiliates' intended use of the Products may require that they obtain a license or other rights in, to, or under Other IP to use Products without infringement or misuse of such Other IP. It is GRAIL's and its Operational Affiliates' responsibility to ensure that they have or obtain rights to all Third Party Intellectual Property Rights that are required for GRAIL and its Operational Affiliates to use the Products without infringement or misuse of such Third Party Intellectual Property Rights. Notwithstanding anything in this Agreement to the contrary, GRAIL and its Operational Affiliates assume all risks associated with not obtaining any required rights to Other IP.

9. CONFIDENTIAL INFORMATION

9.1 Disclosure and Use Restriction.

(a) Except to the extent expressly authorized by this Agreement or otherwise agreed in writing by the Parties, the Receiving Party will keep confidential and may not publish or otherwise disclose or transfer the Disclosing Party's Confidential Information to any Third Party.

(b) The Receiving Party may disclose the Disclosing Party's Confidential Information only to its Advisors and Representatives who are bound by written confidentiality and non-use restrictions at least as restrictive as those set forth in this Agreement and who have a specific need to know in order for the Receiving Party to be able to perform its obligations and exercise its express rights under this Agreement, and only to the extent necessary for such purpose. Each Party will be responsible for any conduct by its respective Advisors and Representatives that constitutes a breach of this Section 9 or that would be a breach of this Section 9 by such Party had such Party engaged in such conduct itself. Such conduct will be deemed and is a breach of this Agreement by such Party.

(c) The Receiving Party will use at least the same standard of care as it uses to protect proprietary or confidential information of its own (but in no event less than a reasonable standard of care) to ensure that it and its Advisors and Representatives do not disclose or make any unauthorized use of the Disclosing Party's Confidential Information. The Receiving Party will promptly notify the Disclosing Party upon discovery of any unauthorized disclosure or use of the Disclosing Party's Confidential Information.

(d) The confidentiality and non-use obligations in this Agreement with respect to the Disclosing Party's Confidential Information will continue throughout the Term and for seven years thereafter; provided however that all of GRAIL's and its Operational Affiliates' obligations with respect to Illumina Know-How will continue indefinitely (subject to the limitations set forth in Section 1.8).

9.2 Authorized Disclosure. The Receiving Party may disclose the Disclosing Party's Confidential Information to the extent that such disclosure is:

(a) made in response to a valid order of a court of competent jurisdiction or other governmental authority; provided, however, that the Receiving Party will, to the extent permitted by Law, give written notice to the Disclosing Party within five business days of receipt of such order and give the Disclosing Party a reasonable opportunity to quash such order and to obtain a protective order requiring that the Confidential Information and documents that are the subject of such order be held in confidence by such court or governmental or regulatory body or, if disclosed, be used only for the purposes for which the order was issued; and provided, further, that if a disclosure order is not quashed or a protective order is not obtained, the Confidential Information disclosed in response to such court or governmental order will be limited to that information which is legally required to be disclosed in response to such court or governmental order;

(b) otherwise required by Law; provided, that the Receiving Party: (i) promptly notifies the Disclosing Party of the specifics of such requirement (providing a copy of the Confidential Information to be disclosed) at least 30 days prior to the actual disclosure (or as soon as reasonably possible prior to the actual disclosure if such 30 day prior notice is impractical under the circumstances) or promptly after actual disclosure if prior disclosure is impractical under the circumstances; (ii) discloses only the minimal information necessary to satisfy such requirement; (iii) reasonably cooperates with the Disclosing Party to prevent or limit such disclosure; and (iv) provides the Disclosing Party with a copy of Confidential Information actually disclosed.

(c) made by the Receiving Party with the prior written consent of the Disclosing Party.

9.3 Authorized Use. The Receiving Party may use the Disclosing Party's Confidential Information solely to the extent necessary for the Receiving Party perform its obligations and exercise its express rights under this Agreement, and such use will be otherwise subject to all restrictions and limitations set forth in this Agreement.

9.4 Agreement; Publicity. The Parties agree that the existence and terms of this Agreement are both Parties' Confidential Information. Subject to Section 9.2 above, each Party must obtain the prior written consent of the other Party on all press releases or other public announcements relating to this Agreement, provided that a Party is not required to obtain prior written consent of the other Party for press releases or public disclosures that repeat information that has been previously publicly disclosed pursuant to this Section 9.4. Notwithstanding the foregoing, GRAIL and Illumina may each disclose the terms of this Agreement to its actual or prospective investors or acquirers who are bound by written confidentiality and non-use restrictions at least as restrictive as those set forth in this Agreement and who are permitted to use such Confidential Information solely for the purpose of evaluating whether or not to invest in or acquire GRAIL or Illumina. Each Party will be responsible for any conduct by any such actual or prospective investor or acquirer to whom such Party disclosed any terms of this Agreement that constitutes a breach of this Section 9 or that would be a breach of this Agreement by such Party had such

Party engaged in such conduct itself. Such conduct will be deemed and is a breach of this Agreement by such Party. GRAIL will notify Illumina at least three days prior to disclosing any terms of this Agreement to an actual or prospective investor if GRAIL has reason to believe that such investor or acquirer is a customer of Illumina or a Competitor of Illumina.

9.5 Post-Termination. Following expiration or termination of this Agreement for any reason, upon the request of the Disclosing Party, the Receiving Party will, at the Disclosing Party's option: (a) return all materials containing the Disclosing Party's Confidential Information to the Disclosing Party; or (b) destroy all materials containing the Disclosing Party's Confidential Information and certify such destruction in writing to the Disclosing Party; provided that the Receiving Party will be authorized to retain one copy in its Legal Department for the purpose of determining any continuing obligation. Notwithstanding the foregoing, the Receiving Party will not be required to destroy or delete electronic copies (including emails) that have become embedded in its electronic storage systems through routine backup processes. Any Confidential Information so retained will continue to be held pursuant to all of the confidentiality, non-use, and other terms of this Agreement. Additionally, the Parties understand and agree that due to the nature of the relationship between the Parties, it may be impractical for the Parties to return or destroy each and every item of Confidential Information.

Accordingly, a Party will not be in breach of this Section 9.5 if it uses commercially reasonable efforts to return or destroy the other Party's Confidential Information.

10. REPRESENTATIONS AND WARRANTIES

10.1 General Warranties. Each Party represents and warrants that:

(a) Such Party is duly organized, validly existing, and in good standing under the laws of jurisdiction of domicile, and has all requisite power and authority to carry on its business as such business is now being conducted;

(b) This Agreement has been duly authorized, executed, and delivered by such Party and constitutes the legal, valid, and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as enforceability may be limited by Law relating to bankruptcy, receivership, or similar laws affecting creditors' rights generally or by equitable principles relating to enforceability; and

(c) Such Party has all necessary rights, powers, and authority to enter into this Agreement and to carry out its obligations hereunder.

10.2 FOR CLARITY AND NOTWITHSTANDING ANYTHING TO THE CONTRARY, ILLUMINA'S SOLE REPRESENTATIONS, WARRANTIES, AND INDEMNIFICATION AND DEFENSE OBLIGATIONS WITH RESPECT TO PRODUCTS PURCHASED BY GRAIL AND ITS OPERATIONAL AFFILIATES ARE CONTAINED EXCLUSIVELY IN THE APPLICABLE TERMS AND CONDITIONS.

10.3 THE WARRANTIES IN SECTION 3.7, SECTION 5, SECTION 7, SECTION 8, THIS SECTION 10, AND IN THE TERMS AND CONDITIONS, ARE THE PARTIES' EXCLUSIVE WARRANTIES WITH RESPECT TO THIS AGREEMENT, AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OF THIRD PARTY RIGHTS AND FITNESS FOR A PARTICULAR PURPOSE) ARE EXPLICITLY DISCLAIMED.

11. ALLOCATION OF RISKS

11.1 GRAIL's Indemnification Obligation. GRAIL will defend, indemnify, and hold harmless Illumina, its Affiliates, and their Representatives from and against any and all suits, claims, proceedings, and causes of action brought by any Third Party ("**Claims**"), and all associated damages, liabilities, expenses and/or losses, including reasonable legal expenses and reasonable attorneys' fees ("**Losses**")

arising out of or resulting from: (a) GRAIL's or its Affiliate's gross negligence, willful misconduct, or failure to comply with Law, in each case in performing under this Agreement; (b) GRAIL's breach of this Agreement (including any representation or warranty set forth in this Agreement); (c) GRAIL's or its Affiliate's performance of clinical testing services, or other commercialization of products or services; or (d) GRAIL's or its Affiliate's performance (or failure to perform) under the MSK Agreement; in each case except to the extent arising out of or resulting from: (x) Illumina's or its Affiliate's gross negligence, willful misconduct, or failure to comply with Law; or (y) Illumina's breach of this Agreement (including any representation or warranty set forth in this Agreement).

11.2 Illumina's Indemnification Obligations. Illumina will defend, indemnify, and hold harmless GRAIL, its Operational Affiliates, and their Representatives from and against any and all Claims and Losses arising out of or resulting from: (a) Illumina's or its Affiliate's gross negligence, willful misconduct, or failure to comply with Law, in each case in performing under this Agreement; (b) Illumina's performance (or failure to perform) under the MSK Agreement (excluding those obligations delegated to GRAIL) prior to January 7, 2016; or (c) Illumina's breach of this Agreement (including any representation or warranty set forth in this Agreement); in each case except to the extent arising out of or resulting from: (x) GRAIL's or its Affiliate's gross negligence, willful misconduct, or failure to comply with Law; or (y) GRAIL's breach of this Agreement (including any representation or warranty set forth in this Agreement).

11.3 Indemnification Procedures. Each Party's obligations under Sections 11.1 and 11.2 are conditioned on the Party seeking indemnification: (a) giving the indemnifying Party prompt written notice of the Claim; provided, however, that failure to provide such notice will not relieve the indemnifying Party from its liability or obligation hereunder, except to the extent of any material prejudice as a direct result of such failure; (b) cooperating with the indemnifying Party, at the indemnifying Party's expense, in connection with the defense and settlement of the Claim, including providing accurate and complete information requested by the indemnifying Party; and (c) permitting the indemnifying Party to solely control the defense and settlement of the Claim; provided, however, that the indemnifying Party may not settle the Claim, enter into or otherwise consent to an adverse judgment or order, or make any admission as to liability or fault that would adversely affect the indemnified Party, without the indemnified Party's prior written consent, which will not be unreasonably withheld or delayed. Further, the indemnified Party will have the right to participate (but not control) and be represented in any suit or action by counsel of its selection at its own cost.

11.4 Product-related Indemnification. Additionally, and without limiting the foregoing, each Party will defend, indemnify, and hold harmless the other for Claims relating to the purchase, manufacture, and use of Products purchased under this Agreement if and to the extent, and subject to all terms and conditions, provided in the Terms and Conditions and the Service Contracts.

11.5 Insurance. GRAIL will obtain and maintain insurance coverage as follows: (a) a policy for liability (including professional and errors & omissions) in the amount of no less than $5,000,000 per occurrence; and (b) a separate policy for commercial general liability and insurance (including product liability insurance) in the amount of no less than $5,000,000, in the case of each of (a) and (b) to protect the Illumina indemnitees under the indemnification provided hereunder. Upon Illumina's request, GRAIL will provide appropriate certificates of insurance. Such policies will provide a waiver of subrogation against Illumina and contain no cross-liability exclusion. GRAIL agrees that the Parties intend that GRAIL's insurance coverage will be primary over any other potentially applicable insurance. GRAIL will maintain such insurance at all times during the Term and for a period of three years thereafter.

12. LIMITATIONS ON LIABILITIES

12.1 EXCEPT AS STATED IN SECTION 12.3, AND EXCEPT WITH RESPECT TO LIABILITY ARISING FROM: (A) A PARTY'S DEFENSE AND INDEMNIFICATION OBLIGATIONS UNDER SECTION 11.1 OR 11.2, BUT ONLY WITH RESPECT TO DAMAGES ACTUALLY PAID OR TO BE PAID BY THE INDEMNIFIED PARTY TO THE THIRD PARTY CLAIMANT; OR (B) BREACH OF SECTION 9 (CONFIDENTIAL INFORMATION); BUT OTHERWISE TO THE FULLEST EXTENT PERMITTED BY

LAW, IN NO EVENT WILL ILLUMINA OR ITS AFFILIATES BE LIABLE TO GRAIL OR ITS AFFILIATES, NOR WILL GRAIL OR ITS AFFILIATES BE LIABLE TO ILLUMINA OR ITS AFFILIATES, FOR COSTS OF PROCUREMENT OF SUBSTITUTE PRODUCTS OR SERVICES, LOST PROFITS, DATA OR BUSINESS, OR FOR ANY INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY, CONSEQUENTIAL, OR PUNITIVE DAMAGES OF ANY KIND ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT, INCLUDING THE SALE OF ANY PRODUCT TO GRAIL OR ITS OPERATIONAL AFFILIATE OR THE USE OF ANY PRODUCT BY GRAIL OR ITS OPERATIONAL AFFILIATE, HOWEVER ARISING OR CAUSED AND ON ANY THEORY OF LIABILITY (WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, MISREPRESENTATION, BREACH OF STATUTORY DUTY, OR OTHERWISE).

12.2 EXCEPT AS STATED IN SECTION 12.3, AND EXCEPT TO THE EXTENT ARISING FROM: (A) GRAIL'S OR ITS OPERATIONAL AFFILIATE'S BINDING COMMITMENT TO PURCHASE PRODUCT; (B) GRAIL'S AND ITS OPERATIONAL AFFILIATES' ROYALTY OBLIGATIONS; (C) A PARTY'S BREACH OF SECTION 8.7 OR SECTION 9; OR (D) A PARTY'S DEFENSE AND INDEMNIFICATION OBLIGATIONS UNDER SECTION 11.1 OR 11.2; BUT OTHERWISE TO THE FULLEST EXTENT PERMITTED BY LAW, EACH PARTY'S CUMULATIVE LIABILITY UNDER OR ARISING OUT OF THIS AGREEMENT, INCLUDING ANY CAUSE OF ACTION IN CONTRACT, NEGLIGENCE, OR TORT (INCLUDING STRICT LIABILITY), SHALL NOT EXCEED THE AMOUNT RECEIVED BY ILLUMINA FROM GRAIL AND ITS OPERATIONAL AFFILIATES FOR PURCHASE OF PRODUCTS UNDER THIS AGREEMENT DURING THE [***] PRECEDING THE DATE THE LIABILITY AROSE.

12.3 THE LIMITATIONS OF LIABILITY IN THIS SECTION 12 APPLY EVEN IF A PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LIABILITY, AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY. NOTWITHSTANDING SECTION 12.1 AND 12.2 AND ANYTHING TO THE CONTRARY, THIS AGREEMENT DOES NOT LIMIT LIABILITY OF GRAIL OR ITS AFFILIATE FOR ANY INFRINGEMENT OF ILLUMINA INTELLECTUAL PROPERTY RIGHTS, OR LIABILITY OF ILLUMINA OR ITS AFFILIATE FOR ANY INFRINGEMENT OF ANY GRAIL INTELLECTUAL PROPERTY RIGHTS.

13. TERM AND TERMINATION

13.1 Term. This Agreement will commence on the Effective Date and terminate 10 years after the Effective Date unless earlier terminated as provided in this Agreement (the "**Initial Term**"). Upon expiration of the Initial Term and any Renewal Term, this Agreement will automatically renew for an additional 2 year term (unless earlier terminated as provided in this Agreement) unless either Party provides written notice of nonrenewal at least 120 days prior to the end of the then-current term (each a "**Renewal Term**"). The Initial Term and any Renewal Terms are collectively referred to as the "**Term**" of this Agreement. If the Term is renewed for any Renewal Terms pursuant to this Section 13.1, the terms and conditions of this Agreement during each such Renewal Term will be the same as the terms and conditions in effect immediately prior to such renewal. If either Party provides timely notice of its intent not to renew this Agreement, then, unless earlier terminated as provided in this Agreement, this Agreement will terminate on the expiration of the then-current Term. Notwithstanding anything in this Agreement to the contrary, the Term will not exceed 20 years.

13.2 Early Termination. Without limiting any other rights of termination expressly provided in this Agreement or under Law, this Agreement may be terminated early as follows:

(a) Breach of Provision. If a Party commits a material breach of this Agreement and fails to cure such material breach within 60 days after receiving written notice of the material breach from the other Party, the non-breaching Party may terminate this Agreement with immediate effect by providing written notice of termination to the other Party.

(b) Bankruptcy and Insolvency. A Party may terminate this Agreement, effective immediately upon written notice, if the other Party becomes the subject of a voluntary or involuntary petition in bankruptcy, for winding up of that Party, or any proceeding relating to insolvency, receivership, administrative receivership, administrative liquidation, or similar proceeding that is not dismissed or set aside within 60 days. In the event of any such proceeding commenced by or against GRAIL, Illumina may cancel any Purchase Order then outstanding and not accept any further Purchase Order until the proceeding is resolved.

(c) Termination for Regulatory Standards. In the event that Illumina is notified by a regulatory agency or governmental body (including the FDA or any foreign equivalent), or has a reasonable basis to believe, that its or GRAIL's or its Operational Affiliate's performance under this Agreement materially violates any Law, then Illumina may terminate this Agreement or only the negatively affected part(s) of this Agreement upon 30 days prior written notice to GRAIL, and/or Illumina may immediately cease supplying the affected Product(s).

(d) Termination for Change in Control involving a Competitor of Illumina. GRAIL will promptly notify Illumina in writing at least 45 days prior to undergoing any Change in Control, and will provide Illumina with the name of any parties to the transaction. If such Change in Control involves a Competitor of Illumina, Illumina may terminate this Agreement by written notice to GRAIL within the 30 day period commencing on the later of (i) the date Illumina receives such notice, and (ii) the date the Change in Control is concluded and effective (such that if the Change in Control does not occur, then Illumina's right to terminate shall expire).

13.3 Effect of Termination; Survival. The following provisions will survive any termination or expiration of this Agreement: Sections 1, 2, 3.2, 3.5, 3.7, 4, 5, 7.2(c), 7.3(b), 7.4(b), 7.4(c), 7.5(b)-(g) (inclusive), 8.2-8.7 (inclusive), 9-12 (inclusive), 13.3-13.5 (inclusive), and 14. Termination or expiration of this Agreement will not relieve the Parties of any liability or obligation that accrued hereunder prior to the effective date of such termination or expiration (including any purchase commitments under open Purchase Orders), nor preclude either Party from pursuing all rights and remedies it may have under this Agreement, at Law, or in equity with respect to any breach of this Agreement. For clarity, all rights granted to GRAIL and its Operational Affiliates under Illumina Intellectual Property Rights will terminate and revert back to Illumina upon any termination or expiration of this Agreement.

13.4 Right to Cease Delivery. In addition to all other remedies available to Illumina under this Agreement, at Law, or in equity, Illumina reserves the right to cease shipping Product immediately to GRAIL or its Operational Affiliate, if GRAIL or its Operational Affiliate does any of the following and does not cure within 30 days after receipt of notice from Illumina: (a) uses Product in a manner that is a material breach of this Agreement or the applicable Terms and Conditions, including in a manner that is outside the scope of rights (including the Intellectual Property Rights) expressly conferred to GRAIL and its Operational Affiliates; (b) fails to pay any Royalty or invoice when due; or (c) materially breaches any representation, warranty made by GRAIL hereunder.

13.5 No Damages for Termination or Expiration. NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR DAMAGES OF ANY KIND (INCLUDING DAMAGES ON ACCOUNT OF PRESENT OR PROSPECTIVE PROFITS, OR ON ACCOUNT OF EXPENDITURES, INVESTMENTS, OR COMMITMENTS MADE IN CONNECTION WITH THIS AGREEMENT, OR IN CONNECTION WITH THE DEVELOPMENT OR MAINTENANCE OF THE BUSINESS OR GOODWILL OF THE OTHER PARTY) BY REASON OF EXPIRATION OF THIS AGREEMENT OR PROPER EXERCISE OF ITS RIGHT TO TERMINATE THIS AGREEMENT IN ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THIS AGREEMENT, AND EACH PARTY EXPRESSLY WAIVES ANY RIGHT IT MAY HAVE TO RECEIVE ANY SUCH DAMAGES.

14. GENERAL

14.1 Governing Law; Jurisdiction. This Agreement and any Dispute or claim arising out of or in connection with it or its subject matter or formation will be governed and construed in accordance with the laws of the State of California, without regard to provisions on the conflicts of laws. Any legal process to resolve a Dispute under this Agreement, including arbitration or court proceedings, will take place in San Diego, California.

The Parties agree that the United Nations Convention on Contracts for the International Sale of goods does not apply to this Agreement.

14.2 Dispute Resolution.

(a) If the Parties have a dispute, controversy or claim arising out of, or relating to, this Agreement (other than claims for injunctive relief, specific performance, or any other equitable relief, and claims by a Party asserting infringement of such Party's Intellectual Property Rights, which may be resolved in any court having jurisdiction) (each a "**Dispute**"), the Parties will first try to amicably settle such Dispute by referring the Dispute to the CEO of GRAIL and the CEO of Illumina (the "**Executives**").

(b) Except as provided in (d) below, if the Executives are unable to resolve the Dispute within 30 days, then the Dispute will be settled by arbitration. The arbitration will be conducted by three arbitrators and administered by JAMS pursuant to its Comprehensive Arbitration Rules and Procedures and in accordance with the Expedited Procedures in those Rules. Each Party will bear its expenses of the arbitration, and each Party will be responsible for one half of the arbitrators' fees. The arbitrators will issue a written decision providing the reasons for their decision. The decision of the arbitrators will be an award under California law. The award will be final and binding on the Parties and judgment upon the award may be entered in and enforced by any court having jurisdiction.

(c) Any Dispute arising out of Section 1.34, 1.44, or 4.4(c), will, to the extent set forth therein, be resolved pursuant to the expedited resolution process set forth in this paragraph. If the Executives are unable to resolve any such Dispute within 10 days, then either Party may thereafter request mediation to resolve the Dispute by providing the other Party with a notice of its intent to seek mediation (a "**Mediation Request**"). Any Dispute that is the subject of a Mediation Request will be mediated as provided below or in a manner otherwise agreed upon by the Parties in writing.

(i) The Parties will conduct and complete the mediation process with respect to such Dispute within 45 days after the Mediation Request for such Dispute, with such mediation to take place in San Diego, California.

(ii) Within five business days after a Mediation Request, the Parties will meet and confer in a good faith attempt to select a mediator to mediate such Dispute. If the Parties cannot agree to a mediator within such 5 business days, such Dispute will be mediated by a panel of three mediators. In such case, each Party will appoint one mediator, obtain its appointee's acceptance of such appointment, and deliver written notification of such appointment and acceptance to the other Party within five business days thereafter. Within five business days thereafter, the two Party-appointed mediators will appoint the third mediator and obtain such third mediator's acceptance of such appointment.

(iii) Within ten business days after the selection of the mediators, each Party will submit to the other Party and the selected mediator(s) an initial report setting forth, in sufficient detail: (A) the nature and scope of such Dispute; (B) its position regarding such Dispute; and (C) the relief it seeks. Within five business days after submission of such initial report, each Party will submit to the other Party and the selected mediator(s) a responsive report addressing only those issues raised by the other Party's initial report.

(iv) Within ten business days after the submission of the Party's responsive reports, a three day mediation hearing shall take place. Within five business days after such mediation hearing, the mediator(s) shall render a written decision setting forth in detail a non-binding advisory opinion, including the factual and legal bases for such decision. The Parties agree that their initial and responsive reports and the advisory opinion will not be admissible in any arbitration or litigation.

(v) If the Parties are unable to resolve the Dispute after this mediation process, the Dispute will be resolved pursuant to arbitration as set forth in the remainder of this Section 14.2.

(d) The contents and results of any arbitration or mediation hereunder are both Parties' Confidential Information.

14.3 Injunctive Relief; Cumulative Remedies. Each Party acknowledges that its breach of Section 3.5, 6, 8, or 9 may cause irreparable injury to the other Party for which monetary damages would not be an adequate remedy, and the other Party will therefore be entitled to seek injunctive relief (including specific performance) with respect to any breach or threatened breach without posting a bond or other security as a condition for obtaining any such relief. The rights and remedies provided to each Party in this Agreement are cumulative and in addition to any other rights and remedies available to each Party under this Agreement, at Law, or in equity.

14.4 Affiliates; Rights of Third Parties. Illumina may delegate or subcontract any or all of its rights and obligations under this Agreement to one or more of its Affiliates. Illumina invoices and other documentation may come from an Illumina Affiliate, and GRAIL and its Operational Affiliates will honor those just as if they came directly from Illumina. With respect to any and all persons and entities that become Affiliates of Illumina after the Effective Date, the rights, licenses, and covenants granted to Illumina and its Affiliates under this Agreement will extend to and cover each such Affiliate on the date that it becomes an Affiliate without any requirement for notice to, or consent by, GRAIL. With respect to any and all persons and entities that become Affiliates of GRAIL after the Effective Date, the rights and covenants granted to GRAIL and its Affiliates under this Agreement will extend to and cover each such Affiliate (to the extent expressly provided in this Agreement) on the date that it becomes an Affiliate without any requirement for notice to, or consent by, Illumina (except to the extent provided in Section 3.7 with respect to Operational Affiliates). Except to the extent expressly stated otherwise, this Agreement is personal to GRAIL and the rights granted to GRAIL in this Agreement do not extend to Affiliates of GRAIL. There are no third party beneficiaries to this Agreement and no term of this Agreement is enforceable under the Contracts (Rights of Third Parties) Act 1999 by a person or entity who is not a Party to this Agreement. The Parties may rescind or terminate this Agreement or vary any of its terms in accordance with their rights under this Agreement and by Law, without the consent of any Third Party.

14.5 Severability; No Waiver. If any term or provision of this Agreement is invalid, illegal, or unenforceable in any jurisdiction, such invalidity, illegality, or unenforceability will not affect any other term or provision of this Agreement or invalidate or render unenforceable such term or provision in any other jurisdiction, subject to the remainder of this Section 14.5. Upon a determination by a court or arbitrator having jurisdiction that any term or provision of this Agreement is invalid, illegal, or unenforceable, the Parties will negotiate in good faith to modify this Agreement to effect the original intent of the Parties as closely as possible in order that the transactions contemplated hereby be consummated as originally contemplated to the greatest extent possible. Notwithstanding the foregoing and anything to contrary, in the event the Royalty or any component or portion thereof or any payment with respect to the Royalty or any component or portion thereof is determined to be invalid, illegal, or unenforceable by a court or arbitrator having jurisdiction, and the Parties are unable, within 60 days of such determination, to agree upon alternate valid, legal, and enforceable terms that give Illumina the expected financial benefit of the Royalty, Illumina may terminate this Agreement immediately upon 30 days prior written notice to GRAIL. The failure or delay of either Party to exercise any right or remedy provided in this Agreement or to require any performance of any term of this Agreement may not be construed as a waiver, and no single or partial exercise of any right or remedy provided in this Agreement, or the waiver by either Party of any

breach of this Agreement, will prevent a subsequent exercise or enforcement of, or be deemed a waiver of any subsequent breach of, the same or any other term of this Agreement. No waiver of any right, condition, or breach of this Agreement will be effective unless in writing and signed by both Parties.

14.6 Assignment. GRAIL may not assign or otherwise transfer, or delegate any of its obligations under, this Agreement or any rights or obligations under this Agreement without the prior written consent of Illumina; provided that GRAIL may assign this Agreement in its entirety, without the need of such consent, in the case of a Change in Control described in Section 1.4(c) or 1.4(e). Any other purported assignment or other transfer will be null and void. Illumina may assign this Agreement: (a) to its Affiliate; (b) in connection with the direct or indirect sale, transfer, or other disposition of all or substantially all of the assets for manufacturing Products, or any direct or indirect acquisition of Illumina or any Affiliate of Illumina that controls Illumina by means of merger, consolidation, acquisition, exchange or contribution of equity, or other form of reorganization in one or a series of related transactions. No assignment, transfer, or delegation will relieve GRAIL of any of its obligations hereunder. Subject to the foregoing, this Agreement will be binding upon and inure to the benefit of each of the Parties and their permitted successors and assigns.

14.7 Export. The Products and any Technology provided under this Agreement are subject to Laws of the United States that govern exports, and other trade controls that may restrict transfers of such items to other countries and parties. Notwithstanding anything to the contrary in this Agreement, GRAIL and its Representatives may not disclose, export, or re-export, directly or indirectly, Products or any Technology provided under this Agreement to any country or party which is ineligible to receive such items under Law (including regulations of the U.S. Department of Commerce and the U.S. Department of the Treasury).

14.8 Notices. All notices required or permitted under this Agreement (each a "**Notice**") will be in writing, in English, and will be deemed received only when: (a) delivered personally; or (b) one day after deposit with a commercial express courier specifying next day delivery or, for international courier packages, two days after deposit with a commercial express courier specifying two-day delivery, with written verification of receipt. All Notices will be sent to the following or any other address designated by a Party using the procedures set forth in this Section:

If to Illumina:	If to GRAIL:
Illumina, Inc. 5200 Illumina Way San Diego, CA 92122 Attn: General Counsel	GRAIL, Inc. 200 Cardinal Way, 2nd Floor Redwood City, CA 94063 Attn: CEO
With a copy to: [***]@illumina.com	With a copy to: [***]@grail.com

For clarity, in no event will GRAIL's disclosure to any Illumina representative on GRAIL's Board of Directors be deemed a Notice to Illumina under any provision of this Agreement, and the consent to any action or inaction of GRAIL by any such representative in his or her capacity as a member of GRAIL's Board of Directors is not, and may not be construed as, the consent of Illumina under any provision of this Agreement.

14.9 Force Majeure. Neither Party will be in breach of this Agreement nor liable for any failure to perform or delay in the performance of this Agreement attributable in whole or in part to any cause beyond its reasonable control, including Law (each an event of "**Force Majeure**"). In the event of any such delay, the delivery date for performance will be deferred for a period equal to the time lost by reason of the delay,

provided that such period will in no event exceed 90 days. Notwithstanding anything in this Agreement to the contrary, GRAIL's and its Operational Affiliates' payment obligations are not affected by this provision except to the extent the Force Majeure affects financial institutions and, as a result, the financial

institutions cannot complete the transaction necessary for GRAIL or its Operational Affiliate to satisfy its payment obligations.

14.10 Entire Agreement; Amendment. This Agreement (including all Exhibits), the Assignment and Assumption Agreement, and the Terms and Conditions represent the entire agreement between the Parties regarding the subject matter hereof and supersede all prior discussions, communications, agreements (including the Original Agreement), and understandings of any kind and nature between the Parties. The Parties acknowledge and agree that by entering into this Agreement, they do not rely on any statement, representation, assurance or warranty of any person or entity other than as expressly set out in this Agreement. Each Party agrees that it will have no right or remedy (other than for breach of contract) in respect of any statement, representation, assurance or warranty (whether made negligently or innocently) other than as expressly set out in this Agreement. Nothing in this Section will exclude or limit liability for fraud. No amendment to this Agreement will be effective unless in writing and signed by both Parties.

14.11 Relationship of the Parties. The Parties acknowledge that, as of the Effective Date, Illumina is a shareholder of GRAIL. However, the Parties are independent contractors under this Agreement and nothing in this Agreement may be construed as creating a partnership, joint venture, or agency relationship between the Parties, or as granting either Party the authority to bind or contract any obligation in the name of the other Party or to make any statements, representations, warranties or commitments on behalf of the other Party.

14.12 Headings; Interpretation; Miscellaneous. Sections, titles and headings in this Agreement are for convenience only and are not intended to affect the meaning or interpretation hereof. Whenever required by the context, the singular term includes the plural, the plural term includes the singular, and the gender of any pronoun includes all genders. As used in this Agreement except as the context may otherwise require, the words “include,” “includes,” “including,” and “such as” are deemed to be followed by “without limitation” or “but not limited to,” whether or not they are in fact followed by such words or words of like import, and “will” and “shall” are used synonymously. As used in this Agreement except as the context may otherwise require, “infringe”, “infringement”, and variations thereof include infringement, misappropriation, or other violation of the Intellectual Property Right at issue. Except as expressly stated, any reference to “days” will be to calendar days, and “business day” means all days other than Saturdays, Sundays, or a national or local holiday recognized in the United States, any reference to “calendar month” will be to the month and not a 30 day period, and any reference to “calendar quarter” will mean the first three calendar months of the year, the fourth through sixth calendar months of the year, the seventh through ninth calendar months of the year, and the last three calendar months of the year. Whenever the last day for the exercise of any right or the discharge of any obligation hereunder falls on, or any notice is deemed to be given on, a Saturday, Sunday, or national holiday, the Party having such right or obligation will have until 5:00 pm PST on the next succeeding business day to exercise such right or to discharge such obligation or the Party giving notice will be deemed to have given notice on the next succeeding business day. No usage of trade, course of performance, or other regular practice between the Parties hereto may be used to interpret or alter the terms and conditions of this Agreement. Unless otherwise expressly provided in this Agreement, any agreement, instrument, or statute defined or referred to means such agreement, instrument, or statute as from time to time amended, modified, or supplemented, including (in the case of agreements or instruments) by waiver or consent and (in the case of statutes) by succession of comparable successor statutes and references to all attachments thereto and instruments incorporated therein. The Parties have participated jointly in the negotiation and drafting of this Agreement. If an ambiguity or question of intent or interpretation arises, this Agreement will be construed as if drafted jointly by the Parties and no presumption or burden of proof will arise favoring or disfavoring any Party because of the authorship of any provision of this Agreement.

14.13 Counterparts. This Agreement may be executed in one or more counterparts, each of which will be deemed to be an original, and all of which will constitute one and the same instrument.

14.14 Costs. Except as expressly provided in this Agreement, each Party will pay its own costs incurred in connection with the negotiation, preparation, and execution of this Agreement and any documents referred to in it.

14.15 Further Assurances. Each Party will execute and deliver such further documents and take such further actions as the other Party may reasonably request to evidence and implement the provisions and intent of this Agreement.

[SIGNATURES ON NEXT PAGE]

SIGNATURE PAGE TO AMENDED AND RESTATED
SUPPLY AND COMMERCIALIZATION AGREEMENT

IN WITNESS WHEREOF, the Parties have executed this Agreement effective as of the Effective Date.

ILLUMINA		GRAIL	
Illumina, Inc. a Delaware corporation		GRAIL, Inc. a Delaware corporation	
By:	/s/ Marc A. Stapley	By:	
Name:	Marc A. Stapley	Name:	Jeff Huber
Title:	Executive Vice Pres. And Chief	Title:	Chief Executive Officer
Date:	Administrative Officer	Date:	

SIGNATURE PAGE TO AMENDED AND RESTATED
SUPPLY AND COMMERCIALIZATION AGREEMENT

IN WITNESS WHEREOF, the Parties have executed this Agreement effective as of the Effective Date.

ILLUMINA		GRAIL	
Illumina, Inc. a Delaware corporation		GRAIL, Inc. a Delaware corporation	
By:		By:	/s/ Jeffrey T. Huber
Name:		Name:	Jeff Huber
Title:		Title:	Chief Executive Officer
Date:		Date:	

EXHIBIT A

Product Pricing and Discount Tables

Discounts on Products: Consumables:

Consumables:

Trailing Spend or Forward Commitment for Consumables (in USD)	Discount off of List Price
[***]	[***]
[***]	[***]
[***]	[***]

Instruments:

Trailing Spend or Forward Commitment for Instruments (in USD)	Discount off of List Price
[***]	[***]
[***]	[***]

The purchase price at which GRAIL and its Operational Affiliates may purchase a Product will be determined on a quarterly basis, and will equal the List Price for the Product, less the discount in the table above corresponding to the applicable Trailing Spend or, if GRAIL has so elected, the Forward Commitment, for such category of Products (consumables or instruments). "**Trailing Spend**" means the cumulative amount invoiced to GRAIL and its Operational Affiliates for such category of Products purchased from Illumina and its Affiliates under this Agreement during the preceding four calendar quarters (excluding amounts paid for taxes and shipping, insurance, customs, and other transportation costs).

GRAIL may elect at any time (except as provided below) to make a binding written commitment to purchase a cumulative amount of a category of Products (on a dollar basis, and excluding amounts paid for taxes and shipping, insurance, customs, and other transportation costs) to be delivered within one year from the date of such commitment, in order to access a higher discount rate than would otherwise be afforded if the discount rate were determined by the Trailing Spend for such category of Products (a "**Forward Commitment**"). At the end of such year, if GRAIL and its Operational Affiliates have not purchased Products to be delivered during such year at least equaling the amount committed to in the Forward Commitment, Illumina may invoice GRAIL the amount determined by subtracting the cumulative amount of the category of Products (on a dollar basis, and excluding amounts paid for taxes and shipping, insurance, customs, and other transportation costs) delivered in such year from the amount committed to in the Forward Commitment. For the avoidance of doubt, a Forward Commitment is a binding commitment to pay to Illumina the committed amount, either through the purchase of Product or pursuant to the preceding year-end reconciliation procedure.

For clarity, the Trailing Spend or Forward Commitment for consumable Products is not used in determining the discount applicable to instrument Products, and the Trailing Spend or Forward Commitment for instrument Products is not used in determining the discount applicable to consumable Products.

Discounts on Service Contracts:

Sequencing Instruments under Service Contract	Discount off of List Price
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

The purchase price at which GRAIL and its Operational Affiliates may purchase a Service Contract will be determined based upon the number of Illumina sequencing instrument Products that GRAIL and its Operational Affiliates have covered by Service Contract at the time the Purchase Order for such Service Contract is issued, and will equal the List Price for the Service Contract in question, less the discount in the table above corresponding to the applicable number of Illumina sequencing instrument Products then-covered by Service Contract.

EXHIBIT B

Assignment and Assumption Agreement
(attached)

ASSIGNMENT AND ASSUMPTION AGREEMENT

This Assignment and Assumption Agreement (this "**Agreement**") is entered into among Illumina, Inc., a Delaware corporation ("**Illumina**"), GRAIL, Inc., a Delaware corporation ("**GRAIL**"), and Memorial Sloan Kettering Cancer Center ("**MSK**") effective as of February 28, 2017 (the "**Assignment Effective Date**"). Illumina, GRAIL, and MSK may each be referred to individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

A. Illumina and MSK entered into a Joint Development and Sponsored Research Agreement dated as of September 4, 2015 (the "**Research Agreement**"). Capitalized terms used but not defined in this Agreement will have the meanings given to them in the Research Agreement;

B. Illumina delegated certain of its obligations under the Research Agreement to GRAIL pursuant to a Supply and Commercialization Agreement entered into by Illumina and GRAIL on January 7, 2016 (the "**Commercialization Agreement**");

C. Illumina and GRAIL are amending and restating the Commercialization Agreement (the "**Amended and Restated Commercialization Agreement**"), and as part of such amendment and restatement, Illumina and MSK desire to assign Illumina's rights and obligations under the Research Agreement to GRAIL pursuant to this Agreement; and

D. MSK consents and agrees to such assignment and assumption on the terms set forth in this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants contained in this Agreement, the foregoing recitals, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. ASSIGNMENT OF RESEARCH AGREEMENT

1.1 Assignment. Illumina hereby, effective as of the Assignment Effective Date, conveys, assigns, transfers, and delivers all of its right, title, and interest in, to, and under the Research Agreement to GRAIL.

1.2 Acceptance and Assumption. GRAIL hereby, effective as of the Assignment Effective Date: (a) accepts the conveyance, assignment, transfer, and delivery of all of Illumina's right, title, and interest in, to, and under the Research Agreement; (b) assumes all of Illumina's duties and obligations under the Research Agreement; and (c) agrees to perform all such duties and obligations as and when due in accordance with the Research Agreement.

1.3 MSK's Consent. MSK hereby consents and agrees to Illumina's assignment of the Research Agreement to GRAIL on the terms, and subject to the conditions, set forth in this Agreement.

2. COMPLETION OF STUDIES; MODIFICATIONS TO AGREEMENT

2.1 Completion of Studies. GRAIL will complete the Statements of Work set forth in the Research Agreement, on the timelines set forth therein.

2.2 Modifications to Agreement. GRAIL may not: (a) amend, waive any rights under, or terminate the Research Agreement or any Statement of Work without Illumina's prior written consent (which consent may not be unreasonably withheld); or (b) assign, delegate, or otherwise transfer its rights or obligations under the Research Agreement, in whole or in part, by operation of law or otherwise, without Illumina's prior written consent (which consent may not be unreasonably withheld). GRAIL may not circumvent the Research Agreement or Illumina's and its Affiliates' rights under Collaboration IP, Results, Derivative Results, or Reports (as provided in Section 3 below), including without limitation, by

entering into separate agreements or arrangements concerning the subject matter or patient cohorts addressed in the Statements of Work.

3. DATA AND IP RIGHTS

3.1 Illumina's Collaboration IP. Illumina will retain its rights and interests (including the rights granted in Section 2.6) in Collaboration IP generated prior to the Assignment Effective Date. As between Illumina and GRAIL, any such Collaboration IP will be deemed to be "Development IP" under the Amended and Restated Collaboration Agreement; provided that GRAIL may use and practice under such Collaboration IP only to the extent that, and subject to the terms under which, Illumina is permitted to use and practice under such Collaboration IP pursuant to the Research Agreement. MSK may continue to use and practice under such Collaboration IP pursuant to, and on the terms set forth in, the Research Agreement. For clarity: (a) no IP generated by or on behalf of Illumina or its Affiliate after the Assignment Effective Date will be Collaboration IP; (b) except to the limited extent expressly provided in this Section 3.1, no rights in, to, or under IP of Illumina or its Affiliates are granted to GRAIL or MSK.

3.2 Illumina's Results and Reports. Illumina will retain its interest in Results, Derivative Results, and Reports generated prior to the Assignment Effective Date. Within 30 business days following the Assignment Effective Date, GRAIL will deliver to Illumina all Results, Derivative Results, and Reports generated by GRAIL or MSK as of the Assignment Effective Date. MSK may continue to use such Results, Derivative Results, and Reports pursuant to, and on the terms set forth in, the Research Agreement. Illumina agrees that GRAIL may use such Results, Derivative Results, and Reports to the fullest extent that Illumina is permitted to use such Results, Derivative Results, and Reports pursuant to the Research Agreement, and hereby grants such rights to GRAIL.

3.3 MSK and GRAIL Collaboration IP. MSK and GRAIL will each own any Collaboration IP it generates under the Research Agreement after the Assignment Effective Date, on the terms set forth in the Research Agreement. As between Illumina and GRAIL, any such Collaboration IP generated by or on behalf of GRAIL, and any rights or interests GRAIL may have in or to Collaboration IP generated by or on behalf of MSK after the Assignment Effective Date, will be deemed to be "Improvements" under the Amended and Restated Collaboration Agreement; provided that Illumina and its Affiliates may use and practice under such Collaboration IP only to the extent that, and subject to the terms under which, GRAIL is permitted to use and practice under such Collaboration IP pursuant to the Research Agreement. MSK consents to the foregoing grants.

3.4 MSK and GRAIL Results and Reports. GRAIL will deliver to Illumina all Results, Derivative Results, and Reports generated by GRAIL or MSK after the Assignment Effective Date as and when it delivers such Results, Derivative Results, and Reports to, or receives such Results, Derivative Results, and Reports from, MSK. GRAIL agrees that Illumina and its Affiliates may use such Results, Derivative Results, and Reports to the fullest extent that GRAIL is permitted to use such Results, Derivative Results, and Reports pursuant to the Research Agreement, and hereby grants (and agrees to grant) such rights to Illumina and its Affiliates. MSK consents to the foregoing grants.

3.5 Disputes. If there is any dispute between Illumina and GRAIL as to whether particular Collaboration IP, Results, Derivative Results, or Reports were developed under the Research Agreement before or after the Assignment Effective Date, Illumina and GRAIL will attempt to resolve such dispute solely between Illumina and Grail and without MSK's involvement. If the resolution of any such dispute reasonably requires the participation of MSK, Illumina and GRAIL will reimburse MSK for any costs incurred by MSK in assisting in the resolution of such dispute (with Illumina and GRAIL to share equally in any such costs). Notwithstanding the foregoing, MSK will be entitled to participate in any such disputes to protect its own rights and interests.

3.6 MSK Activities under the Research Agreement. Illumina shall not make or assert any claims or demands against MSK arising from or on account of MSK's performance under the Research Agreement after the Assignment Effective Date; provided however that the foregoing does not apply to

any breach of the confidentiality obligations set forth in Article 7 with respect to Illumina's Confidential Information (which obligations will continue to bind MSK for the 5 year period of time commencing on the Assignment Effective Date and will continue in perpetuity for any Trade Secrets there were disclosed prior to the Assignment Effective Date).

4. MISCELLANEOUS

4.1 Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of New York, without regard to the conflicts of law principles thereof.

4.2 Amendments. No change, modification, extension, termination or waiver of this Agreement, or any of the provisions herein contained, will be valid unless made in writing and signed by duly authorized representatives of the Parties hereto.

4.3 Assignment. No Party may assign, delegate, or otherwise transfer its rights or obligations under this Agreement, in whole or in part, by operation of law or otherwise, without the prior written consent of the other Parties (which consent may not be unreasonably withheld).

4.4 Counterparts. This Agreement may be executed in two or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

[SIGNATURES ON NEXT PAGE]

SIGNATURE PAGE TO ASSIGNMENT AND ASSUMPTION AGREEMENT

ILLUMINA

Illumina, Inc.
a Delaware corporation

By: /s/ Marc A.Stapley
Name: Marc A. Stapley
Title: /s/ Marc A.Stapley
Date:

GRAIL

GRAIL, Inc.
a Delaware corporation

By:
Name: Jeffrey T. Huber
Title: CEO
Date:

MSK

Memorial Sloan Kettering Cancer Center

By:
Name: Gregory Raskin, M.D.
Title: Vice President, Technology Development
Date:

SIGNATURE PAGE TO ASSIGNMENT AND ASSUMPTION AGREEMENT

ILLUMINA

Illumina, Inc.
a Delaware corporation

By: _____
Name: _____
Title: _____
Date: _____

GRAIL

GRAIL, Inc.
a Delaware corporation

By: /s/ Jeffrey T. Huber
Name: Jeffrey T. Huber
Title: CEO
Date: _____

MSK

Memorial Sloan Kettering Cancer Center

By: _____
Name: _____
Title: _____
Date: _____

SIGNATURE PAGE TO ASSIGNMENT AND ASSUMPTION AGREEMENT

ILLUMINA

Illumina, Inc.
a Delaware corporation

By: _____
Name: _____
Title: _____
Date: _____

GRAIL

GRAIL, Inc.
a Delaware corporation

By: _____
Name: _____
Title: _____
Date: _____

MSK

Memorial Sloan Kettering Cancer Center

By: /s/ Gregory Raskin, M.D.
Name: Gregory Raskin, M.D.
Title: Vice President, Technology Development
Memorial Sloan Kettering Cancer Center
Date: 2/6/17

EXHIBIT C

K2 Development Plan

I. [***]

[***].

II. [***]

Deliverable	
•	[***]
•	[***]
•	[***]

[***]
[***]
[***]
[***]

[***]

Level	Item Number	Objects	Component number	Object description	Overflow indicator	Comp. Qty (CUn)	Component unit	Assembly indicator
1	0010		20014263	HiSeq HT cDNA Library Prep Beads		1	EA	Yes
1	0020		20014262	HiSeq HT cDNA Library Prep Rgts		1	EA	Yes
1			20014263	HiSeq HT cDNA Library Prep Beads		0.000		No
2	0010		15037172	LPB-SPB, SMP PURF BEADS, FIN REA 8.8 ML		2	2TB	Yes
2	0020		15037717	7000RT,1 to 4 x 5mL		1	EA	No
2	0030		15013763	BOX,SAMPLE PREP 1, GS		1	EA	No
2	0040		20014871	LBL,HiSeq® HT cDNA Library Prep Beads		1	EA	Yes
1			20014262	HiSeq HT cDNA Library Prep Rgts		0.000		No
2	0010		15012547	LPB-RSB,RESUSPENSION BUFFER,FINISH REAC		8	TB	Yes
2	0020		15036418	LPB-ERP2,END REPAIR MIX,FINISHREAG .1 mL		2	TB	Yes
2	0030		15012495	LPB-ATL,A TAILING MIX,FINISH REAG		4	2TB	Yes
2	0040		15036184	LPB-LIG2,LIGATION MIX FINISH REAG .27ML		4	TB	Yes
2	0050		15041700	LPB-EPM, ENHANCED PCR MIX, FR0.53 ml		5	TB	Yes
2	0060		15041960	Insert,12x15mL+18xMicrotubes		1	EA	No
2	0070		11310848	BOX,3000ML + 6X250ML		1	EA	No
2	0080		20014870	LBL,HiSeq® HT cDNA Library Prep Reagent		1	EA	Yes
2	0090		15054289	LBL,Hazard_1.34x1.34_EPM		1	EA	Yes
2	0100		15049655	BAG,3-SEAL POUCH, 19"(W) x 19"(L)		2	EA	No
2			15037172	LPB-SPB, SMP PURF BEADS, FIN REA 8.8 ML		0.000		No
3	0010		11296741	TB,CI 15mlPPW/pkg,ats 15mL-t		2	EA	No
3	0020		15038671	RM, Agencourt Ampure XP (450mL)		18.800	ML	No
3	0030		15037180	LBL,LPB-SPB, SAMPLE PURIFICATION BEADS		2	EA	Yes
2			20014871	LBL,HiSeq® HT cDNA Library Prep Beads		0.000		No
3	0010		15015065	LBL,PRE-PRNTD,2.75X4.5,RUO,USA		1	EA	No
2			15012547	LPB-RSB,RESUSPENSION BUFFER,FINISH REAC		0.000		No
3	0010		15014169	BULK,RSB,RESUSPENSION BUFFER		104	ML	Yes
3	0020		11296741	TB,CI 15mlPPW/pkg,ats 15mL-t		8	EA	No
3	0030		15012568	LBL,LPB-RSB,RESUSPENSION BUFFER		8	EA	Yes
2			15036418	LPB-ERP2,END REPAIR MIX,FINISHREAG .1 mL		0.000		No
3	0010		177877	TUBE,STANDOFF,5ML, W/CAP		2	EA	No
3	0020		15036409	BULK,LPB-ERP2,END REPAIR MIX		2.020	ML	Yes
3	0030		15037181	LBL,LPB-ERP2 End Repair Mix2_1.0 mL		2	EA	Yes
2			15012495	LPB-ATL,A TAILING MIX,FINISH REAG		0.000		No
3	0010		15011604	BULK,LPB-ATL,A TAILING MIX		3.100	ML	Yes
3	0020		11310071	TUBE,CLEAR 2ml,PP SCREW CAP		4	EA	No
3	0030		15026790	LBL,LPB-ATL,A TAILING .69 ml		4	EA	Yes
2			15036184	LPB-LIG2,LIGATION MIX FINISH REAG .27ML		0.000		No
3	0010		11182495	TUBE,MICRO,0.5ML,W/CAP		4	EA	No
3	0020		60077-15	T4 DNA Ligase @ 15U/ul		1.188	ML	No
3	0030		15036439	LBL,LPB-LIG2,LIGATION MIX2_ .27 ml		4	EA	Yes
2			15041700	LPB-EPM, ENHANCED PCR MIX, FR0.53 ml		0.000		No
3	0010		15037048	BULK,TC-NEM, NXTR Enrich AMPLI MIX		2.900	ML	Yes
3	0020		11310071	TUBE,CLEAR 2ml,PP SCREW CAP		5	EA	No
3	0030		15041792	LBL,LPB-EPM ENHANCED PCR MIX		5	EA	Yes
2			20014870	LBL,HiSeq® HT cDNA Library Prep Reagent		0.000		No
3	0010		11298412	LBL,PRE-PRNTD,4.25x8,RUO,USA		1	EA	No
2			15054289	LBL,Hazard_1.34x1.34_EPM		0.000		No
3	0010		15043740	LBL,PRE-PRNTD,1.34"x1.34",Hazard		1	EA	No
3			15037180	LBL,LPB-SPB, SAMPLE PURIFICATION BEADS		0.000		No
4	0010		11298844	LBL,BLANK,2"X0.875",LIGHT GREEN		2	EA	No
3			15014169	BULK,RSB,RESUSPENSION BUFFER		0.000		No
4	0010		1001671	RM,1M TRIS PH8.5,1L		1.040	ML	No
3			15012568	LBL,LPB-RSB,RESUSPENSION BUFFER		0.000		No
4	0010		11298572	LBL,BLANK,2"X0.875",LAVENDER		8	EA	No
3			15036409	BULK,LPB-ERP2,END REPAIR MIX		0.000		No
4	0010		15012834	CHEM,TRIS HCL pH 7.6		0.290	ML	No
4	0020		11193591	SOLN,MAGNESIUM CHLORIDE, 1M		0.058	ML	No
4	0030		11296177	SOLN,1M DTT		0.058	ML	Yes
4	0040		15029950	dNTP, POOL		93	µL	Yes
4	0050		60078-5	T4 DNA Polymerase @ 5 U/ul		0.038	ML	No
4	0060		15000371	T4 PNK, 10,000Uni,ENZ,DNA SEQ		0.058	ML	No
4	0070		11300576	SOLN,50% SUCROSE		0.463	ML	Yes
4	0080		15034053	RM,ATP,SOLID		3.166	MG	No
3			15037181	LBL,LPB-ERP2 End Repair Mix2_1.0 mL		0.000		No
4	0010		15056370	LBL,2" x 1",LIGHT GREEN		2	EA	No
3			15011604	BULK,LPB-ATL,A TAILING MIX		0.000		No
4	0010		15002076	SOLN,1M Tris Buffer, pH 8.0		0.391	ML	Yes
4	0020		11193591	SOLN,MAGNESIUM CHLORIDE, 1M		0.079	ML	No
4	0030		11296177	SOLN,1M DTT		0.079	ML	Yes
4	0040		15011637	SOLN,PEG 6000,30%		1.953	ML	Yes
4	0050		11300576	SOLN,50% SUCROSE		0.652	ML	Yes
4	0060		15034053	RM,ATP,SOLID		4.306	MG	No
4	0070		15032248	dATP,PCR GRADE,NA-SALT,100mM		15	µL	No
4	0080		11192336C	KLENOW EXO MINUS		8	µL	No
3			15026790	LBL,LPB-ATL,A TAILING .69 ml		0.000		No
4	0010		292040	LBL,STOCK,CLEAR ILMN LOGO 1.0625X1.43		4	EA	No
3			15036439	LBL,LPB-LIG2,LIGATION MIX2_ .27 ml		0.000		No
4	0010		292040	LBL,STOCK,CLEAR ILMN LOGO 1.0625X1.43		4	EA	No
3			15037048	BULK,TC-NEM, NXTR Enrich AMPLI MIX		0.000		No
4	0010		15029950	dNTP, POOL		87	µL	Yes
4	0020		15037936	RM, 5X,KAPA HIFI,FIDELITY BUFFER		1.450	ML	No
4	0030		15037650	RM,KAPA HIFI DNA Polymerase,1U/µL		0.145	ML	No
3			15041792	LBL,LPB-EPM ENHANCED PCR MIX		0.000		No
4	0010		292040	LBL,STOCK,CLEAR ILMN LOGO 1.0625X1.43		5	EA	No
4			11296177	SOLN,1M DTT		0.000		No
5	0010		11289365	CHEM,DL-DITHIOTHREITOL		0.009	G	No
4			15029950	dNTP, POOL		0.000		No
5	0010		15032248	dATP,PCR GRADE,NA-SALT,100mM		24	µL	No
5	0020		15032250	dTTP,PCR GRADE,NA-SALT,100mM		24	µL	No
5	0030		15032251	dCTP,PCR GRADE,NA-SALT,100mM		24	µL	No
5	0040		15032252	dGTP,PCR GRADE,NA-SALT,100mM		24	µL	No
4			11300576	SOLN,50% SUCROSE		0.000		No
5	0010		15033801	CHEM,SUCROSE (SKU packaging)		0.232	G	No
4			15002076	SOLN,1M Tris Buffer, pH 8.0		0.000		No
5	0010		11298498	SOLN,2M TRIS,HCL		0.111	ML	Yes
5	0020		11300519	SOLN,1M TRIS BASE		0.171	ML	Yes
4			11296177	SOLN,1M DTT		0.000		No
5	0010		11289365	CHEM,DL-DITHIOTHREITOL		0.013	G	No
4			15011637	SOLN,PEG 6000,30%		0.000		No
5	0010		15011636	RM,PEG 6000,SOLID		0.586	G	No
4			11300576	SOLN,50% SUCROSE		0.000		No
5	0010		15033801	CHEM,SUCROSE (SKU packaging)		0.326	G	No
4			15029950	dNTP, POOL		0.000		No
5	0010		15032248	dATP,PCR GRADE,NA-SALT,100mM		22	µL	No
5	0020		15032250	dTTP,PCR GRADE,NA-SALT,100mM		22	µL	No
5	0030		15032251	dCTP,PCR GRADE,NA-SALT,100mM		22	µL	No
5	0040		15032252	dGTP,PCR GRADE,NA-SALT,100mM		22	µL	No
5			11298498	SOLN,2M TRIS,HCL		0.000		No
6	0010		15029947	CHEM,TRIS HYDROCHLORIDE		34.965	MG	No
5			11300519	SOLN,1M TRIS BASE		0.000		No
6	0010		15032359	CHEM,TRIS BASE		0.021	G	No

Level	Item Number	Objects	Component number	Object description	Overflow indicator	Comp. Qty (CUn)	Component unit	Assembly indicator
1	0010		20014366	HiSeq HT cfDNA SPB Beads		1	EA	Yes
1	0020		20014364	HiSeq HT cfDNA Resuspension Buffer		2	EA	Yes
1	0030		20014365	HiSeq HT cfDNA Enrichment Reagents		1	EA	Yes
1	0040		20014367	HiSeq HT cfDNA Enrichment Beads		1	EA	Yes
1			20014366	HiSeq HT cfDNA SPB Beads		0.000		No
2	0010		15037173	LPW-SPB, SMP PURIF BEADS, FIN RGA 6.6 ML		22	TB	Yes
2	0020		15037717	7500R T.1 to 4.5mL		1	EA	No
2	0030		15013763	BOX,SAMPLE PREP 1, GE		1	EA	No
2	0040		20014674	LBL,HiSeq® HT cfDNA SPB Beads		1	EA	Yes
1			20014364	HiSeq HT cfDNA Resuspension Buffer		0.000		No
2	0010		15013547	LPW-RSB,RESUSPENSION BUFFER,FINISH REAG		20	TB	Yes
2	0020		15033711	INSERT,10X10 ML TUBES		2	EA	No
2	0030		20013171	BOX, 8-1/2" X 2-3/8" X 5-3/4"		2	EA	No
2	0040		20014672	LBL,HiSeq® HT cfDNA Resuspension Buffer		2	EA	Yes
2	0050		11287383	BAG,3-SEAL PCH 14x14 BARR 48-4-Rle 07828		4	EA	No
1			20014365	HiSeq HT cfDNA Enrichment Reagents		0.000		No
2	0010		15005752	TC8-EEW, Enhanced Enrich WashBFFR,FIN RGT		16	TB	Yes
2	0020		15037634	TC8-EE1, Enrich ELUTION BFFR 1,FIN REAG		16	TB	Yes
2	0030		15046759	TC8-CT3,CAPTURE TARGET BUFFER3, Fin Reag		4	TB	Yes
2	0040		11324586	GAM-HP3,FINISHED REAGENT		8	ZBA	Yes
2	0050		15041760	LPW-EPM, ENHANCED PCR MIX, FRES 3 ml		5	TB	Yes
2	0060		15031748	LPW-PPC,PCR PRIMER COCKTAIL,0.33ML,FIN REA		2	TB	Yes
2	0070		15028184	BOX,72 TUBE SET		1	EA	No
2	0080		20014673	LBL,HiSeq® HT cfDNA Enrichment Reagents		1	EA	Yes
2	0090		20014328	INSERT, 1.5/2ML, 36XMICRO		1	EA	No
2	0100		15032884	LBL, Hazard_1.34x1.34_HP3		1	EA	Yes
2	0110		15054288	LBL, Hazard_1.34x1.34_EPM		1	EA	Yes
2	0120		15041328	LBL, Hazard_1.34x1.34_CT3		1	EA	Yes
2	0130		11287383	BAG,3-SEAL PCH 14x14 BARR 48-4-Rle 07828		2	EA	No
1			20014367	HiSeq HT cfDNA Enrichment Beads		0.000		No
2	0010		15036631	TC8-SMB,STRPTVDN MAG BDS,FIN RGT 1.2 mL		16	TB	Yes
2	0020		15013006	TC8-ET2,FINISH REAG,ELUTE TARGET BFFR 2		16	TB	Yes
2	0030		15054682	Insert, 24 Micro tubes		1	EA	No
2	0040		15013763	BOX,SAMPLE PREP 1, GE		1	EA	No
2	0050		20014675	LBL,HiSeq® HT cfDNA Enrichment Beads		1	EA	Yes
2	0060		15041133	LBL_Hazard_1.34x1.34_SMB		1	EA	Yes
2			15037173	LPW-SPB, SMP PURIF BEADS, FIN RGA 6.6 ML		0.000		No
3	0010		11298741	TB CI 15 mlPPW plug,ars 15 mL		2	EA	No
3	0020		15036671	RM, Agencourt AmpureXP (450mL)		16.800	ML	No
3	0030		15037180	LBL,LPW-SPB, SAMPLE PURIFICATION BEADS		2	EA	Yes
2			20014674	LBL,HiSeq® HT cfDNA SPB Beads		0.000		No
3	0010		15010085	LBL,PRE-PRINTD,2.75X4.5,RUO,USA		1	EA	No
2			15013547	LPW-RSB,RESUSPENSION BUFFER,FINISH REAG		0.000		No
3	0010		15014169	BULK,RSB, RESUSPENSION BUFFER		380	ML	Yes
3	0020		11298741	TB CI 15 mlPPW plug,ars 15 mL		20	EA	No
3	0030		15012566	LBL,LPW-RSB,RESUSPENSION BUFFER		20	EA	Yes
2			20014672	LBL,HiSeq® HT cfDNA Resuspension Buffer		0.000		No
3	0010		15010085	LBL,PRE-PRINTD,2.75X4.5,RUO,USA		2	EA	No
2			15005752	TC8-EEW, Enhanced Enrich WashBFFR,FIN RGT		0.000		No
3	0010		15005578	Bulk, EEW, Enhanced Enrichment Wash		68.880	ML	Yes
3	0020		11233000	TUBE AMBR 5.0X15.3 mlPP W/CAP		16	TB	No
3	0030		15005676	LBL,TC8-EEW,Enhanced Enrichment Wash		16	EA	Yes
2			15037634	TC8-EE1, Enrich ELUTION BFFR 1,FIN REAG		0.000		No
3	0010		11316071	TUBE,CLEAR 2ml PP SCREW CAP		16	EA	No
3	0020		15037635	BULK,TC8-EE1, ENRICHMENT ELUTION BUFFER		10.240	ML	Yes
3	0030		15038230	LBL, TC8-EE1,ENRICHMENT ELUTION BUFFER 1		16	EA	Yes
2			15046759	TC8-CT3,CAPTURE TARGET BUFFER3, Fin Reag		0.000		No
3	0010		15046800	BULK, TC8-CT3,CAPTURE TARGET BUFFER 3		5.280	ML	Yes
3	0020		11316071	TUBE,CLEAR 2ml PP SCREW CAP		4	EA	No
3	0030		15052082	LBL, TC8-CT3 Capture Target Buffer 3		4	EA	Yes
2			11324586	GAM-HP3,FINISHED REAGENT		0.000		No
3	0010		11162485	TUBE MICRO,0.5ML, W/CAP		8	EA	No
3	0020		15054626	LBL, GAM-HP3		8	EA	Yes
3	0030		15003303	BULK,GAM-HP3		1.808	ML	Yes
2			15041760	LPW-EPM, ENHANCED PCR MIX, FRES 3 ml		0.000		No
3	0010		15037648	BULK,TC8-HEM, NXTR Enrich AMPLI MIX		2.880	ML	Yes
3	0020		11316071	TUBE,CLEAR 2ml PP SCREW CAP		5	EA	No
3	0030		15041762	LBL,LPW-EPM ENHANCED PCR MIX		5	EA	Yes
2			15031748	LPW-PPC,PCR PRIMER COCKTAIL, 0.33ML,FIN REA		0.000		No
3	0010		15031745	OLIGO,PCR 3.2 & PCR 4. MIX		0.750	ML	No
3	0020		11162485	TUBE MICRO,0.5ML, W/CAP		2	EA	No
3	0030		15031751	LBL,LPW-PPC,PCR PRIMER COCKTAIL, 0.33ML		2	EA	Yes
2			20014673	LBL, HiSeq® HT cfDNA Enrichment Reagents		0.000		No
3	0010		15035464	LBL, PRE-PRINTD,4x3,RUO,USA		1	EA	No
2			15032884	LBL, Hazard_1.34x1.34_HP3		0.000		No
3	0010		15043740	LBL, PRE-PRINTD,1.34"x1.34", Hazard		1	EA	No
2			15054288	LBL, Hazard_1.34x1.34_EPM		0.000		No
3	0010		15043740	LBL, PRE-PRINTD,1.34"x1.34", Hazard		1	EA	No
2			15041328	LBL, Hazard_1.34x1.34_CT3		0.000		No
3	0010		15043740	LBL, PRE-PRINTD,1.34"x1.34", Hazard		1	EA	No
2			15036631	TC8-SMB,STRPTVDN MAGBDS,FIN RGT 1.2 mL		0.000		No
3	0010		15015028	BULK,TC8-SMB, STREPTAVIDIN MAGNETIC BEAD		24.300	ML	Yes
3	0020		11316071	TUBE, CLEAR 2 ml PP SCREW CAP		16	EA	No
3	0030		15038832	LBL, TC8-SMB,STREPTAVIDIN MAGNETIC BEADS		16	EA	Yes
2			15013006	TC8-ET2,FINISH REAG, ELUTE TARGET BFFR 2		0.000		No
3	0010		15016684	BULK,TC8-ET2,ELUTE TARGET BUFFER 2		3.680	ML	Yes
3	0020		11162485	TUBE, MICRO,0.5ML,W/CAP		16	EA	No
3	0030		15017116	LBL, TC8-ET2, ELUTE TARGET BUFFER 2		16	EA	Yes
2			20014675	LBL, HiSeq® HT cfDNA Enrichment Beads		0.000		No
3	0010		15010085	LBL, PRE-PRINTD,2.75X4.5,RUO, USA		1	EA	No
2			15041133	LBL_Hazard_1.34x1.34_SMB		0.000		No
3	0010		15043740	LBL, PRE-PRINTD,1.34"x1.34", Hazard		1	EA	No
3			15037180	LBL, LPW-SPB, SAMPLE PURIFICATION BEADS		0.000		No
4	0010		11288644	LBL, BLANK,2"X0.875",LIGHT GREEN		2	EA	No
3			15014169	BULK,RSB,RESUSPENSION BUFFER		0.000		No
4	0010		10009871	RM, 1M TRIS PH8.5,1L		2.600	ML	No
3			15012566	LBL, LPW-RSB,RESUSPENSION BUFFER		0.000		No
4	0010		11288673	LBL, BLANK,2"x0.875", LAVENDER		20	EA	No
3			15005578	Bulk, EEW, Enhanced Enrichment Wash		0.000		No
4	0010		11324449	SOLN, 1M TRIS BUFFER, pH 8.0		3.444	ML	Yes
4	0020		15006161	CHEM, Dehexamine maleate salt		5.051	MG	No
4	0030		11300015	SOLN, 5M BETAINE		55.104	ML	Yes
4	0040		15034238	SOLN, 10% TWEEN 20, 10%, Cat#: P7949 Sigm.		0.689	ML	Yes
3			15005676	LBL, TC8-EEW, Enhanced Enrichment Wash		0.000		No
4	0010		15055858	LBL, 2" x 1",BEIGE		16	EA	No
3			15037635	BULK,TC8-EE1,ENRICHMENT ELUTION BUFFER		0.000		No
4	0010		15034238	SOLN, 10% TWEEN 20, 10%, Cat#: P7949 Sigm.		0.103	ML	Yes
3			15038230	LBL, TC8-EE1, ENRICHMENT ELUTION BUFFER 1		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		16	EA	No
3			15046800	BULK, TC8-CT3, CAPTURE TARGET BUFFER 3		0.000		No
4	0010		11003210	CHEM,FORMAMIDE - 4L 4x1L/Case		1.215	ML	No
4	0020		15018773	SOLN, 24X OH BUFFER		3.036	ML	Yes
4	0030		15015686	RM, COT1 DNA,HUMAN		1.056	ML	No
4	0040		15046813	SOLN, CT3 BLOCKER1		0.264	ML	Yes
4	0050		15046816	SOLN, CT3 BLOCKERS		0.264	ML	Yes
3			15052082	LBL, TC8-CT3 Capture Target Buffer 3		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		4	EA	No
3			15054626	LBL, GAM-HP3		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		8	EA	No
3			15003303	BULK,GAM-HP3		0.000		No
4	0010		11325257	SOLN, 2N SODIUM HYDROXIDE		1.808	ML	Yes
3			15037648	BULK,TC8-HEM, NXTR Enrich AMPLI MIX		0.000		No
4	0010		15028950	dNTP, POOL		87	µL	Yes
4	0020		15037636	RM, 5X,KAPA HIFI,FIDELITY BUFFER		1.460	ML	No
4	0030		15037650	RM,KAPA HIFI DNA Polymerase, 1U/µL		0.146	ML	No
3			15041762	LBL, LPW-EPM ENHANCED PCR MIX		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		5	EA	No
3			15031751	LBL, LPW-PPC,PCR PRIMER COCKTAIL,0.33ML		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		2	EA	No
3			15015028	BULK,TC8-SMB, STREPTAVIDIN MAGNETIC BEAD		0.000		No
4	0010		15015773	SOLN, 24X OH BUFFER		6.075	ML	Yes
4	0020		11006210	CHEM,FORMAMIDE - 4L 4x1L/Case		4.860	ML	No
4	0030		15034238	SOLN, 10% TWEEN 20, 10%, Cat#: P7949 Sigm.		0.086	ML	Yes
4	0040		11118442	STRPTVDN, [illegible]		12.150	ML	No
3			15038832	LBL, TC8-SMB,STREPTAVIDIN MAGNETIC BEADS		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		16	EA	No
3			15016684	BULK,TC8-ET2,ELUTE TARGET BUFFER 2		0.000		No
4	0010		11326486	SOLN, 3M TRIS BASE		0.026	ML	Yes
4	0020		11300551	Soln, 3M TRIS ACETATE		1.763	ML	Yes
3			15017116	LBL, TC8-ET2, ELUTE TARGET BUFFER 2		0.000		No
4	0010		283640	LBL, STOCK,CLEAR ILMN LOGO 1.0625X1.43		16	EA	No
4			11324449	SOLN, 1M TRIS BUFFER, pH 8.0		0.000		No
5	0010		11326488	SOLN, 2M TRIS HCL		1.037	ML	Yes
5	0020		11326486	SOLN, 3M TRIS BASE		0.457	ML	Yes
4			11300015	SOLN, 5M BETAINE		0.000		No
5	0010		11147308	BETAINE INNER SALT,MONOHYDRATE		37.240	G	No
4			15034238	SOLN, 10% TWEEN 20, 10%, Cat#: P7949 Sigm.		0.000		No

5	0010		10028848	CHEM,Tween-20, 100%	78.446 MG	No
4			10034228	SOLN, 10% TWEEN 20, 10%,Cat# P7949 Sigm	0.000	No
5	0010		10028848	CHEM,Tween-20, 100%	11.278 MG	No
4			10016772	SOLN,24X GH BUFFER	0.000	No
5	0010		15034115	CHEM,POTASSIUM PHOS,1M,MONO PE7.08	47 µL	No
5	0020		11022134	CHEM,POTASSIUM PHOS,1M,DI	1.166 ML	No
5	0030		15028646	CHEM,Sodium Chloride	706.514 MG	No
5	0040		15034228	SOLN, 10% TWEEN 20, 10%,Cat# P7949 Sigm	0.076 ML	Yes
4			15048613	SOLN, CT3 BLOCKER1	0.000	No
5	0010		15048615	RM, CT3 BLOCKER 1	5.312 MG	No
5	0020		15021000	SOLN,BUFFER,TE,0.1X	0.384 ML	Yes
5	0030		15050610	Test, Oligo Concentration	1 EA	Yes
4			15048616	SOLN, CT3 BLOCKER2	0.000	No
5	0010		15048618	RM, CT3 BLOCKER 2	4.648 MG	No
5	0020		15021000	SOLN,BUFFER,TE,0.1X	0.384 ML	Yes
5	0030		15050610	Test, Oligo Concentration	1 EA	Yes
4			11328287	SOLN,2N SODIUM HYDROXIDE	0.000	No
5	0010		15034108	CHEM,SODIUM HYDROXIDE	154.880 MG	No
4			15028660	dNTP, POOL	0.000	No
5	0010		15032248	dATP,PCR GRADE,NA-SALT, 100 mM	22 µL	No
5	0020		15032250	dTTP,PCR GRADE,NA-SALT,100mM	22 µL	No
5	0030		15032251	dCTP,PCR GRADE,NA-SALT,100mM	22 µL	No
5	0040		15032252	dGTP,PCR GRADE, NA-SALT,100mM	22 µL	No
4			15016772	SOLN,24X GH BUFFER	0.000	No
5	0010		15034115	CHEM,POTASSIUM PHOS,1M,MONO PE7.08	94 µL	No
5	0020		11022134	CHEM,POTASSIUM PHOS,1M,DI	2.337 ML	No
5	0030		15028646	CHEM,Sodium Chloride	1,419.728 MG	No
5	0040		15034228	SOLN, 10% TWEEN 20, 10%,Cat# P7949 Sigm	0.152 ML	Yes
4			15034228	SOLN, 10% TWEEN 20, 10%,Cat# P7949 Sigm	0.000	No
5	0010		15028848	CHEM,Tween-20, 100%	6.855 MG	No
4			10958490	SOLN,2M TRIS BASE	0.000	No
5	0010		15032288	CHEM,TRIS BASE	0.014 G	No
4			10906881	Soln, 2M TRIS ACETATE	0.000	No
5	0010		10986881	CHEM,TRIS ACETATE	0.647 G	No
5			10958496	SOLN,2M TRIS,HCL	0.000	No
6	0010		15028647	CHEM,TRIS HYDROCHLORIDE	326.855 MG	No
5			10958490	SOLN,2M TRIS BASE	0.000	No
6	0010		15032288	CHEM,TRIS BASE	0.156 G	No
5			15034228	SOLN, 10% TWEEN 20, 10%,Cat# P7949 Sigm	0.000	No
6	0010		15028848	CHEM,Tween-20, 100%	8.323 MG	No
5			15021000	SOLN,BUFFER,TE,0.1X	0.000	No
6	0010		11176443	BUFFER,TE,100X	0.001 ML	No
5			15050610	Test, Oligo Concentration	0.000	No
6	0010		15021000	SOLN,BUFFER,TE,0.1X	65 ML	Yes
5			15021000	SOLN,BUFFER,TE,0.1X	0.000	No
6	0010		11176443	BUFFER,TE,100X	0.001 ML	No
5			15050610	Test, Oligo Concentration	0.000	No
6	0010		15021000	SOLN,BUFFER,TE,0.1X	65 ML	Yes
5			15034228	SOLN, 10% TWEEN 20, 10%,Cat# P7949 Sigm	0.000	No
6	0010		15028848	CHEM,Tween-20, 100%	16.644 MG	No
6			15021000	SOLN,BUFFER,TE,0.1X	0.000	No
7	0010		11176443	BUFFER,TE,100X	0.065 ML	No
6			15021000	SOLN,BUFFER,TE,0.1X	0.000	No
7	0010		11176443	BUFFER,TE,100X	0.065 ML	No

Level	Item Number	Objects	Component number	Object description	Overflow indicator	Comp. Qty (CUn)	Component unit	Assembly indicator
1	0010		20014020	HiSeq HT cBOT PE Cluster Kit PRM-PLM2		1	EA	Yes
1	0020		20014021	HiSeq HT cBOT PE Cluster Kit PAM-PPM		1	EA	Yes
1	0030		20014022	HiSeq HT cBOT PE Cluster Kit PDR-HP11		1	EA	Yes
1	0040		20014023	HiSeq HT cBOT PE Cluster Kit HP14		1	EA	Yes
1	0050		20014024	HiSeq HT cBOT PE Cluster Kit EPX1		2	EA	Yes
1	0060		20014025	HiSeq HT cBOT PE Cluster Kit EPX2		2	EA	Yes
1	0070		20014026	HiSeq HT cBOT PE Cluster Kit EPX3		2	EA	Yes
1	0080		20014027	HiSeq HT cBOT PE Cluster Kit cBOT Plate		2	EA	Yes
1	0090		15072566	HiSeq X™ Flow Cell v2.5		2	EA	Yes
1	0100		15057787	HiSeq X™ Accessory Kit v2 (Box A)		2	EA	Yes
1	0110		15057788	HiSeq X™ HD Accessory Kit v2 (Box B)		2	EA	Yes
1	0120		15067568	HiSeq® cBot™2 Manifold		60	EA	No
1			20014020	HiSeq HT cBOT PE Cluster Kit PRM-PLM2		0.000		No
2	0010		15046210	HS8-FRM,PATRND REDSTNMIX,FINISH REAG		60	ZTB	Yes
2	0020		15046212	HS8-PLM2,PATRND LNEARZTN MIX 2,FINISH REA		60	ZTB	Yes
2	0030		20012467	INSERT; 60x15ml		2	EA	No
2	0040		20012462	BOX; 120x15ml		1	EA	No
2	0050		10087414	BAG 3-SEAL PCH 24x24 BARR 48-4 Pak7628		2	EA	No
2	0060		20014037	LBL,HS HT cBOT PE Cluster Kit PRM-PLM2		1	EA	Yes
1			20014021	HiSeq HT cBOT PE Cluster Kit PAM-PPM		0.000		No
2	0010		15046214	HS8-PAM,PATTERNED AMPLI MIX,FINISH REAG		60	ZTB	Yes
2	0020		15046216	HS8-PPM,PATTERNED AMP PREMIX,FINISH REA		60	ZTB	Yes
2	0030		20012467	INSERT; 60x15ml		2	EA	No
2	0040		20012462	BOX; 120x15ml		1	EA	No
2	0050		10087414	BAG 3-SEAL PCH 24x24 BARR 48-4 Pak7628		2	EA	No
2	0060		20014038	LBL,HS HT cBOT PE Cluster Kit PAM-PPM		1	EA	Yes
1			20014022	HiSeq HT cBOT PE Cluster Kit PDR-HP11		0.000		No
2	0010		15046218	HS8-PDR,PATRND DENATURATION MIX,FINISH RI		60	ZTB	Yes
2	0020		15046220	HS8-HP11, PRIMER MIX, READ 2,PE, FINISH REAG		60	ZTB	Yes
2	0030		20012467	INSERT; 60x15ml		2	EA	No
2	0040		20012462	BOX; 120x15ml		1	EA	No
2	0050		10087414	BAG 3-SEAL PCH 24x24 BARR 48-4 Pak7628		2	EA	No
2	0060		20014039	LBL,HS HT cBOT PE Cluster Kit PDR-HP11		1	EA	Yes
2	0070		15052779	LBL, Hazard, 1.34x1.34_PDR		1	EA	Yes
1			20014023	HiSeq HT cBOT PE Cluster Kit HP14		0.000		No
2	0010		15067103	HS8-HP14, Indexing Primer Mix,4.1ml		60	TB	Yes
2	0020		20012467	INSERT; 60x15ml		1	EA	No
2	0030		20012534	BOX; 60x15ml		1	EA	No
2	0040		10087414	BAG 3-SEAL PCH 24x24 BARR 48-4 Pak7628		2	EA	No
2	0050		20014080	LBL,HS HT cBOT PE Cluster Kit HP14		1	EA	Yes
1			20014024	HiSeq HT cBOT PE Cluster Kit EPX1		0.000		No
2	0010		15057075	HS8-EPX1,ENHANCED PC MIX 1,FINISH REAG		60	TB	Yes
2	0020		15054862	Insert, 24 slide strips		2	EA	No
2	0030		15013769	BOX,SAMPLE PREP 1, GE		2	EA	No
2	0040		20014081	LBL,HS HT cBOT PE Cluster Kit EPX1		2	EA	Yes
2	0050		10022581	BAG,SEAL POUCH 5"x8"		4	EA	No
1			20014025	HiSeq HT cBOT PE Cluster Kit EPX2		0.000		No
2	0010		15057079	HS8-EPX2,ENHANCED PC MIX 2,FINISH REAG		60	TB	Yes
2	0020		15054862	Insert, 24 slide strips		2	EA	No
2	0030		15013769	BOX,SAMPLE PREP 1, GE		2	EA	No
2	0040		10022581	BAG,SEAL POUCH 5"x8"		4	EA	No
2	0050		20014082	LBL,HS HT cBOT PE Cluster Kit EPX2		2	EA	Yes
1			20014026	HiSeq HT cBOT PE Cluster Kit EPX3		0.000		No
2	0010		15057083	HS8-EPX3,ENHANCED PC MIX 3,FINISH REAG		60	TB	Yes
2	0020		15054862	Insert, 24 slide strips		2	EA	No
2	0030		15013769	BOX,SAMPLE PREP 1, GE		2	EA	No
2	0040		10022581	BAG,SEAL POUCH 5"x8"		4	EA	No
2	0050		20014083	LBL,HS HT cBOT PE Cluster Kit EPX3		2	EA	Yes
1			20014027	HiSeq HT cBOT PE Cluster Kit cBOT Plate		0.000		No
2	0010		15046727	cBot™ Paired End Cluster Plate, BPF, v2		60	EA	Yes
2	0020		15056551	Box, cBot Plate, 20 Pack		2	EA	No
2	0030		15056552	Insert 1, cBot Plate, 20 Pack		6	EA	No
2	0040		15057753	Insert 2, cBot Plate, 20 Pack		6	EA	No
2	0050		15038223	BAG 3-SEAL POUCH 3.5" (W) x 30"(L)		6	EA	No
2	0060		20014084	LBL,HS HT cBOT PE ClstrKit cBot Plate		2	EA	Yes
1			15072566	HiSeq X™ Flow Cell v2.5		0.000		No
2	0010		15067686	HiSeq X™ Flow Cell v2.5		60	EA	Yes
2	0020		15056557	Box, Bulk Packaging		2	EA	No
2	0030		15072581	LBL, HiSeq X™_Flow Cell v2.5_DIFF_REFRIG		2	EA	Yes
2	0040		15072586	LBL, HiSeq X™ Flow Cell v2.5		2	EA	Yes
1			15057787	HiSeq X™ Accessory Kit v2 (Box A)		0.000		No
2	0010		15046821	TBE,HSQ X HD Storage BFFR PE Flow Cell		60	EA	Yes

2	0020	15056562	Box, 50 mL Stand Up Tube, 20 Pack	3 EA	No
2	0030	15056563	Insert, 50 mL Stand Up Tube, 20 Pack	3 EA	No
2	0040	15056644	LBL,HiSeq X™ Accessory Kit v2 (Box A)	3 EA	Yes
1		15057758	HiSeq X™ HD Accessory Kit v2 (Box B)	0.000	No
2	0010	15013131	BAG,8 BOTTLE CAPS,GL32,WITH FUNNEL	60 BAG	No
2	0020	15011651	HiSeq® Flowcell Spare Gaskets 4 Pack	60 EA	Yes
2	0030	15056587	Box, Bulk Packaging	3 EA	No
2	0040	15056645	LBL,HiSeq X™ Accessory Kit v2 (Box B)	3 EA	Yes
2		15048210	HSM-PPM,PATRND RESYNMIX,FINISH REAG	0.000	No
3	0010	15028575	BULK,MSM-RMF	171.600 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15048211	LBL, HSM-PPM Patterned Resynthesis Mix	60 EA	Yes
2		15048212	HSM-PLM2,PATRND LINEARZTN MIX 2,FINISH REA	0.000	No
3	0010	15057449	BULK,HSM-PLM2,PATRND LINEARIZATION MIX 2	171.600 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15048213	LBL, HSM-PLM2 PATRND Linearization Mix 2	60 EA	Yes
2		20014037	LBL, HS HT ctDNA PE Cluster Kit PPM-PLM2	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	1 EA	No
2		15048214	HSM-PAM,PATTERNED AMPL MIX,FINISH REAG	0.000	No
3	0010	15033376	BULK,MSM-AMP1_MSM-AMP2	554.400 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15048215	LBL, HSM-PAM Patterned Amplification Mix	60 EA	Yes
2		15048216	HSM-PPM,PATTERNED AMP PRMIX,FINISH REA	0.000	No
3	0010	15001882	BULK,CAM-PW1	257.400 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15048217	LBL, HSM-PPM Patterned Amp Premix	60 EA	Yes
2		20014038	LBL, HS HT ctDNA PE Cluster Kit PAM-PPM	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	1 EA	No
2		15048218	HSM-PDR,PATRND DENATURATION MIX,FINISH RE	0.000	No
3	0010	15038445	BULK,LDR1	655.600 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15048219	LBL, HSM-PDR Patterned Denaturation Mix	60 EA	Yes
2		15048220	HSM-HP11,PRIMER MIX,READ 2,PE,FINISH REAG	0.000	No
3	0010	15027757	BULK,HP11,PRIMER MIX,READ 2	158.400 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15048221	LBL, HSM-HP11 Primer Mix,Read 2	60 EA	Yes
2		20014038	LBL, HS HT ctDNA PE Cluster Kit PDR-HP11	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	1 EA	No
2		15032779	LBL, Hazard_1.34x1.34_PDR	0.000	No
3	0010	15042740	LBL, PRE-PRINTD,1.34"x1.34",Hazard	1 EA	No
2		15057183	HSM-HP14, Indexing Primer Mix,4.1 ml	0.000	No
3	0010	15036600	BULK, HP14	258.600 ML	Yes
3	0020	11288741	TB CI 15mlPPWI plg,ors 15mL4	60 EA	No
3	0030	15057137	LBL, HSM-HP14, Indexing Primer Mix	60 EA	Yes
2		20014060	LBL, HS HT ctDNA PE Cluster Kit HP14	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	1 EA	No
2		15057075	HSM-EPX1,ENHANCED PC MIX 1,FINISH REAG	0.000	No
3	0010	11182486	TUBE,MICRO,0.5ML,W/CAP	60 EA	No
3	0020	15057078	LBL, HSM-EPX1,Enhanced PC Mix 1	60 EA	Yes
3	0030	15057076	BULK,HSM-EPX1,ENHANCED PC MIX1	17.160 ML	Yes
2		20014061	LBL, HS HT ctDNA PE Cluster Kit EPX1	0.000	No
3	0010	15015065	LBL, PRE-PRINTD,2.75X4.5,RUO,USA	2 EA	No
2		15057079	HSM-EPX2,ENHANCED PC MIX 2,FINISH REAG	0.000	No
3	0010	11182486	TUBE,MICRO,0.5ML,W/CAP	60 EA	No
3	0020	15057082	LBL, HSM-EPX2,Enhanced PC Mix 2	60 EA	Yes
3	0030	15057080	BULK,HSM-EPX2, ENHANCED PC MIX2	3.600 ML	Yes
2		20014062	LBL, HS HT ctDNA PE Cluster Kit EPX2	0.000	No
3	0010	15015065	LBL, PRE-PRINTD,2.75X4.5,RUO,USA	2 EA	No
2		15057083	HSM-EPX3,ENHANCED PC MIX 3,FINISH REAG	0.000	No
3	0010	11182486	TUBE,MICRO,0.5ML,W/CAP	60 EA	No
3	0020	15057086	LBL, HSM-EPX3,Enhanced PC Mix 3	60 EA	Yes
3	0030	15057084	BULK,HSM-EPX3, ENHANCED PC MIX3	12.240 ML	Yes
2		20014063	LBL, HS HT ctDNA PE Cluster Kit EPX3	0.000	No
3	0010	15015065	LBL, PRE-PRINTD,2.75X4.5,RUO,USA	2 EA	No
2		15048727	cBot™ Paired End Cluster Plate, SBP, v2	0.000	No
3	0002	15056562	Insert 1, cBot Plate, 20 Pack	6 EA	No
3	0004	15057753	Insert 2, cBot Plate, 20 Pack	6 EA	No
3	0006	15056561	Box, cBot Plate, 20 Pack	3 EA	No
3	0010	15044690	Soln, Primer Premix, (PREMIX 1, BULK,HT1)	517.800 ML	Yes
3	0020	15001882	BULK,CAM-PW1	240 ML	Yes
3	0030	15042386	BULK, BMS	466.400 ML	Yes
3	0040	15055596	BULK,HT2 WASH BUFFER	576.600 ML	Yes
3	0050	15042378	BULK, BLM1	200.400 ML	Yes
3	0060	15038445	BULK,LDR1	32.4 ML	Yes
3	0070	15042349	BULK, BP10	166 ML	Yes
3	0080	15048415	PLATE, 96 DEEP WELL	60 EA	No
3	0090	15056570	LID,96 WELL PLATE,Cycle safe	60 EA	No
3	0100	15054758	SEAL,THERMAL FOIL	0.006 ZRL	No
3	0110	15052386	ASSY,SIPP RGT Tube,16mmID Y-Element	7 EA	No
3	0120	15048726	LBL, cBot™ Cluster Plate HiSeq X™ v2	60 EA	Yes
3	0130	15041122	LBL_Hazard_2.5x0.5657_LDR1_8-Tube Strips	60 EA	Yes
3	0140	11202268	LBL, BARCODE,2x0.5657,WHITE	0.120 ZRL	No
2		20014064	LBL, HS HT ctDNA PE Cluster Kit cBot Plate	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	3 EA	No
2		15057688	HiSeq X™ Flow Cell v2.5	0.000	No
3	0010	15071486	LBL, HiSeq X™ v2.5 Flow Cell for 15057688	60 EA	Yes
3	0020	10035364	CORNING 50ML CENTRIFUGE TUBE	6 EA	No
3	0030	10035652	SEROLOGICAL PIPETTE 10ML	12 EA	No
3	0040	10034565	PIPET, 25ML SEROLOGICAL	6 EA	No
3	0050	11173421	BAG,FOIL,4 x 7.5	60 EA	No
3	0060	11020764	PIPETTE TIP, LTS 50-200	4 EA	No
3	0070	15008623	RMB-SSC Internal Reag,5xSSC+EDTA	0.100 ZBT	Yes
3	0080	15010946	PKG,PILLOW,DESICCANT	60 EA	No
3	0090	15018744	RMB-KH,Int Reag,Potassium Phosphate	0.042 ZBT	Yes
3	0100	15018745	RMB-NaOH,Int RGT, 0.1N Sodium Hydroxide	0.012 ZBT	Yes
3	0110	15025043	Hybrid Clamp Tubing Gasket Assembly	6 EA	No
3	0120	15020075	Copper(II)Sulfate Pentahydrate	0.688 ML	No
3	0130	15026077	PMDETA N,N,N',N',N''-pentamethyldiethylenetriamine	1.560 ML	No
3	0140	15026846	CHEM,SODIUM ASCORBATE Na Ascorbate	415.200 MG	No
3	0150	15032223	RUP7 Tri Mix Wash Buffer	3.480 ML	No
3	0160	15045681	RM,SODIUM BICARBONATE	0.408 G	No
3	0170	15045682	RM,SODIUM CARBONATE	3.086 G	No
3	0180	15045606	CLAMSHELL, FLOW CELL, SINGLE SLIDE	60 EA	No
3	0190	15056981	OLIGO,BP PE PRIMER MIX,TE,0.4mL	3.750 ZTD	Yes
3	0200	15059850	ASY,FC,NHM,ARY,40nmCD,700nmP,HiSeq 2kX	60 EA	Yes
3	0210	15011144	MSDS,FLOWCELL,USNON-CONFIDENTIAL	60 EA	No
2		15072821	LBL, HiSeq X™_Flow Cell v2.5_DIFF_REPRIO	0.000	No
3	0010	15048764	LBL, Blank,2"x4",White_Kiam	3 EA	No
2		15073088	LBL, HiSeq X™ Flow Cell v2.5	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	3 EA	No
2		15048821	TBE,HISQ X HD Storage BFFR PE Flow Cell"	0.000	No
3	0010	15006662	BULK,(5xSSC+1mM EDTA) REAGENT	2.760 ML	Yes
3	0020	10035364	CORNING 50ML CENTRIFUGE TUBE	60 EA	No
3	0030	15058863	LBL, HISQ X HD Storg BFFRPE Flow Cell 40ML	60 EA	Yes
2		15059644	LBL, HiSeq X™ Accessory Kit v2(Box A)	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	3 EA	No
2		15011631	HiSeq® Flowcell Spare Gaskets 4 Pack	0.000	No
3	0010	15010659	POUCH, STANDUP, 4" x 6.4" x 2.25"	60 EA	No
3	0020	15012266	LBL, HiSeq® Flowcell Spare Gaskets 4 Pack	60 EA	Yes
3	0030	15022098	GASKET,HISEQ 8-POS, 3MM HT, 2.0MM PITCH	240 EA	No
2		15059645	LBL, HiSeq X™ Accessory Kit v2(Box B)	0.000	No
3	0010	11288412	LBL, PRE-PRINTD,4.25x6,RUO,USA	3 EA	No
3		15028575	BULK,MSM-RMF	0.000	No
4	0010	11234473	SOLN, 1M IMIDAZOLE BFR, pH 6.4	6.960 ML	Yes
4	0020	11152581	SOLN, MAGNESIUM CHLORIDE, 1M	4.118 ML	No
4	0030	15032340	CHEM,2-MERCAPTOETHANOL	12.0 µL	No
4	0040	11033578	SOLN, 50% SUCROSE	34.320 ML	Yes
4	0050	E0031410	T4 PNK (Polynucleotide Kinase) 10 U/µl	3.432 ML	No
3		15048211	LBL, HSM-PPM Patterned Resynthesis Mix	0.000	No
4	0010	15028628	LBL, BLANK,2"X0.875",REACH LIGHT ORANGE	60 EA	No
3		15057449	BULK,HSM-PLM2, PATRND LINEARIZATION MIX 2	0.000	No
4	0010	15028169	SOLN,SSD,PREMIX 2	165.432 ML	Yes
4	0020	ID15034	FPG formulated 8 U/mL	6.169 ML	No
3		15048213	LBL, HSM-PLM2 PATRND Linearization Mix 2	0.000	No
4	0010	15028601	LBL, BLANK,2"X0.875",RED	60 EA	No
3		15033376	BULK,MSM-AMP1_MSM-AMP2	0.000	No
4	0010	15028427	BULK,CAM-APM1_CAM-APM2	540.320 ML	Yes
4	0020	15038680	dNTP, POOL	4,436 µL	Yes
4	0030	E0120-100	Displace-ase DNA Polymerase 100 U/µL	4.436 ML	No
3		15048215	LBL, HSM-PAM Patterned Amplification Mix	0.000	No
4	0010	15028591	LBL, 2" x 1" GREEN	60 EA	No
3		15001882	BULK,CAM-PW1	0.000	No
4	0010	15005126	LBL, STATUS_APPROVED_SS3	0.001 EA	No
3		15048217	LBL, HSM-PPM Patterned Amp Premix	0.000	No
4	0010	11028581	LBL, BLANK,2"X0.875",LIGHT BLUE	60 EA	No
3		15038445	BULK,LDR1	0.000	No
4	0010	11003216	CHEM,FORMAMIDE - 4L 4x1L Case	652.567 ML	No
4	0020	15032436	SOLN, 1M TRISODIUM CITRATE	0.654 ML	Yes
3		15048219	LBL, HSM-PDR Patterned Denaturation Mix	0.000	No
4	0010	15028586	LBL,2" x 1",PINK	60 EA	No

3		15027767	BULK,HP11 PRIMER MIX,READ 2	0.000	No
4	0010	15003408	PREMIX 1(BULK,HT1)	157.525 ML	Yes
4	0020	15027141	RM,HP11,PRIMER MIX,READ 2	0.476 ML	No
3		15048231	LBL,HS4-HP11Primer Mix,Read 2	0.000	No
4	0010	11288601	LBL,BLANK,2"X0.875",NAVY BLUE	60 EA	No
3		15006600	BULK, EP14	0.000	No
4	0010	15044650	Sds, Primer Premix, (PREMIX 1, BULK,HT1)	254.721 ML	Yes
4	0020	15003681	100µM, Nextera Read 1, Rev	1.552 ML	Yes
4	0030	15003684	100µM, SBS8, Rev	1.552 ML	Yes
4	0040	15027143	RM,HP12,PRIMER MIX,INDEX 1	0.776 ML	No
3		15007137	LBL,HS4-HP14, Indexing Primer Mix	0.000	No
4	0010	11288606	LBL,BLANK,2"X0.875",MAGENTA/PURPLE	60 EA	No
3		15007076	LBL,HS4-EPX1,Enhanced PC Mix 1	0.000	No
4	0010	15054906	LBL,TMP,1.0625x1.43,RUO,Othr Comments,Ill	60 EA	No
4	0020	15037036	LBL,PREPRINT,1.0625x1.43,Clr,ILMN logo	60 EA	No
3		15007076	BULK,HS4-EPX1, ENHANCED PC MIX1	0.000	No
4	0010	15003077	SOLN,1M Tris Buffer, pH 8.0	1.020 ML	Yes
4	0020	11288177	SOLN,1M DTT	0.208 ML	Yes
4	0030	15046647	RM,E-MIX,20X	2.040 ML	No
4	0040	15046652	RM,CREATINE KINASE,20X	4.085 ML	No
4	0050	15046646	RM,dNTPs,100mM	0.658 ML	No
4	0060	15007661	RM,CP32	56.717 MG	No
4	0070	E0065-168	Bsu DNA Polymerase @ 165 U/ul	5.577 ML	No
3		15007092	LBL,HS4-EPX2,Enhanced PC Mix 2	0.000	No
4	0010	15054906	LBL,TMP,1.0625x1.43,RUO,Othr Comments,Ill	60 EA	No
4	0020	15037036	LBL,PREPRINT,1.0625x1.43,Clr,ILMN logo	60 EA	No
3		15007093	BULK,HS4-EPX2, ENHANCED PC MIX2	0.000	No
4	0010	50000250	Standard Storage Buffer	1.062 ML	No
4	0020	E0065-20	Rec 233 @ 20 ul/ul	1.515 ML	No
3		15007096	LBL,HS4-EPX3,Enhanced PC Mix 3	0.000	No
4	0010	15054906	LBL,TMP,1.0625x1.43,RUO,Othr Comments,Ill	60 EA	No
4	0020	15037036	LBL,PREPRINT,1.0625x1.43,Clr,ILMN logo	60 EA	No
3		15007094	BULK,HS4-EPX3, ENHANCED PC MIX3	0.000	No
4	0010	15046666	SOLN,20% PEG POLYETHYLENE GLYCOL	10.441 ML	No
4	0020	15046651	RM,MgOAc, MAGNESIUM ACETATE,28.0mM	1.464 ML	No
3		15044650	Sds, Primer Premix, (PREMIX 1, BULK,HT1)	0.000	No
4	0010	15032167	SSC BUFFER, OMNIPUR 20X4LBT	128.456 ML	No
4	0020	15026646	CHEM, Tween 20, 100%	566.501 MG	No
3		15001653	BULK,CAM-P41	0.000	No
4	0010	15008108	LBL, STATUS_APPROVED_2X3	0.001 EA	No
3		15042385	BULK, EMS	0.000	No
4	0010	15044677	EMS, PREMIX CONC	480.596 ML	Yes
4	0020	E0120-100	DisplaceAce DNA Polymerase 100U/uL	3.908 ML	No
4	0030	15026680	dNTP POOL	3,908 µL	Yes
4	0040	15059386	PHANTOM, EMS PREMIX	1 EA	Yes
3		15059566	BULK,HT2 WASH BUFFER	0.000	No
4	0010	15032167	SSC BUFFER, OMNIPUR 20X4LBT	8.684 ML	No
4	0020	15026646	CHEM, Tween 20, 100%	627.360 MG	No
3		15042376	BULK, ELM1	0.000	No
4	0010	15044676	4X SEQ PREMIX CONC	46.586 ML	Yes
4	0020	11320635	CHEM,URACIL EXCISION MIX, ENZYME	1.584 ML	No
4	0030	15059385	PHANTOM, 4X SEQ PREMIX	1 EA	Yes
3		15020446	BULK,LDR1	0.000	No
4	0010	11046210	CHEM,FORMAMIDE - 4L 4x4UC ea	322.676 ML	No
4	0020	15020436	SOLN, 1M TRISODIUM CITRATE	0.324 ML	Yes
3		15042346	BULK, EP10	0.000	No
4	0010	15044650	Sds, Primer Premix, (PREMIX 1, BULK,HT1)	185.442 ML	Yes
4	0020	15027140	RM,HP10,PRIMER MIX,READ 1	0.558 ML	No
4	0030	15059666	Phantom, Primer Premix	1 EA	Yes
3		15046720	LBL, cBot™ Cluster Plate HiSeq X™ v2	0.000	No
4	0010	15008777	LBL,BLANK,1.25"X2", Purple/Magenta	60 EA	No
4	0020	15059021	LBL, TMPLT1.25x2",cBot PLTs,20DC,Laser	60 EA	No
3		15041100	LBL_Hazard_2.5x0.9837_LDR1_8-Tube Strips	0.000	No
4	0010	15046506	LBL_PREPRINT,2.5"x0.9375"_TD_Strp_PLTs_Hz	60 EA	No
3		15071486	LBL_HiSeq X™ v2.5 Flow Cell for 15067896	0.000	No
4	0010	10096404	LBL,PREPRINTD,4x3,RUO,USA	60 EA	No
3		15060623	RM4-SSC,Internal Reag,5xSSC+EDTA	0.000	No
4	0010	15060622	BULK,(5xSSC+1mM EDTA) REAGENT	432 ML	Yes
4	0020	15060026	JUG, 1 gallon ultra pure	1 EA	No
4	0030	15063468	CAP,BLCK ACO,INDSTRL GLSS RECD8-4SBRA3	1 EA	No
4	0040	15010075	LBL_RM4-SSC_Flow Cell Buffer	1 EA	Yes
3		15010744	RM4-KP,Int Reag,Potassium Phosphate	0.000	No
4	0010	15006916	BULK,10mM KP BUFFER,pH7.0 REAGENT	168 ML	Yes
4	0020	15060026	JUG, 1 gallon ultra pure	1 EA	No
4	0030	15063468	CAP,BLCK ACO,INDSTRL GLSS RECD8-4SBRA3	1 EA	No
4	0040	15012060	LBL_RM4-KP_Flow Cell Buffer	1 EA	Yes
3		15012746	RM4-NaOH,Int RGT, 0.1N Sodium Hydroxide	0.000	No
4	0010	15016767	BULK,0.1N NaOH, SOLN.	48 ML	Yes
4	0020	15060026	JUG, 1 gallon ultra pure	1 EA	No
4	0030	15063468	CAP,BLCK ACO,INDSTRL GLSS RECD8-4SBRA3	1 EA	No
4	0040	15012061	LBL_RM4-NaOH_Flow Cell Buffer	1 EA	Yes
3		15066981	CLUGO, EP PE PRIMER MIX,T6,0.4mL	0.000	No
4	0010	15066680	BULK,EP PE PRIMER MIX,T6	1.650 ML	Yes
4	0020	11316071	TUBE, CLEAR 2mL PP SCREW CAP	4 EA	No
4	0030	15078301	LBL, EP8-TIP,T6 Primer Mix 100µM	4 EA	Yes
3		15058680	ASY, FC, NNWL ARY,45.6mm CD,700mP,HS3b,36X	0.000	No
4	0010	15046024	SLIDE,TOP,COATED,NANOWELL ARRAY,6CH	60 EA	Yes
4	0020	15046026	SLIDE,WELDED,COATED,NANOWELL ARRAY,6C	60 EA	Yes
4	0030	11006566	PKG,BAGS,HEAT SEALED,10.75X12"	2.466 2EA	No
4	0040	15036206	CLAMSHELL, IMM SLIDES,24 MULTIPAK	2.466 2EA	No
4	0050	15056036	PM,FCP Shed,6x6 Automated	6 EA	No
3		15058052	BULK,(5xSSC+1mM EDTA) REAGENT	0.000	No
4	0010	15008876	SOLN, 20X SSC BULK	676 ML	Yes
4	0020	15032381	SOLN, EDTA, 0.5M ULTRAPURE GRADE	5,400 µL	No
3		15059662	LBL, HSQX HD Storg BFR PE Flow Cell 45ML	0.000	No
4	0010	15025342	LBL,PREPRINTD,2X3,Flowcell,RUO, USA	60 EA	No
3		15012006	LBL, HiSeq® Rowell Spare Gaskets 4 Pack	0.000	No
4	0010	10096404	LBL,PREPRINTD,4x3,RUO,USA	60 EA	No
4	0010	11034473	SOLN, 2M IMIDAZOLE BFR, pH 6.4	0.000	No
5	0010	11325652	SOLN, 3M IMIDAZOLE HYDROCHLORIDE	3.837 ML	Yes
5	0020	11325611	SOLN, 1M IMIDAZOLE	1.378 ML	Yes
4		11300576	SOLN, 50% SUCROSE	0.000	No
5	0010	15032601	CHEM, SUCROSE (5KG packaging)	17.160 G	No
4		15028106	SOLN, SBD PREMIX 2	0.000	No
5	0010	15032381	SOLN, EDTA, 0.5M ULTRAPURE GRADE	327 µL	No
5	0020	11306165	SOLN, 1M MGSO4	0.661 ML	Yes
5	0030	11306619	SOLN, 5M NACL, Filtered	1.635 ML	Yes
5	0040	11300576	SOLN, 50% SUCROSE	32.667 ML	Yes
5	0050	15034239	SOLN, 10% TWEEN 20, 10% Cat#: P7949 Sigm	0.818 ML	Yes
5	0060	11034469	SOLN, 1M TRIS BUFFER, pH 8.0	8.172 ML	Yes
4		15024427	BULK,CAM-APM1,CAM-APM2	0.000	No
5	0010	11034465	SOLN, 1M TRIS BUFFER, pH 8.8	10.511 ML	Yes
5	0020	11034471	SOLN, 10% TRITON X-100	5.456 ML	Yes
5	0030	11306168	SOLN, 1M (NH4)SO4	5.456 ML	Yes
5	0040	11306165	SOLN, 1M MGSO4	1.092 ML	Yes
5	0050	11306657	CHEM, DIMETHYL SULFOXIDE	7.082 ML	No
5	0060	11306615	SOLN, 5M BETAINE	216.212 ML	Yes
4		15028850	dNTP POOL	0.000	No
5	0010	15032246	dATP,PCR GRADE,NA-SALT,100mM	1,109 µL	No
5	0020	15032250	dTTP,PCR GRADE,NA-SALT,100mM	1,109 µL	No
5	0030	15032251	dCTP,PCR GRADE,NA-SALT,100mM	1,109 µL	No
5	0040	15032252	dGTP,PCR GRADE,NA-SALT,100mM	1,109 µL	No
4		15020436	SOLN, 1M TRISODIUM CITRATE	0.000	No
5	0010	15006665	SOLID, CITRATE TRIBASIC DIHYDRATE	0.167 G	No
4		15002428	PREMIX 1(BULK,HT1)	0.000	No
5	0010	15032167	SSC BUFFER, OMNIPUR 20X4LBT	26.463 ML	No
5	0020	15034239	SOLN, 10% TWEEN 20, 10% Cat#: P7949 Sigm	1.550 ML	Yes
4		15044650	Sds,Primer Premix, (PREMIX 1,BULK,HT1)	0.000	No
5	0010	15032167	SSC BUFFER, OMNIPUR 20X4LBT	63.661 ML	No
5	0020	15026646	CHEM, Tween 20, 100%	376.820 MG	No
4		15003681	100 µM, Nextera Read 1, Rev	0.000	No
5	0010	15056479	SOLN, DzoA, 0.1M	0.106 ML	Yes
5	0020	15056480	SOLN, AcoC, 0.1M	0.116 ML	Yes
5	0030	15056481	SOLN, DmfcG, 0.1M	0.112 ML	Yes
5	0040	15056482	SOLN, dT, 0.1M	0.123 ML	Yes
5	0050	15058011	POLYSTYRENE, dA, 10 mmol	1 µMO	No
5	0060	15058083	SOLN, ACN,FROM TAP	15.408 ML	Yes
5	0070	15056444	CHEM CAP A	0.309 ML	No
5	0080	15056486	SOLN, CAP B MIX, 1:1	0.330 ML	Yes
5	0090	15056467	CHEM OXIDIZER	0.904 ML	No
5	0100	15056468	CHEM DEBLOCK	6.573 ML	No
5	0110	15056470	CHEM ACTIVATOR	0.946 ML	No
5	0120	15056490	CHEM DEA	0.165 ML	No
5	0130	15057316	CHEM AMA 50:50	0.946 ML	No
5	0140	15059227	TFF Cassette, 1kD, 0.1m2	1 EA	No
5	0150	15061257	SOLN, 0.1M NaOH	0.614 ML	Yes
5	0160	15059564	SOLN, IEX Buffer A, 10mM NaOH	5.476 ML	Yes
5	0170	15059565	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	1.626 ML	Yes
5	0180	15061244	SOLN, 1X TE Buffer	1.552 ML	Yes
4		15056684	100 µM, SBS3, Rev	0.000	No

5	0010	15006476	SOLN, Bz-dA, 0.1M	0.500 ML	Yes
5	0020	15006480	SOLN, Ac-dC, 0.1M	0.281 ML	Yes
5	0030	15006481	SOLN, Dmf-dG, 0.1M	0.788 ML	Yes
5	0040	15016482	SOLN, dT, 0.1M	0.288 ML	Yes
5	0050	15006763	POLYSTYRENE, dT, 10 mmol	3 µMO	No
5	0060	15006663	SOLN,ACN,FROM TAP	46.560 ML	Yes
5	0070	15006444	CHEM,CAP A	1.552 ML	No
5	0080	15006446	SOLN, CAP B MIX, 1:1	1.882 ML	Yes
5	0090	15006467	CHEM,OXIDIZER	4.146 ML	No
5	0100	15006468	CHEM,DEBLOCK	30.624 ML	No
5	0110	15006470	CHEM,ACTIVATOR	2.588 ML	No
5	0120	15006869	CHEM,DEA	0.778 ML	No
5	0130	15007316	CHEM,AMA 50:50	0.216 ML	No
5	0140	15008227	TFF Cassette, 1KD, 0.1m2	1 EA	No
5	0150	15001237	SOLN, 0.1M NaOH	0.066 ML	Yes
5	0160	15006594	SOLN, IEX Buffer A, 10mM NaOH	25.068 ML	Yes
5	0170	15006595	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	8.823 ML	Yes
5	0180	15001344	SOLN, 1X TE Buffer	1.882 ML	Yes
4		15003077	SOLN, 1M Tris Buffer, pH 8.0	0.000	No
5	0010	11298496	SOLN, 2M TRIS HCL	0.120 ML	Yes
5	0020	11300519	SOLN, 2M TRIS BASE	0.752 ML	Yes
4		11298177	SOLN, 1M DTT	0.000	No
5	0010	11298065	CHEM,DL-DITHIOTHREITOL	0.032 G	No
4		15044677	BMB, PREMIX CONC	0.000	No
5	0010	15038647	CHEM, TRIS HYDROCHLORIDE	318.100 MG	No
5	0020	15032308	CHEM, TRIS BASE	0.814 G	No
5	0030	11140306	BETAINE,INNER SALT,MONOHYDRATE	128.983 G	No
5	0040	11298032	CHEM,AMMONIUM SULFATE	0.625 G	No
5	0050	11298061	CHEM,MAGNESIUM SULFATE	0.341 G	No
5	0060	11298057	CHEM,DIMETHYL SULFOXIDE	6.348 ML	No
5	0070	15034211	CHM,TRITN X100,100%,TS184,50MULTR,500MLB	0.526 G	No
4		15028896	dNTP, POOL	0.000	No
5	0010	15032248	dATP,PCR GRADE,NA-SALT,100mM	97.7 µL	No
5	0020	15032250	dTTP,PCR GRADE,NA-SALT,100mM	97.7 µL	No
5	0030	15032251	dCTP,PCR GRADE,NA-SALT,100mM	97.7 µL	No
5	0040	15032252	dGTP,PCR GRADE,NA-SALT,100mM	97.7 µL	No
4		15059386	PHANTOM, BMB PREMIX	0.000	No
5	0010	15044677	BMB, PREMIX CONC	50.0 ML	Yes
4		15044678	4X SEQ PREMIX CONC	0.000	No
5	0010	15038647	CHEM, TRIS HYDROCHLORIDE	942.381 MG	No
5	0020	15032308	CHEM, TRIS BASE	0.482 G	No
5	0030	15028648	CHEM,Sodium Chloride	588.285 MG	No
5	0040	15033801	CHEM,SUCROSE (5KG packaging)	16.840 G	No
5	0050	11298061	CHEM,MAGNESIUM SULFATE	0.283 G	No
5	0060	15032381	SOLN,EDTA,0.5M,MOLE-BIO GRADE	38.7 µL	No
5	0070	15028646	CHEM,Tween-20, 100%	180.785 MG	No
4		15059388	PHANTOM, 4X SEQ PREMIX	0.000	No
5	0010	15044678	4X SEQ PREMIX CONC	10.0 ML	Yes
4		15020408	SOLN,1M TRISODIUM CITRATE	0.000	No
5	0010	15009665	SOLID,Na CITRATE TRIBASIC DIHYDRATE	0.066 G	No
4		15044650	Soln, Primer Premix, (PREMIX 1, BULK,HT1)	0.000	No
5	0010	15032167	SSC BUFFER, OMNIPUR 20X LIST	46.281 ML	No
5	0020	15028646	CHEM,Tween-20, 100%	203.058 MG	No
4		15018888	Phantom, Primer Premix	0.000	No
5	0010	15044650	Soln, Primer Premix, (PREMIX 1, BULK,HT1)	5.0 ML	Yes
4		15008882	BULK,(5xSSC+1mM EDTA) REAGENT	0.000	No
5	0010	15006675	SOLN,20X SSC BULK	10.0 ML	Yes
5	0020	15032381	SOLN,EDTA,0.5M,MOLE-BIO GRADE	88.4 µL	No
4		15012078	LBL,RMB-SSC_Flow Cell Buffer	0.000	No
5	0010	15010137	LABEL, BLANK, 4" X 5",Light Blue	1 EA	No
5	0020	15038108	LBL,TMPLT_4x5,RC BFFR SSC,RUO,fter	1 EA	No
4		15008896	BULK,10mM KPI BUFFER,pH 7.0 REAGENT	0.000	No
5	0010	15034115	CHEM,POTASSIUM PHOS,1M,MONO P8709	64.7 µL	No
5	0020	11123134	CHEM,POTASSIUM PHOS,1M,DI	1.034 ML	No
4		15012080	LBL,RMB-KPI_Flow Cell Buffer	0.000	No
5	0010	15010140	LABEL, BLANK, 4" X 5",Green	1 EA	No
4		15010767	BULK,0.1N NaOH, SOLN.	0.000	No
5	0010	11328287	SOLN,2N SODIUM HYDROXIDE	2.460 ML	Yes
4		15012081	LBL,RMB-NaOH_Flow Cell Buffer	0.000	No
5	0010	15010134	LABEL, BLANK, 4" X 5", Red	1 EA	No
4		15008980	BLK,DP PE PRIMER MIX,T6	0.000	No
5	0010	15005080	OLIGO,DP PE PRIMER,P7,T6	0.413 ML	Yes
5	0020	15005082	OLIGO,DP PE PRIMER,P5,T6	0.413 ML	Yes
5	0030	15001344	SOLN, 1X TE Buffer	0.825 ML	Yes
4		15070381	LBL,DIR-TRP, TE Primer Mix 100µM	0.000	No
5	0010	15037036	LBL, TRIS PRINT, 1.00 5x1.43, Clr,ILMN logo	4 EA	No
4		15046084	SLIDE,TOP,COATED,NANOWELL ARRAY,8 CH	0.000	No
5	0010	15047111	DIE,TP,NWL ARR,400mmC D,75.6mmP,H83.b,2EX,SK	6.0 EA	Yes
5	0020	15048259	PM,[BICYCLHEPTENYL]ETHYL[TRIMTHXYSILN 85%	0.126 G	No
5	0030	15043260	SOLN, PAZAM POLYMER	3.0 ML	Yes
5	0040	15046026	SOLN, CaCO3 POLISH SLURRY	634.896 ML	Yes
5	0050	288595	CHEM,DIOL,20 PROC Pi wipes	0.342 L	No
5	0060	15046037	PM,PAD, POLISHING, POLITEX REG, 12"	0.120 2EA	No
4		15046086	SLIDE,WELDED,COATED,NANOWELL ARRAY,8C	0.000	No
5	0010	15046258	POLYIMIDE, BLACK KAPTON,CUT,ACTIVATED	6.0 EA	Yes
5	0020	15046028	SLIDE,BOTTOM,COATED, NANOWELL ARRAY,8C	6.0 EA	Yes
5	0030	15069128	PM,PEP Sheet, 8x8, Automated	6 EA	No
4		15008875	SOLN, 20X SSC BULK	0.000	No
5	0010	11290648	CHEM,SODIUM CHLORIDE (Quote#20080928)	116.326 G	No
5	0020	15009665	SOLID,Na CITRATE TRIBASIC DIHYDRATE	59.525 G	No
5	0030	15034164	SOLN, 2.5M CITRIC ACID (MOHO)	10.0 µL	Yes
5		11325852	SOLN, 2M IMIDAZOLE HYDROCHLORIDE	0.000	No
6	0010	11324824	CHEM,IMIDAZOLE HYDROCHLORIDE,500GM BTL,SLE	0.781 G	No
5		11326881	SOLN, 1M IMIDAZOLE	0.000	No
6	0010	11324832	CHEM,IMIDAZOLE, 250 MBC TTLE, SOLIDS	0.084 G	No
5		11298185	SOLN, 1M MGSO4	0.000	No
6	0010	11298061	CHEM,MAGNESIUM SULFATE	0.242 G	No
5		11298518	SOLN, 5M NACL, Purified	0.000	No
6	0010	15028648	CHEM,Sodium Chloride	477.420 MG	No
5		11300578	SOLN, 50% SUCROSE	0.000	No
6	0010	15033801	CHEM,SUCROSE (5KG packaging)	16.244 G	No
5		15034228	SOLN, 10% TWEEN 20, 10%, Cat#: P7949 Sigma	0.000	No
6	0010	15028646	CHEM,Tween-20, 100%	88.571 MG	No
5		11324849	SOLN, 1M TRIS BUFFER, pH 8.0	0.000	No
6	0010	11298498	SOLN, 2M TRIS HCL	2.461 ML	Yes
6	0020	11298500	SOLN, 2M TRIS BASE	1.084 ML	Yes
5		11324848	SOLN, 1M TRIS BUFFER, pH 8.0	0.000	No
6	0010	11298498	SOLN, 2M TRIS HCL	1.136 ML	Yes
6	0020	11298500	SOLN, 2M TRIS BASE	2.880 ML	Yes
5		11324831	SOLN, 10% TRITON X-100	0.000	No
6	0010	15034211	CHM,TRITNX100,100%,TS184,50MULTR,500MLB	0.564 G	No
5		11298168	SOLN, 1M (NH4)2SO4	0.000	No
6	0010	11298032	CHEM,AMMONIUM SULFATE	0.721 G	No
5		11298185	SOLN, 1M MGSO4	0.000	No
6	0010	11298061	CHEM,MAGNESIUM SULFATE	0.270 G	No
5		11300018	SOLN, 5M BETAINE	0.000	No
6	0010	11140306	BETAINE, INNER SALT,MONOHYDRATE	147.488 G	No
5		15034228	SOLN, 10% TWEEN 20, 10%, Cat#: P7949 Sigma	0.000	No
6	0010	15028646	CHEM,Tween-20, 100%	175.010 MG	No
5		15066476	SOLN, Bz-dA, 0.1M	0.000	No
6	0010	15066400	AMIDITE, Bz-dA, 5.0GR	1 EA	No
6	0020	15066663	SOLN, ACN,FROM TAP	0.111 ML	Yes
5		15066480	SOLN, Ac-dC, 0.1M	0.000	No
6	0010	15066434	AMIDITE, Ac-dC,5.00GR	1 EA	No
6	0020	15066663	SOLN, ACN,FROM TAP	0.123 ML	Yes
5		15066481	SOLN, Dmf-dG, 0.1M	0.000	No
6	0010	15067876	AMIDITE, Dmf-dG,5.00GR	1 EA	No
6	0020	15066663	SOLN, ACN,FROM TAP	0.117 ML	Yes
5		15066482	SOLN, dT, 0.1M	0.000	No
6	0010	15066438	AMIDITE, dT,5.00GR	1 EA	No
6	0020	15066663	SOLN, ACN,FROM TAP	0.124 ML	Yes
5		15066663	SOLN, ACN,FROM TAP	0.000	No
6	0010	11856637	CHEM,ACN	16.468 ML	No
6	0020	15066008	TRAP PACK-LARGE, 10 GR	1 EA	No
5		15066446	SOLN, CAP B MIX, 1:1	0.000	No
6	0010	15066447	CHEM,CAP B1	0.165 ML	No
6	0020	15066450	CHEM,CAP B2	0.165 ML	No
5		15061237	SOLN, 0.1M NaOH	0.000	No
6	0010	15065519	CHEM,NaOH, 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
5		15066594	SOLN, IEX Buffer A, 10mM NaOH	0.000	No
6	0010	15061237	SOLN, 0.1M NaOH	0.546 ML	Yes
5		15066595	SOLN, IEX Buffer B, 10mM NaOH, 1.5M NaCl	0.000	No
6	0010	6401-1116	SODIUM CHLORIDE	0.160 G	No
6	0020	15061237	SOLN, 0.1M NaOH	0.183 ML	Yes
5		15061344	SOLN, 1X TE Buffer	0.000	No
6	0010	11176440	BUFFER,TE,100X	0.016 ML	No
6	0020	15030062	OmniPure Water	1.537 ML	No
5		15066476	SOLN, Bz-dA, 0.1M	0.000	No
6	0010	15066400	AMIDITE, Bz-dA, 5.0GR	1 EA	No
6	0020	15066663	SOLN, ACN,FROM TAP	0.522 ML	Yes

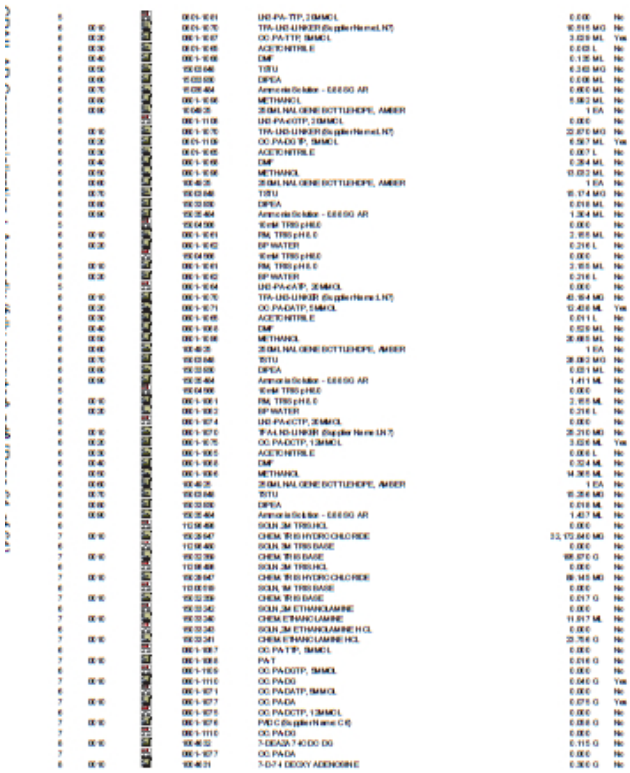
5		15058460	SOLN, Ac-dC, 0.1M	0.000	No
6	0010	15058434	AMIDITE,Ac-dC,5.0GR	1 EA	No
6	0020	15058893	SOLN,ACN,FROM TAP	0.283 ML	Yes
5		15058461	SOLN, Dmf-dG, 0.1M	0.000	No
6	0010	15057676	AMIDITE,Dmf-dG,5.0GR	1 EA	No
6	0020	15058893	SOLN,ACN,FROM TAP	0.015 ML	Yes
5		15058462	SOLN, dT, 0.1M	0.000	No
6	0010	15058436	AMIDITE,dT,5.0GR	1 EA	No
6	0020	15058893	SOLN,ACN,FROM TAP	0.281 ML	Yes
5		15058893	SOLN,ACN,FROM TAP	0.000	No
6	0010	11054837	CHEM:ACN	46.580 ML	No
6	0020	15058008	TRAP PACK-LARGE, 10GR	1 EA	No
5		15058466	SOLN, CAP B MIX, 1:1	0.000	No
6	0010	15058447	CHEM:CAP B1	0.776 ML	No
6	0020	15058450	CHEM:CAP B2	0.776 ML	No
5		15061237	SOLN, 0.1M NaOH	0.000	No
6	0010	15058019	CHEM:NaOH, 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
5		15058594	SOLN, IEX Buffer A, 10mM NaOH	0.000	No
6	0010	15061237	SOLN, 0.1M NaOH	2.567 ML	Yes
5		15059595	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	0.000	No
6	0010	0001-1116	SODIUM CHLORIDE	0.756 G	No
6	0020	15061237	SOLN, 0.1M NaOH	0.863 ML	Yes
5		15061244	SOLN, 1X TE Buffer	0.000	No
6	0010	11176443	BUFFER:TE,100X	0.096 ML	No
6	0020	15030682	OmniPure Water	1.837 ML	No
5		10398486	SOLN,2M TRIS-HCL	0.000	No
6	0010	15028647	CHEM:TRIS HYDROCHLORIDE	37.880 MG	No
5		10300515	SOLN,1M TRIS BASE	0.000	No
6	0010	15032359	CHEM:TRIS BASE	0.098 G	No
5		15044677	BMB, PREMIX CONC	0.000	No
6	0010	15028647	CHEM:TRIS HYDROCHLORIDE	336.850 MG	No
6	0020	15032359	CHEM:TRIS BASE	0.890 G	No
6	0030	11140306	BETAINE INNER SALT, MONOHYDRATE	138.150 G	No
6	0040	11288632	CHEM:AMMONIUM SULFATE	0.680 G	No
6	0050	11288061	CHEM:MAGNESIUM SULFATE	0.250 G	No
6	0060	11288057	CHEM:DIMETHYL SULFOXIDE	6.500 ML	No
6	0070	15034211	CHM:TRITON X100, 100%,TECH,500MLTR,500MLB	0.550 G	No
5		15044676	4X SEQ PREMIX CONC	0.000	No
6	0010	15028647	CHEM:TRIS HYDROCHLORIDE	1,880 MG	No
6	0020	15032359	CHEM:TRIS BASE	0.870 G	No
6	0030	15028648	CHEM:Sodium Chloride	1,170 MG	No
6	0040	15028661	CHEM:SUCROSE (5KG packaging)	40 G	No
6	0050	10309061	CHEM:MAGNESIUM SULFATE	0.590 G	No
6	0060	15032361	SOLN:EDTA,0.5M,MOLECULAR GRADE	800 µL	No
6	0070	15028648	CHEM:Tween-20, 100%	223.380 MG	No
5		15044680	Soln, Rinse Premix, (PREMIX 1, BULK,HT)	0.000	No
6	0010	15032187	SSC BUFFER, OMNIPUR 20X4LIT	12.000 ML	No
6	0020	15028648	CHEM:Tween-20, 100%	54.750 MG	No
5		15038675	SOLN,20X SSC BULK	0.000	No
6	0010	10308646	CHEM:SODIUM CHLORIDE (Cat#38900035)	16.853 G	No
6	0020	15008665	SOLID,Na CITRATE TRIBASIC DIHYDRATE	9.526 G	No
6	0030	15034154	SOLN,2.5M CITRIC ACID (MONO)	21 µL	Yes
5		10328257	SOLN,10N SODIUM HYDROXIDE	0.000	No
6	0010	15034128	CHEM:SODIUM HYDROXIDE	182 MG	No
5		15048080	OLIGO,BP PE PRIMER,P7,T6	0.000	No
6	0010	15058479	SOLN, Bz-dA, 0.1M	0.008 ML	Yes
6	0020	15058460	SOLN, Ac-dC, 0.1M	0.005 ML	Yes
6	0030	15058461	SOLN, Dmf-dG, 0.1M	0.006 ML	Yes
6	0040	15058462	SOLN, dT, 0.1M	0.006 ML	Yes
6	0050	15058463	SOLN, 5'-Hexynyl, 0.1M	0.002 ML	Yes
6	0060	15058465	SOLN, 8-Oxo-dG, 0.1M	0.001 ML	Yes
6	0070	15058703	POLYSTYRENE, dT, 10umol	1 µMO	No
6	0080	15058893	SOLN,ACN,FROM TAP	0.650 ML	Yes
6	0090	15058444	CHEM:CAP A	0.021 ML	No
6	0100	15058466	SOLN, CAP B MIX, 1:1	0.021 ML	Yes
6	0110	15058467	CHEM:OXIDIZER	0.056 ML	No
6	0120	15058468	CHEM:DEBLOCK	0.365 ML	No
6	0130	15058470	CHEM:ACTIVATOR	0.035 ML	No
6	0140	15058898	CHEM:DEA	0.011 ML	No
6	0150	15057316	CHEM:AMA 50:50	0.004 ML	No
6	0160	15058226	TFF Cassette, 1kD, 0.03m2	1 EA	No
6	0170	15061237	SOLN, 0.1M NaOH	0.001 ML	Yes
6	0180	15058594	SOLN, IEX Buffer A, 10mM NaOH	0.342 ML	Yes
6	0190	15058595	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	0.228 ML	Yes
6	0200	15061244	SOLN, 1X TE Buffer	0.036 ML	Yes
5		15048082	OLIGO,BP PE PRIMER,P5,T6	0.000	No
6	0010	15058479	SOLN, Bz-dA, 0.1M	0.007 ML	Yes
6	0020	15058460	SOLN, Ac-dC, 0.1M	0.008 ML	Yes
6	0030	15058461	SOLN, Dmf-dG, 0.1M	0.004 ML	Yes
6	0040	15058462	SOLN, dT, 0.1M	0.006 ML	Yes
6	0050	15058463	SOLN, 5'-Hexynyl, 0.1M	0.002 ML	Yes
6	0060	15058464	SOLN, dU, 0.1M	0.001 ML	Yes
6	0070	15058704	POLYSTYRENE, dC, 10umol	1 µMO	No
6	0080	15058893	SOLN,ACN,FROM TAP	0.657 ML	Yes
6	0090	15058444	CHEM:CAP A	0.023 ML	No
6	0100	15058466	SOLN, CAP B MIX, 1:1	0.023 ML	Yes
6	0110	15058467	CHEM:OXIDIZER	0.057 ML	No
6	0120	15058468	CHEM:DEBLOCK	0.470 ML	No
6	0130	15058470	CHEM:ACTIVATOR	0.023 ML	No
6	0140	15058898	CHEM:DEA	0.010 ML	No
6	0150	15057316	CHEM:AMA 50:50	0.003 ML	No
6	0160	15058226	TFF Cassette, 1kD, 0.03m2	1 EA	No
6	0170	15061237	SOLN, 0.1M NaOH	0.003 ML	Yes
6	0180	15058594	SOLN, IEX Buffer A, 10mM NaOH	0.313 ML	Yes
6	0190	15058595	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	0.342 ML	Yes
6	0200	15061244	SOLN, 1X TE Buffer	0.042 ML	Yes
5		15061244	SOLN, 1X TE Buffer	0.000	No
6	0010	11176443	BUFFER:TE,100X	0.006 ML	No
6	0020	15030682	OmniPure Water	0.817 ML	No
5		15047111	DIE,TP,NML ARR,400mmOD,700mP,HSSi,2.0X,SK	0.000	No
6	0010	15047103	WFR:NANML,ARY,3mm,400mmOD,700mP,HSSi,0.02	5 EA	No
6	0020	15041764	TAPE,UV DICING,400MMX100M,160UM THK	6.750 M	No
6	0030	15035364	CLAMSHELL,03MM SLIDES,24 MULTIPAK	2.502 2EA	No
5		15042260	SOLN,PAZAM POLYMER	0.000	No
6	0010	15058064	RM,PAZAM POLYMER SOLUTION	2.486 ML	No
6	0020	11140221	CHEM:ETOH,200 PROOF,X500 ml case	1.500 ML	No
6	0030	10030064	CORNING 50ML CENTRIFUGE TUBE	1 EA	No
6	0040	20004180	GHS SAFETY LABEL, HEALTH DANGER	1 EA	No
5		15048838	SOLN, CaCO3 POLISH SLURRY	0.000	No
6	0010	15058867	RM-PSP,Polish Slurry Premix,INT RGT	0.825 2EA	Yes
6	0020	15046183	RM,CaCO3	3.125 G	No
6	0030	15060310	BOTTLE,MEDIA,1L	1 EA	No
6	0040	20004158	GHS ACUTE TOXIC SAFETY LABEL	1 EA	No
5		15045258	POLYIMIDE,BLACK KAPTON,CUT,ACTIVATED	0.000	No
6	0030	15040303	RM,Bis APTMS	0.180 ML	No
6	0030	20008522	RM,BLACK KAPTON SLITTED,8"ROLL	0.204 M2	No
5		15046035	SLIDE,BOTTOM,COATED,NANOWELL ARRAY,8C	0.000	No
6	0010	15047112	DIE,DM,NML ARR,400mmOD,700mP,HSSi,2.0X,SK	60 EA	Yes
6	0020	15046258	RM,[BICYCLOHEPTENYL]ETHYL [TRIMTHXYSILN 95	0.126 G	No
6	0030	15042260	SOLN,PAZAM POLYMER	30 ML	Yes
6	0040	15048838	SOLN,CaCO3 POLISH SLURRY	624.006 ML	Yes
6	0050	288388	CHEM:ETOH,200 PROOF,4L case	0.242 L	No
6	0060	15048037	RM,PAD,POLISHING,POLITEX REG,12"	0.120 2EA	No
5		15034154	SOLN,2.5M CITRIC ACID (MONO)	0.000	No
6	0010	15034155	CHEM:CITRIC ACID	76.440 MG	No
6		11259458	SOLN,2M TRIS HCL	0.000	No
7	0010	15028647	CHEM:TRIS HYDROCHLORIDE	775.215 MG	No
6		11259460	SOLN,2M TRIS BASE	0.000	No
7	0010	15032359	CHEM:TRIS BASE	0.364 G	No
6		11259458	SOLN,2M TRIS HCL	0.000	No
7	0010	15028647	CHEM:TRIS HYDROCHLORIDE	357.840 MG	No
6		11259460	SOLN,2M TRIS BASE	0.000	No
7	0010	15032359	CHEM:TRIS BASE	1.046 G	No
6		15058893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11054837	CHEM:ACN	0.111 ML	No
7	0020	15058008	TRAP PACK-LARGE, 10 GR	1 EA	No
6		15058893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11054837	CHEM:ACN	0.123 ML	No
7	0020	15058008	TRAP PACK-LARGE, 10 GR	1 EA	No
6		15058893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11054837	CHEM:ACN	0.117 ML	No
7	0020	15058008	TRAP PACK-LARGE, 10 GR	1 EA	No
6		15058893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11054837	CHEM:ACN	0.124 ML	No
7	0020	15058008	TRAP PACK-LARGE, 10 GR	1 EA	No
6		15061237	SOLN, 0.1M NaOH	0.000	No
7	0010	15058019	CHEM:NaOH, 10.0N,LT SODIUM HYDROXIDE	0.006 ML	No
6		15061237	SOLN, 0.1M NaOH	0.000	No
7	0010	15058019	CHEM:NaOH, 10.0N,LT SODIUM HYDROXIDE	0.002 ML	No
6		15058893	SOLN,ACN,FROM TAP	0.000	No

7	0010	11004637	CHEM,ACN	0.522 ML	No
7	0020	15009006	TRAP PACK-LARGE, 10GR	1 EA	No
6		15009893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11004637	CHEM,ACN	0.358 ML	No
7	0020	15009006	TRAP PACK-LARGE, 10GR	1 EA	No
6		15009893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11004637	CHEM,ACN	0.015 ML	No
7	0020	15009006	TRAP PACK-LARGE, 10GR	1 EA	No
6		15009893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11004637	CHEM,ACN	0.391 ML	No
7	0020	15009006	TRAP PACK-LARGE, 10GR	1 EA	No
6		15001237	SOLN, 0.1M NaOH	0.000	No
7	0010	15005919	CHEM,NaOH, 10.0N,LT SODIUM HYDROXIDE	0.026 ML	No
6		15001237	SOLN, 0.1M NaOH	0.000	No
7	0010	15005919	CHEM,NaOH, 10.0N,LT SODIUM HYDROXIDE	0.005 ML	No
6		15034154	SOLN,2.5M CITRIC ACID (MONO)	0.000	No
7	0010	15034155	CHEM,CITRIC ACID	12.348 MG	No
6		15058479	SOLN, Bz-dA, 0.1M	0.000	No
7	0010	15058408	AMIDITE,Bz-dA,5.0GR	1 EA	No
7	0020	15009893	SOLN,ACN,FROM TAP	0.009 ML	Yes
6		15058480	SOLN, Ac-dC, 0.1M	0.000	No
7	0010	15058434	AMIDITE,Ac-dC,5.00R	1 EA	No
7	0020	15009893	SOLN,ACN,FROM TAP	0.006 ML	Yes
6		15058481	SOLN, Dmf-dG, 0.1M	0.000	No
7	0010	15057878	AMIDITE,Dmf-dG,5.00R	1 EA	No
7	0020	15009893	SOLN,ACN,FROM TAP	0.008 ML	Yes
6		15058482	SOLN, dT, 0.1M	0.000	No
7	0010	15058436	AMIDITE, dT,5.00R	1 EA	No
7	0020	15009893	SOLN,ACN,FROM TAP	0.010 ML	Yes
6		15058483	SOLN, 5'-Hexynyl, 0.1M	0.000	No
7	0010	15058437	AMIDITE,5'-Hexynyl,0.25GR	1 EA	No
7	0020	15009893	SOLN,ACN,FROM TAP	0.001 ML	Yes
6		15058485	SOLN, 8-Oxo-dG, 0.1M	0.000	No
7	0010	15058438	AMIDITE,8-Oxo-dG,0.25GR	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.001 ML	Yes
6		15058893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11004637	CHEM,ACN	0.620 ML	No
7	0020	15059006	TRAP PACK-LARGE, 10GR	1 EA	No
6		15058486	SOLN, CAP B MIX, 1:1	0.000	No
7	0010	15058447	CHEM,CAP B1	0.011 ML	No
7	0020	15058450	CHEM,CAP B2	0.011 ML	No
6		15001237	SOLN, 0.1M NaOH	0.000	No
7	0010	15005919	CHEM,NaOH, 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
6		15058594	SOLN, IEX Buffer A, 10mM NaOH	0.000	No
7	0010	15001237	SOLN, 0.1M NaOH	0.035 ML	Yes
6		15058595	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	0.000	No
7	0010	0801-1116	SODIUM CHLORIDE	0.020 G	No
7	0020	15001237	SOLN, 0.1M NaOH	0.023 ML	Yes
6		15001344	SOLN, 10X TE Buffer	0.000	No
7	0010	11170443	BUFFER,TE,100X	0.001 ML	No
7	0020	15030662	OmniPure Water	0.026 ML	No
6		15058479	SOLN, Bz-dA, 0.1M	0.000	No
7	0010	15058408	AMIDITE,Bz-dA,5.0GR	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.008 ML	Yes
6		15058480	SOLN, Ac-dC, 0.1M	0.000	No
7	0010	15058434	AMIDITE,Ac-dC,5.00R	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.006 ML	Yes
6		15058481	SOLN, Dmf-dG, 0.1M	0.000	No
7	0010	15057878	AMIDITE,Dmf-dG,5.00R	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.008 ML	Yes
6		15058482	SOLN, dT, 0.1M	0.000	No
7	0010	15058436	AMIDITE, dT,5.00R	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.008 ML	Yes
6		15058483	SOLN, 5'-Hexynyl, 0.1M	0.000	No
7	0010	15058437	AMIDITE,5'-Hexynyl,0.25GR	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.001 ML	Yes
6		15058484	SOLN, dU, 0.1M	0.000	No
7	0010	15058456	AMIDITE, dU,0.25GR	1 EA	No
7	0020	15058893	SOLN,ACN,FROM TAP	0.001 ML	Yes
6		15058893	SOLN,ACN,FROM TAP	0.000	No
7	0010	11004637	CHEM,ACN	0.627 ML	No
7	0020	15059006	TRAP PACK-LARGE, 10GR	1 EA	No
6		15058486	SOLN, CAP B MIX, 1:1	0.000	No
7	0010	15058447	CHEM,CAP B1	0.011 ML	No
7	0020	15058450	CHEM,CAP B2	0.011 ML	No
6		15001237	SOLN, 0.1M NaOH	0.000	No
7	0010	15005919	CHEM,NaOH, 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
6		15058594	SOLN, IEX Buffer A, 10mM NaOH	0.000	No
7	0010	15001237	SOLN, 0.1M NaOH	0.002 ML	Yes
6		15058595	SOLN, IEX Buffer B, 10mM NaOH,1.5M NaCl	0.000	No
7	0010	0801-1116	SODIUM CHLORIDE	0.030 G	No
7	0020	15001237	SOLN, 0.1M NaOH	0.025 ML	Yes
6		15001344	SOLN, 10X TE Buffer	0.000	No
7	0010	11170443	BUFFER,TE,100X	0.001 ML	No
7	0020	15030662	OmniPure Water	0.042 ML	No
6		15058687	RM-PSP,Polish Slurry Premix,INTRGT	0.000	No
7	0010	10300585	BTL,1000 ml, TX1601B-100L	1 EA	No
7	0020	15058595	SOLN, Polish Slurry Premix	621.875 ML	Yes
7	0030	15058571	LBL,RM-PSP,Polish Slurry Premix,INTRGT	1 EA	Yes
7	0040	10300622	CAP,BTL,SIZE 38-430	1 EA	No
6		15047112	DIE,BM,NAN,ARR,40.0mmOD,70.0mmP,H00A,2EX,6P	0.000	No
7	0010	15047114	WFR,NANO,ARY,0mmOD,70.0mmP,H00003	5 EA	No
7	0020	15041784	TAPE,UV DICING,400MMX100M,180UM THK	0.750 M	No
7	0030	15035288	CLAMSHELL,1MM SLIDES,24 MULTIPAK	2.302 EA	No
6		15042160	SOLN, PAZAM POLYMER	0.000	No
7	0010	15050164	RM,PAZAM POLYMER SOLUTION	2.455 ML	No
7	0020	11140221	CHEM,EtOH,200 PROOF,EX500ml case	1.500 ML	No
7	0030	10075564	CORNING 50ML CENTRIFUGE TUBE	1 EA	No
7	0040	20004162	GHS SAFETY LABEL, HEALTH DANGER	1 EA	No
6		15048038	SOLN, CaCO3 POLISH SLURRY	0.000	No
7	0010	15058687	RM-PSP,Polish Slurry Premix,INTRGT	0.625 EA	Yes
7	0020	15046163	RM,CaCO3	3.125 G	No
7	0030	15003310	BOTTLE,MEDIA,1L	1 EA	No
7	0040	20004156	GHS ACUTE TOXIC SAFETY LABEL	1 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.009 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.006 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.008 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.010 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.001 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.001 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15001237	SOLN, 0.1M NaOH	0.000	No
8	0010	15005919	CHEM,NaOH , 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
7		15001237	SOLN, 0.1M NaOH	0.000	No
8	0010	15005919	CHEM,NaOH , 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.006 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.009 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.005 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.009 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.001 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15058583	SOLN, ACN,FROM TAP	0.000	No
8	0010	11004637	CHEM,ACN	0.001 ML	No
8	0020	15059006	TRAP PACK-LARGE, 10 GR	0 EA	No
7		15001237	SOLN, 0.1M NaOH	0.000	No
8	0010	15005919	CHEM,NaOH , 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
7		15001237	SOLN, 0.1M NaOH	0.000	No
8	0010	15005919	CHEM,NaOH , 10.0N,LT SODIUM HYDROXIDE	0.001 ML	No
7		15058595	SOLN, Polish Slurry Premix	0.000	No
8	0010	15016200	SOLN, SODIUM DODECYL SULFATE, 10%	7.774 ML	No

0020		10018184	RM,0.5M EDTA 4 X 100ML ULTRAPURE	1.344	ML	No
0030		10018182	RM,5M NACL SODIUM CHLORIDE,1L	31.064	ML	No
0040		10018183	RM,1M TRIS PH7.5	62.128	ML	No
		15058871	LBL,IPM-PSP,Polish Slurry Premix,INT RGT	0.000		No
0010		11288679	LBL,BLANK,3"X3-1/2",RED	1	EA	No
		15058867	IPM-PSP,Polish Slurry Premix,INT RGT	0.000		No
0010		15030596	BTL 1000 ml TX10010-1000L	1	EA	No
0020		15058868	SOLN,Polish Slurry Premix	621.275	ML	Yes
0030		15058871	LBL,IPM-PSP,Polish Slurry Premix,INT RGT	1	EA	Yes
0040		11320402	CAP,BTL,SIZE 38-430	1	EA	No
		15058868	SOLN,Polish Slurry Premix	0.000		No
0010		10018200	SOLN,SODIUM DODECYL SULFATE,10%	7.774	ML	No
0020		10018184	RM,0.5M EDTA 4 X 100ML ULTRAPURE	1.344	ML	No
0030		10018182	RM,5M NACL SODIUM CHLORIDE,1L	31.064	ML	No
0040		10018183	RM,1M TRIS PH7.5	62.128	ML	No
		15058871	LBL,IPM-PSP,Polish Slurry Premix,INT RGT	0.000		No
0010		11288679	LBL,BLANK,3"X3-1/2",RED	1	EA	No

Level	Item Number	Objects	Component number	Object description	Overflow indicator	Comp. Qty (CUn)	Component unit	Assembly indicator
1	0010		20014626	HiSeq; HT eDNA SBS (50 cycles) Kit PW1		2	EA	Yes
1	0020		20014628	HiSeq; HT eDNA SBS (50 cycles) Kit PB1		2	EA	Yes
1	0030		20014626	HiSeq; HT eDNA SBS (50 cycles) Kit PB2		6	EA	Yes
1	0040		20014633	HiSeq; HT eDNA SBS (50 cycles) Kit PCM		2	EA	Yes
1	0050		20014632	HiSeq; HT eDNA SBS (50 cycles) Kit PRM		2	EA	Yes
1	0060		20014631	HiSeq; HT eDNA SBS (50 cycles) Kit PIM		2	EA	Yes
1			20014628	HiSeq; HT eDNA SBS (50 cycles) Kit PW1		0.000		No
2	0010		11308833	GA-PW1, Fr. Rea g		60	ZBT	Yes
2	0020		20012483	INSERT 30x25 0ml Square		4	EA	No
2	0030		20012482	BOX, 30x250ml Square		2	EA	No
2	0040		20014648	LBL, HS HT eDNA SBS (50 cycles) Kit PW1		2	EA	Yes
1			20014628	HiSeq; HT eDNA SBS (50 cycles) Kit PB1		0.000		No
2	0010		15048238	HSB-PB1,PATTERNED SBS BFFR1,FINISH REAG		60	ZTB	Yes
2	0020		20012488	INSERT; 30x25 0ml conical		2	EA	No
2	0030		20012540	INSERT; Base 3 0x250ml		6	EA	No
2	0040		20012481	BOX; 30x250ml conical		2	EA	No
2	0050		20014646	LBL, HS HT eDNA SBS (50 cycles) Kit PB1		2	EA	Yes
1			20014630	HiSeq; HT eDNA SBS (50 cycles) Kit PB2		0.000		No
2	0010		15048234	HSB-PB2,PATTERNED SBS BFFR 2, FINISH REAG		180	TB	Yes
2	0020		20012488	INSERT; 30x25 0ml conical		6	EA	No
2	0030		20012540	INSERT; Base 3 0x250ml		18	EA	No
2	0040		20012481	BOX; 30x250ml conical		6	EA	No
2	0050		20014647	LBL, HS HT eDNA SBS (50 cycles) Kit PB2		6	EA	Yes
1			20014633	HiSeq; HT eDNA SBS (50 cycles) Kit PCM		0.000		No
2	0010		15048224	HSB-PCM,PATTRND CLEAVAGE MIX,FINISH REAG		60	ZTB	Yes
2	0020		20012488	INSERT; 30x25 0ml conical		2	EA	No
2	0030		20012540	INSERT; Base 3 0x250ml		6	EA	No
2	0040		20012481	BOX; 30x250ml conical		2	EA	No
2	0050		20012491	Barrier Bag; 24"x30"		4	EA	No
2	0060		20014670	LBL, HS HT eDNA SBS (50 cycles) Kit PCM		2	EA	Yes
1			20014632	HiSeq; HT eDNA SBS (50 cycles) Kit PRM		0.000		No
2	0010		15048230	HSB-PRM,PATTERNED SCAN MIX,FINISH REAG		60	ZTB	Yes
2	0020		20012488	INSERT; 30x25 0ml conical		2	EA	No
2	0030		20012540	INSERT; Base 3 0x250ml		6	EA	No
2	0040		20012481	BOX; 30x250ml conical		2	EA	No
2	0050		20012491	Barrier Bag; 24"x30"		4	EA	No
2	0060		20014669	LBL, HS HT eDNA SBS (50 cycles) Kit PRM		2	EA	Yes
1			20014631	HiSeq; HT eDNA SBS (50 cycles) Kit PIM		0.000		No
2	0010		15048228	HSB-PIM,PATTRND INCORP MIX,FINISH REA		60	ZTB	Yes
2	0020		20012488	INSERT; 30x25 0ml conical		2	EA	No
2	0030		20012540	INSERT; Base 3 0x250ml		6	EA	No
2	0040		20012481	BOX; 30x250ml conical		2	EA	No
2	0050		20012491	Barrier Bag; 24"x30"		4	EA	No
2	0060		20014668	LBL, HS HT eDNA SBS (50 cycles) Kit PIM		2	EA	Yes
2			11308833	GA-PW1, Fr. Rea g		0.000		No
3	0010		15036860	BTL 250ML PET		60	EA	No
3	0020		11320402	CAP,BTL,SIZE 38-430		60	EA	No
3	0030		15018163	BULK,GA-PW1		12,600	ML	Yes
3	0040		15024866	LBL, GA-PW1		60	EA	Yes
2			20014648	LBL, HS HT eDNA SBS (50 cycles) Kit PW1		0.000		No
3	0010		11336413	LBL,PRE-PRINTD,4.25x8,RUC,USA		2	EA	No
2			15048238	HSB-PB1,PATTERNED SBS BFFR1,FINISH REAG		0.000		No
3	0010		15042392	BULK, SB1		13,823	ML	Yes
3	0020		20001846	250ML CONICAL PHENOLIC CAP		60	EA	No
3	0030		15048237	LBL, HSB-PB1 Patterned SBS Buffer 1		60	EA	Yes
3	0040		20002114	250ML CONICAL BOTTLE w/o cap		60	EA	No
2			20014646	LBL, HS HT eDNA SBS (50 cycles) Kit PB1		0.000		No
3	0010		11336413	LBL,PRE-PRINTD,4.25x8,RUC,USA		2	EA	No
2			15048234	HSB-PB2,PATTERNED SBS BFFR 2, FINISH REAG		0.000		No
3	0010		15002262	BULK,GA-PB2		26,477	ML	Yes
3	0020		20001846	250ML CONICAL PHENOLIC CAP		180	EA	No
3	0030		15048235	LBL, HSBPB2 Patterned SBS Buffer 2		180	EA	Yes
3	0040		15050464	LL Haz_1.34x1.34_pkg_MRI_dibpalesinal		180	EA	No
3	0050		20002114	250ML CONICAL BOTTLE w/o cap		180	EA	No
2			20014647	LBL, HS HT eDNA SBS (50 cycles) Kit PB2		0.000		No
3	0010		11336413	LBL,PRE-PRINTD,4.25x8,RUC,USA		6	EA	No
2			15048224	HSB-PCM,PATTRND CLEAVAGE MIX,FINISH REAG		0.000		No
3	0010		15033377	BULK,MSHC MIX,CLEAVAGE MIX		10,773	ML	Yes
3	0020		20001846	250ML CONICAL PHENOLIC CAP		60	EA	No
3	0030		15048225	LBL, HSBPCM Patterned Cleavage Mix		60	EA	Yes
3	0040		15001800	45"x 9", Bag		0.048	ZRL	No
3	0050		20002114	250ML CONICAL BOTTLE w/o cap		60	EA	No

2		20014070	LBL,HS HT st DNA SBS (200 cycles) Hi PCM	0.000		No
3	0010	11298412	LBL,PREPRINTD,4.25x6,RUO,USA	2	EA	No
2		15048230	HS4-PSM,PATTERNED SCAN MIX,FINISH REAG	0.000		No
3	0010	15041011	RGN, Bulk SRE13	12,086	ML	Yes
3	0020	20001646	250ML CONICAL PHENOLIC CAP	60	EA	No
3	0030	15048231	LBL,HS4-PSM Patterned Scan Mix	60	EA	Yes
3	0040	20002514	250ML CONICAL BOTTLE w/cutcap	60	EA	No
2		20014069	LBL,HS HT st DNA SBS (200 cycles) Hi PSM	0.000		No
3	0010	11298412	LBL,PREPRINTD,4.25x6,RUO,USA	2	EA	No
2		15048228	HS4-PIM,PATRND INCORP MIX,FINISH REA	0.000		No
3	0010	15048169	BULK,HS4-PIM, INCORPORATION REAGENT MIX	10,775	ML	Yes
3	0020	20001646	250ML CONICAL PHENOLIC CAP	60	EA	No
3	0030	15048229	LBL,HS4-PIM PATRND Incorporation Mix,FR	60	EA	Yes
3	0040	20002514	250ML CONICAL BOTTLE w/cutcap	60	EA	No
2		20014068	LBL,HS HT st DNA SBS (200 cycles) Hi PIM	0.000		No
3	0010	11298412	LBL,PREPRINTD,4.25x6,RUO,USA	2	EA	No
3		15001863	BULK,GA#-PW1	0.000		No
4	0010	15008136	LBL, STATUS_APPROVED_2X8	0.001	EA	No
3		15004690	LBL, GA#-PW1	0.000		No
4	0010	11298775	LABEL,BLANK,1-1/4"X3",YELLOW	60	EA	No
3		15042382	BULK, EB1	0.000		No
4	0010	15044691	3X BB1, PREMIX CONC	4,646.536	ML	Yes
4	0020	15046702	SOLN 500mM LIPOIC ACID	276.480	ML	Yes
3		15048237	LBL,HS4-PB1 Patterned SBS Buffer 1	0.000		No
4	0010	15059358	LBL,2" x 1",BEIGE	60	EA	No
3		15013363	BULK,GA#-PR2	0.000		No
4	0010	11298447	SOLN,10X INCORPORATION BUFFER	3,647.700	ML	Yes
4	0020	15034228	SOLN,10% TWEEN 20,10%,Cat# P7949 Sign.	162.385	ML	Yes
4	0030	15033662	CHEM, PROCLIN 300	16,229	µL	No
3		15048235	LBL,HS4-PB2 Patterned SBS Buffer 2	0.000		No
4	0010	15059366	LBL,2" x 1",PINK	160	EA	No
3		15033377	BULK,HS4-CMS, CLEAVAGE MIX	0.000		No
4	0010	15033244	SOLN,2M ETHANOLAMINE BUF, pH9.9	538.650	ML	Yes
4	0020	11298519	SOLN 5M NACL Purified	3,154.600	ML	Yes
4	0030	15034229	SOLN,10% TWEEN 20,10%,Cat# P7949 Sign.	53.885	ML	Yes
4	0040	15048295	CHEM, 1M THP SOLUTION	1,077.300	ML	No
4	0050	15028945	CHEM,SODIUM ASCORBATE Na Ascorbate	21,342.391	MG	No
4	0060	15018104	SOLN,0.1mM Ellman's Reagent	7	ML	Yes
3		15048235	LBL,HS4-PCM Patterned Cleavage Mix	0.000		No
4	0010	11298601	LBL,BLANK,2"X0.875",RED	60	EA	No
3		15041011	RGN, Bulk SRE13	0.000		No
4	0010	15028647	CHEM,TRIS HYDROCHLORIDE	1,671,425.280	MG	No
4	0020	15032359	CHEM,TRIS BASE	185.150	G	No
4	0030	15028648	CHEM,Tween-20, 100%	6,628.608	MG	No
4	0040	15028945	CHEM,SODIUM ASCORBATE Na Ascorbate	47,500.166	MG	No
4	0050	15041000	CHEM, Hydroxyethyl gallate	25,888.632	MG	No
3		15048231	LBL,HS4-PSM Patterned Scan Mix	0.000		No
4	0010	11298581	LBL,BLANK,2"X0.875",LIGHT BLUE	60	EA	No
4	0020	15028556	LBL,TMPLT,2.0X0.75,HSEQ,RUO,1/Sheet	60	EA	No
3		15048169	BULK,HS4-PIM, INCORPORATION REAGENT MIX	0.000		No
4	0010	15033253	SOLN,10X ETH INCORPORATION BUFFER,PH 9.	876	ML	Yes
4	0020	15034210	CHEM MAGNESIUM SULFATE	42.015	ML	No
4	0030	11300654	CHEM,CHAPS,GM	21.546	G	No
4	0040	20001327	Pol 317 Storage Buffer	288.325	ML	No
4	0050	15041663	FFT-N3-HR1SESC 100UM	53.885	ML	Yes
4	0060	0801-1107	FFG-N3-PEG13ATTO532 100UM	215.466	ML	Yes
4	0070	0801-1500	FFA-N3-SO7181 100UM	215.466	ML	Yes
4	0080	15022916	FFC-N3-CA590 125UM	215.466	ML	Yes
4	0090	E0151-12	SBS Pol 812 stock at 1.2 mg/ml	536.650	ML	No
3		15048229	LBL,HS4-PIM PATRND Incorporation Mix,FR	0.000		No
4	0010	15059361	LBL,2" x 1",GREEN	60	EA	No
4		15044691	3X BB1, PREMIX CONC	0.000		No
5	0010	15032187	SSC BUFFER, CMNIPUR 20X MBT	3,468.462	ML	No
5	0020	15028648	CHEM,Tween-20, 100%	7,616.466	MG	No
5	0030	15033662	CHEM, PROCLIN 300	6,961	µL	No
4		15046702	SOLN 500mM LIPOIC ACID	0.000		No
5	0010	15044309	RM,a-LIPOIC ACID	28.729	G	No
5	0020	15028537	Soln, 1N NaOH	186.996	ML	Yes
5	0030	15028399	CHEM 6N Hydrochloric Acid	8.294	ML	No
4		11298447	SOLN,10X INCORPORATION BUFFER	0.000		No
5	0010	11316080	SOLN 2M TRIS-HCL BUF, pH9.2	911.825	ML	Yes
5	0020	11298519	SOLN 5M NACL Purified	364.770	ML	Yes
5	0030	15032381	SOLN EDTA,0.5M,MOLE-BIO GRADE	73.954	µL	No
4		15034228	SOLN,10% TWEEN 20,10%,Cat# P7949 Sign.	0.000		No
5	0010	15028648	CHEM,Tween-20, 100%	16,871.158	MG	No
4		15033244	SOLN,2M ETHANOLAMINE BUF, pH9.9	0.000		No
5	0010	15033242	SOLN,2M ETHANOLAMINE	236.700	ML	Yes
5	0020	15033243	SOLN,2M ETHANOLAMINE HCL	298.951	ML	Yes
4		11298519	SOLN 5M NACL Purified	0.000		No
5	0010	15028946	CHEM,Sodium Chloride	629,143.260	MG	No
4		15034229	SOLN,10% TWEEN 20,10%,Cat# P7949 Sign.	0.000		No
5	0010	15028648	CHEM,Tween-20, 100%	5,698.216	MG	No
4		15018104	SOLN,0.1mM Ellman's Reagent	0.000		No
5	0010	15000163	SOLN, 1M TRIS BUFFER pH7.5	0.700	ML	Yes
5	0020	15018103	RM, Ellman's Reagent, solid	0.278	MG	No
4		15033253	SOLN,10X ETH INCORPORATION BUFFER,PH 9.	0.000		No
5	0010	15033244	SOLN,2M ETHANOLAMINE BUF, pH9.9	219.000	ML	Yes
5	0020	11298519	SOLN 5M NACL Purified	87.600	ML	Yes
5	0030	15032381	SOLN, EDTA, 0.5M MOLE-BIO GRADE	17,520	µL	No
4		15041663	FFT-N3-HR1SESC 100UM	0.000		No
5	0010	0801-0015	ACETONITRILE	0.002	L	No
5	0020	0801-0008	DMF	0.383	ML	No
5	0030	15043242	NR550SC Dye	13.413	MG	No
5	0040	15029848	TSTU	7.086	MG	No
5	0050	15004566	10mM TRIS pH8.0	53.885	ML	Yes
5	0060	15018109	1L AMBER NALGENE BOTTLE	1	EA	No
5	0070	15029930	DIPEA	0.006	ML	No
5	0080	0801-0001	LNS-PA-TTP, 20MMOL	0.674	ML	Yes
4		0801-1107	FFG-N3-PEG13-ATTO532 100UM	0.000		No
5	0010	0801-1108	LNS-PA-dGTP, 20MMOL	1.406	ML	Yes
5	0020	15029848	TSTU	13.634	MG	No
5	0030	0801-0008	DMF	0.670	ML	No
5	0040	0801-1112	PEG 12	55.160	MG	No
5	0050	0801-1113	ATTO532-NHS ESTER	26.165	MG	No
5	0060	0801-0015	ACETONITRILE	0.006	L	No
5	0070	15004566	10mM TRIS pH8.0	215.460	ML	Yes
5	0080	15018109	1L AMBER NALGENE BOTTLE	1	EA	No
5	0090	15029930	DIPEA	0.031	ML	No
5	0100	0801-0004	METHANOL	27.321	ML	No
4		0801-1500	FFA-N3-SO7181 100UM	0.000		No
5	0010	15029848	TSTU	21.029	MG	No
5	0020	15018159	SO7181 ABBY	59.306	MG	No
5	0030	15028599	DMA	2.801	ML	No
5	0040	0801-0015	ACETONITRILE	0.005	L	No
5	0050	15004566	10mM TRIS pH8.0	215.460	ML	Yes
5	0060	15018109	1L AMBER NALGENE BOTTLE	1	EA	No
5	0070	15029930	DIPEA	0.010	ML	No
5	0080	0801-1004	LNS-PA-dATP, 20MMOL	2.327	ML	Yes
4		15022916	FFC-N3-CA590 125UM	0.000		No
5	0010	0801-0015	ACETONITRILE	0.007	L	No
5	0020	15018109	1L AMBER NALGENE BOTTLE	1	EA	No
5	0030	15029848	TSTU	10.213	MG	No
5	0040	15004566	10mM TRIS pH8.0	215.460	ML	Yes
5	0050	15022919	RM, CA590 DYE	32.858	MG	No
5	0060	15029930	DIPEA	0.010	ML	No
5	0070	0801-0004	METHANOL	86.164	ML	No
5	0080	15028599	DMA	1.703	ML	No
5	0090	0801-1074	LNS-PA-dCTP, 20MMOL	1.616	ML	Yes
5		15028537	Soln, 1N NaOH	0.000		No
6	0010	15034138	CHEM, SODIUM HYDROXIDE	7,339.980	MG	No
5		11316080	SOLN 2M TRIS-HCL BUF, pH9.2	0.000		No
6	0010	11298498	SOLN 2M TRIS HCL	182.136	ML	Yes
6	0020	11298480	SOLN 2M TRIS BASE	539.680	ML	Yes
5		11298519	SOLN 5M NACL Purified	0.000		No
6	0010	15028946	CHEM,Sodium Chloride	106,512.840	MG	No
5		15033243	SOLN,2M ETHANOLAMINE	0.000		No
6	0010	15033240	CHEM,ETHANOLAMINE	29.244	ML	No
5		15033243	SOLN,2M ETHANOLAMINE HCL	0.000		No
6	0010	15033241	CHEM,ETHANOLAMINE HCL	58.298	G	No
5		15000163	SOLN, 1M TRIS BUFFER pH7.5	0.000		No
6	0010	11298498	SOLN 2M TRIS HCL	0.283	ML	Yes
6	0020	11300916	SOLN, 1M TRIS BASE	0.137	ML	Yes
5		15033244	SOLN,2M ETHANOLAMINE BUF, pH9.9	0.000		No
6	0010	15033243	SOLN,2M ETHANOLAMINE	97.678	ML	Yes
6	0020	15033243	SOLN,2M ETHANOLAMINE HCL	121.323	ML	Yes
5		11298519	SOLN 5M NACL Purified	0.000		No
6	0010	15028946	CHEM,Sodium Chloride	25,607.600	MG	No
5		15004566	10mM TRIS pH8.0	0.000		No
6	0010	0801-0061	RM, TRIS pH 8.0	0.539	ML	No
6	0020	0801-0002	BP WATER	0.054	L	No



FIRST AMENDMENT TO
AMENDED AND RESTATED SUPPLY AND COMMERCIALIZATION AGREEMENT

This First Amendment to Amended and Restated Supply and Commercialization Agreement (this "**Amendment**") is entered into between Illumina, Inc., a Delaware corporation ("**Illumina**"), and GRAIL, Inc., a'Delaware corporation ("**GRAIL**"), effective as of September 27, 2017 (the "**Amendment Effective Date**"). Illumina and GRAIL may each be referred to individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

A. The Parties entered into an Amended and Restated Supply and Commercialization Agreement effective as of February 28, 2017 (the "**Agreement**"); and

B. The Parties now desire to amend the Agreement in order to effect certain changes with respect to GRAIL's obligations to provide certain data and samples to Illumina.

NOW, THEREFORE, in consideration of the mutual covenants contained in this Agreement, the foregoing recitals, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. AMENDMENTS

The Parties hereby amend the Agreement as follows:

1.1 Section 7.3(a). The penultimate sentence in Section 7.3(a) is hereby replaced in its entirety with the following (with the changed language shown in bold):

GRAIL shall deliver data from at least [***] of these plasma samples and the corresponding available tumor data for these samples by [***].

1.2 Section 7.3(b). The last sentence in Section 7.3(b) is hereby replaced in its entirety with the following (with the changed language shown in bold):

Except as set forth in (c) below, the foregoing license shall terminate upon, and Illumina will only retain such data until, the date that is **12** months following the delivery of such data and information from the [***] patient, after which Illumina shall destroy such data and all copies thereof; provided that Illumina may: (i) retain one copy of such information and data solely for the purpose of supporting publications made by Illumina pursuant to this Section; and (ii) retain summaries, aggregations, or derivatives of such information and data prepared by or for Illumina.

1.3 Section 7.4.

(a) Section 7.4 requires GRAIL to collaborate with Illumina to secure [***] plasma samples. There Parties hereby agree to amend Section 7.4 to reduce the required number of such samples to [***] throughout Section 7.4.

(b) The Parties hereby add the following as Section 7.4(f):

On or before [***], GRAIL will issue a purchase order to [***] to acquire on Illumina's behalf [***] of the samples required by this Section 7.4, which purchase order will be issued against the quote attached as Exhibit D. GRAIL will bear the cost of acquiring and shipping such samples as specified in the purchase order. On or before the earlier of [***], or when due pursuant to the purchase order, GRAIL will pay [***] $[***] (plus shipping costs) in satisfaction of the purchase order and, following such payment, will assign the purchase order and any related rights to Illumina. GRAIL's issuance of the purchase order, payment for the samples and shipping costs, and assignment to Illumina of the purchase order and any related rights will be deemed full and complete satisfaction of GRAIL's obligations under Section 7.4 with respect to sourcing of [***] of the required [***] samples, and the [***] samples purchased from [***] will be deemed sourced pursuant to Option B.

***Text Omitted for Confidential Treatment. The redacted information has been excluded because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

1.4 Exhibit D. Exhibit D, attached to this Amendment, is hereby incorporated into the Agreement.

2. GENERAL

2.1 Limited Amendment. Except to the extent expressly modified by this Amendment, the Agreement shall remain in full force and effect in accordance with its terms.

2.2 Counterparts. This Amendment may be executed in one or more counterparts, each of which will be deemed to be an original, and all of which will constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties have executed this Amendment effective as of the Amendment Effective Date.

ILLUMINA		**GRAIL**	
Illumina, Inc. a Delaware corporation		GRAIL, Inc. a Delaware corporation	
By:	/s/ Karen Gutekunst	By:	/s/ Ken Drazan
Name:	KAREN GUTEKUNST	Name:	Ken Drazan
Title:	V.P. Product Development	Title:	President
Date:	Sept. 28, 2017	Date	09-27-2017

Illumina, Inc.
5200 Illumina Way
San Diego, CA 92122
www.illumina.com

December 11, 2019

VIA EMAIL: legalnotice94025@grail.com

GRAIL, Inc.

1525 O'Brien Dr

Menlo Park, CA

Attn: CEO

Re: Authorization to Purchase Temporary Consumables under the Amended and Restated Supply and Commercialization Agreement, dated February 28, 2017, as amended September 27, 2017 (as amended, the "Agreement")

To Whom It May Concern:

This letter agreement is to confirm certain understandings between Illumina, Inc. (**"Illumina**") and GRAIL, Inc. ("**GRAIL**") concerning the Agreement. All capitalized terms used but not defined in this letter agreement will have the meanings given to them in the Agreement.

Illumina hereby authorizes GRAIL to purchase the following Research Use Products under the Agreement (collectively, the "Products") as Temporary Consumables pursuant to Illumina's prevailing Additional Terms and Conditions of Sale Applicable to Illumina Advantage Products (the "**IA Ts&Cs**"):

Products	**Part No.**
Streptavidin Magnetic Beads (SMB)	15039631
Enhanced PCR Mix (EPM)	15041700
NovaSeq 6000 S4 Reagent Kit (300 cycles)	20012866

A copy of the current IA Ts&Cs is contained in Exhibit A. Illumina agrees that if the IA Ts&Cs are modified at a later date, then GRAIL will still have the right, during the Term and subject to its compliance with the Agreement, to use the Temporary Consumables as specified in Section 2 of the IA Ts&Cs contained in Exhibit A, unless prohibited by applicable law or regulation.

Effective as of the date hereof and until the date that is 90 days after such date that Illumina notifies GRAIL that the Advantage Consumable version of the Products is available pursuant to Section 4 of the IA Ts&Cs (such period, the "**Purchase Period**"), the IA Ts&Cs will supplement, and together with the Terms and Conditions of Sale – Research Use Products, be the Terms and Conditions (as that term is used throughout the Agreement) applicable to purchases of the Products by GRAIL pursuant to purchase orders dated on or after April 24, 2019 until the end of the Purchase Period (collectively, the **"Purchased Products**"). For clarity, a Purchased Product

Illumina, Inc.
5200 Illumina Way
San Diego, CA 92122
www.illumina.com

shall be deemed a Temporary Consumable even if used by GRAIL after the Purchase Period ends. Notwithstanding Section 3.2(b) of the Agreement, to the extent any provision of this letter agreement conflicts with any provision of the Agreement, the provision in this letter agreement shall control.

Please confirm GRAIL's agreement to the terms of this letter agreement by returning a signed copy to me at your earliest convenience. This letter agreement is effective when executed by both Parties below. This letter agreement may be signed in counterparts.

Sincerely,

/s/Nicki Berry
Nicki Berry
VP, Americas Sales

Acknowledged and agreed:

GRAIL, Inc.

/s/Alex Aravanis

Name:	Alex Aravanis
Title:	Head of R&D
Date:	December 11, 2019

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5200 Illumina Way
San Diego, CA 92122
www.illumina.com

EXHIBIT A

Additional Terms and Conditions of Sale Applicable to Illumina Advantage Products

The following additional terms and conditions of sale are supplemental to the Terms and Conditions of Sale – Research Use Products ("RUO T&Cs"). In the event of a direct conflict between the RUO Ts & Cs and following additional terms and conditions, the following additional terms and conditions shall prevail.

1. **Definitions**. "**Advantage Consumables**" means those Seller branded reagents and consumable items that are (i) intended by Seller to be consumed through the use of Hardware, and (ii) designated with the prefix "TG" in their catalogue number or product name, except for ForenSeq™ products. "**Approved**" means that a Product has, by appropriate regulatory authorities in the territory in which it is marketed, been approved, registered, licensed, cleared, certified, or otherwise determined to be able to be lawfully marketed as an IVD in such territory. "**Clinical Use**" means use of the Product to perform testing of human samples and specimens with Customer's own Laboratory Developed Tests in a clinical laboratory in the Territory where results are reported, directly or indirectly, to patient or health care practitioner, specifically excluding Excluded Uses. "**Collection Territory**" means the country or countries from which samples and specimens may be collected for testing by Purchaser for Clinical Use. "**IA Consumable(s)**" means Advantage Consumables and Temporary Consumables acquired hereunder. "**Consumable Kit(s)**" means individual boxes containing Advantage Consumables. **"Excluded Use**" means, with respect to IA Consumables, any use that (a) is a use of the IA Consumables to perform NIPT, or (b) is a use of a IA Consumable as, or as a component of, an IVD, as defined below. "**Facility**" means a facility in the Territory that is owned by, leased by or otherwise under the contractual control of, Purchaser. "**IVD**" means a medical device that is used to diagnose or screen for a disease or other conditions and that may be used at any facility where its use is Approved by the appropriate regulatory authorities, or may otherwise be marketed under applicable law, excluding Laboratory Developed Tests. "**Laboratory Developed Test**" means a diagnostic test developed by Purchaser or on behalf of Purchaser (to the extent permitted under applicable law in the Territory) and performed and validated by Purchaser solely in its own laboratory Facility (which if in the United States would be regulated under the Clinical Laboratory Improvements Act (CLIA)), excluding an IVD. "**NIPT**" means non-invasive prenatal testing and includes without limitation all testing of nucleic acids of fetal or placental origin present in maternal tissue (including maternal blood and blood components). "**OTS Consumables**" are comprised of the Advantage Consumables referenced at http://www.illumina.com/IAOTS that are generally commercialized in the Territory and subject to the maximum order quantities stated thereon. "**Temporary Consumables**" means Seller branded reagents and consumable items that are (i) intended by Seller to be consumed through the use of Hardware, and (ii) not designated with the pre-fix "TG" in their catalogue number or product name and which Illumina has authorized in writing for Purchaser to purchase for use under these terms and conditions. "**Territory**" means the country or countries in which Purchaser may use the IA Consumables.

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www.illumina.com

2. **Rights to IA Consumables upon Purchase.** In addition to the rights granted to Purchaser in Section 2 of the RUO Ts & Cs, and subject to the restriction set forth in Section 3 of the RUO Ts & Cs, Purchaser is granted a non-exclusive, non-transferable, personal, non-sublicensable right under Seller's Core IP to use IA Consumables for Clinical Use (only on samples from the Collection Territory), only with Hardware in Purchaser's Facility and in accordance with the applicable IA Consumables' Specifications and Documentation, excluding all Excluded Uses.

3. **Expiry Date; Single Lot Shipments; Kit Lot Testing for Advantage Consumables**. Seller shall use commercially reasonable efforts to ensure that Advantage Consumables shall have an expiry date that is no less than six months at the time of shipment. Expiry date will be pre-printed on the Advantage Consumable packaging. Seller shall use commercially reasonable efforts to ensure each shipment of a given Advantage Consumable includes only such Advantage Consumable manufactured from the same lot. Seller shall use commercially reasonable efforts to test each component reagent supplied under these terms and conditions that comprises a given Advantage Consumable, together with the other component reagents of that Advantage Consumable, to ensure their functionality, unless sufficient data are available to demonstrate that a given component reagent, or component reagents, if quality tested independently, does not affect performance of the Advantage Consumable. Seller shall provide a Certificate of Analysis for each lot of Advantage Consumables sold to Purchaser.

4. **Temporary Consumables.** If Seller has an Advantage Consumable available for purchase that is intended by Seller to replace a Temporary Consumable, Seller will give notice of the availability of such Advantage Consumable. Purchaser agrees that (i) it will promptly modify or cancel existing open purchase orders as needed so as to ensure that Purchaser will no longer receive the applicable Temporary Consumable after the date that is 90 days after the date of the notice, unless Purchaser will use such Temporary Consumables only for uses permitted under these terms and conditions, excluding Clinical Use, and (ii) Purchaser will not place additional purchase orders for the applicable Temporary Consumable for Clinical Use after receipt of such notice.

5. **IA Consumables Warranty**. Seller warrants that IA Consumables will conform to their Specifications until the later of (i) for Advantage Consumables, six months from the date of shipment from Seller, and for Temporary Consumables, three months from the date of shipment from Seller, or (ii) any expiration date or the end of the shelf-life pre-printed on such IA Consumable by Seller, but in either event, no later than 12 months from the date of shipment. For the avoidance of doubt, Sections 7(c), 7(d), and 7(e) of the RUO Ts & Cs also apply to IA Consumables.

6. **Indemnification by Seller**. In additional to any indemnification (including rights and restrictions) provided to Purchaser under the RUO Ts & Cs, subject to these terms and conditions, including without limitation, the Exclusions to Seller Indemnification Obligations (Section 8(b) of the RUO Ts & Cs) and the Conditions to Indemnification Obligations (Section 8(d) of the RUO Ts & Cs), Seller shall (i) defend, indemnify, and hold

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harmless Purchaser against any third-party claim or action alleging that the IA Consumables when used for Clinical Use on samples from the Collection Territory, in accordance with these terms and conditions, in accordance with the Documentation or Specifications, where such third-party claim or action could be brought without regard to any specific fields of use or specific applications, infringes the valid and enforceable intellectual property rights of a third party, and (ii) pay all settlements entered into by, and all final judgments and costs (including reasonable attorneys' fees) awarded against, Purchaser in connection with such infringement claim.

7. **Discontinuation/Changes to Consumable Kits**. A Consumable Kit may be phased out of production and no longer available and/or there may be a new, reconfigured, or repackaged version of a Consumable that embodies a material change to form, fit or function of such Consumable Kit with respect to its Specifications identified on Seller's certificate of analysis for such Consumable Kit ("**Changed Consumable**"). To the extent Seller is aware that Purchaser has purchased affected Consumable Kits within the nine month period prior to the Discontinuation Date or change, Seller will use commercially reasonable efforts to notify Purchaser of the discontinuation or change and will make the Changed Consumable Kits available no later than six months prior to the date that the original Consumable Kit is discontinued ("**Discontinuation Date**"). Upon Purchaser request, Seller may in good faith provide a reasonable quantity of Changed Consumable Kits free of charge to facilitate Purchaser's validation efforts in support of the change. Use of Changed Consumable Kits is subject to these terms and conditions. Seller will use commercially reasonable efforts to honor accepted purchase orders for shipments of Changed Consumable Kits, provided such shipments are scheduled no later than 30 days after the Discontinuation Date.

8. **Lead Time; Shipping Schedule and Terms**. Subject to these terms and conditions, if a purchase order for Advantage Consumables is submitted (i) by the fifth business day of the calendar month, the first shipment of Advantage Consumables on the purchase order will be no earlier than 90 days from the date the purchase order is accepted by Seller, and (ii) after the fifth business day of the calendar month, the first shipment of Advantage Consumables on the purchase order will, unless otherwise agreed by Seller and Purchaser, be no later than 120 days from the date the purchase order is accepted by Seller ("**Lead Time Requirement**"). Notwithstanding the foregoing, the Lead Time Requirement shall not apply to OTS Consumables. Each purchase order for IA Consumables must include a ship schedule, to be agreed to between Seller and Purchaser prior to Seller accepting that purchase order, that details the quantity of and type of IA Consumables (on an IA Consumable-by-IA Consumable basis) that Purchaser requires to be delivered in each calendar month that is covered by the purchase order.

9. **Order Changes/Cancellations**. Orders for IA Consumables may not be changed or cancelled once placed. Seller reserves the right to charge Purchaser up to the purchase price of the canceled order for Advantage Consumables, and Purchaser agrees to make payment on any and all invoices provided by Seller for such charges.

Exhibit 10.17

Certain information (indicated by asterisks) has been omitted from this document because it is both not material and would likely cause competitive harm to the registrant if publicly disclosed.

DATED 7th April 2016

(1) THE CHINESE UNIVERSITY OF HONG KONG

and

(2) CIRINA LIMITED

LICENCE AGREEMENT

THIS LICENCE AGREEMENT ("Agreement") is dated this 7th day of April 2016
BETWEEN:

(1) **The Chinese University of Hong Kong,** a university established by legislation in the Hong Kong Special Administrative Region ("**Hong Kong SAR**") located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined herein ("**University**")**;** and

(2) **Cirina Limited,** a limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 21st Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**");

who together in this Agreement are referred to as the **"Parties"** and individually as the **"Party"**.

WHEREAS:

(A) The Invention (as defined below) was invented by Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of University and his research team.

(B) University is the owner of the Invention within University Docket No. 10/MED/399 and the underlying Proprietary IPR (as defined below) therein.

(C) University and Licensee now agree to enter into this definitive agreement with regard to Licensee's exclusive licence to use the Invention and the Proprietary IPR therein in accordance with the provisions of this Agreement.

IT IS HEREBY AGREED as follows:

1. Definitions

In this Agreement, unless the context clearly otherwise requires, the following words and expressions shall have the following meanings and all defined terms shall apply to their singular and plural forms, as applicable: "Including" means 'including without limitation'. "H/herein", "hereof", "hereunder" or similar expressions refer to this Agreement. "Clause" means the referenced clause in this Agreement.

1.1 **"Affiliate"** means any legal entity of which Licensee owns, directly or indirectly, 10% or more shareholdings.

1.2 **"Commencement Date"** means the date of commencement of the licence as referred to in Clause 3.1.

1.3 **"Effective Date"** means the date first written above of which this Agreement becomes effective.

1.4 **"Expenses"** means all costs and expenses incurred for processing, defending from invalidation attacks or maintaining any of the Prospective Patent (as defined below) in a designated Patent Jurisdiction (as defined below) and includes those costs and expenses referred to in Clause 8 as payable by Licensee.

1.5 **"Information"** means information relating to the Invention and any other technical information of University and any technical or business information of Licensee.

1.6 **"Intellectual Property Rights" or "IPR"** means any rights including but not limited to patents, know-how, confidential information, trade secret, industrial design, copyrights,

trademarks, service marks, trade names, logos and the goodwill associated therewith and all rights or forms of protection having equivalent or similar effect (whether registered, unregistered or not capable of being registered) which may subsist anywhere in the world.

1.7 **"Invention"** means the invention disclosures and patent applications which were invented by Research Team and owned by University prior to the Commencement Date as listed in Schedule 2 hereto, and all Proprietary IPR and the Prospective Patent.

1.8 **"Licence Issue Fee"** means the consideration to be paid by Licensee to University in accordance with Clause 5.1.1 of this Agreement.

1.9 **"Licensed Field of Use"** means all fields except prenatal (fetal or maternal) diagnostics and/or prenatal (fetal or maternal) prognostics and/or prenatal *(*fetal or maternal) analysis.

1.10 **"Licensed Product"** means any product, service or process embodying, applying, adopting, using or otherwise utilizing the Invention or any part(s) thereof that is developed or produced by Licensee, its Affiliate and/or its Sub-Licensee, in the Licensed Field of Use, in each case, of which the manufacture, use, practice, sale, offer for sale, or importation, exportation, disposal or exploitation would constitute, but for the licence University grants to Licensee under this Agreement, an infringement of any valid claim of a Prospective Patent within the Invention in a country in which such activity is conducted or in which such product is sold.

1.11 **"Net Sales Value"** means the aggregate consideration, including royalties (excluding up front payments, milestone payments, refunds, credits, grant or research funding or equity investment) received from third party customers from the sale of a Licensed Product, less normal trade discounts actually granted, refunds, credits, chargebacks, allowances, insurance, freight, or any relevant tax, duties or similar government levies. For avoidance of doubt, any consideration or royalties received from Sub-licensee(s) are excluded.

1.12 **"Patent Jurisdiction"** means convention country and/or region in which the Prospective Patent has been filed or granted or to be filed or granted and for which the application, prosecution, defence from invalidation attacks and maintenance will be made at the Licensee's expense.

1.13 **"Proprietary IPR"** means any and all underlying Intellectual Property Rights subsisting in the Invention listed in Schedule 2.

1.14 **"Prospective Patent"** means any and all patents and patent applications specified in Schedule 2 or included in the Proprietary IPR, including any patents or patent applications that claim common priority therewith or are grants, divisions, continuations, continuations-inpart, reissues, re-examinations and extensions of all such patents claiming priority therefrom (and any reference to "Prospective Patent" shall include any and all of them) as well as renewals thereof.

1.15 **"Research Team"** means Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of The Chinese University of Hong Kong and his research team.

1.16 **"Samples"** means human patient samples provided to the Licensee.

1.17 **"Standard Terms and Conditions"** or **"T&C's"** means the terms and conditions set forth in Schedule 1 hereto.

1.18 **"Sub-License Income"** means all one-time payments, net of any relevant tax, duties or similar government levies, which shall be non-recurring in nature as actually received by Licensee from Sub-Licensee(s) under any sub-licence(s) granted by Licensee to Sub Licensee(s), including without limitation any up-front payments and milestone payments to be made by Sub-Licensee(s) to Licensee under any such sub-licence(s), in each case to the extent such amounts are received in consideration of the grant of a sublicense to the Invention, but excluding any amounts received by Licensee that are (a) Sub-License Royalties payable under Clause 5.3.1, (b) based on sales of Licensed Products, (c) loans, (d) paid for equity or securities (or rights to acquire equity or securities) to the extent not in excess of fair market value, (e) paid for supply of products or materials provided at cost or in kind exchange, and (f) reimbursements of costs and expenses incurred by Licensee, including for patent-related expenses or costs incurred in performing research, development and/or services thereunder.

1.19 **"Sub-Licensee"** means a sub-licensee, other than an Affiliate, who has a valid and subsisting licence granted to it by Licensee for the exploitation of the Licensed Product. For the avoidance of doubt, Sub-Licensee shall not be an Affiliate of Licensee.

1.20 **"Term"** means the term of licence as defined in Clause 3.1.

1.21 "**Territory**" means worldwide.

2. Grant of Licence

2.1 Subject to Clause 2.4 below, University hereby grants to Licensee, for the Term and subject to the provisions of this Agreement, an exclusive and non-transferable licence for the Invention, with the right to sublicense, subject to Clause 4, to apply, use and exploit the use of the Invention and to make, authorize the making of, process, supply, sell, offer to sell, lease, otherwise commercially dispose of, import, have imported, export, or otherwise exploit in any manner the products and services in the Licensed Field of Use within the Territory. For avoidance of doubt, the Licensee shall be entitled to obtain Samples worldwide, including from the Territory. Licensee shall solely be responsible for the safety and quality of the Licensed Product in accordance with the applicable laws, rules and regulations.

2.2 All improvements, modifications or alterations to the Licensed Product made or developed during the Term by University in the Licensed Field of Use, including any related patents and scientific or technical information, know-how or trade secrets, shall be, automatically, deemed subject to this Agreement and shall be included within the definition of Proprietary IPR. University shall, from time to time, promptly disclose to Licensee all such improvements, modifications or alterations.

2.3 This grant of licence under Clause 2.1 can be extended to any Licensee's Affiliate so long as (i) such Affiliate remains as an Affiliate of Licensee as defined in Clause 1.1; and (ii) Licensee notifies University forthwith of any termination and potential termination of such relationship. Licensee shall remain fully responsible for any act done and omission on the part of Affiliate arising from or in connection with this Agreement. Licensee shall be responsible for any breach by Affiliate of the Agreement as if the breach had been that of Licensee under the Agreement. Licensee shall indemnify University and keep University harmless from and against any loss, damage, costs, expenses, demands and claims incurred or suffered by University in accordance with Paragraph 5 of the T&C's.

2.4 Licensee and University both acknowledge and agree that the grant of exclusive right to Licensee under this Agreement shall be subject to the followings:

2.1 University's academic rights to use the Invention, the Prospective Patent and related technology in the Territory solely for its own internal (non-commercial) research and educational purposes at all times without accounting to Licensee;

2.2 Governmental contractual obligations of University (if any) to the extent any government funding was used in support of the Invention and Prospective Patent;

2.3 The rights granted by University to [***] under the Sponsored Research Agreement between University and [***] dated 6 March 2008 to use University Docket No. 10/MED/399, as identified in Schedule 2, solely for internal research purposes in the field of cancer detection, cancer prognostication or other analysis for the screening and management of cancer without accounting to Licensee.

2.5 University shall promptly, if requested by Licensee, execute and file applications (in the prescribed form) to register or provide notice to the relevant patents administrators of the transaction contemplated by this Agreement in accordance with relevant laws or regulations, provided that the Licensee:

2.5.1 shall, together with each request made to University, provide to University a duly executed irrevocable power of attorney in favour of University pursuant to relevant laws or regulations, to enable University to remove such registration or notice to the relevant patents administration promptly upon the expiration or early termination of the licence granted in this Agreement or any part of it, or upon the abandonment by Licensee of any Prospective Patent under Clause 8.5; and

2.5.2 shall bear all costs and expenses in connection with the requested registration or notice, as well as the removal of such registration or notice, including but not limited to University's expenses in consulting its own professional advisers about Licensee's request and attending to the filing and removal of the registration or notice.

3 Term of Licence

3.1 This Agreement shall become effective on the Effective Date. The licence granted under Clause 2.1 shall be effective and commence from the date of University's receipt of full payment of the Licence Issue Fee under Clause 5.1.1 ("**Commencement Date").** This Agreement and the licence shall expire concurrently with the last-to-expire Prospective Patent or on the 20th anniversary of the Commencement Date, whichever is the later, unless terminated earlier under the terms of this Agreement (the **"Term**")**.**

3.2 In the event that Licensee fails to make full payment of the Licence Issue Fee within the prescribed period under Clause 5.1.1, this Agreement shall be automatically terminated on the expiry of the prescribed period under Clause 5.1.1. University shall not be required to refund any part of the Licence Issue Fee paid by Licensee prior to such termination and Licensee shall not be required to make further payment of the Licence Issue Fee.

4. Sub-Licensee

4.1 For the Licence granted in Clause 2.1, Licensee shall been entitled to grant and authorize sub-licences of its rights thereunder to any person or entity subject to the terms of this Agreement. However, Licensee shall ensure that each sub-licence shall include obligations on the Sub-Licensee at least as restrictive as the obligations imposed on

Licensee under this Agreement, excluding any economic term, which may be freely negotiated between the Licensee and Sub-Licensee, and that:

4.1.1 The terms and conditions of any sub-licence shall prohibit further sub-licensing.

4.2 The sub-license granted to Sub-Licensee shall be terminated by Licensee if Sublicensee directly or indirectly, during the term of the sub-licence or thereafter challenges the ownership and/or any rights of University in the Invention, including any Proprietary IPR in respect of the Invention, the Prospective Patent, and the validity thereof.

4.3 Within thirty (30) days of the grant of any sub-licence, the Licensee shall provide to University a true copy of the executed sub-licence agreement, provided that Licensee may redact such agreement to exclude the financial terms thereof and may provide only those provisions that are reasonably related to the Licensee's obligations to University pursuant to this Agreement.

4.4 All sub-licences granted to a Sub-licensee shall terminate automatically on the expiration or early termination of this Agreement for any reason; provided, however that sublicenses granted to a Sub-licensee shall survive if the relevant Sub-licensee agrees in writing to be bound by the terms of this Agreement as such terms apply to such Sub-licensee (in which event such Sub-licensee shall be deemed a direct licensee of University); provided that such Sub-licensee shall only be responsible for any payments that become due as a result solely of such Sub-licensee's activities after the effective date of any such termination.

4.5 The Licensee remains fully liable to pay to University all Royalties due from the Sub Licensee, without prejudice to the right of University to seek indemnity from Licensee in accordance with Paragraph 5 of the T&C's.

4.6 In the event that a Sub-Licensee commits a material breach of any of its other obligations under the sub-licence agreement (the **"Defaulting Sub-Licensee"),** Licensee shall use commercially reasonable efforts to enforce the terms of the relevant sub-licence agreement against the Defaulting Sub-Licensee. If the Defaulting Sub-Licensee's material breach continues for thirty (30) days after University's written notice to Licensee, and if Licensee does not within thirty (30) days after University's written notice to Licensee (or such longer period as University in its sole discretion may grant taking into consideration the nature and seriousness of the Defaulting Sub-Licensee's material breach on a case by case basis), provide evidence to satisfy University that Licensee has taken legally reasonable action under the circumstances to remedy the Defaulting Sub-Licensee's breach (possibly including, without limitation, commencement of legal proceedings by Licensee against the Defaulting Sub-Licensee to enforce the terms of the sub-licence agreement, or the provision of legal advice, obtained at Licensee's expense from counsel of its choosing, and reasonably acceptable to University, indicating that Licensee has taken legally reasonable action to deal with the Defaulting Sub-Licensee's breach) then unless expressly agreed to in writing by University and only if such material breach by such Sub-Licensee has a material adverse effect on University, the sub-licence granted to Sub-Licensee shall be terminated by Licensee. In any event, Licensee shall indemnify University against all third party claims, demands, actions, suits, damages, penalties, liabilities, judgments, costs (including legal costs and attorney charges) and expenses assessed against or incurred by University as a result of the breach by the Defaulting Sub-Licensee, even if the relevant sub-licence is terminated by Licensee, in accordance with Paragraph 5 of the T&C's.

5. Payments

5.1 In consideration of the granting of Licence by University under Clause 2.1, Licensee shall pay to University:

5.1.1 An upfront, non-refundable and non-recoupable licence issue fee of US Dollars [***] (the **"Licence Issue Fee**"), payable within one hundred and eighty (180) days from the Effective Date of this Agreement. However, if the Licence Issue Fee is not paid in its entirety within the aforesaid period, Licensee is deemed to have reverted the licence back to University and is no longer required to pay University any outstanding payment under this Agreement; and

5.1.2 Subject to Clause 5.4, the royalty at [***] percent of Net Sales Value, in respect of each application, use, process, supply and/or sale of Licensed Product by Licensee and/or its Affiliate during the Term (the **"Royalties**"), other than any Sub-license Income and Sub-license Royalties; provided that if, in any calendar quarter(s), Licensee is obligated to pay University royalties on sales of products (including Licensed Product) under agreement no. TC1510006 or any other agreement, then no Royalties shall be due on sales of Licensed Product in such calendar quarter(s).

5.2 For the avoidance of doubt,

5.2.1 the Royalties, shall be payable by the Licensee to University in accordance with the terms of this Agreement throughout the Term in respect of the Net Sales Value received for the production, distribution, sale and/or use of the Licensed Product anywhere in the Territory.

5.2.2 the Royalties and Sub-License Royalties (as defined below) must be paid in full in accordance with the provisions in Clause 5 of this Agreement. Royalties shall be paid semi-annually, and shall be in arrears ninety (90) days after the last day of June and December in each year in accordance with Clause 6.1.

5.3 In the case of sub-licence, Licensee agrees to pay University a sub-licensing royalty as set forth below (the **"Sub-License Royalties**"):

5.3.1 Licensee shall pay University [***] percent of Net Sales Value received by such Sublicensee(s) for the Licensed Products, net of any relevant tax, duties or similar government levies, excluding any up-front payments and milestone payments to be made by the Sub-Licensee(s) to Licensee under any such sublicence(s), provided that if, in any calendar quarter(s), Licensee is obliged to pay University Sub-License royalties on sales of products (including Licensed Product) under agreement no. TC1510006 or any other agreement, then no Sub-License Royalty shall be due on sales of Licensed Product in such calendar quarter(s); and

5.3.2 Prior to achievement of Milestone 1 as stated in Schedule 3, Licensee shall pay University [***] percent of Sub-license Income.

5.3.3 After achievement of Milestone 1 as stated in Schedule 3, Licensee shall pay University [***] percent of Sub-license Income.

5.3.4 Notwithstanding the foregoing, the fees under Clauses 5.3.2 and 5.3.3 on Sub-license Income due with respect to any single sublicense agreement or Sub-Licensee shall in no event exceed US$[***].

5.4 During each Year, Licensee shall pay University for such year the actual Royalties and SubLicense Royalties, commencing on 2nd January 2018.

5.5 Licensee shall continue to pay Royalties, and Sub-License Royalties in accordance with Clauses 5.1.2 and 5.3 above for as long as Net Sales Value is received by Licensee Affiliates or Sublicensee(s) (respectively), and Sub-license Income is received by Licensee.

5.6 If a court of competent jurisdiction in a particular territory, by a final decision of a court from which no further appeal or reconsideration can be taken, holds invalid any Prospective Patent or all of the relevant patent claims within a Prospective Patent, Licensee's obligation to pay Royalties corresponding to the Licensed Product(s) which is(are) covered solely by that patent or those claims, will cease as of the date of such decision in that jurisdiction and such territory will be excluded from the Territory as defined in Clause 1.21 insofar as the relevant Prospective Patent is concerned. Licensee, however, shall pay Royalties that accrued before that decision or that are based on all other patents or claims not involved in that decision. For the avoidance of doubt, if for a particular product any claim of a Prospective Patent is valid and covers that product, licensee's obligation to pay Royalties shall not cease. If for a particular product, no claim of any Prospective Patent is valid that covers that product, licensee's obligation to pay Royalties for that product in that jurisdiction shall cease. When Licensee's obligation to pay Royalties in any jurisdiction within the Territory ceases in respect of a Prospective Patent that is finally declared invalid, this Agreement is deemed to have terminated by expiry in respect of that Prospective Patent in that jurisdiction.

6. Commercialization Report and Accounting for and Payment of Royalties and Maintenance of Records

6.1 Licensee shall, within ninety (90) days after the last day of June, and December, send to University a commercialization report (which shall be the Information of Licensee) which comprises:

6.1.1 a report for the preceding six (6) months period, except the first commercialization report as defined in Clause 6.2, to indicate development activities made, milestones achieved, activities performed towards the commercialization of the Invention, and

6.1.2 a statement specifying royalties payable to University, which shall include the quantities of Licensed Product produced, sold and sales price of Licensed Product sold or otherwise disposed of, the number of sub-licences granted to Sub-Licensees that include the right to market and sell Licensed Products and details of fees/royalties received from any Sub-Licensees and a calculation showing the royalties due, and the royalty statement shall be accompanied by a bankers' draft for (i) the Royalties; and (ii) the Sub-License Royalties payable under Clause 5.3. There shall be no cross-collateralization, no accounts shall be offset and no other adjustment shall be made between the Licensed Products or between territories, areas or countries of the Territory unless provided otherwise in this Agreement.

6.2 The first commercialization report shall cover the period from Commencement Date to 30th June 2016. Each subsequent commercialization report should cover a period of six (6) months as stipulated in Clause 6.1.

6.3 Licensee also agrees to make and will cause its Sub-Licensees to make a written report to University within ninety (90) days after the date of termination or early termination of this Agreement, stating in such report the number, description and Net Sales Value of all Licensed Products produced, sold, or otherwise disposed of, and upon which royalties hereunder are payable but which were not previously reported to University.

6.4 Licensee shall keep and will require its Sub-Licensees to keep during the Term and seven (7) years thereafter, records or accounts sufficient to enable accurate calculations of royalties due to University. University shall be entitled to appoint an independent auditor not employed by the University and reasonably acceptable to Licensee to determine the correctness of any royalty statement or royalties payable or paid hereunder. The cost of inspection by such auditor shall be borne by University unless the auditor's report indicates that Licensee has under-reported its sales of Licensed Product and/or receipt of fees/royalties from Sub-Licensees by more than five (5%) percent in which case Licensee shall bear the full cost of such audit. Such audit may only be conducted once per calendar year.

7 Milestones

Licensee agrees to meet the milestones as detailed in Schedule 3. In the event that Licensee does not meet any of the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

8 Prospective Patent

8.1 Subject to Clause 8.5, Licensee confirms and agrees that from the Commencement Date, it shall assume financial responsibility, as set forth in Clause 8.3, and shall continue to be financially responsible for and control the prosecution, defence from invalidation attacks and maintenance of any and all Prospective Patent within the Territory.

8.2 University has applied for patent applications set forth in Schedule 2.

8.3 Subject to Clause 8.1, Licensee agrees to (a) reimburse the University for all legal and government expenses to be incurred for the prosecution and maintenance of the Prospective Patent within the Invention within the Territory after the Commencement Date; and (b) pay for all costs and expenses involved in defending the relevant claims of the Prospective Patent from invalidation actions that may arise during the Term within the Territory. Said payments for undisputed amounts to be made to University within thirty (30) days upon presentation of invoice to Licensee. University shall cooperate with Licensee and join any enforcement action brought by Licensee at Licensee's request.

8.4 University shall provide reasonable assistance to Licensee with respect to the prosecution, maintenance, and defence of the Prospective Patent. For avoidance of doubt, any patent applications and the subsequent grants, renewals, amendments or restorations of any patent or patent application listed in Schedule 2 that do not exist as of the Effective Date shall be treated as part of the Prospective Patent hereunder.

8.5 Licensee may by at least ninety (90) days' advanced written notice terminate its financial responsibility for the expenses for the filing, prosecution, defence from invalidation attacks or maintenance of any of the Prospective Patent ("**Abandoned Patent**") in any of the Patent Jurisdiction ("**Abandoned Jurisdiction**"). The notice shall identify the Abandoned Patent, the Abandoned Jurisdiction and the date the termination is to take effect (which shall not be less than 90 days from the date of the service of the notice). The service of such notice on University shall constitute an irrevocable abandonment by Licensee of its licence hereunder in the Abandoned Patent, in the Abandoned Jurisdiction on the effective date stated in the said notice ("**Date of Abandonment**") and the Abandoned Jurisdiction shall be excluded from the definition of "Territory" in Clause 1.21 and the licence granted in Clause 2, in each case, solely with respect to the Abandoned Patent. Upon issuing the notice, and without prejudice to the Licensee's obligations for the Abandoned Patent that have accrued up to the Date of Abandonment, Licensee shall have no further obligation, rights or interests with respect to the Abandoned Patent as from the Date of Abandonment, and University shall have the option to continue or not to continue prosecution, defence from invalidation attacks or maintenance of the Abandoned Patent at its own expense. University shall use all reasonable efforts to prepare or amend any patent applications to include claims reasonably requested by Licensee to protect the Licensed Product(s) contemplated or procedures to be practiced under this Agreement.

8.6 University shall give one hundred and twenty (120) days' notice to Licensee of any desire to cease prosecution or maintenance of a particular Proprietary IPR or Prospective Patent and, in such case, shall permit Licensee, at its sole discretion, to continue prosecution or maintenance at Licensee's own expense. If Licensee elects to continue prosecution or maintenance, University shall execute such documents and perform such acts, at Licensee's expense, as may be reasonably necessary to effect an assignment of such Proprietary IPR or Prospective Patent to Licensee. Any such assignment shall be completed in a timely manner to allow Licensee to continue such prosecution or maintenance. Any patents or patent applications so assigned shall not be considered Proprietary IPR or Prospective Patent for all purposes under this Agreement.

9 Patent Infringement

9.1 If either Party learns of the infringement of a Prospective Patent, in any jurisdiction within the Territory, it shall so inform the other Party in writing, including any evidence of such infringement. University may not notify a third party of the infringement of a Prospective Patent, save for its legal advisers, without first obtaining written consent of Licensee, which consent shall not be unreasonably denied or delayed. Both Parties shall use their reasonable commercial efforts in cooperation with each other to terminate such infringement.

9.2 Licensee shall have the sole right, but not the obligation, to institute, prosecute and control any action, suit or proceeding to enforce the Prospective Patent with respect to infringement of the Prospective Patent and to defend any declaratory judgment with respect thereto, in each case within the Territory ("Action"). University hereby agrees to assist and cooperate with Licensee, at Licensee's expense (including payment for University's expert's time, and other expenses so long as such expenses are properly documented), to enable Licensee to prosecute and maintain such Action. University's agreement to assist Licensee includes, at Licensee's reasonable request and when it is required by law, government regulation or court order, University's agreement to join or to procure its Affiliates to join as a nominal party to achieve sufficient legal standing for Licensee to prosecute and maintain such Action provided that, if University participates in the Action only as a nominal party, University shall have no responsibility (other than to

join as a nominal party) nor be liable for any costs or expenses in relation to or arising from such Action. For clarity, such liabilities for costs or expenses shall be the responsibility of Licensee. If Licensee invites University or its Affiliates to take a more active role (other than as a nominal party) in an Action as a co-party, University shall have its sole discretion to decide joining or not and on terms to be agreed with Licensee on a case by case basis. Licensee shall have the right to settle any Action or consent to an adverse judgment thereto, in its sole discretion, except that Licensee may not settle such action by agreeing to the invalidation of a Prospective Patent or any claim therein without University's prior written consent. Any recovery obtained as a result of an Action, whether by judgment, award, decree or settlement, shall first be applied to reimbursement of Licensee's expenses in bringing such suit or proceeding (including any attorneys, expert and court fees), and the balance shall be considered to be Net Sales Value, and subject to the royalty payments at [***]% as set forth in Clause 5, and the remaining balance shall be recovered by Licensee as damages.

9.3 Subject to Clause 9.2, if University commences or defends any suit or proceedings on its own account, University shall do so at its own expense. University shall have the right to settle any such action or consent to an adverse judgment thereto, in its sole discretion, except that University may not settle such action that may impair, damage or otherwise adversely affect the licence granted to Licensee under Clause 2.1, Licensee's use of such licence, any Licensed Product, or any of Licensee's rights/obligations hereunder, without Licensee's prior written consent, which consent may not be unreasonably withheld or delayed. Any recovery obtained as a result of such action, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance shall be distributed between University and Licensee at a ratio of 65:35 in all cases which do not result in a sub-licence to a third party. If a suit or proceedings result in a sublicence to a third party, then any recovery, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance to be paid to Licensee, provided that such balance shall be shared between University and Licensee according to the provisions in Clause 5.3 herein.

10 Notices and Payments

10.1 Any notices or communication given under this Agreement shall be in English, in writing and delivered by registered post, courier with package tracking capabilities, or by hand, to the Party at its postal address set out below or to such other address as may be notified in writing from time to time between the Parties. A notice or communication to University must specify the Agreement Number TC1510005 for identification. Any notices or communication given under this Agreement shall be deemed to be given at the time and date of receipted delivery to the relevant address.

To University: The Chinese University of Hong Kong
Room 301, Pi Ch'iu Building
Shatin, New Territories
Hong Kong SAR
Email:
Attn: Director, Office of Research and Knowledge Transfer Services

with a copy to: The Chinese University of Hong Kong
Shatin
New Territories

Hong Kong SAR
Attn: Professor Yuk Ming Dennis Lo
Department of Chemical Pathology

To Licensee: Cirina Limited
21st Floor, Edinburgh Tower
The Landmark, 15 Queen's Road,
Central, Hong Kong SAR
Attn: Dr. Yuk Ming Dennis Lo, Board Member

10.2 All payments to be paid hereunder shall be made in reference to the Agreement Number TC1510005 for purpose of identification. All payments to University are to be made payable to "The Chinese University of Hong Kong", to be in Hong Kong Dollars and to be sent to the Director of Office of Research and Knowledge Transfer Services at the above address of University or by wire transfer to the following account:

Account Name:	[***]
Account No.:	[***]
Swift Code:	[***]
Name of Bank:	[***]

and shall be paid in full without any deductions, save for such tax as Licensee is legally bound to withhold, which amounts withheld shall be treated as if paid to University. Licensee shall provide reasonable assistance to University, free of charge, to recover any tax so withheld. If any currency conversion shall be required to make payment in a designated currency, such conversion shall be calculated using an exchange rate equal to the average of the applicable exchange rates published by the Wall Street Journal *(Internet Edition)* on the last day of each month for the four months preceding such payment.

10.3 If any payment (save and except for the Licence Issue Fee) due from Licensee under this Agreement is paid late, the Licensee shall be liable to pay interest on the amount of the late payment. The rate of interest referred to in this Clause 10.3 will be the annual rate of 2% above the prime lending rate of the Hong Kong and Shanghai Banking Corporation (as at the due date for payment) and interest shall accrue from the due date for payment until the date of actual receipt of payment.

11 Miscellaneous

11.1 "Clause" means clauses in the main part of this Agreement and "Paragraph" means paragraphs in the Standard Terms and Conditions in Schedule 1.

11.2 Heading to clauses and paragraphs are for convenience only and have no legal effect.

11.3 Words importing the singular include the plural and vice versa, words importing a gender include every gender and references to persons include bodies corporate or incorporate.

11.4 Any schedule to this Agreement is part of it and reference to this Agreement includes reference thereto. In the event that there is any inconsistency between the Standard Terms and Conditions and the remainder of this Agreement, the latter shall prevail.

11.5 Each Party agrees to maintain in confidence the other Party's Information and not use such Information for any purpose, or disclose such Information to any third party, other than as expressly provided hereunder. The terms of this Agreement shall be deemed Information of both Parties under this Agreement and there shall be no public disclosure except with prior mutual agreement, unless as provided for in this Clause. In the event that a Party is required to publicly disclose the terms of this Agreement by any law, applicable securities exchange, supervisory, regulatory or governmental body (including, but not limited to, China Securities Regulatory Commission, The Stock Exchange of Hong Kong Limited and the Securities and Futures Commission of Hong Kong) to which any Party is subject to, the Party may disclose such term as reasonably necessary for the compliance of such court order, rule or regulation provided that the Party shall, where legally permissible, give prior written notice to the other Party and redact as much confidential information as is permitted under such rules and shall agree on all such redactions with the other Party prior to disclosure, except where such agreement may be precluded by advice of legal counsel of a Party. Licensee may disclose the terms of this Agreement to a Sub-Licensee or potential Sub-Licensee, so long as such disclosure is made under a confidentiality agreement. Each Party may disclose and use Information of the other Party only if and to the extent such disclosure and use is reasonably necessary in the following instances:

11.5.1 filing or prosecuting Proprietary IPR and Prospective Patent as permitted by this Agreement;

11.5.2 prosecuting or defending litigation as permitted by this Agreement;

11.5.3 disclosure to third parties in connection with due diligence or similar investigations by such third parties, and disclosure to actual and potential third party investors or partners, collaborators, joint venturers, provided, in each case, that any such third party agrees to be bound by reasonable obligations of confidentiality and non-use;

11.5.4 in connection with legal proceedings relating to this Agreement;

11.5.5 in connection with the exercise of its rights under this Agreement; and

11.5.6 to employees, agents, officers, directors, auditors, advisers, partners, consultants, permitted sub-licensees, affiliates, sub-contractors requiring confidential information for the purposes of performance of this Agreement on a need to know basis.

IN WITNESS WHEREOF this Agreement has been entered into on the day and year first above written.

Signed by		)	
Name:	Prof. Walter K K HO	)	
Title:	Director, Office of Research and Knowledge Transfer	)	
Services		)	
for and on behalf of		)	/s/Walter K K Ho
THE CHINESE UNIVERSITY OF HONG KONG		)	
In the presence of: Leung Kit Man		)	/s/Leung Kit Man

Signed by		)	
Name:	Dr. Yuk Ming Dennis LO	)	
Title:	Board Member	)	
for and on behalf of		)	/s/Yuk Ming Dennis Lo
CIRINA LIMITED		)	
In the presence of: Rossa W. K. Chin		)	/s/Ross W. K. Chin

SCHEDULE 1

STANDARD TERMS AND CONDITIONS (the “T&C’s)

1. Ownership of Intellectual Property Rights

1.1 All rights, including Intellectual Property Rights, in the Invention not expressly granted to Licensee in this Agreement shall remain vested in University.

1.2 Licensee shall, at the request of University, execute any document necessary to effect University’s title where applicable, to Intellectual Property Rights in the Invention.

1.3 In the event that Licensee wishes to pursue intellectual property protection, including but not limited to patent application, for any Licensed Product, Licensee agrees to acknowledge, preserve and protect University’s pre-existing Intellectual Property Rights, where applicable, in such Licensed Product.

2. Obligations of Licensee

2.1 Licensee is responsible for the quality and safety of its products.

2.2 Licensee shall use all reasonable efforts and diligence to exploit the Invention and to proceed with the development, manufacture and sale of Licensed Product and to use commercially reasonable efforts to develop markets for the Licensed Product.

2.3 Licensee will represent the Licensed Product fairly in comparison with competitive products from other suppliers.

2.4 Licensee shall not, on behalf of University, make any representations or give any warranties or guarantees in respect of the Proprietary IPR not expressly authorised in writing by University, provided that such authorization shall not be unreasonably delayed or withheld by University.

2.5 Licensee shall not market the Licensed Product under the name of University, and not in any way create any impression that University is the seller of the Licensed Product.

2.6 Licensee shall take all such steps as are reasonably necessary to protect Intellectual Property Rights in the Invention.

2.7 Licensee shall promptly inform University upon becoming aware of any illegal or unauthorised use of the Invention or any infringement of the Prospective Patent or Proprietary IPR and Intellectual Property Rights therein.

2.8 Licensee shall comply with all laws, regulations and governmental obligations that may from time to time be applicable to the making, use or sale of the Licensed Product in each part of the Territory.

2.9 As between Licensee and University and without limiting any responsibility of an Affiliate or Sub-Licensee, Licensee shall be solely responsible for any claims arising or alleged to arise from loss or injury to persons or property caused or suffered in the course of or as a consequence of the use of the Invention by Licensee, Affiliates and Sub-Licensees or the supply and sale of the Licensed Product by Licensee, Affiliates and Sub-Licensees except where such loss or injury are caused by the gross negligence or wilful misconduct of University.

2.10 Except as expressly set forth under this Agreement, Licensee shall use its best endeavours to keep the Invention confidential and not to reveal to any third party any confidential information of University regarding the Invention until after a non-disclosure agreement has been signed, provided that no such obligation shall apply to any information that has been publicly disclosed through no breach of this Agreement by Licensee, including by publication of the Inventions by the applicable governmental agency, was in the possession of Licensee prior to disclosure by University, is obtained by Licensee from a third party, or is independently developed by Licensee.

2.11 To the extent prohibited by applicable law, Licensee shall not carry out any illegal, deceptive, or unethical practices, whether or not they are to the disparagement of the Invention, Licensed Product or University, or, subject to the foregoing in this Section 2.11, any other practices which may be detrimental to the Invention, Licensed Product, University or to the public interest.

3. Restriction On Use of Name

No right or licences are granted by University to the Licensee expressly or by implication to use the name or any trademark, service mark, trade name or symbol of The Chinese University of Hong Kong or any of its employees in any public relations activities or other activities or in connection with any Licensed Product manufactured, used, or sold by the Licensee, or as part of its corporate name or firm or trade name or for any other purpose without University's prior written consent. No right or licences are granted by Licensee to University expressly or by implication to use the name or any trademark, service mark, trade name or symbol of Licensee or any of its employees in any public relations activities or other activities or in connection with any Licensed Product or as part of its corporate name or firm or trade name or for any other purpose without Licensee's prior written consent.

4. Exclusion of Warranties

4.1 Except as expressly set forth under this Agreement, nothing in this Agreement shall be construed as a warranty or representation that anything made, used, sold, or otherwise disposed of under any licence granted in this Agreement is or will be free from infringement of any patent, copyright, trade mark or any other intellectual property right of any third party.

4.2 Except as expressly set forth in this Agreement, neither party makes any representations and extends no warranties of any kind, either express or implied. In particular, but without limitation, there are no express or implied warranties of merchantability or fitness for a particular purpose, or the operation of the Invention under the Prospective Patent will be uninterrupted or error-free or any defects in the Invention will be corrected.

4.3 University does not assume any responsibility for any exploitation, use or any product produced, developed and manufactured in accordance with the Invention or for the sale or use of the product processed, developed and manufactured by Licensee or its Sub Licensees nor shall University be deemed to make or have made any warranties of any nature whatsoever with respect to the Invention or any product processed, developed and manufactured under this Agreement.

5. Indemnity

5.1 Licensee shall defend, indemnify and hold harmless University (including its officers, directors, employees) from any and all claims, demands, actions, suits, damages, penalties, liabilities, judgements, cost or expenses (including legal fees) assessed

against or incurred by University as a result of any claim or threatened claim made by any third party against University relating to the use of or other exploitation by Licensee in connection with the manufacture, use, provision or sale of or any other dealing in the Invention or Licensed Product by Licensee, its Affiliates and its Sub-Licensee, including breach of sub-licence by a Defaulting Sub-Licensee as provided for in Clause 4.6 even if the relevant sub-licence is terminated by Licensee.

5.2 To be eligible to be indemnified hereunder, the indemnified Party shall provide the indemnifying Party with prompt notice of the third party claim giving rise to the indemnification obligation pursuant to this Paragraph 5 and the exclusive ability to defend (with the reasonable cooperation of the indemnified Party) or settle any such claim. The indemnifying Party shall have no obligations with respect to any losses resulting from the indemnified Party's admission, settlement or other communication without the prior written consent of the indemnifying Party.

6. Limitation of liability

6.1 Except for liabilities arising from a Party's breach of its obligations of confidentiality, neither Party nor any of its Affiliates shall be liable to the other Party for any indirect, punitive or consequential damages or loss of profits, whether based on contract or tort, or arising under applicable law or otherwise. Except for liabilities arising from University of its obligations of confidentiality, University hereby excludes liability to Licensee and its Sub-Licensee for any and all losses or damage of any kind howsoever caused including losses of profits or other consequential or special losses arising from the use of or inability to use the Invention.

6.2 Without prejudice to Paragraph 6.1, University's liability to the Licensee for all losses or damage of any kind howsoever caused shall be limited to the aggregate total amount received by University from Licensee under this Agreement as at the date of such breach.

6.3 No action arising out of this Agreement may be brought by either Party more than one year after the cause of action has accrued and has come to the attention of the aggrieved.

7. Termination

7.1 The licences granted hereunder, shall come into effect on the Commencement Date and, unless terminated earlier in accordance with this Paragraph 7 or relevant provisions of this Agreement, shall continue in force for the Term of Licence as detailed in Clause 3 and this Agreement and the licenses granted hereunder shall terminate automatically by expiry.

7.2 University shall be at liberty in every and any of the following events to terminate this Agreement in totality by written notice:

7.2.1 on failure by Licensee to meet the milestones as detailed in Schedule 3 which continues for at least thirty (30) days after University has given notices of that breach;

7.2.2 on failure by Licensee to make any undisputed payment to be paid hereunder for an aggregated amount not less than HK$ 100,000 (one hundred thousand) which continues for at least thirty (30) days after University has given written notice of that breach;

7.2.3 on any attempt by Licensee to assign or otherwise transfer any of its rights under this Agreement other than in accordance with the terms of this Agreement;

7.2.4 on cessation of Licensee's business relating to the exploitation of the Invention, unless such cessation is due to a permitted assignment or transfer of rights under this Agreement; or

7.2.5 if Licensee goes into liquidation (other than for the purposes of amalgamation or reconstruction) or if a receiver is appointed of its assets and undertaking or any part of them or any distress execution or other analogous process shall be issued against any property of Licensee, and such execution or process is not dismissed within 90 days.

7.3 Licensee may terminate this Agreement by serving upon University 3 months' notice in writing of its intention to terminate this Agreement.

7.4 Either Party may terminate this Agreement by written notice if the other Party commits a material breach of this Agreement which continues for at least sixty (60) days after the nondefaulting Party has given written notice of that breach and the required remedy.

8. Effect of Termination

8.1 Paragraphs 1, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, and 17 of the T&C's and Clauses 1, 4.4, 10, and 11 of the main part of the Agreement shall remain in force following termination or expiration.

8.2 On termination, the licence granted pursuant to this Agreement and all rights of Licensee under it shall forthwith cease and terminate without prejudice to any right of either Party which may have accrued up to the date of termination or remedy to sue and recover for any sum then due and to the remedy of either Party in respect of any previous breach of any provision contained in the Agreement.

8.3 Within a reasonable period of time after expiration or termination of this Agreement or the licences granted hereunder, each Party undertakes to return to the other Party all Information and all copies thereof and information in any form containing or covering in any way any part of the Information in its possession and/or control or provide evidence of their destruction.

8.4 Within a reasonable period of time after termination of this Agreement or the licences granted hereunder, Licensee shall forthwith cease to use the Invention and Licensed Product and carry on the activities permitted by this Agreement.

8.5 Licensee will pay up all fees, expenses and payments accrued and payable to University up to the date of termination.

9. Governmental Obligations

Upon request by University and at University's expense, Licensee agrees to take all reasonable action necessary on its part as licensee to allow University to satisfy its governmental obligations and other reporting requirements, if any, relating to the Invention and/or this Agreement.

10. Time and Force Majeure

10.1 Subject to any grace or cure periods and to the provisions of Paragraph 10.2 below, time shall be of the essence.

10.2 Neither Party shall be liable to the other for delay in performance of its obligations hereunder or deemed to be in breach of this Agreement due to causes beyond its control, including but not limited to acts of God, disease outbreaks, fires, strikes, acts of war, terrorist acts, or intervention by any governmental authority, and each Party will take steps to minimize any such delay. If such an event occurs, the time set by this Agreement for performance of that obligation by the relevant Party will be extended for the period by which performance is prevented by the event PROVIDED THAT the other Party may terminate this Agreement by notice if such event continues for more than 180 days.

11. Severability

In the event that any provision or part of this Agreement is held to be invalid, illegal or otherwise unenforceable, this Agreement shall be deemed to be amended by the addition or deletion of wording as appropriate to remove the invalid part or provision but otherwise to retain the provision and the other provisions of this Agreement to the maximum extent permissible under applicable law.

12. Waiver

No indulgence given by either Party to the other shall be deemed or construed as a waiver of its rights and remedies hereunder.

13. No Implied Partnership or Agency

Nothing in this Agreement shall constitute or be deemed to constitute a partnership between the Parties and neither Party shall have the authority or power to bind the other Party or to contract in the name of and create a liability against the other Party.

14. Governing Law and Jurisdiction

This Agreement shall be governed by and construed in accordance with the laws of the Hong Kong SAR, excluding conflict-of-law principles that would cause the application of the laws of any other jurisdiction.

15. Arbitration

15.1 The Parties shall attempt to resolve any dispute, controversy or claim (“Dispute”) arising out of or in connection with this Agreement between them amicably. In the event that the Parties

are unable to resolve any Dispute amicably within a period of ninety (90) days from the date of a Party’s notice of such Dispute to the other Parties, such Dispute, including any dispute with respect to the validity or existence of this Agreement or any provision hereof, shall be settled by arbitration in Hong Kong under the Hong Kong International Arbitration Centre (“HKIAC”) Administered Arbitration Rules in force from time to time and as may be amended.

15.2 The number of arbitrators shall be three. Each Party shall be entitled to appoint one arbitrator. The third arbitrator shall be appointed by HKIAC. All arbitration proceedings shall be conducted in the English language.

15.3 The arbitration shall be final and binding upon the Parties.

Notwithstanding the foregoing, the Parties agree that each Party shall have the right to seek interim injunction or other interim or conservatory measures from any court of competent jurisdiction, and this shall not be deemed or construed as incompatible with, or operate as a waiver of, the foregoing agreement to arbitrate.

16. Assignment

Licensee shall not assign, mortgage, charge or otherwise transfer any rights and obligations under this Agreement (and any attempt to do so will be null and void), without the prior written consent of University, except that each Licensee may, without the prior written consent of University, assign or otherwise transfer this Agreement to a successor to all or substantially all of its assets or business that pertain to this Agreement, whether by merger, operation of law, sale, or otherwise, provided that such successor agrees in writing to be bound by the terms and conditions of this Agreement.

17. Entire Agreement

17.1 This Agreement, including its Schedules, constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, representative statements, negotiations and understandings concerning the subject matter of this Agreement and University hereby excludes any implied terms which may be excluded by contract to the maximum extent permissible under applicable law.

17.2 Amendments or changes to this Agreement must be in writing and signed by duly authorized representatives of the Parties.

SCHEDULE 2

DESCRIPTION OF INVENTION

University Ref No. / Disclosure Form Title	Prospective Patent
10/MED/399 Detection of Genetic or Molecular Aberrations Associated with Cancer	US Provisional Patent Application No. 61/418391, US Provisional Patent Application No. 61/529877, Taiwanese Patent Application No. 100144098, PCT Application No. PCT/AU2011/001562, US Patent Application No. 13/308473 (Patent No. 8,741,811), Australian Patent Application No. 2011335891 (Patent No. 2011335891), Israeli Patent Application no. 226272, Singaporean Patent Application No. 2013038773 (Patent No. 190344), Japanese Patent Application No. 2013-541152, Brazilian Patent Application No. BR1120130134216, Mexican Patent Application No. MX/a/2013/006075, New Zealand Patent Application No. 611599 (Patent No. 611599), Canadian Patent Application No. 2817370, South African Patent Application No. 2013/04625, European Patent Application No. 11845367.9, Indian Patent Application No. 5000/CHENP/2013, Korean Patent Application No. 10-2013-7016780, Thai Patent Application No. 1301002874, Malaysian Patent Application No. PI2013001960, Eurasian Patent application no. 201300649, Vietnamese Patent Application No. 1-2013-02015, Chinese Patent Application No. 201180066175.7 (Patent No. ZL201180066175.7), Hong Kong Patent Application No. 14103394.0, Hong Kong Application No. 14103496.7, US Divisional Patent Application No. 14/255415, AU Divisional Patent Application No. 2015205935, Chinese Divisional Patent Application No. 201510615900.1 and Singaporean Divisional Patent Application No. 10201509766Y

SCHEDULE 3

MILESTONES

Milestone 1:

[***]

Milestone 2:

[***]

AMENDMENT NO. 1

TO LICENCE AGREEMENT

This Amendment No. 1 to the Licence Agreement (this "Amendment") effective as of May 29, 2017 (the "Amendment Date"), is entered into between The Chinese University of Hong Kong, a university established by legislation in the Hong Kong Special Administrative Region ("**Hong Kong SAR**") located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined in the Agreement ("**University**"), and Cirina Limited, a limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 21st Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**"). The University and Licensee are referred to in this Amendment as the "**Parties**" and individually as the "**Party**".

WHEREAS, the Parties previously entered into that certain Licence Agreement dated as of April 7, 2016 with Agreement No. TC1510005 (the "Agreement");

WHEREAS, the Parties wish to amend the Agreement in certain respects on the terms and conditions set forth herein.

NOW THEREFORE, capitalized terms not defined in this Amendment shall have the meaning ascribed in the Agreement, and the Parties hereby agree as follows:

1. Clause 1.11. Clause 1.11 of the Agreement is hereby amended and restated in its entirety as follows:

1.11 "**Net Sales Value"** means, with respect to any Licensed Product, the gross sales price of such Licensed Product invoiced by Licensee, its Affiliate and/or its Sub-Licensee to customers who are not Affiliates (or are Affiliates but are the end users of such Licensed Product) less, to the extent actually paid or accrued by Licensee, its Affiliate and/or its Sub Licensee (as applicable), (a) credits, allowances, discounts and rebates to, and chargebacks from the account of, such customers for nonconforming, damaged, out-dated and returned Licensed Product; (b) freight and insurance costs; (c) cash, quantity and trade discounts, rebates and other price reductions for such Licensed Product given to such customers under price reduction programs; (d) sales, use, value-added and other direct taxes incurred on the sale of such Licensed Product to such customers; (e) customs duties, tariffs, surcharges and other governmental charges incurred in exporting or importing such Licensed Product to such customers; (f) sales commissions incurred on the sale of such Licensed Product to such customers; and (g) an allowance for uncollectible or bad debts determined in accordance with generally accepted accounting principles. For avoidance of doubt, any consideration or royalties received from Sub-Licensee(s) are excluded. If a Licensed Product consists of components that are covered by valid claim of a Prospective Patent within the Invention (a **"Covered Component"**) and components that are not covered by a Valid Claim (**"Other Components"**), then Net Sales for such Licensed Products shall be multiplied by the fraction A/(A+B), where A is the value of the Covered Component(s) as reasonably determined by Licensee, and B is the value of the Other Component(s) as reasonably determined by Licensee, and such resulting amount shall be the "Net Sales Value" for purposes of the Royalties and Sub-License Royalties calculations in Clauses 5.1.2 and 5.3.1, respectively, for such Licensed Product.

2. Clause 2.1. Clause 2.1 of the Agreement is hereby amended by adding the following clause immediately after the use of "non-transferable" in the first sentence: "(except as provided in Paragraph 16 of the T&C's)".

3. Clause 4.1.1. Clause 4.1.1 of the Agreement is hereby amended and restated in its entirety as follows:

4.1.1 a sub-license may allow for further sublicensing through multiple tiers.

4. Clause 7. Clause 7 of the Agreement is hereby amended and restated in its entirety as follows:

7. Milestones

Licensee agrees to use commercially reasonable efforts to meet the milestones as detailed in Schedule 3. In the event that Licensee does not use commercially reasonable efforts to meet any of the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

5. Clause 8.2. Clause 8.2 of the Agreement is hereby amended by adding the following sentence immediately after the end of Clause 8.2: “University represents and warrants that (a) it solely owns the patent applications set forth in Schedule 2 and has obtained all rights from the inventors of the inventions claimed in such patent applications, (b) it has the right to grant the licence to the Licensee as granted under the Agreement, and (c) it has not granted any rights under the patent applications set forth in Schedule 2 to a third party except rights in the prenatal field and an internal research licence (with no commercialization rights) to [***], as identified in Clause 2.4.3”.

6. Paragraph 2.10 of T&C’s. Paragraph 2.10 of the T&C’s is hereby amended by adding the following sentence immediately after the end of Paragraph 2.10: “For clarity, Licensee’s obligations to keep the Invention confidential do not apply to the extent Licensee, its Affiliate or Sub-Licensee discloses the Invention or any portion of the Invention for purposes of obtaining regulatory approval for the Licensed Products, securing intellectual property on the Licensed Products or commercializing the Licensed Products”.

7. Paragraph 8.4 of T&C’s. Paragraph 8.4 of the T&C’s is deleted.

8. Miscellaneous. This Amendment shall be effective for all purposes as of the Amendment Date. Except as expressly modified herein, the Agreement shall continue to remain in full force and effect in accordance with its terms. This Amendment may be executed in counterparts, each of which shall be deemed to be an original and together shall be deemed to be one and the same document.

IN WITNESS WHEREOF, this Amendment has been entered into on the Amendment Date.

Signed by	Prof. Walter K. K. HO	)	
Name:	Director, Office of Research and	)	
Title:	Knowledge Transfer Services	)	
	The Chinese University of Hong Kong	)	
for and on behalf of		)	/s/Walter K. K. HO
THE CHINESE UNIVERSITY OF HONG KONG		)	
In the presence of: Leung Kit Man		)	/s/Leung Kit Man

Signed by		)	
Name:	Maneesh Jain	)	
Title:	CEO	)	
		)	
for and on behalf of		)	/s/Maneesh Jain
CIRINA LIMITED		)	
In the presence of: Angela Wu		)	/s/Angela Wu

Certain information (indicated by asterisks) has been omitted from this document because it is both not material and would likely cause competitive harm to the registrant if publicly disclosed.

DATED **7th April 2016**

(1) THE CHINESE UNIVERSITY OF HONG KONG

and

(2) CIRINA LIMITED

LICENCE AGREEMENT

THIS LICENCE AGREEMENT ("Agreement") is dated this 7th day of April 2016

BETWEEN:

(1) **The Chinese University of Hong Kong**, a university established by legislation in the Hong Kong Special Administrative Region ("**Hong Kong SAR**") located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined herein ("**University**"); and

(2) **Cirina Limited**, a limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 21st Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**");

who together in this Agreement are referred to as the "**Parties**" and individually as the "**Party**"

WHEREAS:

(A) The Invention (as defined below) was invented by Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of University and his research team.

(B) University is the owner of the Invention within University Docket Nos. 12/MED/490, 12/MED/477, 12/MED/465, 06/MED/225, 09/MED/328, 12/MED/461, 14/MED/540, 14/MED/581, 14/MED/589, 15/MED/606, 15/MED/608 and the underlying Proprietary IPR (as defined below) therein.

(C) University and Licensee now agree to enter into this definitive agreement with regard to Licensee's exclusive licence to use the Inventions and the Proprietary IPR therein in accordance with the provisions of this Agreement.

IT IS HEREBY AGREED as follows:

1 Definitions

In this Agreement, unless the context clearly otherwise requires, the following words and expressions shall have the following meanings and all defined terms shall apply to their singular and plural forms, as applicable: "Including" means 'including without limitation'. "H/herein", "hereof', "hereunder" or similar expressions refer to this Agreement. "Clause" means the referenced clause in this Agreement.

1.1 "**Affiliate**" means any legal entity of which Licensee owns, directly or indirectly, 10% or more shareholdings.

1.2 "**Commencement Date**" means the date of commencement of the licence as referred to in Clause 3.1.

1.3 "**Effective Date**" means the date first written above of which this Agreement becomes effective.

1.4 "**Expenses**" means all costs and expenses incurred for processing, defending from invalidation attacks or maintaining any of the Prospective Patent (as defined below) in a designated Patent Jurisdiction (as defined below) and includes those costs and expenses referred to in Clause 8 as payable by Licensee.

1.5 "**Information**" means information relating to the Invention and any other technical information of University and any technical or business information of Licensee.

1.6 "**Intellectual Property Rights**" or "**IPR**" means any rights including but not limited to patents, know-how, confidential information, trade secret, industrial design, copyrights, trademarks, service marks, trade names, logos and the goodwill associated therewith and all rights or forms of protection having equivalent or similar effect (whether registered, unregistered or not capable of being registered) which may subsist anywhere in the world.

1.7 "**Invention**" means the invention disclosures and patent applications which were invented by Research Team and owned by University prior to the Commencement Date as listed in Schedule 2 hereto, and all Proprietary IPR and the Prospective Patent.

1.8 "**Licence Issue Fee**" means the consideration to be paid by Licensee to University in accordance with Clause 5.1.1 of this Agreement.

1.9 "**Licensed Field of Use**" means all fields except prenatal (fetal or maternal) diagnostics and/or prenatal (fetal or maternal) prognostics and/or prenatal (fetal or maternal) analysis.

1.10 "**Licensed Product**" means any product, service or process embodying, applying, adopting, using or otherwise utilizing the Invention or any part(s) thereof that is developed or produced by Licensee, its Affiliate and/or its Sub-Licensee, in the Licensed Field of Use, in each case, of which the manufacture, use, practice, sale, offer for sale, or importation, exportation, disposal or exploitation would constitute, but for the licence University grants to Licensee under this Agreement, an infringement of any valid claim of a Prospective Patent within the Invention in a country in which such activity is conducted or in which such product is sold.

1.11 "**Net Sales Value**" means the aggregate consideration, including royalties (excluding up-front payments, milestone payments, refunds, credits, grant or research funding or equity investment) received from third party customers from the sale of a Licensed Product, less normal trade discounts actually granted, refunds, credits, chargebacks, allowances, insurance, freight, or any relevant tax, duties or similar government levies. For avoidance of doubt, any consideration or royalties received from Sub-licensee(s) are excluded.

1.12 "**Patent Jurisdiction**" means convention country and/or region in which the Prospective Patent has been filed or granted or to be filed or granted and for which the application, prosecution, defence from invalidation attacks and maintenance will be made at the Licensee's expense.

1.13 "**Proprietary IPR**" means any and all underlying Intellectual Property Rights subsisting in the Invention listed in Schedule 2.

1.14 "**Prospective Patent**" means any and all patents and patent applications specified in Schedule 2 or included in the Proprietary IPR, including any patents or patent applications that claim common priority therewith or are grants, divisions, continuations, continuations-in-part, reissues, re-examinations and extensions of all such patents claiming priority therefrom (and any reference to "Prospective Patent" shall include any and all of them) as well as renewals thereof.

1.15 "**Research Team**" means Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of The Chinese University of Hong Kong and his research team.

1.16 "**Samples**" means human patient samples provided to the Licensee.

1.17 "**Standard Terms and Conditions**" or "**T&C's**" means the terms and conditions set forth in Schedule 1 hereto.

1.18 "**Sub-License Income**" means all one-time payments, net of any relevant tax, duties or similar government levies, which shall be non-recurring in nature as actually received by Licensee from Sub-Licensee(s) under any sub-licence(s) granted by Licensee to Sub-Licensee(s), including without limitation any up-front payments and milestone payments to be made by Sub-Licensee(s) to Licensee under any such sub-licence(s), in each case to the extent such amounts are received in consideration of the grant of a sublicense to the Invention, but excluding any amounts received by Licensee that are (a) Sub-License Royalties payable under Clause 5.3.1, (b) based on sales of Licensed Products, (c) loans, (d) paid for equity or securities (or rights to acquire equity or securities) to the extent not in excess of fair market value, (e) paid for supply of products or materials provided at cost or in kind exchange, and (f) reimbursements of costs and expenses incurred by Licensee, including for patent-related expenses or costs incurred in performing research, development and/or services thereunder.

1.19 "**Sub-Licensee**" means a sub-licensee, other than an Affiliate, who has a valid and subsisting licence granted to it by Licensee for the exploitation of the Licensed Product. For the avoidance of doubt, Sub-Licensee shall not be an Affiliate of Licensee.

1.20 "**Term**" means the term of licence as defined in Clause 3.1.

1.21 "**Territory**" means worldwide.

2 Grant of Licence

2.1 Subject to Clause 2.4 below, University hereby grants to Licensee, for the Term and subject to the provisions of this Agreement, an exclusive and non-transferable licence for the Invention, with the right to sublicense, subject to Clause 4, to apply, use and exploit the use of the Invention and to make, authorize the making of, process, supply, sell, offer to sell, lease, otherwise commercially dispose of, import, have imported, export, or otherwise exploit in any manner the products and services in the Licensed Field of Use within the Territory. For avoidance of doubt, the Licensee shall be entitled to obtain Samples worldwide, including from the Territory. Licensee shall solely be responsible for the safety and quality of the Licensed Product in accordance with the applicable laws, rules and regulations.

2.2 Ail improvements, modifications or alterations to the Licensed Product made or developed during the Term by University in the Licensed Field of Use, including any related patents and scientific or technical information, know-how or trade secrets, shall be, automatically, deemed subject to this Agreement and shall be included within the definition of Proprietary IPR. University shall, from time to time, promptly disclose to Licensee all such improvements, modifications or alterations.

2.3 This grant of licence under Clause 2.1 can be extended to any Licensee's Affiliate so long as (i) such Affiliate remains as an Affiliate of Licensee as defined in Clause 1.1; and (ii) Licensee notifies University forthwith of any termination and potential termination of such relationship. Licensee shall remain fully responsible for any act done and omission on the part of Affiliate arising from or in connection with this Agreement. Licensee shall be responsible for any breach by Affiliate of the Agreement as if the breach had been that of Licensee under the Agreement. Licensee shall indemnify University and keep University harmless from and against any loss, damage, costs, expenses, demands and claims incurred or suffered by University in accordance with Paragraph 5 of the T&C's.

2.4 Licensee and University both acknowledge and agree that the grant of exclusive right to Licensee under this Agreement shall be subject to the followings:

2.4.1 University's academic rights to use the Invention, the Prospective Patent and related technology in the Territory solely for its own internal (non-commercial) research and educational purposes at all times without accounting to Licensee;

2.4.2 Governmental contractual obligations of University (if any) to the extent any government funding was used in support of the Invention and Prospective Patent;

2.4.3 The rights granted by University to [***] under the Sponsored Research Agreement between University and [***] dated 6 March 2008 to use University Docket No. 12/MED/465, as identified in Schedule 2, solely for internal research purposes in the field of cancer detection, cancer prognostication or other analysis for the screening and management of cancer without accounting to Licensee.

2.5 University shall promptly, if requested by Licensee, execute and file applications (in the prescribed form) to register or provide notice to the relevant patents administrators of the transaction contemplated by this Agreement in accordance with relevant laws or regulations, provided that the Licensee:

2.5.1 shall, together with each request made to University, provide to University a duly executed irrevocable power of attorney in favour of University pursuant to relevant laws or regulations, to enable University to remove such registration or notice to the relevant patents administration promptly upon the expiration or early termination of the licence granted in this Agreement or any part of it, or upon the abandonment by Licensee of any Prospective Patent under Clause 8.5; and

2.5.2 shall bear all costs and expenses in connection with the requested registration or notice, as well as the removal of such registration or notice, including but not limited to University's expenses in consulting its own professional advisers about Licensee's request and attending to the filing and removal of the registration or notice.

3 Term of Licence

3.1 This Agreement shall become effective on the Effective Date. The licence granted under Clause 2.1 shall be effective and commence from the date of University's receipt of full payment of the Licence Issue Fee under Clause 5.1.1 ("**Commencement Date**"). This Agreement and the licence shall expire concurrently with the last-to-expire Prospective Patent or on the 20th anniversary of the Commencement Date, whichever is the later, unless terminated earlier under the terms of this Agreement (the "**Term**").

3.2 In the event that Licensee fails to make full payment of the Licence Issue Fee within the prescribed period under Clause 5.1.1, this Agreement shall be automatically terminated on the expiry of the prescribed period under Clause 5.1.1. University shall not be required to refund any part of the Licence Issue Fee paid by Licensee prior to such termination and Licensee shall not be required to make further payment of the Licence Issue Fee.

4 Sub-Licensee

4.1 For the Licence granted in Clause 2.1, Licensee shall be entitled to grant and authorize sub-licences of its rights thereunder to any person or entity subject to the terms of this Agreement. However, Licensee shall ensure that each sub-licence shall include obligations on the Sub-Licensee at least as restrictive as the obligations imposed on Licensee under this Agreement, excluding any economic term, which may be freely negotiated between the Licensee and Sub-Licensee, and that:

4.1.1 The terms and conditions of any sub-licence shall prohibit further sub-licensing.

4.2 The sub-license granted to Sub-Licensee shall be terminated by Licensee if Sublicensee directly or indirectly, during the term of the sub-licence or thereafter challenges the ownership and/or any rights of University in the Invention, including any Proprietary IPR in respect of the Invention, the Prospective Patent, and the validity thereof.

4.3 Within thirty (30) days of the grant of any sub-licence, the Licensee shall provide to University a true copy of the executed sub-licence agreement, provided that Licensee may redact such agreement to exclude the financial terms thereof and may provide only those provisions that are reasonably related to the Licensee's obligations to University pursuant to this Agreement.

4.4 All sub-licences granted to a Sub-licensee shall terminate automatically on the expiration or early termination of this Agreement for any reason; provided, however that sublicenses granted to a Sub-licensee shall survive if the relevant Sub-licensee agrees in writing to be bound by the terms of this Agreement as such terms apply to such Sub-licensee (in which event such Sub-licensee shall be deemed a direct licensee of University); provided that such Sub-licensee shall only be responsible for any payments that become due as a result solely of such Sub-licensee's activities after the effective date of any such termination.

4.5 The Licensee remains fully liable to pay to University all Royalties due from the Sub-Licensee, without prejudice to the right of University to seek indemnity from Licensee in accordance with Paragraph 5 of the T&C's.

4.6 In the event that a Sub-Licensee commits a material breach of any of its other obligations under the sub-licence agreement (the "**Defaulting Sub-Licensee**"), Licensee shall use commercially reasonable efforts to enforce the terms of the relevant sub-licence agreement against the Defaulting Sub-Licensee. If the Defaulting Sub-Licensee's material breach continues for thirty (30) days after University's written notice to Licensee, and if Licensee does not within thirty (30) days after University's written notice to Licensee (or such longer period as University in its sole discretion may grant taking into consideration the nature and seriousness of the Defaulting Sub-Licensee's material breach on a case by case basis), provide evidence to satisfy University that Licensee has taken legally reasonable action under the circumstances to remedy the Defaulting Sub-Licensee's breach (possibly including, without limitation, commencement of legal proceedings by Licensee against the Defaulting Sub-Licensee to enforce the terms of the sub-licence agreement, or the provision of legal advice, obtained at Licensee's expense from counsel of its choosing, and reasonably acceptable to University, indicating that Licensee has taken legally reasonable action to

deal with the Defaulting Sub-Licensee's breach) then unless expressly agreed to in writing by University and only if such material breach by such Sub-Licensee has a material adverse effect on University, the sub-licence granted to Sub-Licensee shall be terminated by Licensee. In any event, Licensee shall indemnify University against all third party claims, demands, actions, suits, damages, penalties, liabilities, judgments, costs (including legal costs and attorney charges) and expenses assessed against or incurred by University as a result of the breach by the Defaulting Sub-Licensee, even if the relevant sub-licence is terminated by Licensee, in accordance with Paragraph 5 of the T&C's.

5 Payments

5.1 In consideration of the granting of Licence by University under Clause 2.1, Licensee shall pay to University:

5.1.1 An upfront, non-refundable and non-recoupable licence issue fee of US Dollars [***] (the "**Licence Issue Fee**"), payable within one hundred and eighty (180) days from the Effective Date of this Agreement. However, if the Licence Issue Fee is not paid in its entirety within the aforesaid period, Licensee is deemed to have reverted the licence back to University and is no longer required to pay University any outstanding payment under this Agreement; and

5.1.2 Subject to Clause 5.5, the royalty at [***] percent of Net Sales Value, in respect of each application, use, process, supply and/or sale of Licensed Product by Licensee and/or its Affiliate during the Term (the "**Royalties**"), other than any Sub-license Income and Sub-license Royalties; provided that if, in any calendar quarter(s), Licensee is obligated to pay University royalties on sales of products (including Licensed Product) under any other agreement, then no Royalties shall be due on sales of Licensed Product in such calendar quarter(s).

5.2 For the avoidance of doubt,

5.2.1 the Royalties and Minimum Guarantees (as defined in Clause 5.4) shall be payable by the Licensee to University in accordance with the terms of this Agreement throughout the Term in respect of the Net Sales Value received for the production, distribution, sale and/or use of the Licensed Product anywhere in the Territory.

5.2.2 Licensee has to pay the Minimum Guarantees in accordance with Clauses 5.4 and 5.5 herein regardless of the status of any individual Prospective Patent. Licensee's obligation to pay Minimum Guarantees is not abated by the occurrence of any event, including but not limited to the expiry or invalidation of any issued patent or any claim therein, the unsuccessful application of any patent application, or the abandonment of any Prospective Patent by Licensee under Clause 8.5 of this Agreement.

5.2.3 The Royalties, Minimum Guarantees and Sub-License Royalties (as defined below) must be paid in full in accordance with the provisions in Clause 5 of this Agreement. Royalties shall be paid semi-annually, and shall be in arrears ninety (90) days after the last day of June and December in each year in accordance with Clause 6.1.

5.3 In the case of sub-licence, Licensee agrees to pay University a sub-licensing royalty as set forth below (the "**Sub-License Royalties**"):

5.3.1 Licensee shall pay University [***] percent of Net Sales Value received by such Sublicensee(s) for the Licensed Products, net of any relevant tax, duties or similar government levies, excluding any up-front payments and milestone payments to be made by the Sub-Licensee(s) to Licensee under any such sub-licence(s), provided that if, in any calendar quarter(s), Licensee is obliged to pay University Sub-License royalties on sales of products (including Licensed Product) under any other agreement, then no Sub-License Royalty shall be due on sales of Licensed Product in such calendar quarter(s); and

5.3.2 Prior to achievement of Milestone 1 as stated in Schedule 3, Licensee shall pay University [***] percent of Sub-license Income.

5.3.3 After achievement of Milestone 1 as stated in Schedule 3, Licensee shall pay University [***] percent of Sub-license Income.

Notwithstanding the foregoing, the fees under Clauses 5.3.2 and 5.3.3 on Sub-license Income due with respect to any single sublicense agreement or Sub-Licensee shall in no event exceed US$[***].

5.4 Licensee agrees to pay to University fixed sums of minimum annual royalties, subject to Clause 5.5, (the "**Minimum Guarantees**"), irrespective of whether or not Net Sales Value is generated, in advance for each year during the Term commencing on 2nd January 2018 ("**Minimum Guarantee Year**") as follows:

Payment Date	Minimum Guarantee for the year
2nd January 2018	US$[***]
2nd January for each and every succeeding Minimum Guarantee Year	US$[***]

5.5 During each Minimum Guarantee Year, Licensee shall pay University for such year the higher of the applicable (i) Minimum Guarantees, or (ii) actual Royalties and Sub-License Royalties.

5.6 Licensee shall continue to pay Royalties, and Sub-License Royalties in accordance with Clauses 5.1.2 and 5.3 above for as long as Net Sales Value is received by Licensee, Affiliates or Sublicensee(s) (respectively), and Sub-license Income is received by Licensee.

5.7 If a court of competent jurisdiction in a particular territory, by a final decision of a court from which no further appeal or reconsideration can be taken, holds invalid any Prospective Patent or all of the relevant patent claims within a Prospective Patent, Licensee's obligation to pay Royalties corresponding to the Licensed Product(s) which is(are) covered solely by that patent or those claims, will cease as of the date of such decision in that jurisdiction and such territory will be excluded from the Territory as defined in Clause 1.21 insofar as the relevant Prospective Patent is concerned. Licensee, however, shall pay Royalties that accrued before that decision or that are based on all other patents or claims not involved in that decision. For the avoidance of doubt, if for a particular product any claim of a Prospective Patent is valid and covers that product, licensee's obligation to pay Royalties shall not cease. If for a particular product, no claim of any Prospective Patent is valid that covers that product, licensee's obligation to pay Royalties for that product in that jurisdiction shall cease. When Licensee's obligation to pay Royalties in any jurisdiction within the Territory ceases in respect of a Prospective Patent that is finally declared invalid, this Agreement is deemed to have terminated by expiry in respect of that Prospective Patent in that jurisdiction.

6 Commercialization Report and Accounting for and Payment of Royalties and Maintenance of Records

6.1 Licensee shall, within ninety (90) days after the last day of June, and December, send to University a commercialization report (which shall be the Information of Licensee) which comprises:

6.1.1 a report for the preceding six (6) months period, except the first commercialization report as defined in Clause 6.2, to indicate development activities made, milestones achieved, activities performed towards the commercialization of the Invention, and

6.1.2 a statement specifying royalties payable to University, which shall include the quantities of Licensed Product produced, sold and sales price of Licensed Product sold or otherwise disposed of, the number of sub-licences granted to Sub-Licensees that include the right to market and sell Licensed Products and details of fees/royalties received from any Sub-Licensees and a calculation showing the royalties due, and the royalty statement shall be accompanied by a bankers' draft for (i) any amount over and above the Minimum Guarantees paid in advance for that year under Clause 5.4; and (ii) the Sub-License Royalties payable under Clause 5.3. There shall be no cross-collateralization, no accounts shall be offset and no other adjustment shall be made between the Licensed Products or

between territories, areas or countries of the Territory unless provided otherwise in this Agreement.

6.2 The first commercialization report shall cover the period from Commencement Date to 30th June 2016. Each subsequent commercialization report should cover a period of six (6) months as stipulated in Clause 6.1.

6.3 Licensee also agrees to make and will cause its Sub-Licensees to make a written report to University within ninety (90) days after the date of termination or early termination of this Agreement, stating in such report the number, description and Net Sales Value of all Licensed Products produced, sold, or otherwise disposed of, and upon which royalties hereunder are payable but which were not previously reported to University.

6.4 Licensee shall keep and will require its Sub-Licensees to keep during the Term and seven (7) years thereafter, records or accounts sufficient to enable accurate calculations of royalties due to University. University shall be entitled to appoint an independent auditor not employed by the University and reasonably acceptable to Licensee to determine the correctness of any royalty statement or royalties payable or paid hereunder. The cost of inspection by such auditor shall be borne by University unless the auditor's report indicates that Licensee has under-reported its sales of Licensed Product and/or receipt of fees/royalties from Sub-Licensees by more than five (5%) percent in which case Licensee shall bear the full cost of such audit. Such audit may only be conducted once per calendar year.

7 Milestones

Licensee agrees to meet the milestones as detailed in Schedule 3. In the event that Licensee does not meet any of the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

8 Prospective Patent

8.1 Subject to Clause 8.5, Licensee confirms and agrees that from the Commencement Date, it shall assume financial responsibility, as set forth in Clause 8.3, and shall continue to be financially responsible for and control the prosecution, defence from invalidation attacks and maintenance of any and all Prospective Patent within the Territory.

8.2 University has applied for patent applications set forth in Schedule 2.

8.3 Subject to Clause 8.1, Licensee agrees to (a) reimburse the University for all legal and government expenses to be incurred for the prosecution and maintenance of the Prospective Patent within the invention within the Territory after the Commencement Date; and (b) pay for all costs and expenses involved in defending the relevant claims of the Prospective Patent from invalidation actions that may arise during the Term within the Territory. Said payments for undisputed amounts to be made to University within thirty (30) days upon presentation of invoice to Licensee. University shall cooperate with Licensee and join any enforcement action brought by Licensee at Licensee's request.

8.4 University shall provide reasonable assistance to Licensee with respect to the prosecution, maintenance, and defence of the Prospective Patent. For avoidance of doubt, any patent applications and the subsequent grants, renewals, amendments or restorations of any patent or patent application listed in Schedule 2 that do not exist as of the Effective Date shall be treated as part of the Prospective Patent hereunder.

8.5 Licensee may by at least ninety (90) days' advanced written notice terminate its financial responsibility for the expenses for the filing, prosecution, defence from invalidation attacks or maintenance of any of the Prospective Patent ("**Abandoned Patent**") in any of the Patent Jurisdiction ("**Abandoned Jurisdiction**"). The notice shall identify the Abandoned Patent, the Abandoned Jurisdiction and the date the termination is to take effect (which shall not be less than 90 days from the date of the service of the notice). The service of such notice on University shall

constitute an irrevocable abandonment by Licensee of its licence hereunder in the Abandoned Patent, in the Abandoned Jurisdiction on the effective date stated in the said notice ("**Date of Abandonment**") and the Abandoned Jurisdiction shall be excluded from the definition of "Territory" in Clause 1.21 and the licence granted in Clause 2, in each case, solely with respect to the Abandoned Patent. Upon issuing the notice, and without prejudice to the Licensee's obligations for the Abandoned Patent that have accrued up to the Date of Abandonment, Licensee shall have no further obligation, rights or interests with respect to the Abandoned Patent as from the Date of Abandonment, and University shall have the option to continue or not to continue prosecution, defence from invalidation attacks or maintenance of the Abandoned Patent at its own expense. University shall use all reasonable efforts to prepare or amend any patent applications to include claims reasonably requested by Licensee to protect the Licensed Product(s) contemplated or procedures to be practiced under this Agreement.

8.6 University shall give one hundred and twenty (120) days' notice to Licensee of any desire to cease prosecution or maintenance of a particular Proprietary IPR or Prospective Patent and, in such case, shall permit Licensee, at its sole discretion, to continue prosecution or maintenance at Licensee's own expense. If Licensee elects to continue prosecution or maintenance, University shall execute such documents and perform such acts, at Licensee's expense, as may be reasonably necessary to effect an assignment of such Proprietary IPR or Prospective Patent to Licensee. Any such assignment shall be completed in a timely manner to allow Licensee to continue such prosecution or maintenance. Any patents or patent applications so assigned shall not be considered Proprietary IPR or Prospective Patent for all purposes under this Agreement.

9 Patent Infringement

9.1 If either Party learns of the infringement of a Prospective Patent, in any jurisdiction within the Territory, it shall so inform the other Party in writing, including any evidence of such infringement. University may not notify a third party of the infringement of a Prospective Patent, save for its legal advisers, without first obtaining written consent of Licensee, which consent shall not be unreasonably denied or delayed. Both Parties shall use their reasonable commercial efforts in cooperation with each other to terminate such infringement.

9.2 Licensee shall have the sole right, but not the obligation, to institute, prosecute and control any action, suit or proceeding to enforce the Prospective Patent with respect to infringement of the Prospective Patent and to defend any declaratory judgment with respect thereto, in each case within the Territory ("Action"). University hereby agrees to assist and cooperate with Licensee, at Licensee's expense (including payment for University's expert's time, and other expenses so long as such expenses are properly documented), to enable Licensee to prosecute and maintain such Action. University's agreement to assist Licensee includes, at Licensee's reasonable request and when it is required by law, government regulation or court order, University's agreement to join or to procure its Affiliates to join as a nominal party to achieve sufficient legal standing for Licensee to prosecute and maintain such Action provided that, if University participates in the Action only as a nominal party, University shall have no responsibility (other than to join as a nominal party) nor be liable for any costs or expenses in relation to or arising from such Action. For clarity, such liabilities for costs or expenses shall be the responsibility of Licensee. If Licensee invites University or its Affiliates to take a more active role (other than as a nominal party) in an Action as a co-party, University shall have its sole discretion to decide joining or not and on terms to be agreed with Licensee on a case by case basis. Licensee shall have the right to settle any Action or consent to an adverse judgment thereto, in its sole discretion, except that Licensee may not settle such action by agreeing to the invalidation of a Prospective Patent or any claim therein without University's prior written consent. Any recovery obtained as a result of an Action, whether by judgment, award, decree or settlement, shall first be applied to reimbursement of Licensee's expenses in bringing such suit or proceeding (including any attorneys, expert and court fees), and the balance shall be considered to be Net Sales Value, and subject to the royalty payments at [***]% as set forth in Clause 5, and the remaining balance shall be recovered by Licensee as damages.

9.3 Subject to Clause 9.2, if University commences or defends any suit or proceedings on its own account, University shall do so at its own expense. University shall have the right to settle any such action or consent to an adverse judgment thereto, in its sole discretion, except that University may not settle such action that may impair, damage or otherwise adversely affect the licence granted to

Licensee under Clause 2.1, Licensee's use of such licence, any Licensed Product, or any of Licensee's rights/obligations hereunder, without Licensee's prior written consent, which consent may not be unreasonably withheld or delayed. Any recovery obtained as a result of such action, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance shall be distributed between University and Licensee at a ratio of 65:35 in all cases which do not result in a sub-licence to a third party. If a suit or proceedings result in a sub-licence to a third party, then any recovery, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance to be paid to Licensee, provided that such balance shall be shared between University and Licensee according to the provisions in Clause 5.3 herein.

10 Notices and Payments

10.1 Any notices or communication given under this Agreement shall be in English, in writing and delivered by registered post, courier with package tracking capabilities, or by hand, to the Party at its postal address set out below or to such other address as may be notified in writing from time to time between the Parties. A notice or communication to University must specify the Agreement Number TC1510006 for identification. Any notices or communication given under this Agreement shall be deemed to be given at the time and date of receipted delivery to the relevant address.

To University: The Chinese University of Hong Kong
Room 301, Pi Chilu Building
Shatin, New Territories
Hong Kong SAR
Email:
Attn: Director, Office of Research and Knowledge Transfer Services

with a copy to: The Chinese University of Hong Kong
Shatin
New Territories
Hong Kong SAR
Attn: Professor Yuk Ming Dennis Lo
Department of Chemical Pathology

To Licensee: Cirina Limited
21st Floor, Edinburgh Tower
The Landmark, 15 Queen's Road,
Central, Hong Kong SAR
Attn: Dr. Yuk Ming Dennis Lo, Board Member

10.2 All payments to be paid hereunder shall be made in reference to the Agreement Number TC1510006 for purpose of identification. All payments to University are to be made payable to "The Chinese University of Hong Kong", to be in Hong Kong Dollars and to be sent to the Director of Office of Research and Knowledge Transfer Services at the above address of University or by wire transfer to the following account:

Account Name: [***]
Account No.: [***]
Swift Code: [***]
Name of Bank: [***]

and shall be paid in full without any deductions, save for such tax as Licensee is legally bound to withhold, which amounts withheld shall be treated as if paid to University. Licensee shall provide

reasonable assistance to University, free of charge, to recover any tax so withheld. If any currency conversion shall be required to make payment in a designated currency, such conversion shall be calculated using an exchange rate equal to the average of the applicable exchange rates published by the Wall Street Journal (*Internet Edition*) on the last day of each month for the four months preceding such payment.

10.3 If any payment (save and except for the Licence Issue Fee) due from Licensee under this Agreement is paid late, the Licensee shall be liable to pay interest on the amount of the late payment. The rate of interest referred to in this Clause 10.3 will be the annual rate of 2% above the prime lending rate of the Hong Kong and Shanghai Banking Corporation (as at the due date for payment) and interest shall accrue from the due date for payment until the date of actual receipt of payment.

11 Miscellaneous

11.1 "Clause" means clauses in the main part of this Agreement and "Paragraph" means paragraphs in the Standard Terms and Conditions in Schedule 1.

11.2 Heading to clauses and paragraphs are for convenience only and have no legal effect.

11.3 Words importing the singular include the plural and vice versa, words importing a gender include every gender and references to persons include bodies corporate or incorporate.

11.4 Any schedule to this Agreement is part of it and reference to this Agreement includes reference thereto. In the event that there is any inconsistency between the Standard Terms and Conditions and the remainder of this Agreement, the latter shall prevail.

11.5 Each Party agrees to maintain in confidence the other Party's Information and not use such Information for any purpose, or disclose such Information to any third party, other than as expressly provided hereunder. The terms of this Agreement shall be deemed Information of both Parties under this Agreement and there shall be no public disclosure except with prior mutual agreement, unless as provided for in this Clause. In the event that a Party is required to publicly disclose the terms of this Agreement by any law, applicable securities exchange, supervisory, regulatory or governmental body (including, but not limited to, China Securities Regulatory Commission, The Stock Exchange of Hong Kong Limited and the Securities and Futures Commission of Hong Kong) to which any Party is subject to, the Party may disclose such term as reasonably necessary for the compliance of such court order, rule or regulation provided that the Party shall, where legally permissible, give prior written notice to the other Party and redact as much confidential information as is permitted under such rules and shall agree on all such redactions with the other Party prior to disclosure, except where such agreement may be precluded by advice of legal counsel of a Party. Licensee may disclose the terms of this Agreement to a Sub-Licensee or potential Sub-Licensee, so long as such disclosure is made under a confidentiality agreement. Each Party may disclose and use Information of the other Party only if and to the extent such disclosure and use is reasonably necessary in the following instances:

11.5.1 filing or prosecuting Proprietary IPR and Prospective Patent as permitted by this Agreement;

11.5.2 prosecuting or defending litigation as permitted by this Agreement;

11.5.3 disclosure to third parties in connection with due diligence or similar investigations by such third parties, and disclosure to actual and potential third party investors or partners, collaborators, joint venturers, provided, in each case, that any such third party agrees to be bound by reasonable obligations of confidentiality and non-use;

11.5.4 in connection with legal proceedings relating to this Agreement;

11.5.5 in connection with the exercise of its rights under this Agreement; and

11.5.6 to employees, agents, officers, directors, auditors, advisers, partners, consultants, permitted sub-licensees, affiliates, sub-contractors requiring confidential information for the purposes of performance of this Agreement on a need to know basis.

IN WITNESS WHEREOF this Agreement has been entered into on the day and year first above written.

SIGNED by	)	
Name: Prof. Walter K K HO	)	
Title: Director, Office of Research and Knowledge Transfer Services	)	
for and on behalf of	)	/s/Walter K K Ho
THE CHINESE UNIVERSITY OF HONG KONG	)	
in the presence of: Leung Kit Man	)	/s/ Leung Kit Man

SIGNED by	)	
Name: Dr. Yuk Ming Dennis LO	)	
Title: Board Member	)	
for and on behalf of	)	/s/ Yuk Ming Dennis Lo
CIRINA LIMITED	)	
in the presence of: Rossa W.K. Chin	)	/s/ Rossa W.K. Chin

SCHEDULE 1

STANDARD TERMS AND CONDITIONS (the “T&C’s)

1. Ownership of Intellectual Property Rights

1.1 All rights, including Intellectual Property Rights, in the Invention not expressly granted to Licensee in this Agreement shall remain vested in University.

1.2 Licensee shall, at the request of University, execute any document necessary to effect University’s title where applicable, to Intellectual Property Rights in the Invention.

1.3 In the event that Licensee wishes to pursue intellectual property protection, including but not limited to patent application, for any Licensed Product, Licensee agrees to acknowledge, preserve and protect University’s pre-existing Intellectual Property Rights, where applicable, in such Licensed Product.

2. Obligations of Licensee

2.1 Licensee is responsible for the quality and safety of its products.

2.2 Licensee shall use all reasonable efforts and diligence to exploit the Invention and to proceed with the development, manufacture and sale of Licensed Product and to use commercially reasonable efforts to develop markets for the Licensed Product.

2.3 Licensee will represent the Licensed Product fairly in comparison with competitive products from other suppliers.

2.4 Licensee shall not, on behalf of University, make any representations or give any warranties or guarantees in respect of the Proprietary IPR not expressly authorised in writing by University, provided that such authorization shall not be unreasonably delayed or withheld by University.

2.5 Licensee shall not market the Licensed Product under the name of University, and not in any way create any impression that University is the seller of the Licensed Product.

2.6 Licensee shall take all such steps as are reasonably necessary to protect Intellectual Property Rights in the Invention.

2.7 Licensee shall promptly inform University upon becoming aware of any illegal or unauthorised use of the Invention or any infringement of the Prospective Patent or Proprietary IPR and Intellectual Property Rights therein.

2.8 Licensee shall comply with all laws, regulations and governmental obligations that may from time to time be applicable to the making, use or sale of the Licensed Product in each part of the Territory.

2.9 As between Licensee and University and without limiting any responsibility of an Affiliate or Sub-Licensee, Licensee shall be solely responsible for any claims arising or alleged to arise from loss or injury to persons or property caused or suffered in the course of or as a consequence of the use of the Invention by Licensee, Affiliates and Sub-Licensees or the supply and sale of the Licensed Product by Licensee, Affiliates and Sub-Licensees except where such loss or injury are caused by the gross negligence or wilful misconduct of University.

2.10 Except as expressly set forth under this Agreement, Licensee shall use its best endeavours to keep the Invention confidential and not to reveal to any third party any confidential information of University regarding the Invention until after a non-disclosure agreement has been signed, provided that no such obligation shall apply to any information that has been publicly disclosed through no breach of this Agreement by Licensee, including by publication of the Inventions by the applicable governmental agency, was in the possession of Licensee prior to disclosure by University, is obtained by Licensee from a third party, or is independently developed by Licensee.

2.11 To the extent prohibited by applicable law, Licensee shall not carry out any illegal, deceptive, or unethical practices, whether or not they are to the disparagement of the Invention, Licensed

Product or University, or, subject to the foregoing in this Section 2.11, any other practices which may be detrimental to the Invention, Licensed Product, University or to the public interest.

3. Restriction On Use of Name

No right or licences are granted by University to the Licensee expressly or by implication to use the name or any trademark, service mark, trade name or symbol of The Chinese University of Hong Kong or any of its employees in any public relations activities or other activities or in connection with any Licensed Product manufactured, used, or sold by the Licensee, or as part of its corporate name or firm or trade name or for any other purpose without University's prior written consent. No right or licences are granted by Licensee to University expressly or by implication to use the name or any trademark, service mark, trade name or symbol of Licensee or any of its employees in any public relations activities or other activities or in connection with any Licensed Product or as part of its corporate name or firm or trade name or for any other purpose without Licensee's prior written consent.

4. Exclusion of Warranties

4.1 Except as expressly set forth under this Agreement, nothing in this Agreement shall be construed as a warranty or representation that anything made, used, sold, or otherwise disposed of under any licence granted in this Agreement is or will be free from infringement of any patent, copyright, trade mark or any other intellectual property right of any third party.

4.2 Except as expressly set forth in this Agreement, neither party makes any representations and extends no warranties of any kind, either express or implied. In particular, but without limitation, there are no express or implied warranties of merchantability or fitness for a particular purpose, or the operation of the Invention under the Prospective Patent will be uninterrupted or error-free or any defects in the Invention will be corrected.

4.3 University does not assume any responsibility for any exploitation, use or any product produced, developed and manufactured in accordance with the Invention or for the sale or use of the product processed, developed and manufactured by Licensee or its Sub-Licensees nor shall University be deemed to make or have made any warranties of any nature whatsoever with respect to the Invention or any product processed, developed and manufactured under this Agreement.

5. Indemnity

5.1 Licensee shall defend, indemnify and hold harmless University (including its officers, directors, employees) from any and all claims, demands, actions, suits, damages, penalties, liabilities, judgements, cost or expenses (including legal fees) assessed against or incurred by University as a result of any claim or threatened claim made by any third party against University relating to the use of or other exploitation by Licensee in connection with the manufacture, use, provision or sale of or any other dealing in the Invention or Licensed Product by Licensee, its Affiliates and its Sub-Licensee, including breach of sub-licence by a Defaulting Sub-Licensee as provided for in Clause 4.6 even if the relevant sub-licence is terminated by Licensee.

5.2 To be eligible to be indemnified hereunder, the indemnified Party shall provide the indemnifying Party with prompt notice of the third party claim giving rise to the indemnification obligation pursuant to this Paragraph 5 and the exclusive ability to defend (with the reasonable cooperation of the indemnified Party) or settle any such claim. The indemnifying Party shall have no obligations with respect to any losses resulting from the indemnified Party's admission, settlement or other communication without the prior written consent of the indemnifying Party.

6. Limitation of liability

6.1 Except for liabilities arising from a Party's breach of its obligations of confidentiality, neither Party nor any of its Affiliates shall be liable to the other Party for any indirect, punitive or consequential damages or loss of profits, whether based on contract or tort. or arising under applicable law or otherwise. Except for liabilities arising from University of its obligations of confidentiality, University hereby excludes liability to Licensee and its Sub-Licensee for any and all losses or damage of any

kind howsoever caused including losses of profits or other consequential or special losses arising from the use of or inability to use the Invention.

6.2 Without prejudice to Paragraph 6.1, University's liability to the Licensee for all losses or damage of any kind howsoever caused shall be limited to the aggregate total amount received by University from Licensee under this Agreement as at the date of such breach.

6.3 No action arising out of this Agreement may be brought by either Party more than one year after the cause of action has accrued and has come to the attention of the aggrieved.

7 Termination

7.1 The licences granted hereunder, shall come into effect on the Commencement Date and, unless terminated earlier in accordance with this Paragraph 7 or relevant provisions of this Agreement, shall continue in force for the Term of Licence as detailed in Clause 3 and this Agreement and the licenses granted hereunder shall terminate automatically by expiry.

7.2 University shall be at liberty in every and any of the following events to terminate this Agreement in totality by written notice:

7.2.1 on failure by Licensee to meet the milestones as detailed in Schedule 3 which continues for at least thirty (30) days after University has given notices of that breach;

7.2.2 on failure by Licensee to make any undisputed payment to be paid hereunder for an aggregated amount not less than HK$ 100,000 (one hundred thousand) which continues for at least thirty (30) days after University has given written notice of that breach;

7.2.3 on any attempt by Licensee to assign or otherwise transfer any of its rights under this Agreement other than in accordance with the terms of this Agreement;

7.2.4 on cessation of Licensee's business relating to the exploitation of the Invention, unless such cessation is due to a permitted assignment or transfer of rights under this Agreement; or

7.2.5 if Licensee goes into liquidation (other than for the purposes of amalgamation or reconstruction) or if a receiver is appointed of its assets and undertaking or any part of them or any distress execution or other analogous process shall be issued against any property of Licensee, and such execution or process is not dismissed within 90 days.

7.3 Licensee may terminate this Agreement by serving upon University 3 months' notice in writing of its intention to terminate this Agreement.

7.4 Either Party may terminate this Agreement by written notice if the other Party commits a material breach of this Agreement which continues for at least sixty (60) days after the non-defaulting Party has given written notice of that breach and the required remedy.

8. Effect of Termination

8.1 Paragraphs 1, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, and 17 of the T&C's and Clauses 1, 4.4, 10, and 11 of the main part of the Agreement shall remain in force following termination or expiration.

8.2 On termination, the licence granted pursuant to this Agreement and all rights of Licensee under it shall forthwith cease and terminate without prejudice to any right of either Party which may have accrued up to the date of termination or remedy to sue and recover for any sum then due and to the remedy of either Party in respect of any previous breach of any provision contained in the Agreement.

8.3 Within a reasonable period of time after expiration or termination of this Agreement or the licences granted hereunder, each Party undertakes to return to the other Party all Information and all copies thereof and information in any form containing or covering in any way any part of the Information in its possession and/or control or provide evidence of their destruction.

8.4 Within a reasonable period of time after termination of this Agreement or the licences granted hereunder, Licensee shall forthwith cease to use the Invention and Licensed Product and carry on the activities permitted by this Agreement.

8.5 Licensee will pay up all fees, expenses and payments accrued and payable to University up to the date of termination.

9. Governmental Obligations

Upon request by University and at University's expense, Licensee agrees to take all reasonable action necessary on its part as licensee to allow University to satisfy its governmental obligations and other reporting requirements, if any, relating to the Invention and/or this Agreement.

10. Time and Force Majeure

10.1 Subject to any grace or cure periods and to the provisions of Paragraph 10.2 below, time shall be of the essence.

10.2 Neither Party shall be liable to the other for delay in performance of its obligations hereunder or deemed to be in breach of this Agreement due to causes beyond its control, including but not limited to acts of God, disease outbreaks, fires, strikes, acts of war, terrorist acts, or intervention by any governmental authority, and each Party will take steps to minimize any such delay. If such an event occurs, the time set by this Agreement for performance of that obligation by the relevant Party will be extended for the period by which performance is prevented by the event PROVIDED THAT the other Party may terminate this Agreement by notice if such event continues for more than 180 days.

11. Severability

In the event that any provision or part of this Agreement is held to be invalid, illegal or otherwise unenforceable, this Agreement shall be deemed to be amended by the addition or deletion of wording as appropriate to remove the invalid part or provision but otherwise to retain the provision and the other provisions of this Agreement to the maximum extent permissible under applicable law.

12. Waiver

No indulgence given by either Party to the other shall be deemed or construed as a waiver of its rights and remedies hereunder.

13. No Implied Partnership or Agency

Nothing in this Agreement shall constitute or be deemed to constitute a partnership between the Parties and neither Party shall have the authority or power to bind the other Party or to contract in the name of and create a liability against the other Party.

14. Governing Law and Jurisdiction

This Agreement shall be governed by and construed in accordance with the laws of the Hong Kong SAR, excluding conflict-of-law principles that would cause the application of the laws of any other jurisdiction.

15. Arbitration

15.1 The Parties shall attempt to resolve any dispute, controversy or claim ("Dispute") arising out of or in connection with this Agreement between them amicably. In the event that the Parties are unable to resolve any Dispute amicably within a period of ninety (90) days from the date of a Party's notice of such Dispute to the other Parties, such Dispute, including any dispute with respect to the validity or existence of this Agreement or any provision hereof, shall be settled by arbitration in Hong Kong under the Hong Kong International Arbitration Centre ("HKIAC") Administered Arbitration Rules in force from time to time and as may be amended.

15.2 The number of arbitrators shall be three. Each Party shall be entitled to appoint one arbitrator. The third arbitrator shall be appointed by HKIAC. All arbitration proceedings shall be conducted in the English language.

15.3 The arbitration shall be final and binding upon the Parties.

Notwithstanding the foregoing, the Parties agree that each Party shall have the right to seek interim injunction or other interim or conservatory measures from any court of competent jurisdiction, and this shall not be deemed or construed as incompatible with, or operate as a waiver of, the foregoing agreement to arbitrate.

16. Assignment

Licensee shall not assign, mortgage, charge or otherwise transfer any rights and obligations under this Agreement (and any attempt to do so will be null and void), without the prior written consent of University, except that each Licensee may, without the prior written consent of University, assign or otherwise transfer this Agreement to a successor to all or substantially all of its assets or business that pertain to this Agreement, whether by merger, operation of law, sale, or otherwise, provided that such successor agrees in writing to be bound by the terms and conditions of this Agreement.

17 Entire Agreement

17.1 This Agreement, including its Schedules, constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, representative statements, negotiations and understandings concerning the subject matter of this Agreement and University hereby excludes any implied terms which may be excluded by contract to the maximum extent permissible under applicable law.

17.2 Amendments or changes to this Agreement must be in writing and signed by duly authorized representatives of the Parties.

SCHEDULE 2

DESCRIPTION OF INVENTION

University Ref No. / Disclosure Form Title	Prospective Patent
1. 12/MED/490 **Non-invasive Determination of Methylome of Fetus or Tumor from Plasma**	US Provisional Patent Application No. 61/703512, US Patent Application No. 13/842209, US Provisional Application No. 61/830571, PCT Application No. PCT/AU2013/001088, Taiwanese Patent Application No. 102134227, US Continuation-In-Part Patent Application No. 14/495791, Israeli Patent Application No. 237495, Canadian Patent Application No. 2884066, Malaysian Patent Application No. PI 2015000628, Singaporean Patent Application No. 11201501927V, Philippine Patent Application No. 1-2015-500547, South African Patent Application No. 2015/01772, Indonesian Patent Application No. P00201501544, Australian Patent Application No. 2013317708, Thai Patent Application No. 1501001507, Mexican Patent Application No. MX/a/2015/003571, Brazilian Patent Application No. BR 11 2015 006183 4, New Zealand Patent Application No. 706269, Eurasian Patent Application No. 201500327, European Patent Application No. 13838770.9, Korean Patent Application No. 10-2015-7010184, Chinese Patent Application No. 201380058654.3, Hong Kong Patent Application No 15107437.9 and Hong Kong Patent Application No. 15107703.6
2. 12/MED/477 Mutational Analysis of Plasma DNA for Cancer Detection	US Provisional Patent Application No. 61/662878, US Provisional Patent Application No. 61/682725, US Provisional Patent Application No. 61/695795, US Provisional Patent Application No. 61/711172, US Patent Application No. 13/801748, PCT Application No. PCT/IB2013/054898, Taiwanese Patent Application No. 102122036, Israeli Patent Application No. 235967, Canadian Patent Application No. 2876327, Singaporean Patent Application No. 1120148113Q, South African Patent Application No. 2014/09281, Mexican Patent Application No. MX/a/2014/016058, European Patent Application No. 13807105.5, Australian Patent Application No. 2013278994, Korean Patent Application No. 10-2015-7001225, Eurasian Patent Application No. 201500027, Chinese Patent Application No. 201380042981.X, Japanese Application No. 2015-517896, Hong Kong Patent Application No. 15104321.5, and Hong Kong Patent Application No. 15105992.0
3. 12/MED/465 Diagnosing Cancer Using Genomic Sequencing	New Zealand Divisional Patent Application No. 600407 (Patent No. 600407), European Divisional Patent Application No. 12173422.2, Singaporean Divisional Patent Application No 201205410-2, Eurasian Patent Application No. 201201551, Australian Divisional Patent Application No. 2013200581 (Patent No. 2013200581), Hong Kong Patent Application No. 13104697.3, US Divisional Patent Application No. 13/937162 (Patent No. 9,121,069, and Israeli Divisional Patent Application No. 233261
4. 06/MED/225 Diagnostic Method	US Provisional Patent Application No. 60/847499, Chinese Patent Application No. 200710096976.3 (Patent No. ZL200710096976.3), Taiwanese Patent Application No. 096114234 (Patent No. I335354), US Patent Application No. 11/861809, PCT Application No. PCT/GB2007/003674, Hong Kong Patent Application No. 08104936.1 (Patent No. HK1115167), and US Divisional Patent Application No. 14/284724

5. 09/MED/328 Methods for Assessing Liver Pathologies	US Provisional Patent Application No. 61/241709, US Patent Application No. 12/879600 (Patent No. 9051614), PCT Application No. PCT/EP2010/063300, Taiwanese Patent Application No. 099130809, China Patent Application No. 201080049558.9 (Patent No. ZL201080049558.9), European Patent Application No. 100754316.7, Australian Patent Application No. 2010294193 (Patent No. 2010294193), Japanese Patent Application No. 2012-528369, US Divisional Patent Application No. 14/703689, and Japanese Divisional Application No. 2015-208694
6. 12/MED/461 Size-based analysis of fetal DNA fraction in maternal plasma	US Provisional Patent Application No. 61/608623, US Provisional Patent Application No. 61/621451, US Patent Application No. 13/789553, PCT Patent Application No. PCT/182013/00312, Australian Patent Application No. 2013229186, Chinese Patent Application No. 201380013054.5, Canadian Patent Application No. 2865523, European Patent Application No. 13757943.9, European Divisional Patent Application No. 14193706.0, Japanese Patent Application No. 2014-560451, Hong Kong Patent Application No. 15100609.6, Hong Kong Patent Application No. 15102503.9, and Hong Kong Patent Application No. 15106797.5
7. 14/MED/540 Size-based analysis of fetal DNA fraction in maternal plasma	US Provisional Patent Application No. 62/026330, US Provisional Patent Application No. 62/158466, US Provisional Patent Application No. 62/183669, US Patent Application No. 14/803692, PCT Patent Application No. PCT/CN2015/084442, and Taiwanese Patent Application No. 104123505
8. 14/MED/581 Using size and number aberrations in plasma DNA for detecting cancer	US Provisional Patent Application No. 62/102867, US Provisional Patent Application No. 62/111534, US Patent Application No. 14/994053, PCT Application No. PCT/CN2016/070785, and Taiwanese Patent Application No. (to be assigned)
9. 14/MED/589 Applications of plasma mitochondrial DNA analysis	US Provisional Patent Application No. 62/111524, US Patent Application No. 14/993954, PCT Application No. PCT/CN2016/070786, and Taiwanese Patent Application No. (to be assigned)
10. 15/MED/606 Detecting cancer	US Provisional Patent Application No. 62/114471, and US Provisional Patent Application No. 62/271196
11. 15/MED/608 Circulating DNA fragmentation patterns	US Provisional Patent Application No. 62/196250

SCHEDULE 3

MILESTONES

Milestone 1:

[***]

Milestone 2:

[***]

AMENDMENT NO. 1

TO LICENCE AGREEMENT

This Amendment No. 1 to the Licence Agreement (this "**Amendment**") effective as of May 29, 2017 (the "Amendment Date"), is entered into between The Chinese University of Hong Kong, a university established by legislation in the Hong Kong Special Administrative Region ("**Hong Kong SAR**") located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined in the Agreement ("**University**"), and Cirina Limited, a limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 21st Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**"). The University and Licensee are referred to in this Amendment as the "**Parties**" and individually as the "**Party**".

WHEREAS, the Parties previously entered into that certain Licence Agreement dated as of April 7, 2016 with Agreement No. TC1510006 (the "Agreement");

WHEREAS, the Parties wish to amend the Agreement in certain respects on the terms and conditions set forth herein.

NOW THEREFORE, capitalized terms not defined in this Amendment shall have the meaning ascribed in the Agreement, and the Parties hereby agree as follows:

1. Clause 1.11. Clause 1.11 of the Agreement is hereby amended and restated in its entirety as follows:

1.11 **"Net Sales Value"** means, with respect to any Licensed Product, the gross sales price of such Licensed Product invoiced by Licensee, its Affiliate and/or its Sub-Licensee to customers who are not Affiliates (or are Affiliates but are the end users of such Licensed Product) less, to the extent actually paid or accrued by Licensee, its Affiliate and/or its Sub Licensee (as applicable), (a) credits, allowances, discounts and rebates to, and chargebacks from the account of, such customers for nonconforming, damaged, out-dated and returned Licensed Product; (b) freight and insurance costs; (c) cash, quantity and trade discounts, rebates and other price reductions for such Licensed Product given to such customers under price reduction programs; (d) sales, use, value-added and other direct taxes incurred on the sale of such Licensed Product to such customers; (e) customs duties, tariffs, surcharges and other governmental charges incurred in exporting or importing such Licensed Product to such customers; (f) sales commissions incurred on the sale of such Licensed Product to such customers; and (g) an allowance for uncollectible or bad debts determined in accordance with generally accepted accounting principles. For avoidance of doubt, any consideration or royalties received from Sub-Licensee(s) are excluded. If a Licensed Product consists of components that are covered by valid claim of a Prospective Patent within the Invention (a "**Covered Component**") and components that are not covered by a Valid Claim ("**Other Components**"), then Net Sales for such Licensed Products shall be multiplied by the fraction A/(A+B), where A is the value of the Covered Component(s) as reasonably determined by Licensee, and B is the value of the Other Component(s) as reasonably determined by Licensee, and such resulting amount shall be the "Net Sales Value" for purposes of the Royalties and Sub-License Royalties calculations in Clauses 5.1.2 and 5.3.1, respectively, for such Licensed Product.

2. Clause 2.1. Clause 2.1 of the Agreement is hereby amended by adding the following clause immediately after the use of "non-transferable" in the first sentence: "(except as provided in Paragraph 16 of the T&C's)".

3. Clause 4.1.1. Clause 4.1.1 of the Agreement is hereby amended and restated in its entirety as follows:

4.1.1 a sub-license may allow for further sublicensing through multiple tiers.

4. Clause 7. Clause 7 of the Agreement is hereby amended and restated in its entirety as follows:

7 Milestones

Licensee agrees to use commercially reasonable efforts to meet the milestones as detailed in Schedule 3. In the event that Licensee does not use commercially reasonable efforts to meet any of

the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

5. Clause 8.2. Clause 8.2 of the Agreement is hereby amended by adding the following sentence immediately after the end of Clause 8.2: "University represents and warrants that (a) it solely owns the patent applications set forth in Schedule 2 and has obtained all rights from the inventors of the inventions claimed in such patent applications, (b) it has the right to grant the licence to the Licensee as granted under the Agreement, and (c) it has not granted any rights under the patent applications set forth in Schedule 2 to a third party except rights in the prenatal field and an internal research licence (with no commercialization rights) to [***], as identified in Clause 2.4.3".

6. Paragraph 2.10 of T&C's. Paragraph 2.10 of the T&C's is hereby amended by adding the following sentence immediately after the end of Paragraph 2.10: "For clarity, Licensee's obligations to keep the Invention confidential do not apply to the extent Licensee, its Affiliate or Sub-Licensee discloses the Invention or any portion of the Invention for purposes of obtaining regulatory approval for the Licensed Products, securing intellectual property on the Licensed Products or commercializing the Licensed Products".

7. Paragraph 8.4 of T&C's. Paragraph 8.4 of the T&C's is deleted.

8. Miscellaneous. This Amendment shall be effective for all purposes as of the Amendment Date. Except as expressly modified herein, the Agreement shall continue to remain in full force and effect in accordance with its term s. This Amendment may be executed in counterparts, each of which shall be deemed to be an original and together shall be deemed to be one and the same document.

IN WITNESS WHEREOF, this Amendment has been entered into on the Amendment Date.

Signed by	Prof. Walter K K HO	)	
Name:	Director, Office of Research and	)	
Title:	Knowledge Transfer Services	)	
	The Chinese University of Hong Kong	)	
for and on behalf of		)	/s/Walter K K HO
THE CHINESE UNIVERSITY OF HONG KONG		)	
In the presence of:	Leung Kit Man	)	/s/Leung Kit Man

Signed by		)	
Name:	Maneesh Jain	)	
Title:	CEO	)	
		)	
for and on behalf of		)	/s/Maneesh Jain
CIRINA LIMITED		)	
In the presence of:	Angela Wu	)	/s/Angela Wu

Exhibit 10.19

Certain information (indicated by asterisks) has been omitted from this document because it is both not material and would likely cause competitive harm to the registrant if publicly disclosed.

DATED 29 May 2017

(1) THE CHINESE UNIVERSITY OF HONG KONG

and

(2) CIRINA LIMITED

LICENCE AGREEMENT

THIS LICENCE AGREEMENT ("Agreement") is dated this 29th day of *May* 2017

BETWEEN:

(1) **The Chinese University of Hong Kong,** a university established by legislation in the Hong Kong Special Administrative Region ("**Hong Kong SAR**") located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined herein ("**University**")**;** and

(2) **Cirina Limited,** a limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 21st Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**");

who together in this Agreement are referred to as the **"Parties"** and individually as the **"Party".**

WHEREAS:

(A) University and Licensee have signed a Collaborative Research Agreement (No.TC1611052) made as of 31 July 2016 to perform certain research work. The Invention (as defined below) within University Docket No. 16/MED/740 was then invented by Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of University and his research team and Licensee's research team.

(B) Pursuant to the terms of the Collaborative Research Agreement, University and Licensee co-own the Invention and the underlying Proprietary IPR (as defined below) therein.

(C) University and Licensee now agree to enter into this definitive agreement with regard to Licensee's exclusive licence to use University's share of the Invention and the Proprietary IPR therein in accordance with the provisions of this Agreement.

IT IS HEREBY AGREED as follows:

1 Definitions

In this Agreement, unless the context clearly otherwise requires, the following words and expressions shall have the following meanings and all defined terms shall apply to their singular and plural forms, as applicable: "Including" means 'including without limitation'. "H/herein," "hereof", "hereunder" or similar expressions refer to this Agreement. "Clause" means the referenced clause in this Agreement.

1.1 **"Affiliate"** means any legal entity of which Licensee owns, directly or indirectly, 10% or more shareholdings.

1.2 **"Commencement Date"** means the date of commencement of the licence as referred to in Clause 3.1.

1.3 **"Effective Date"** means the date first written above of which this Agreement becomes effective.

1.4 **"Expenses"** means all costs and expenses incurred for processing, defending from invalidation attacks or maintaining any of the Prospective Patent (as defined below) in a designated Patent Jurisdiction (as defined below) and includes those costs and expenses referred to in Clause 8 as payable by Licensee.

1.5 **"Information"** means information relating to the Invention and any other technical information of University and any technical or business information of Licensee.

1.6 **"Intellectual Property Rights"** or **"IPR"** means any rights including but not limited to patents, know-how, confidential information, trade secret, industrial design, copyrights,

trademarks, service marks, trade names, logos and the goodwill associated therewith and all rights or forms of protection having equivalent or similar effect (whether registered, unregistered or not capable of being registered) which may subsist anywhere in the world.

1.7 **"Invention"** means the invention disclosures and patent applications which were co-invented by Research Team and Licensee's research team and co-owned by University prior to the Commencement Date as listed in Schedule 2 hereto, and all Proprietary IPR and the Prospective Patent.

1.8 **"Licence Issue Fee"** means the consideration to be paid by Licensee to University in accordance with Clause 5.1.1 of this Agreement.

1.9 **"Licensed Field of Use"** means all fields.

1.10 **"Licensed Product"** means any product, service or process embodying, applying, adopting, using or otherwise utilizing the Invention or any part(s) thereof that is developed or produced by Licensee, its Affiliate and/or its Sub-licensee, in the Licensed Field of Use, in each case, of which the manufacture, use, practice, sale, offer for sale, or importation, exportation, disposal or exploitation would constitute, but for the licence University grants to Licensee under this Agreement, an infringement of any valid claim of a Prospective Patent within the Invention in a country in which such activity is conducted or in which such product is sold.

1.11 **"Net Sales Value"** means, with respect to any Licensed Product, the gross sales price of such Licensed Product invoiced by Licensee, its Affiliate and/or its Sub-Licensee to customers who are not Affiliates (or are Affiliates but are the end users of such Licensed Product) less, to the extent actually paid or accrued by Licensee, its Affiliate and/or its Sub-Licensee (as applicable), (a) credits, allowances, discounts and rebates to, and chargebacks from the account of, such customers for nonconforming, damaged, out-dated and returned Licensed Product; (b) freight and insurance costs; (c) cash, quantity and trade discounts, rebates and other price reductions for such Licensed Product given to such customers under price reduction programs; (d) sales, use, value-added and other direct taxes incurred on the sale of such Licensed Product to such customers; (e) customs duties, tariffs, surcharges and other governmental charges incurred in exporting or importing such Licensed Product to such customers; (f) sales commissions incurred on the sale of such Licensed Product to such customers; and (g) an allowance for uncollectible or bad debts determined in accordance with generally accepted accounting principles. For avoidance of doubt, any consideration or royalties received from Sub-Licensee(s) are excluded. If a Licensed Product consists of components that are covered by valid claim of a Prospective Patent within the Invention (a "**Covered Component**") and components that are not covered by a Valid Claim ("**Other Components**"), then Net Sales for such Licensed Products shall be multiplied by the fraction A/(A+B), where A is the value of the Covered Component(s) as reasonably determined by Licensee, and 8 is the value of the Other Component(s) as reasonably determined by Licensee, and such resulting amount shall be the "Net Sales Value" for purposes of the Royalties and Sub-License Royalties calculations in Clauses 5.1.2 and 5.3.1, respectively, for such Licensed Product.

1.12 **"Patent Jurisdiction"** means convention country and/or region in which the Prospective Patent has been filed or granted or to be filed or granted and for which the application, prosecution, defence from Invalidation attacks and maintenance will be made at the Licensee's expense.

1.13 **“Proprietary IPR”** means any and all underlying Intellectual Property Rights subsisting in the Invention listed in Schedule 2.

1.14 **“Prospective Patent”** means any and all patents and patent applications specified in Schedule 2 or included in the Proprietary IPR, including any patents or patent applications that claim common priority therewith or are grants, divisions, continuations, continuations-in-part, reissues, re-examinations and extensions of all such patents claiming priority therefrom (and any reference to "Prospective Patent" shall include any and all of them) as well as renewals thereof.

1.15 **“Research Team”** means Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of The Chinese University of Hong Kong and his research team.

1.16 **“Samples”** means human patient samples provided to the Licensee.

1.17 **“Standard Terms and Conditions”** or **“T&C’s”** means the terms and conditions set forth in Schedule 1 hereto.

1.18 **“Sub-License Income”** means all one-time payments, net of any relevant tax, duties or similar government levies, which shall be non-recurring in nature as actually received by Licensee from Sub-Licensee(s) under any sub-licence(s) granted by Licensee to Sub-Licensee(s), including without limitation any up-front payments and milestone payments to be made by Sub-Licensee(s) to Licensee under any such sub-licence(s,) in each case to the extent such amounts are received in consideration of the grant of a sublicense to the Invention, but excluding any amounts received by Licensee that are (a) Sub-License Royalties payable under Clause 5.3.2, (b) based on sales of Licensed Products, (c) loans, (d) paid for equity or securities (or rights to acquire equity or securities) to the extent not in excess of fair market value, (e) paid for supply of products or materials provided at cost or in kind exchange, and (f) reimbursements of costs and expenses incurred by Licensee, including for patent-related expenses or costs incurred in performing research, development and/or services thereunder.

1.19 **“Sub-Licensee”** means a sub-licensee, other than an Affiliate, who has a valid and subsisting licence granted to it by Licensee for the exploitation of the Licensed Product. For the avoidance of doubt, Sub-Licensee shall not be an Affiliate of Licensee.

1.20 **“Term”** means the term of licence as defined in Clause 3.1.

1.21 “**Territory**” means worldwide.

2 Grant of Licence

2.1 Subject to Clause 2.4 below, University hereby grants to Licensee, for the Term and subject to the provisions of this Agreement, an exclusive and non-transferable (except as provided in Paragraph 16 of the T&C’s) licence for the 50% share of Invention owned by University, with the right to sub-license, subject to Clause 4, to apply, use and exploit the use of the Invention and to make, authorize the making of, process, supply, sell, offer to sell, lease, otherwise commercially dispose of, import, have imported, export, or otherwise exploit in any manner the products and services in the Licensed Field of Use within the Territory. For avoidance of doubt, all payments payable by Licensee to University under this Agreement are in respect of the 50% share of Invention owned by the University. The Licensee shall be entitled to obtain Samples worldwide, including from the Territory. Licensee shall solely be responsible for the safety and quality of the Licensed Product in accordance with the applicable laws, rules and regulations.

2.2 All improvements, modifications or alterations to the Licensed Product made or developed during the Term by University in the Licensed Field of Use, including any related patents and scientific or technical information, know-how or trade secrets, shall be, automatically, deemed subject to this Agreement and shall be included within the definition of Proprietary IPR. University shall, from time to time, promptly disclose to Licensee all such improvements, modifications or alterations.

2.3 This grant of licence under Clause 2.1 can be extended to any Licensee's Affiliate so long as (i) such Affiliate remains as an Affiliate of Licensee as defined in Clause 1.1; and (ii) Licensee notifies University forthwith of any termination and potential termination of such relationship. Licensee shall remain fully responsible for any act done and omission on the part of Affiliate arising from or in connection with this Agreement. Licensee shall be responsible for any breach by Affiliate of the Agreement as if the breach had been that of Licensee under the Agreement. Licensee shall indemnify University and keep University harmless from and against any loss, damage, costs, expenses, demands and claims incurred or suffered by University in accordance with Paragraph 5 of the T&C's.

2.4 Licensee and University both acknowledge and agree that the grant of exclusive right to Licensee under this Agreement shall be subject to the followings:

2.4.1 University's academic rights to use the Invention, the Prospective Patent and related technology in the Territory solely for its own internal (non-commercial) research and educational purposes at all times without accounting to Licensee; and

2.4.2 Governmental contractual obligations of University (if any) to the extent any government funding was used in support of the Invention and Prospective Patent;

2.5 University shall promptly, if requested by Licensee, execute and file applications (in the prescribed form) to register or provide notice to the relevant patents administrators of the transaction contemplated by this Agreement in accordance with relevant laws or regulations, provided that the Licensee:

2.5.1 shall, together with each request made to University, provide to University a duly executed irrevocable power of attorney in favour of University pursuant to relevant laws or regulations, to enable University to remove such registration or notice to the relevant patents administration promptly upon the expiration or early termination of the licence granted in this Agreement or any part of it, or upon the abandonment by Licensee of any Prospective Patent under Clause 8.5;

2.5.2 shall bear all costs and expenses in connection with the requested registration or notice, as well as the removal of such registration or notice, including but not limited to University's expenses In consulting its own professional advisers about Licensee's request and attending to the filing and removal of the registration or notice.

3 Term of Licence

3.1 This Agreement shall become effective on the Effective Date. The licence granted under Clause 2.1 shall be effective and commence from the date of University's receipt of full payment of the Licence Issue Fee under Clause 5.1.1 (**"Commencement Date"**). This Agreement and the licence shall expire concurrently with the last-to-expire Prospective Patent or on the 20th anniversary of the Commencement Date, whichever is the later, unless terminated earlier under the terms of this Agreement (the **"Term**")**.**

3.2 In the event that Licensee fails to make full payment of the Licence Issue Fee within the prescribed period under Clause 5.1.1, this Agreement shall be automatically terminated on the expiry of the prescribed period under Clause 5.1.1. University shall not be required to refund any part of the Licence Issue Fee paid by Licensee prior to such termination and Licensee shall not be required to make further payment of the Licence Issue Fee.

4 Sub-Licensee

4.1 For the Licence granted in Clause 2.1, Licensee shall be entitled to grant and authorize sublicences of its rights thereunder to any person or entity subject to the terms of this Agreement. However, Licensee shall ensure that each sub-licence shall include obligations on the SubLicensee at least as restrictive as the obligations imposed on Licensee under this Agreement, excluding any economic term, which may be freely negotiated between the Licensee and SubLicensee, and a sub-license may allow for further sublicensing through multiple tiers.

4.2 The sub-license granted to Sub-Licensee shall be terminated by Licensee if Sub-Licensee directly or indirectly, during the term of the sub-licence or thereafter challenges the ownership and/or any rights of University in the Invention, Including any Proprietary IPR in respect of the Invention, the Prospective Patent, and the validity thereof.

4.3 Within thirty (30) days of the grant of any sub-licence, the Licensee shall provide to University a true copy of the executed sub-licence agreement, provided that Licensee may redact such agreement to exclude the financial terms thereof and may provide only those provisions that are reasonably related to the Licensee's obligations to University pursuant to this Agreement.

4.4 All sub-licences granted to a Sub-Licensee shall terminate automatically on the expiration or early termination of this Agreement for any reason; provided, however that sub-licenses granted to a Sub-Licensee shall survive if the relevant Sub-Licensee agrees in writing to be bound by the terms of this Agreement as such terms apply to such Sub-Licensee (in which event such Sub-Licensee shall be deemed a direct licensee of University); provided that such Sub-Licensee shall only be responsible for any payments that become due as a result solely of such Sub-Licensee's activities after the effective date of any such termination.

4.5 The Licensee remains fully liable to pay to University all Royalties due from the Sub-Licensee, without prejudice to the right of University to seek indemnity from Licensee in accordance with Paragraph 5 of the T&C's.

4.6 In the event that a Sub-Licensee commits a material breach of any of its other obligations under the sub-licence agreement (the **"Defaulting Sub-Licensee")**, Licensee shall use commercially reasonable efforts to enforce the terms of the relevant sub-licence agreement against the Defaulting Sub-Licensee. lf the Defaulting Sub-Licensee's material breach continues for thirty (30) days after University's written notice to Licensee, and if Licensee does not within thirty (30) days after University's written notice to Licensee (or such longer period as University in its sole discretion may grant taking into consideration the nature and seriousness of the Defaulting SubLicensee's material breach on a case by case basis), provide evidence to satisfy University that Licensee has taken legally reasonable action under the circumstances to remedy the Defaulting Sub-Licensee's breach (possibly including, without limitation, commencement of legal proceedings by Licensee against the Defaulting Sub-Licensee to enforce the terms of the sublicence agreement, or the provision of legal advice, obtained at Licensee's expense from counsel of its choosing, and reasonably acceptable to University, indicating that Licensee has taken legally reasonable action to deal with the Defaulting Sub-Licensee's

breach) then unless expressly agreed to in writing by University and only if such material breach by such SubLicensee has a material adverse effect on University, the sub-licence granted to Sub-Licensee shall be terminated by Licensee. In any event, Licensee shall indemnify University against all third party claims, demands, actions, suits, damages, penalties, liabilities, judgments, costs (including legal costs and attorney charges) and expenses assessed against or incurred by University as a result of the breach by the Defaulting Sub-Licensee, even if the relevant sublicence is terminated by Licensee, in accordance with Paragraph 5 of the T&C's.

5 Payments

5.1 In consideration of the granting of Licence by University under Clause 2.1, Licensee shall pay to University:

5.1.1 An upfront, non-refundable and non-recoupable licence issue fee of HK Dollars [***] (the **"Licence Issue Fee**"), payable within one hundred and eighty (180) days from the Effective Date of this Agreement. However, if the Licence Issue Fee is not paid in its entirety within the aforesaid period, Licensee is deemed to have reverted the licence back to University and is no longer required to pay University any outstanding payment under this Agreement; and

5.1.2 Subject to Clause 5.5, the royalty at [***] percent of Net Sales Value, in respect of each application, use, process, supply and/or sale of Licensed Product by Licensee and/or its Affiliate during the Term (the **"Royalties**"), other than any SubLicense Income and Sub-License Royalties (as defined in Clause 5.3.2); provided that if, in any calendar quarter(s), Licensee is obligated to pay University royalties on sales of products (including Licensed Product) under Licence Agreement No. TC1510006 dated 7th April 2016 signed between the Parties or any other agreement, then no Royalties shall be due on sales of such Licensed Product in such calendar quarter(s).

5.2 For the avoidance of doubt,

5.3.1 the Royalties and Minimum Guarantees (as defined in Clause 5.4) shall be payable by the Licensee to University in accordance with the terms of this Agreement throughout the Term in respect of the Net Sales Value received for the production, distribution, sale and/or use of the Licensed Product anywhere in the Territory.

5.3.2 Licensee has to pay the Minimum Guarantees in accordance with Clauses 5.4 and 5.5 herein regardless of the status of any individual Prospective Patent. Licensee's obligation to pay Minimum Guarantees is not abated by the occurrence of any event, including but not limited to the expiry or invalidation of any issued patent or any claim therein, the unsuccessful application of any patent application, or the abandonment of any Prospective Patent by Licensee under Clause 8.5 of this Agreement.

5.3.3 The Royalties, Minimum Guarantees and Sub-License Royalties (as defined in Clause 5.3.2) must be paid in full in accordance with the provisions in Clause 5 of this Agreement. Royalties shall be paid semi-annually, and shall be in arrears ninety (90) days after the last day of June and December in each year in accordance with Clause 6.1.

5.3 In the case of sub-licence, Licensee agrees to pay University:

5.3.1 [***] percent of Sub-License Income; and

5.3.2 [***] percent of Net Sales Value (the **"Sub-License Royalties**") received by such Sub-Licensee for the Licensed Products, net of any relevant tax, duties or similar government levies, excluding any up-front payments and milestone payments to be made by the Sub-Licensee(s) to Licensee under any such sub-licence(s), provided that if, in any calendar quarter(s), Licensee is obliged to pay University Sub-License Royalties on sales of products (including Licensed Product) under any other agreement, then no Sub-License Royalty shall be due on sales of such Licensed Product in such calendar quarter(s).

5.4 Licensee agrees to pay to University fixed sums of minimum annual royalties, subject to Clause 5.5, (the "**Minimum Guarantees**"), irrespective of whether or not Net Sales Value is generated, in advance for each year during the Term commencing on 2nd January 2018 ("**Minimum Guarantee Year**") as follows:

Payment Date	Minimum Guarantee for the year
2nd January 2018	HK$[***]
2nd January for each and every succeeding Minimum Guarantee Year	HK$[***]

5.5 During each Minimum Guarantee Year, Licensee shall pay University for such year the higher of the applicable (i) Minimum Guarantees, or (ii) actual Royalties and Sub-License Royalties.

5.6 Licensee shall continue to pay Royalties, and Sub-License Royalties in accordance with Clauses 5.1.2 and 5.3.2 above for as long as Net Sales Value is received by Licensee, Affiliates or Sub-Licensee(s) (respectively), and Sub-License Income is received by Licensee.

5.7 If a court of competent jurisdiction in a particular territory, by a final decision of a court from which no further appeal or reconsideration can be taken, holds invalid any Prospective Patent or all of the relevant patent claims within a Prospective Patent, Licensee's obligation to pay Royalties corresponding to the Licensed Product(s) which is(are) covered solely by that patent or those claims, will cease as of the date of such decision in that jurisdiction and such territory will be excluded from the Territory as defined in Clause 1.21 insofar as the relevant Prospective Patent is concerned. Licensee, however, shall pay Royalties that accrued before that decision or that are based on all other patents or claims not involved in that decision. For the avoidance of doubt, if for a particular product any claim of a Prospective Patent is valid and covers that product, licensee's obligation to pay Royalties shall not cease. If for a particular product, no claim of any Prospective Patent is valid that covers that product, licensee's obligation to pay Royalties for that product in that jurisdiction shall cease. When Licensee's obligation to pay Royalties in any jurisdiction within the Territory ceases in respect of a Prospective Patent that is finally declared invalid, this Agreement is deemed to have terminated by expiry in respect of that Prospective Patent in that jurisdiction.

6 Commercialization Report and Accounting for and Payment of Royalties and Maintenance of Records

6.1 Licensee shall, within ninety (90) days after the last day of June, and December, send to University a commercialization report (which shall be the Information of Licensee) which comprises:

6.1.1 a report for the preceding six (6) months period, except the first commercialization report as defined in Clause 6.2, to indicate development

activities made, milestones achieved, activities performed towards the commercialization of the Invention, and

6.1.2 statement specifying income, fees and royalties payable to University, which shall include the quantities of Licensed Product produced, sold and sales price of Licensed Product sold or otherwise disposed of, the number of sub-licences granted to SubLicensees that include the right to market and sell Licensed Products and details of income/fees/royalties received from any Sub-Licensees and a calculation showing the income, fees and royalties due, and the statement shall be accompanied by a bankers' draft for (i) any amount over and above the Minimum Guarantees paid in advance for that year under Clause 5.4; (ii) the Sub-License Royalties payable under Clause 5.3.2; and (iii) the Sub-License Income payable under Clause 5.3.1. There shall be no crosscollateralization, no accounts shall be offset and no other adjustment shall be made between the Licensed Products or between territories, areas or countries of the Territory unless provided otherwise in this Agreement.

6.2 The first commercialization report shall cover the period from Commencement Date to 31st December 2017. Each subsequent commercialization report should cover a period of six (6) months as stipulated in Clause 6.1.

6.3 Licensee also agrees to make and will cause its Sub-Licensees to make a written report to University within ninety (90) days after the date of termination or early termination of this Agreement, stating in such report the number, description and Net Sales Value of all Licensed Products produced, sold, or otherwise disposed of, and upon which royalties hereunder are payable but which were not previously reported to University.

6.4 Licensee shall keep and will require its Sub-Licensees to keep during the Term and seven (7) years thereafter, records or accounts sufficient to enable accurate calculations of royalties due to University. University shall be entitled to appoint an independent auditor not employed by the University and reasonably acceptable to Licensee to determine the correctness of any royalty statement or royalties payable or paid hereunder. The cost of inspection by such auditor shall be borne by University unless the auditor's report indicates that Licensee has under-reported its sales of Licensed Product and/or receipt of fees/royalties from Sub-Licensees by more than five (5%) percent in which case Licensee shall bear the full cost of such audit. Such audit may only be conducted once per calendar year.

7 Milestones

Licensee agrees to use commercially reasonable efforts to meet the milestones as detailed in Schedule 3. In the event that Licensee does not use commercially reasonable efforts to meet any of the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

8 Prospective Patent

8.1 Subject to Clause 8.5, Licensee confirms and agrees that from the Commencement Date, it shall assume financial responsibility, as set forth in Clause 8.3, and shall continue to be financially responsible for and control the prosecution, defence from invalidation attacks and maintenance of any and all Prospective Patent within the Territory.

8.2 University has applied for patent applications set forth in Schedule 2. University represents and warrants that (a) it solely owns the patent applications set forth in Schedule 2 and has obtained all rights from the inventors of the inventions claimed in such patent applications, (b) it has the right to grant the licence to the Licensee as granted under the Agreement, and (c) it has not granted any rights under the patent applications set forth in Schedule 2 to a third party.

8.3 Subject to Clause 8.1, Licensee agrees to (a) reimburse the University for all legal and government expenses to be incurred for the prosecution and maintenance of the Prospective Patent within the Invention within the Territory after the Commencement Date; and (b) pay for all costs and expenses involved in defending the relevant claims of the Prospective Patent from invalidation actions that may arise during the Term within the Territory. Said payments for undisputed amounts to be made to University within thirty (30) days upon presentation of invoice to Licensee. University shall cooperate with Licensee and join any enforcement action brought by Licensee at Licensee's request.

8.4 University shall provide reasonable assistance to Licensee with respect to the prosecution, maintenance, and defence of the Prospective Patent. For avoidance of doubt, any patent applications and the subsequent grants, renewals, amendments or restorations of any patent or patent application listed in Schedule 2 that do not exist as of the Effective Date shall be treated as part of the Prospective Patent hereunder.

8.5 Licensee may by at least ninety (90) days' advanced written notice terminate its financial responsibility for the expenses for the filing, prosecution, defence from invalidation attacks or maintenance of any of the Prospective Patent ("**Abandoned Patent**") in any of the Patent Jurisdiction ("**Abandoned Jurisdiction**"). The notice shall identify the Abandoned Patent, the Abandoned Jurisdiction and the date the termination is to take effect (which shall not be less than 90 days from the date of the service of the notice). The service of such notice on University shall constitute an irrevocable abandonment by Licensee of its licence hereunder in the Abandoned Patent, in the Abandoned Jurisdiction on the effective date stated in the said notice ("**Date of Abandonment**") and the Abandoned Jurisdiction shall be excluded from the definition of "Territory" in Clause 1.21 and the licence granted in Clause 2, in each case, solely with respect to the Abandoned Patent. Upon issuing the notice, and without prejudice to the Licensee's obligations for the Abandoned Patent that have accrued up to the Date of Abandonment, Licensee shall have no further obligation, rights or interests with respect to the Abandoned Patent as from the Date of Abandonment, and University shall have the option to continue or not to continue prosecution, defence from invalidation attacks or maintenance of the Abandoned Patent at its own expense. University shall use all reasonable efforts to prepare or amend any patent applications to include claims reasonably requested by Licensee to protect the Licensed Product(s) contemplated or procedures to be practiced under this Agreement.

8.6 University shall give one hundred and twenty (120) days' notice to Licensee of any desire to cease prosecution or maintenance of a particular Proprietary IPR or Prospective Patent and, in such case, shall permit Licensee, at its sole discretion, to continue prosecution or maintenance at Licensee's own expense. If Licensee elects to continue prosecution or maintenance, University shall execute such documents and perform such acts, at Licensee's expense, as may be reasonably necessary to effect an assignment of such Proprietary IPR or Prospective Patent to Licensee. Any such assignment shall be completed in a timely manner to allow Licensee to continue such prosecution or maintenance. Any patents or patent applications so assigned shall not be considered Proprietary IPR or Prospective Patent for all purposes under this Agreement.

9 Patent Infringement

9.1 If either Party learns of the infringement of a Prospective Patent, in any jurisdiction within the Territory, it shall so inform the other Party in writing, including any evidence of such infringement. University may not notify a third party of the infringement of a Prospective Patent, save for its legal advisers, without first obtaining written consent of Licensee, which consent shall not be unreasonably denied or delayed. Both Parties shall use their reasonable commercial efforts in cooperation with each other to terminate such infringement.

9.2 Licensee shall have the sole right, but not the obligation, to institute, prosecute and control any action, suit or proceeding to enforce the Prospective Patent with respect to infringement of the Prospective Patent and to defend any declaratory judgment with respect thereto, in each case within the Territory ("Action"). University hereby agrees to assist and cooperate with Licensee, at Licensee's expense (including payment for University's expert's time, and other expenses so long as such expenses are properly documented), to enable Licensee to prosecute and maintain such Action. University's agreement to assist Licensee includes, at Licensee's reasonable request and when it is required by law, government regulation or court order, University's agreement to join or to procure its Affiliates to join as a nominal party to achieve sufficient legal standing for Licensee to prosecute and maintain such Action provided that, if University participates in the Action only as a nominal party, University shall have no responsibility (other than to join as a nominal party) nor be liable for any costs or expenses in relation to or arising from such Action. For clarity, such liabilities for costs or expenses shall be the responsibility of Licensee. If Licensee invites University or its Affiliates to take a more active role (other than as a nominal party) in an Action as a co-party, University shall have its sole discretion to decide joining or not and on terms to be agreed with Licensee on a case by case basis. Licensee shall have the right to settle any Action or consent to an adverse judgment thereto, in its sole discretion, except that Licensee may not settle such action by agreeing to the invalidation of a Prospective Patent or any claim therein without University's prior written consent. Any recovery obtained as a result of an Action, whether by judgment, award, decree or settlement, shall first be applied to reimbursement of Licensee's expenses in bringing such suit or proceeding (including any attorneys, expert and court fees), and the balance shall be considered to be Net Sales Value, and subject to the royalty payments at [***]% as set forth in Clause 5, and the remaining balance shall be recovered by Licensee as damages.

9.3 Subject to Clause 9.2, if University commences or defends any suit or proceedings on its own account, University shall do so at its own expense. University shall have the right to settle any such action or consent to an adverse judgment thereto, in its sole discretion, except that University may not settle such action that may impair, damage or otherwise adversely affect the licence granted to Licensee under Clause 2.1, Licensee's use of such licence, any Licensed Product, or any of Licensee's rights/obligations hereunder, without Licensee's prior written consent, which consent may not be unreasonably withheld or delayed. Any recovery obtained as a result of such action, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance shall be distributed between University and Licensee at a ratio of 65:35 in all cases which do not result in a sub-licence to a third party. If a suit or proceedings result in a sub-licence to a third party, then any recovery, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance to be paid to Licensee, provided that such balance shall be

shared between University and Licensee according to the provisions in Clause 5.3 herein.

10 Notices and Payments

10.1 Any notices or communication given under this Agreement shall be in English, in writing and delivered by registered post, courier with package tracking capabilities, or by hand, to the Party at its postal address set out below or to such other address as may be notified in writing from time to time between the Parties. A notice or communication to University must specify the Agreement Number TC1711655 for identification. Any notices or communication given under this Agreement shall be deemed to be given at the time and date of receipted delivery to the relevant address.

To University: The Chinese University of Hong Kong
Room 301, Pi Ch'iu Building
Shatin, New Territories
Hong Kong SAR
Email:
Attn: Director, Office of Research and Knowledge Transfer Services

with a copy to: The Chinese University of Hong Kong
Shatin
New Territories
Hong Kong SAR
Attn: Professor Yuk Ming Dennis Lo
Department of Chemical Pathology

To Licensee: Cirina Limited
21st Floor, Edinburgh Tower
The Landmark, 15 Queen's Road,
Central, Hong Kong SAR
Attn: Dr. Yuk Ming Dennis Lo, Board Member

10.2 All payments to be paid hereunder shall be made in reference to the Agreement Number TC1711655 for purpose of identification. All payments to University are to be made payable to "The Chinese University of Hong Kong", to be in Hong Kong Dollars and to be sent to the Director of Office of Research and Knowledge Transfer Services at the above address of University or by wire transfer to the following account:

Account Name:	[***]
Account No.:	[***]
Swift Code:	[***]
Name of Bank:	[***]

and shall be paid in full without any deductions, save for such tax as Licensee is legally bound to withhold, which amounts withheld shall be treated as if paid to University. Licensee shall provide reasonable assistance to University, free of charge, to recover any tax so withheld. If any currency conversion shall be required to make payment in a designated currency, such conversion shall be calculated using an exchange rate equal to the average of the applicable exchange rates published by the Wall Street Journal *(Internet Edition)* on the last day of each month for the four months preceding such payment.

10.3 If any payment (save and except for the Licence Issue Fee) due from Licensee under this Agreement is paid late, the Licensee shall be liable to pay interest on the amount of the late payment. The rate of interest referred to in this Clause 10.3 will be the annual rate of 2% above the prime lending rate of the Hong Kong and Shanghai Banking Corporation (as at the due date for payment) and interest shall accrue from the due date for payment until the date of actual receipt of payment.

11 Miscellaneous

11.1 "Clause" means clauses in the main part of this Agreement and "Paragraph" means paragraphs in the Standard Terms and Conditions in Schedule 1.

11.2 Heading to clauses and paragraphs are for convenience only and have no legal effect.

11.3 Words importing the singular include the plural and vice versa, words importing a gender include every gender and references to persons include bodies corporate or incorporate.

11.4 Any schedule to this Agreement is part of it and reference to this Agreement includes reference thereto. In the event that there is any inconsistency between the Standard Terms and Conditions and the remainder of this Agreement, the latter shall prevail.

11.5 Each Party agrees to maintain in confidence the other Party's Information and not use such Information for any purpose, or disclose such Information to any third party, other than as expressly provided hereunder. The terms of this Agreement shall be deemed Information of both Parties under this Agreement and there shall be no public disclosure except with prior mutual agreement, unless as provided for in this Clause. In the event that a Party is required to publicly disclose the terms of this Agreement by any law, applicable securities exchange, supervisory, regulatory or governmental body (including, but not limited to, China Securities Regulatory Commission, The Stock Exchange of Hong Kong Limited and the Securities and Futures Commission of Hong Kong) to which any Party is subject to, the Party may disclose such term as reasonably necessary for the compliance of such court order, rule or regulation provided that the Party shall, where legally permissible, give prior written notice to the other Party and redact as much confidential information as is permitted under such rules and shall agree on all such redactions with the other Party prior to disclosure, except where such agreement may be precluded by advice of legal counsel of a Party. Licensee may disclose the terms of this Agreement to a Sub-Licensee or potential Sub-Licensee, so long as such disclosure is made under a confidentiality agreement. Each Party may disclose and use Information of the other Party only if and to the extent such disclosure and use is reasonably necessary in the following instances:

11.5.1 filing or prosecuting Proprietary IPR and Prospective Patent as permitted by this Agreement;

11.5.2 prosecuting or defending litigation as permitted by this Agreement;

11.5.3 disclosure to third parties in connection with due diligence or similar investigations by such third parties, and disclosure to actual and potential third party investors or partners, collaborators, joint venturers, provided, in each case, that any such third party agrees to be bound by reasonable obligations of confidentiality and non-use;

11.5.4 in connection with legal proceedings relating to this Agreement;

11.5.5 in connection with the exercise of its rights under this Agreement; and

11.5.6 to employees, agents, officers, directors, auditors, advisers, partners, consultants, permitted Sub-licensees, affiliates, sub-contractors requiring confidential information for the purposes of performance of this Agreement on a need to know basis.

IN WITNESS WHEREOF this Agreement has been entered into on the day and year first above written.

SIGNED by		)	
Name:	Prof. Walter K K HO	)	
Title:	Director, Office of Research and Knowledge Transfer Services	)	
for and on behalf of		)	/s/Walter K K HO
THE CHINESE UNIVERSITY OF HONG KONG		)	
in the presence of:	Leung Kit Man	)	/s/ Leung Kit Man

SIGNED by		)	
Name:	Maneesh JAIN	)	
Title:	CEO	)	
for and on behalf of		)	/s/Maneesh Jain
CIRINA LIMITED		)	
in the presence of:	Angela Wu	)	/s/ Angela Wu

SCHEDULE 1

STANDARD TERMS AND CONDITIONS (the “T&C’s)

1. Ownership of Intellectual Property Rights

1.1 All rights, including Intellectual Property Rights, in the 50% share of the Invention owned by University not expressly granted to Licensee in this Agreement shall remain vested in University.

1.2 Licensee shall, at the request of University, execute any document necessary to effect University’s title where applicable, to Intellectual Property Rights in the Invention.

1.3 In the event that Licensee wishes to pursue intellectual property protection, including but not limited to patent application, for any Licensed Product, Licensee agrees to acknowledge, preserve and protect University’s pre-existing Intellectual Property Rights, where applicable, in such Licensed Product.

2. Obligations of Licensee

2.1 Licensee is responsible for the quality and safety of its products.

2.2 Licensee shall use all reasonable efforts and diligence to exploit the Invention and to proceed with the development, manufacture and sale of Licensed Product and to use commercially reasonable efforts to develop markets for the Licensed Product.

2.3 Licensee will represent the Licensed Product fairly in comparison with competitive products from other suppliers.

2.4 Licensee shall not, on behalf of University, make any representations or give any warranties or guarantees in respect of the Proprietary IPR not expressly authorised in writing by University, provided that such authorization shall not be unreasonably delayed or withheld by University.

2.5 Licensee shall not market the Licensed Product under the name of University, and not in any way create any impression that University is the seller of the Licensed Product.

2.6 Licensee shall take all such steps as are reasonably necessary to protect Intellectual Property Rights in the Invention.

2.7 Licensee shall promptly inform University upon becoming aware of any illegal or unauthorised use of the Invention or any infringement of the Prospective Patent or Proprietary IPR and Intellectual Property Rights therein.

2.8 Licensee shall comply with all laws, regulations and governmental obligations that may from time to time be applicable to the making, use or sale of the Licensed Product in each part of the Territory.

2.9 As between Licensee and University and without limiting any responsibility of an Affiliate or SubLicensee, Licensee shall be solely responsible for any claims arising or alleged to arise from loss or injury to persons or property caused or suffered in the course of or as a consequence of the use of the Invention by Licensee, Affiliates and Sub-Licensees or the supply and sale of the Licensed Product by Licensee, Affiliates and Sub-Licensees except where such loss or injury are caused by the gross negligence or wilful misconduct of University.

2.10 Except as expressly set forth under this Agreement, Licensee shall use its best endeavours to keep the Invention confidential and not to reveal to any third party any confidential information of University regarding the Invention until after a non-disclosure agreement has been signed, provided that no such obligation shall apply to any information that has been publicly disclosed through no breach of this Agreement by Licensee, including by publication of the Inventions by the applicable governmental agency, was in the possession of Licensee prior to disclosure by University, is obtained by Licensee from a third party, or is independently developed by Licensee. For clarity, Licensee's obligations to keep the Invention confidential do not apply to the extent Licensee, its Affiliate or Sub-Licensee discloses the Invention or any portion of the Invention for purposes of obtaining regulatory approval for the Licensed Products, securing intellectual property on the Licensed Products or commercializing the Licensed Products.

2.11 To the extent prohibited by applicable law, Licensee shall not carry out any illegal, deceptive, or unethical practices, whether or not they are to the disparagement of the Invention, Licensed Product or University, or, subject to the foregoing in this Section 2.11, any other practices which may be detrimental to the Invention, Licensed Product, University or to the public interest.

3. Restriction On Use of Name

No right or licences are granted by University to the Licensee expressly or by implication to use the name or any trademark, service mark, trade name or symbol of The Chinese University of Hong Kong or any of its employees in any public relations activities or other activities or in connection with any Licensed Product manufactured, used, or sold by the Licensee, or as part of its corporate name or firm or trade name or for any other purpose without University's prior written consent. No right or licences are granted by Licensee to University expressly or by implication to use the name or any trademark, service mark, trade name or symbol of Licensee or any of its employees in any public relations activities or other activities or in connection with any Licensed Product or as part of its corporate name or firm or trade name or for any other purpose without Licensee's prior written consent.

4. Exclusion of Warranties

4.1 Except as expressly set forth under this Agreement, nothing in this Agreement shall be construed as a warranty or representation that anything made, used, sold, or otherwise disposed of under any licence granted in this Agreement is or will be free from infringement of any patent, copyright, trade mark or any other intellectual property right of any third party.

4.2 Except as expressly set forth in this Agreement, neither party makes any representations and extends no warranties of any kind, either express or implied. In particular, but without limitation, there are no express or implied warranties of merchantability or fitness for a particular purpose, or the operation of the Invention under the Prospective Patent will be uninterrupted or error-free or any defects in the Invention will be corrected.

4.3 University does not assume any responsibility for any exploitation, use or any product produced, developed and manufactured in accordance with the Invention or for the sale or use of the product processed, developed and manufactured by Licensee or its Sub-Licensees nor shall University be deemed to make or have made any warranties of any nature whatsoever with respect to the Invention or any product processed, developed and manufactured under this Agreement.

5. Indemnity

5.1 Licensee shall defend, indemnify and hold harmless University (including its officers, directors, employees) from any and all claims, demands, actions, suits, damages, penalties, liabilities, judgements, cost or expenses (including legal fees) assessed against or incurred by University as a result of any claim or threatened claim made by any third party against University relating to the use of or other exploitation by Licensee in connection with the manufacture, use, provision or sale of or any other dealing in the Invention or Licensed Product by Licensee, its Affiliates and its Sub-Licensee, including breach of sub-licence by a Defaulting Sub-Licensee as provided for in Clause 4.6 even if the relevant sub-licence is terminated by Licensee.

5.2 To be eligible to be indemnified hereunder, the indemnified Party shall provide the indemnifying Party with prompt notice of the third party claim giving rise to the indemnification obligation pursuant to this Paragraph 5 and the exclusive ability to defend (with the reasonable cooperation of the indemnified Party) or settle any such claim. The indemnifying Party shall have no obligations with respect to any losses resulting from the indemnified Party's admission, settlement or other communication without the prior written consent of the indemnifying Party.

6. Limitation of liability

6.1 Except for liabilities arising from a Party's breach of its obligations of confidentiality, neither Party nor any of its Affiliates shall be liable to the other Party for any indirect, punitive or consequential damages or loss of profits, whether based on contract or tort, or arising under applicable law or otherwise. Except for liabilities arising from University of its obligations of confidentiality, University hereby excludes liability to Licensee and its Sub-Licensee for any and all losses or damage of any kind howsoever caused including losses of profits or other consequential or special losses arising from the use of or inability to use the Invention.

6.2 Without prejudice to Paragraph 6.1, University's liability to the Licensee for all losses or damage of any kind howsoever caused shall be limited to the aggregate total amount received by University from Licensee under this Agreement as at the date of such breach.

6.3 No action arising out of this Agreement may be brought by either Party more than one year after the cause of action has accrued and has come to the attention of the aggrieved.

7. Termination

7.1 The licences granted hereunder, shall come into effect on the Commencement Date and, unless terminated earlier in accordance with this Paragraph 7 or relevant provisions of this Agreement, shall continue in force for the Term of Licence as detailed in Clause 3 and this Agreement and the licenses granted hereunder shall terminate automatically by expiry.

7.2 University shall be at liberty in every and any of the following events to terminate this Agreement in totality by written notice:

7.2.1 on failure by Licensee to meet the milestones as detailed in Schedule 3 which continues for at least thirty (30) days after University has given notices of that breach;

7.2.2 on failure by Licensee to make any undisputed payment to be paid hereunder for an aggregated amount not less than HK$ 100,000 (one hundred thousand) which

continues for at least thirty (30) days after University has given written notice of that breach;

7.2.3 on any attempt by Licensee to assign or otherwise transfer any of its rights under this Agreement other than in accordance with the terms of this Agreement;

7.2.4 on cessation of Licensee's business relating to the exploitation of the Invention, unless such cessation is due to a permitted assignment or transfer of rights under this Agreement; or

7.2.5 if Licensee goes into liquidation (other than for the purposes of amalgamation or reconstruction) or if a receiver is appointed of its assets and undertaking or any part of them or any distress execution or other analogous process shall be issued against any property of Licensee, and such execution or process is not dismissed within 90 days.

7.3 Licensee may terminate this Agreement by serving upon University 3 months' notice in writing of its intention to terminate this Agreement.

7.4 Either Party may terminate this Agreement by written notice if the other Party commits a material breach of this Agreement which continues for at least sixty (60) days after the nondefaulting Party has given written notice of that breach and the required remedy.

8. Effect of Termination

8.1 Paragraphs 1, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, and 17 of the T&C's and Clauses 1, 4.4, 10, and 11 of the main part of the Agreement shall remain in force following termination or expiration.

8.2 On termination, the licence granted pursuant to this Agreement and all rights of Licensee under it shall forthwith cease and terminate without prejudice to any right of either Party which may have accrued up to the date of termination or remedy to sue and recover for any sum then due and to the remedy of either Party in respect of any previous breach of any provision contained in the Agreement.

8.3 Within a reasonable period of time after expiration or termination of this Agreement or the licences granted hereunder, each Party undertakes to return to the other Party all Information and all copies thereof and information in any form containing or covering in any way any part of the Information in its possession and/or control or provide evidence of their destruction.

8.4 Licensee will pay up all fees, expenses and payments accrued and payable to University up to the date of termination.

9. Governmental Obligations

Upon request by University and at University's expense, Licensee agrees to take all reasonable action necessary on its part as licensee to allow University to satisfy its governmental obligations and other reporting requirements, if any, relating to the Invention and/or this Agreement.

10. Time and Force Majeure

10.1 Subject to any grace or cure periods and to the provisions of Paragraph 10.2 below, time shall be of the essence.

10.2 Neither Party shall be liable to the other for delay in performance of its obligations hereunder or deemed to be in breach of this Agreement due to causes beyond its control,

including but not limited to acts of God, disease outbreaks, fires, strikes, acts of war, terrorist acts, or intervention by any governmental authority, and each Party will take steps to minimize any such delay. If such an event occurs, the time set by this Agreement for performance of that obligation by the relevant Party will be extended for the period by which performance is prevented by the event PROVIDED THAT the other Party may terminate this Agreement by notice if such event continues for more than 180 days.

11. Severability

In the event that any provision or part of this Agreement is held to be invalid, illegal or otherwise unenforceable, this Agreement shall be deemed to be amended by the addition or deletion of wording as appropriate to remove the invalid part or provision but otherwise to retain the provision and the other provisions of this Agreement to the maximum extent permissible under applicable law.

12. Waiver

No indulgence given by either Party to the other shall be deemed or construed as a waiver of its rights and remedies hereunder.

13. No Implied Partnership or Agency

Nothing in this Agreement shall constitute or be deemed to constitute a partnership between the Parties and neither Party shall have the authority or power to bind the other Party or to contract in the name of and create a liability against the other Party.

14. Governing Law and Jurisdiction

This Agreement shall be governed by and construed in accordance with the laws of the Hong Kong SAR, excluding conflict-of-law principles that would cause the application of the laws of any other jurisdiction.

15. Arbitration

15.1 The Parties shall attempt to resolve any dispute, controversy or claim ("Dispute") arising out of or in connection with this Agreement between them amicably. In the event that the Parties are unable to resolve any Dispute amicably within a period of ninety (90) days from the date of a Party's notice of such Dispute to the other Parties, such Dispute, including any dispute with respect to the validity or existence of this Agreement or any provision hereof, shall be settled by arbitration in Hong Kong under the Hong Kong International Arbitration Centre ("HKIAC") Administered Arbitration Rules in force from time to time and as may be amended.

15.2 The number of arbitrators shall be three. Each Party shall be entitled to appoint one arbitrator. The third arbitrator shall be appointed by HKIAC. All arbitration proceedings shall be conducted in the English language.

15.3 The arbitration shall be final and binding upon the Parties.

Notwithstanding the foregoing, the Parties agree that each Party shall have the right to seek interim injunction or other interim or conservatory measures from any court of competent jurisdiction, and this shall not be deemed or construed as incompatible with, or operate as a waiver of, the foregoing agreement to arbitrate.

16. Assignment

Licensee shall not assign, mortgage, charge or otherwise transfer any rights and obligations under this Agreement (and any attempt to do so will be null and void), without the prior written consent of University, except that each Licensee may, without the prior written consent of University, assign or otherwise transfer this Agreement to a successor to all or substantially all of its assets or business that pertain to this Agreement, whether by merger, operation of law, sale, or otherwise, provided that such successor agrees in writing to be bound by the terms and conditions of this Agreement.

17. Entire Agreement

17.1 This Agreement, including its Schedules, constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, representative statements, negotiations and understandings concerning the subject matter of this Agreement and University hereby excludes any implied terms which may be excluded by contract to the maximum extent permissible under applicable law.

17.2 Amendments or changes to this Agreement must be in writing and signed by duly authorized representatives of the Parties.

SCHEDULE 2

DESCRIPTION OF INVENTION

University Ref No. / Disclosure Form Title	**Prospective Patent**
1. 16/MED/740 **Methods and Systems for Tumor Detection**	US Provisional Patent Application No. 62/411,929

SCHEDULE 3

MILESTONES

Refer to Schedule 3 of license agreement TC1510006.

Certain information (indicated by asterisks) has been omitted from this document because it is both not material and would likely cause competitive harm to the registrant if publicly disclosed.

DATED 29 May 2017

(1) THE CHINESE UNIVERSITY OF HONG KONG

and

(2) CIRINA LIMITED

LICENCE AGREEMENT

THIS LICENCE AGREEMENT ("Agreement') is dated this 29th day of May 2017

BETWEEN:

(1) **The Chinese University of Hong Kong**, a university established by legislation in the Hong Kong Special Administrative Region ("**Hong Kong SAR**") located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined herein ("**University**"); and

(2) Cirina Limited, a limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 2181 Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**");

who together in this Agreement are referred to as the "**Parties**" and individually as the "**Party**"

WHEREAS:

(A) The Invention (as defined below) was invented by Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of University and his research team.

(B) University is the owner of the Invention within University Docket No. 16/MED/750 and the underlying Proprietary IPR (as defined below) therein.

(C) University and Licensee now agree to enter into this definitive agreement with regard to Licensee's exclusive licence to use the Inventions and the Proprietary IPR therein in accordance with the provisions of this Agreement.

IT IS HEREBY AGREED as follows:

1 Definitions

In this Agreement, unless the context clearly otherwise requires, the following words and expressions shall have the following meanings and all defined terms shall apply to their singular and plural forms, as applicable: "Including" means 'including without limitation'. "H/herein", "hereof" , "hereunder" or similar expressions refer to this Agreement. "Clause" means the referenced clause in this Agreement.

1.1 **"Affiliate"** means any legal entity of which Licensee owns, directly or indirectly, 10% or more shareholdings.

1.2 **"Commencement Date"** means the date of commencement of the licence as referred to in Clause 3.1.

1.3 **"Effective Date"** means the date first written above of which this Agreement becomes effective.

1.4 **"Expenses"** means all costs and expenses incurred for processing, defending from invalidation attacks or maintaining any of the Prospective Patent (as defined below) in a designated Patent Jurisdiction (as defined below) and includes those costs and expenses referred to in Clause 8 as payable by Licensee.

1.5 **"Information"** means information relating to the Invention and any other technical information of University and any technical or business information of Licensee.

1.6 **"Intellectual Property Rights"** or "**IPR**" means any rights including but not limited to patents, know-how, confidential information, trade secret, industrial design, copyrights, trademarks, service marks, trade names, logos and the goodwill associated therewith and all rights or forms of protection having equivalent or similar effect (whether registered, unregistered or not capable of being registered) which may subsist anywhere in the world.

1.7 **"Invention"** means the invention disclosures and patent applications which were invented by Research Team and owned by University prior to the Commencement Date as listed in Schedule 2 hereto, and all Proprietary IPR and the Prospective Patent.

1.8 **"Licence Issue Fee"** means the consideration to be paid by Licensee to University in accordance with Clause 5.1.1 of this Agreement.

1.9 **"Licensed Field of Use"** means all fields.

1.10 **"Licensed Product"** means any product, service or process embodying, applying, adopting, using or otherwise utilizing the Invention or any part(s) thereof that is developed or produced by Licensee, its Affiliate and/or its Sub-Licensee, in the Licensed Field of Use, in each case, of which the manufacture, use, practice, sale, offer for sale, or importation, exportation, disposal or exploitation would constitute, but for the licence University grants to Licensee under this Agreement, an infringement of any valid claim of a Prospective Patent within the Invention in a country in which such activity is conducted or in which such product is sold.

1.11 **"Net Sales Value"** means, with respect to any Licensed Product, the gross sales price of such Licensed Product invoiced by Licensee, its Affiliate and/or its Sub-Licensee to customers who are not Affiliates (or are Affiliates but are the end users of such Licensed Product) less, to the extent actually paid or accrued by Licensee, its Affiliate and/or its Sub-Licensee (as applicable), (a) credits, allowances, discounts and rebates to, and chargebacks from the account of, such customers for nonconforming, damaged, out-dated and returned Licensed Product; (b) freight and insurance costs; (c) cash, quantity and trade discounts, rebates and other price reductions for such Licensed Product given to such customers under price reduction programs; (d) sales, use, value-added and other direct taxes incurred on the sale of such Licensed Product to such customers; (e) customs duties, tariffs, surcharges and other governmental charges incurred in exporting or importing such Licensed Product to such customers; (f) sales commissions incurred on the sale of such Licensed Product to such customers; and (g) an allowance for uncollectible or bad debts determined in accordance with generally accepted accounting principles. For avoidance of doubt, any consideration or royalties received from Sub-Licensee(s) are excluded. If a Licensed Product consists of components that are covered by valid claim of a Prospective Patent within the Invention (a "**Covered Component**") and components that are not covered by a Valid Claim ("**Other Components**"), then Net Sales for such Licensed Products shall be multiplied by the fraction A/(A+B), where A is the value of the Covered Component(s) as reasonably determined by Licensee, and B is the value of the Other Component(s) as reasonably determined by Licensee, and such resulting amount shall be the "Net Sales Value" for purposes of the Royalties and Sub-License Royalties calculations in Clauses 5.1.2 and 5.3.1, respectively, for such Licensed Product.

1.12 **"Patent Jurisdiction"** means convention country and/or region in which the Prospective Patent has been filed or granted or to be filed or granted and for which the application, prosecution, defence from invalidation attacks and maintenance will be made at the Licensee's expense.

1.13 **"Proprietary IPR"** means any and all underlying Intellectual Property Rights subsisting in the Invention listed in Schedule 2.

1.14 **"Prospective Patent"** means any and all patents and patent applications specified in Schedule 2 or included in the Proprietary IPR, including any patents or patent applications that claim common priority therewith or are grants, divisions, continuations, continuations-inpart, reissues, re-examinations and extensions of all such patents claiming priority therefrom (and any reference to "Prospective Patent" shall include any and all of them) as well as renewals thereof.

1.15 **"Research Team"** means Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of The Chinese University of Hong Kong and his research team.

1.16 **"Samples"** means human patient samples provided to the Licensee.

1.17 **"Standard Terms and Conditions"** or "**T&C's**" means the terms and conditions set forth in Schedule 1 hereto.

1.18 **"Sub-License Income"** means all one-time payments, net of any relevant tax, duties or similar government levies, which shall be non-recurring in nature as actually received by Licensee from Sub-Licensee{s) under any sub-licence(s) granted by Licensee to SubLicensee(s), including without limitation any up-front payments and milestone payments to be made by Sub-Licensee(s) to Licensee under any such sub-licence(s), in each case to the extent such amounts are received in

consideration of the grant of a sublicense to the Invention, but excluding any amounts received by Licensee that are (a) Sub-License Royalties payable under Clause 5.3.2, (b) based on sales of Licensed Products, (c) loans, (d) paid for equity or securities (or rights to acquire equity or securities) to the extent not in excess of fair market value, (e) paid for supply of products or materials provided at cost or in kind exchange, and (f) reimbursements of costs and expenses incurred by Licensee, including for patent-related expenses or costs incurred in performing research, development and/or services thereunder.

1.19 **"Sub-Licensee"** means a sub-licensee, other than an Affiliate, who has a valid and subsisting licence granted to it by Licensee for the exploitation of the Licensed Product. For the avoidance of doubt, Sub-Licensee shall not be an Affiliate of Licensee.

1.20 **"Term"** means the term of licence as defined in Clause 3.1.

1.21 **"Territory"** means worldwide.

2 Grant of Licence

2.1 **Subject** to Clause 2.4 below, University hereby grants to Licensee, for the Term and subject to the provisions of this Agreement, an exclusive and non-transferable (except as provided in Paragraph 16 of the T&C's) licence for the Invention, with the right to sublicense, subject to Clause 4, to apply, use and exploit the use of the Invention and to make, authorize the making of, process, supply, sell, offer to sell, lease, otherwise commercially dispose of, import, have imported, export, or otherwise exploit in any manner the products and services in the Licensed Field of Use within the Territory. For avoidance of doubt, the Licensee shall be entitled to obtain Samples worldwide, including from the Territory. Licensee shall solely be responsible for the safety and quality of the Licensed Product in accordance with the applicable laws, rules and regulations.

2.2 All improvements, modifications or alterations to the Licensed Product made or developed during the Term by University in the Licensed Field of Use, including any related patents and scientific or technical information, know-how or trade secrets, shall be, automatically, deemed subject to this Agreement and shall be included within the definition of Proprietary IPR. University shall, from time to time, promptly disclose to Licensee all such improvements, modifications or alterations.

2.3 This grant of licence under Clause 2.1 can be extended to any Licensee's Affiliate so long as (i) such Affiliate remains as an Affiliate of Licensee as defined in Clause 1.1; and (ii) Licensee notifies University forthwith of any termination and potential termination of such relationship. Licensee shall remain fully responsible for any act done and omission on the part of Affiliate arising from or in connection with this Agreement. Licensee shall be responsible for any breach by Affiliate of the Agreement as if the breach had been that of Licensee under the Agreement. Licensee shall indemnify University and keep University harmless from and against any loss, damage, costs, expenses, demands and claims incurred or suffered by University in accordance with Paragraph 5 of the T&C's.

2.4 Licensee and University both acknowledge and agree that the grant of exclusive right to Licensee under this Agreement shall be subject to the followings:

2.5.1 University's academic rights to use the Invention, the Prospective Patent and related technology in the Territory solely for its own internal (non-commercial) research and educational purposes at all times without accounting to Licensee; and

2.5.2 Governmental contractual obligations of University (if any) to the extent any government funding was used in support of the Invention and Prospective Patent.

2.5 University shall promptly, if requested by Licensee, execute and file applications (in the prescribed form) to register or provide notice to the relevant patents administrators of the transaction contemplated by this Agreement in accordance with relevant laws or regulations, provided that the Licensee:

2.5.1 shall, together with each request made to University, provide to University a duly executed irrevocable power of attorney in favour of University pursuant to relevant laws or

regulations, to enable University to remove such registration or notice to the relevant patents administration promptly upon the expiration or early termination of the licence granted in this Agreement or any part of it, or upon the abandonment by Licensee of any Prospective Patent under Clause 8.5; and

2.5.2 shall bear all costs and expenses in connection with the requested registration or notice, as well as the removal of such registration or notice, including but not limited to University's expenses in consulting its own professional advisers about Licensee's request and attending to the filing and removal of the registration or notice.

3 Term of Licence

3.1 This Agreement shall become effective on the Effective Date. The licence granted under Clause 2.1 shall be effective and commence from the date of University's receipt of full payment of the Licence Issue Fee under Clause 5.1.1 ("**Commencement Date**"). This Agreement and the licence shall expire concurrently with the last-to-expire Prospective Patent or on the 20th anniversary of the Commencement Date, whichever is the later, unless terminated earlier under the terms of this Agreement (the "**Term**").

3.2 In the event that Licensee fails to make full payment of the Licence Issue Fee within the prescribed period under Clause 5.1.1, this Agreement shall be automatically terminated on the expiry of the prescribed period under Clause 5.1.1. University shall not be required to refund any part of the Licence Issue Fee paid by Licensee prior to such termination and Licensee shall not be required to make further payment of the Licence Issue Fee.

4 Sub-Licensee

4.1 For the Licence granted in Clause 2.1, Licensee shall be entitled to grant and authorize sublicences of its rights thereunder to any person or entity subject to the terms of this Agreement. However, Licensee shall ensure that each sub-licence shall include obligations on the Sub-Licensee at least as restrictive as the obligations imposed on Licensee under this Agreement, excluding any economic term, which may be freely negotiated between the Licensee and Sub-Licensee, and a sub-license may allow for further sublicensing through multiple tiers.

4.2 The sub-license granted to Sub-Licensee shall be terminated by Licensee if Sub-Licensee directly or indirectly, during the term of the sub-licence or thereafter challenges the ownership and/or any rights of University in the Invention, including any Proprietary IPR in respect of the Invention, the Prospective Patent, and the validity thereof.

4.3 Within thirty (30) days of the grant of any sub-licence, the Licensee shall provide to University a true copy of the executed sub-licence agreement, provided that Licensee may redact such agreement to exclude the financial terms thereof and may provide only those provisions that are reasonably related to the Licensee's obligations to University pursuant to this Agreement.

4.4 All sub-licences granted to a Sub-Licensee shall terminate automatically on the expiration or early termination of this Agreement for any reason; provided, however that sublicenses granted to a Sub-Licensee shall survive if the relevant Sub-Licensee agrees in writing to be bound by the terms of this Agreement as such terms apply to such Sub-Licensee (in which event such Sub-Licensee shall be deemed a direct licensee of University); provided that such Sub-Licensee shall only be responsible for any payments that become due as a result solely of such Sub-Licensee's activities after the effective date of any such termination.

4.5 The Licensee remains fully liable to pay to University all Royalties due from the Sub Licensee, without prejudice to the right of University to seek indemnity from Licensee in accordance with Paragraph 5 of the T&C's.

4.6 In the event that a Sub-Licensee commits a material breach of any of its other obligations under the sub-licence agreement (the "**Defaulting Sub-Licensee**"), Licensee shall use commercially reasonable efforts to enforce the terms of the relevant sub-licence agreement against the Defaulting Sub-Licensee. If the Defaulting Sub-Licensee's material breach continues for thirty (30) days after University's written notice to Licensee, and if Licensee does not within thirty (30) days

after University's written notice to Licensee (or such longer period as University in its sole discretion may grant taking into consideration the nature and seriousness of the Defaulting Sub-Licensee's material breach on a case by case basis), provide evidence to satisfy University that Licensee has taken legally reasonable action under the circumstances to remedy the Defaulting Sub-Licensee's breach (possibly including, without limitation, commencement of legal proceedings by Licensee against the Defaulting Sub-Licensee to enforce the terms of the sub-licence agreement, or the provision of legal advice, obtained at Licensee's expense from counsel of its choosing, and reasonably acceptable to University, indicating that Licensee has taken legally reasonable action to deal with the Defaulting Sub-Licensee's breach) then unless expressly agreed to in writing by University and only if such material breach by such Sub-Licensee has a material adverse effect on University, the sub-licence granted to Sub-Licensee shall be terminated by Licensee. In any event, Licensee shall indemnify University against all third party claims, demands, actions, suits, damages, penalties, liabilities, judgments, costs (including legal costs and attorney charges) and expenses assessed against or incurred by University as a result of the breach by the Defaulting Sub-Licensee, even if the relevant sub-licence is terminated by Licensee, in accordance with Paragraph 5 of the T&C's.

5 Payments

5.1 In consideration of the granting of Licence by University under Clause 2.1, Licensee shall pay to University:

5.1.1 An upfront, non-refundable and non-recoupable licence issue fee of HK Dollars [***] (the "**Licence Issue Fee**"), payable within one hundred and eighty (180) days from the Effective Date of this Agreement. However, if the Licence Issue Fee is not paid in its entirety within the aforesaid period, Licensee is deemed to have reverted the licence back to University and is no longer required to pay University any outstanding payment under this Agreement and

5.1.2 Subject to Clause 5.5, the royalty at [***] percent of Net Sales Value, In respect of each application, use, process, supply and/or sale of Licensed Product by Licensee and/or its Affiliate during the Term (the "**Royalties**"), other than any Sub-License Income and Sub-License Royalties (as defined in Clause 5.3.2); provided that if, in any calendar quarter(s), Licensee is obligated to pay University royalties on sales of products (including Licensed Product) under Licence Agreement No. TC1510006 dated 7th April 2016 signed between the Parties or any other agreement, then no Royalties shall be due on sales of such Licensed Product in such calendar quarter(s).

5.2 For the avoidance of doubt,

5.2.1 the Royalties and Minimum Guarantees (as defined in Clause 5.4) shall be payable by the Licensee to University in accordance with the terms of this Agreement throughout the Term in respect of the Net Sales Value received for the production, distribution, sale and/or use of the Licensed Product anywhere in the Territory.

5.2.2 Licensee has to pay the Minimum Guarantees in accordance with Clauses 5.4 and 5.5 herein regardless of the status of any individual Prospective Patent. Licensee's obligation to pay Minimum Guarantees is not abated by the occurrence of any event, including but not limited to the expiry or invalidation of any issued patent or any claim therein, the unsuccessful application of any patent application, or the abandonment of any Prospective Patent by Licensee under Clause 8.5 of this Agreement.

5.2.3 The Royalties, Minimum Guarantees and Sub-License Royalties (as defined in Clause 5.3.2) must be paid in full in accordance with the provisions in Clause 5 of this Agreement. Royalties shall be paid semi-annually, and shall be in arrears ninety (90) days after the last day of June and December in each year In accordance with Clause 6.1.

5.3 In the case of sub-licence, Licensee agrees to pay University:

5.3.1 [***] percent of Sub-License Income: and

5.3.2 [***] percent of Net Sales Value (the "**Sub-License Royalties**") received by such Sub-Licensee for the Licensed Products, net of any relevant tax, duties or similar government levies, excluding any up-front payments and milestone payments to be made by the Sub-Licensee(s) to Licensee under any such sublicence(s), provided that if, in any calendar quarter(s), Licensee is·obliged to pay University Sub-License Royalties on sales of products (including Licensed Product) under any other agreement, then no Sub-License Royalty shall be due on sales of such Licensed Product in such calendar quarter(s).

5.4 Licensee agrees to pay to University fixed sums of minimum annual royalties, subject to Clause 5.5, (the "**Minimum Guarantees**"), irrespective of whether or not Net Sales Value is generated, in advance for each year during the Term commencing on 2nd January 2018 ("**Minimum Guarantee Year**") as follows:-

Payment Date	Minimum Guarantee for the year
2nd January 2018	HK$[***]
2nd January for each and every succeeding Minimum Guarantee Year	HK$[***]

5.5 During each Minimum Guarantee Year, Licensee shall pay University for such year the higher of the applicable (i) Minimum Guarantees, or (ii) actual Royalties and Sub-License Royalties.

5.6 Licensee shall continue to pay Royalties, and Sub-License Royalties in accordance with Clauses 5.1.2 and 5.3.2 above for as long as Net Sales Value is received by Licensee, Affiliates or Sub-Licensee(s) (respectively), and Sub-License Income is received by Licensee.

5.7 If a court of competent jurisdiction in a particular territory, by a final decision of a court from which no further appeal or reconsideration can be taken, holds invalid any Prospective Patent or all of the relevant patent claims within a Prospective Patent, Licensee's obligation to pay Royalties corresponding to the Licensed Product(s) which is(are) covered solely by that patent or those claims, will cease as of the date of such decision in that jurisdiction and such territory will be excluded from the Territory as defined in Clause 1.21 insofar as the relevant Prospective Patent is concerned. Licensee, however, shall pay Royalties that accrued before that decision or that are based on all other patents or claims not involved in that decision. For the avoidance of doubt, if for a particular product any claim of a Prospective Patent is valid and covers that product, licensee's obligation to pay Royalties shall not cease. If for a particular product, no claim of any Prospective Patent is valid that covers that product, licensee's obligation to pay Royalties for that product in that jurisdiction shall cease. When Licensee's obligation to pay Royalties in any jurisdiction within the Territory ceases in respect of a Prospective Patent that is finally declared invalid, this Agreement is deemed to have terminated by expiry in respect of that Prospective Patent in that jurisdiction.

6 Commercialization Report and Accounting for and Payment of Royalties and Maintenance of Records

6.1. Licensee shall, within ninety (90) days after the last day of June, and December, send to University a commercialization report (which shall be the Information of Licensee) which comprises:

6.1.1 a report for the preceding six (6) months period, except the first commercialization report as defined in Clause 6.2, to indicate development activities made, milestones achieved, activities performed towards the commercialization of the Invention, and

6.1.2 a statement specifying income, fees and royalties payable to University, which shall include the quantities of Licensed Product produced, sold and sales price of Licensed Product sold or otherwise disposed of, the number of sub-licences granted to Sub-Licensees that include the right to market and sell Licensed Products and details of income/fees/royalties received from any Sub-Licensees and a calculation showing the income, fees and royalties due, and the statement shall be accompanied by a bankers' draft for (i) any amount over and above the Minimum Guarantees paid in advance for that year under Clause 5.4; (ii) the Sub-License Royalties payable under Clause 5.3.2; and (ill)

the Sub-License Income payable under Clause 5.3.1. There shall be no cross-collateralization, no accounts shall be offset and no other adjustment shall be made between the Licensed Products or between territories, areas or countries of the Territory unless provided otherwise in this Agreement.

6.1 The first commercialization report shall cover the period from Commencement Date to 31st December 2017. Each subsequent commercialization report should cover a period of six (6) months as stipulated in Clause 6.1.

6.2 Licensee also agrees to make and will cause its Sub-Licensees to make a written report to University within ninety (90) days after the date of termination or early termination of this Agreement, stating in such report the number, description and Net Sales Value of all Licensed Products produced, sold, or otherwise disposed of, and upon which royalties hereunder are payable but which were not previously reported to University.

6.3 Licensee shall keep and will require its Sub-Licensees to keep during the Term and seven (7) years thereafter, records or accounts sufficient to enable accurate calculations of royalties due to University. University shall be entitled to appoint an independent auditor not employed by the University and reasonably acceptable to Licensee to determine the correctness of any royalty statement or royalties payable or paid hereunder. The cost of inspection by such auditor shall be borne by University unless the auditor's report Indicates that Licensee has under-reported its sales of Licensed Product and/or receipt of fees/royalties from Sub-Licensees by more than five (5%) percent in which case Licensee shall bear the full cost of such audit. Such audit may only be conducted once per calendar year.

7 Milestones

Licensee agrees to use commercially reasonable efforts to meet the milestones as detailed in Schedule 3. In the event that Licensee does not use commercially reasonable efforts to meet any of the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

8 Prospective Patent

8.1 Subject to Clause 8.5, Licensee confirms and agrees that from the Commencement Date, it shall assume financial responsibility, as set forth in Clause 8.3, and shall continue to be financially responsible for and control the prosecution, defence from invalidation attacks and maintenance of any and all Prospective Patent within the Territory.

8.2 University has applied for patent applications set forth in Schedule 2. University represents and warrants that (a) it solely owns the patent applications set forth in Schedule 2 and has obtained all rights from the Inventors of the inventions claimed in such patent applications, (b) it has the right to grant the licence to the Licensee as granted under the Agreement, and (c) it has not granted any rights under the patent applications set forth in Schedule 2 to a third party.

8.3 Subject to Clause 8.1, Licensee agrees to (a) reimburse the University for all legal and government expenses to be incurred for the prosecution and maintenance of the Prospective Patent within the Invention within the Territory after the Commencement Date; and (b) pay for all costs and expenses involved in defending the relevant claims of the Prospective Patent from invalidation actions that may arise during the Term within the Territory. Said payments for undisputed amounts to be made to University within thirty (30) days upon presentation of invoice to Licensee. University shall cooperate with Licensee and Join any enforcement action brought by Licensee at Licensee's request.

8.4 University shall provide reasonable assistance to Licensee with respect to the prosecution, maintenance, and defence of the Prospective Patent. For avoidance of doubt, any patent applications and the subsequent grants, renewals, amendments or restorations of any patent or patent application listed in Schedule 2 that do not exist as of the Effective Date shall be treated as part of the Prospective Patent hereunder.

8.5 Licensee may by at least ninety (90) days' advanced written notice terminate its financial responsibility for the expenses for the filing, prosecution, defence from invalidation attacks or maintenance of any of the Prospective Patent ("**Abandoned Patent**") in any of the Patent Jurisdiction ("**Abandoned Jurisdiction**"). The notice shall identify the Abandoned Patent, the Abandoned Jurisdiction and the date the termination is to take effect (which shall not be less than 90 days from the date of the service of the notice). The service of such notice on University shall constitute an irrevocable abandonment by Licensee of its licence hereunder in the Abandoned Patent, in the Abandoned Jurisdiction on the effective date stated in the said notice ("**Date of Abandonment**") and the Abandoned Jurisdiction shall be excluded from the definition of "Territory" in Clause 1.21 and the licence granted in Clause 2, in each case, solely with respect to the Abandoned Patent. Upon issuing the notice, and without prejudice to the Licensee's obligations for the Abandoned Patent that have accrued up to theDate of Abandonment, Licensee shall have no further obligation, rights or interests with respect to the Abandoned Patent as from the Date of Abandonment, and University shall have the option to continue or not to continue prosecution, defence from invalidation attacks or maintenance of the Abandoned Patent at its own expense. University shall use all reasonable efforts to prepare or amend any patent applications to include claims reasonably requested by Licensee to protect the Licensed Product(s) contemplated or procedures to be practiced under this Agreement.

8.6 University shall give one hundred and twenty (120) days' notice to Licensee of any desire to cease prosecution or maintenance of a particular Proprietary IPR or Prospective Patent and, in such case, shall permit Licensee, at its sole discretion, to continue prosecution or maintenance at Licensee's own expense. If Licensee elects to continue prosecution or maintenance, University shall execute such documents and perform such acts, at Licensee's expense, as may be reasonably necessary to effect an assignment of such Proprietary IPR or Prospective Patent to Licensee. Any such assignment shall be completed in a timely manner to allow Licensee to continue such prosecution or maintenance. Any patents or patent applications so assigned shall not be considered Proprietary IPR or Prospective Patent for all purposes under this Agreement.

9 Patent Infringement

9.1 If either Party learns of the infringement of a Prospective Patent, in any jurisdiction within the Territory, it shall so inform the other Party in writing, including any evidence of such infringement. University may not notify a third party of the infringement of a Prospective Patent, save for its legal advisers, without first obtaining written consent of Licensee, which consent shall not be unreasonably denied or delayed. Both Parties shall use their reasonable commercial efforts in cooperation with each other to terminate such infringement.

9.2 Licensee shall have the sole right, but not the obligation, to institute, prosecute and control any action, suit or proceeding to enforce the Prospective Patent with respect to infringement of the Prospective Patent and to defend any declaratory judgment with respect thereto, in each case within the Territory ("Action"). University hereby agrees to assist and cooperate with Licensee, at Licensee's expense (including payment for University's expert's time, and other expenses so long as such expenses are properly documented), to enable Licensee to prosecute and maintain such Action. University's agreement to assist Licensee includes, at Licensee's reasonable request and when it is required by law, government regulation or court order, University's agreement to join or to procure its Affiliates to join as a nominal party to achieve sufficient legal standing for Licensee to prosecute and maintain such Action provided that, if University participates in the Action only as a nominal party, University shall have no responsibility (other than to join as a nominal party) nor be liable for any costs or expenses in relation to or arising from such Action. For clarity, such liabilities for costs or expenses shall be the responsibility of Licensee. If Licensee invites University or its Affiliates to take a more active role (other than as a nominal party) in an Action as a co-party, University shall have its sole discretion to decide joining or not and on terms to be agreed with Licensee on a case by case basis. Licensee shall have the right to settle any Action or consent to an adverse judgment thereto, in its sole discretion, except that Licensee may not settle such action by agreeing to the invalidation of a Prospective Patent or any claim therein

9.3 without University's prior written consent. Any recovery obtained as a result of an Action, whether by judgment, award, decree or settlement, shall first be applied to reimbursement of Licensee's expenses in bringing such suit or proceeding (including any attorneys, expert and court fees), and

the balance shall be considered to be Net Sales Value, and subject to the royalty payments at [***]% as set forth ln Clause 5, and the remaining balance shall be recovered by Licensee as damages. Subject to Clause 9.2, if University commences or defends any suit or proceedings on its own account, University shall do so at its own expense. University shall have the right to settle any such action or consent to an adverse judgment thereto, in its sole discretion, except that University may not settle such action that may impair, damage or otherwise adversely affect the licence granted to Licensee under Clause 2.1, Licensee's use of such licence, any Licensed Product, or any of Licensee's rights/obligations hereunder, without Licensee's prior written consent, which consent may not be unreasonably withheld or delayed. Any recovery obtained as a result of such action, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance shall be distributed between University and Licensee at a ratio of 65:35 in all cases which do not result in a sub-licence to a third party. If a suit or proceedings result in a sublicence to a third party, then any recovery, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of university's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance to be paid to Licensee, provided that such balance shall be shared between University and Licensee according to the provisions in Clause 5.3 herein.

10 Notices and Payments

10.1 Any notices or communication given under this Agreement shall be in English, in writing and delivered by registered post, courier with package tracking capabilities, or by hand, to the Party at its postal address set out below or to such other address as may be notified in writing from time to time between the Parties. A notice or communication to University must specify the Agreement Number TC1711656 for identification. Any notices or communication given under this Agreement shall be deemed to be given at the time and date of receipted delivery to the relevant address.

To University:	The Chinese University of Hong Kong Room 301, Pi Ch'iu Building Shatin, New Territories Hong Kong SAR Email: Attn: Director, Office of Research and Knowledge Transfer Services
with a copy to:	The Chinese University of Hong Kong Shatin New Territories Hong Kong SAR Attn: Professor Yuk Ming Dennis Lo Department of Chemical Pathology
To Licensee:	Cirina Limited 21st Floor, Edinburgh Tower The Landmark, 15 Queen's Road, Central, Hong Kong SAR Attn: Dr. Yuk Ming Dennis Lo, Board Member

10.2 All payments to be paid hereunder shall be made in reference to the Agreement Number TC1711656 for purpose of identification. All payments to University are to be made payable to "The Chinese University of Hong Kong", to be in Hong Kong Dollars and to be sent to the Director of Office of Research and Knowledge Transfer Services at the above address of University or by wire transfer to the following account:

Account Name:	[***]
Account No.:	[***]
Swift Code:	[***]
Name of Bank:	[***]

and shall be paid in full without any deductions, save for such tax as Licensee is legally bound to withhold, which amounts withheld shall be treated as if paid to University. Licensee shall provide reasonable assistance to University, free of charge, to recover any tax so withheld. If any currency conversion shall be required to make payment in a designated currency, such conversion shall be calculated using an exchange rate equal to the average of the applicable exchange rates published by the Wall Street Journal (*Internet Edition*) on the last day of each month for the four months preceding such payment.

10.3 If any payment (save and except for the Licence Issue Fee) due from Licensee under this Agreement is paid late, the Licensee shall be liable to pay interest on the amount of the late payment. The rate of interest referred to in this Clause 10.3 will be the annual rate of 2% above the prime lending rate of the Hong Kong and Shanghai Banking Corporation (as at the due date for payment) and interest shall accrue from the due date for payment until the date of actual receipt of payment.

11 Miscellaneous

11.1 "Clause" means clauses in the main part of this Agreement and "Paragraph" means paragraphs in the Standard Terms and Conditions in Schedule 1.

11.2 Heading to clauses and paragraphs are for convenience only and have no legal effect.

11.3 Words importing the singular include the plural and vice versa, words importing a gender include every gender and references to persons include bodies corporate or incorporate.

11.4 **1**Any schedule to this Agreement is part of it and reference to this Agreement includes reference thereto. In the event that there is any inconsistency between the Standard Terms and Conditions and the remainder of this Agreement, the latter shall prevail.

11.5 **Each** Party agrees to maintain in confidence the other Party's Information and not use such Information for any purpose, or disclose such Information to any third party, other than as expressly provided hereunder. The terms of this Agreement shall be deemed Information of both Parties under this Agreement and there shall be no public disclosure except with prior mutual agreement, unless as provided for in this Clause. In the event that a Party is required to publicly disclose the terms of this Agreement by any law, applicable securities exchange, supervisory, regulatory or governmental body (including, but not limited to, China Securities Regulatory Commission, The Stock Exchange of Hong Kong Limited and the Securities and Futures Commission of Hong Kong) to which any Party is subject to, the Party may disclose such term as reasonably necessary for the compliance of such court order, rule or regulation provided that the Party shall, where legally permissible, give prior written notice to the other Party and redact as much confidential information as is permitted under such rules and shall agree on all such redactions with the other Party prior to disclosure, except where such agreement may be precluded by advice of legal counsel of a Party. Licensee may disclose the terms of this Agreement to a Sub-Licensee or potential Sub-Licensee, so long as such disclosure is made under a confidentiality agreement. Each Party may disclose and use information of the other Party only if and to the extent such disclosure and use is reasonably necessary in the following instances:

11.5.1 filing or prosecuting Proprietary IPR and Prospective Patent as permitted by this Agreement;

11.5.2 prosecuting or defending litigation as permitted by this Agreement;

11.5.3 disclosure to third parties in connection with due diligence or similar Investigations by such third parties, and disclosure to actual and potential third party investors or partners,

collaborators, joint venturers, provided, in each case, that any such third party agrees to be bound by reasonable obligations of confidentiality and non-use;

11.5.4 in connection with legal proceedings relating to this Agreement;

11.5.5 in connection with the exercise of its rights under this Agreement; and

11.5.6 to employees, agents, officers, directors, auditors, advisers, partners, consultants, permitted Sub-Licensees, affiliates, sub-contractors requiring confidential information for the purposes of performance of this Agreement on a need to know basis.

IN WITNESS WHEREOF this Agreement has been entered into on the day and year first above written.

SIGNED by		)	
Name:	Prof. Walter K K HO	)	
Title:	Director, Office of Research and Knowledge Transfer Services	)	
for and on behalf of		)	/s/Walter K K Ho
THE CHINESE UNIVERSITY OF HONG KONG		)	
in the presence of:	Leung Kit Man	)	/s/ Leung Kit Man

SIGNED by		)	
Name:	Maneesh Jain	)	
Title:	CEO	)	
for and on behalf of		)	/s/ Maneesh Jain
CIRINA LIMITED		)	
in the presence of:	Angela Wu	)	/s/ Angela Wu

SCHEDULE 1

STANDARD TERMS AND CONDITIONS (the "T&C's)

1. Ownership of Intellectual Property Rights

1.1 All rights, including Intellectual Property Rights, in the Invention not expressly granted to Licensee in this Agreement shall remain vested in University.

1.2 Licensee shall, at the request of University, execute any document necessary to effect University's title where applicable, to Intellectual Property Rights in the Invention.

1.3 In the event that Licensee wishes to pursue intellectual property protection, including but not limited to patent application, for any Licensed Product, Licensee agrees to acknowledge, preserve and protect University's pre-existing Intellectual Property Rights, where applicable, in such Licensed Product.

2. Obligations of Licensee

2.1 Licensee is responsible for the quality and safety of its products.

2.2 Licensee shall use all reasonable efforts and diligence to exploit the Invention and to proceed with the development, manufacture and sale of Licensed Product and to use commercially reasonable efforts to develop markets for the Licensed Product.

2.3 Licensee will represent the Licensed Product fairly in comparison with competitive products from other suppliers.

2.4 Licensee shall not, on behalf of University, make any representations or give any warranties or· guarantees in respect of the Proprietary IPR not expressly authorised in writing by University, provided that such authorization shall not be unreasonably delayed or withheld by University.

2.5 Licensee shall not market the Licensed Product under the name of University, and not in any way create any impression that University is the seller of the Licensed Product.

2.6 Licensee shall take all such steps as are reasonably necessary to protect Intellectual Property Rights in the Invention.

2.7 Licensee shall promptly inform University upon becoming aware of any illegal or unauthorised use of the Invention or any infringement of the Prospective Patent or Proprietary IPR and Intellectual Property Rights therein.

2.8 Licensee shall comply with all laws, regulations and governmental obligations that may from time to time be applicable to the making, use or sale of the Licensed Product in each part of the Territory.

2.9 As between Licensee and University and without limiting any responsibility of an Affiliate or Sub-Licensee, Licensee shall be solely responsible for any claims arising or alleged to arise from loss or injury to persons or property caused or suffered in the course of or as a consequence of the use of the Invention by Licensee, Affiliates and Sub-Licensees or the supply and sale of the Licensed Product by Licensee, Affiliates and Sub-Licensees except where such loss or injury are caused by the gross negligence or wilful misconduct of University.

2.10 Except as expressly set forth under this Agreement, Licensee shall use its best endeavours to keep the Invention confidential and not to reveal to any third party any confidential information of University regarding the Invention until after a non-disclosure agreement has been signed, provided that no such obligation shall apply to any information that has been publicly disclosed through no breach of this Agreement by Licensee, including by publication of the Inventions by the applicable governmental agency, was in the possession of Licensee prior to disclosure by University, is obtained by

Licensee from a third party, or is independently developed by Licensee. For clarity, Licensee's obligations to keep the Invention confidential do not apply to the extent Licensee, its Affiliate or Sub-Licensee discloses the Invention or any portion of the Invention for purposes of obtaining regulatory approval for the Licensed Products, securing intellectual property on the Licensed Products or commercializing the Licensed Products.

2.11 To the extent prohibited by applicable law, Licensee shall not carry out any illegal, deceptive, or unethical practices, whether or not they are to the disparagement of the Invention, Licensed Product or University, or, subject to the foregoing in this Section 2.11, any other practices which may be detrimental to the Invention, Licensed Product, University or to the public interest.

3. Restriction On Use of Name

No right or licences are granted by University to the Licensee expressly or by implication to use the name or any trademark, service mark, trade name or symbol of The Chinese University of Hong Kong or any of its employees in any public relations activities or other activities or in connection with any Licensed Product manufactured, used, or sold by the Licensee, or as part of its corporate name or firm or trade name or for any other purpose without University's prior written consent. No right or licences are granted by Licensee to University expressly or by implication to use the name or any trademark, service mark, trade name or symbol of Licensee or any of its employees in any public relations activities or other activities or in connection with any Licensed Product or as part of its corporate name or firm or trade name or for any other purpose without Licensee's prior written consent.

4. Exclusion of Warranties

4.1 Except as expressly set forth under this Agreement, nothing in this Agreement shall be construed as a warranty or representation that anything made, used, sold, or otherwise disposed of under any licence granted in this Agreement is or will be free from infringement of any patent, copyright, trade mark or any other intellectual property right of any third party.

4.2 Except as expressly set forth in this Agreement, neither party makes any representations and extends no warranties of any kind, either express or implied. In particular, but without limitation, there are no express or implied warranties of merchantability or fitness for a particular purpose, or the operation of the Invention under the Prospective Patent will be uninterrupted or error-free or any defects in the Invention will be corrected.

4.3 University does not assume any responsibility for any exploitation, use or any product produced, developed and manufactured in accordance with the Invention or for the sale or use of the product processed, developed and manufactured by Licensee or its Sub-Licensees nor shall University be deemed to make or have made any warranties of any nature whatsoever with respect to the Invention or any product processed, developed and manufactured under this Agreement.

5. Indemnity

5.1 Licensee shall defend, indemnify and hold harmless University (including its officers, directors, employees) from any and all claims, demands, actions, suits, damages, penalties, liabilities, judgements, cost or expenses (including legal fees) assessed against or incurred by University as a result of any claim or threatened claim made by any third party against University relating to the use of or other exploitation by Licensee in connection with the manufacture, use, provision or sale of or any other dealing in the Invention or Licensed Product by Licensee, its Affiliates and its Sub-Licensee, including breach of sub-licence by a Defaulting Sub-Licensee as provided for in Clause 4.6 even if the relevant sub-licence is terminated by Licensee.

5.2 To be eligible to be indemnified hereunder, the indemnified Party shall provide the indemnifying Party with prompt notice of the third party claim giving rise to the indemnification obligation pursuant to this Paragraph 5 and the exclusive ability to defend (with the reasonable cooperation of the indemnified Party) or settle any such claim. The indemnifying Party shall have no obligations with respect to any losses resulting from the indemnified Party's admission, settlement or other communication without the prior written consent of the indemnifying Party.

6. Limitation of liability

6.1 Except for liabilities arising from a Party's breach of its obligations of confidentiality, neither Party nor any of its Affiliates shall be liable to the other Party for any indirect, punitive or consequential damages or loss of profits, whether based on contract or tort, or arising under applicable law or otherwise. Except for liabilities arising from University of its obligations of confidentiality, University hereby excludes liability to Licensee and its Sub-Licensee for any and all losses or damage of any kind howsoever caused including losses of profits or other consequential or special losses arising from the use of or inability to use the Invention.

6.2 Without prejudice to Paragraph 6.1, University's liability to the Licensee for all losses or damage of any kind howsoever caused shall be limited to the aggregate total amount received by University from Licensee under this Agreement as at the date of such breach.

6.3 No action arising out of this Agreement may be brought by either Party more than one year after the cause of action has accrued and has come to the attention of the aggrieved.

7. Termination

7.1 The licences granted hereunder, shall come into effect on the Commencement Date and, unless terminated earlier in accordance with this Paragraph 7 or relevant provisions of this Agreement, shall continue in force for the Term of Licence as detailed in Clause 3 and this Agreement and the licenses granted hereunder shall terminate automatically by expiry.

7.2 University shall be at liberty in every and any of the following events to terminate this Agreement in totality by written notice:

7.2.1 on failure by Licensee to meet the milestones as detailed in Schedule 3 which continues for at least thirty (30) days after University has given notices of that breach;

7.2.2 on failure by Licensee to make any undisputed payment to be paid hereunder for an aggregated amount not less than HK$ 100,000 (one hundred thousand) which continues for at least thirty (30) days after University has given written notice of that breach;

7.2.3 on any attempt by Licensee to assign or otherwise transfer any of its rights under this Agreement other than in accordance with the terms of this Agreement;

7.2.4 on cessation of Licensee's business relating to the exploitation of the Invention, unless such cessation is due to a permitted assignment or transfer of rights under this Agreement: or

7.2.5 if Licensee goes into liquidation (other than for the purposes of amalgamation or reconstruction) or if a receiver is appointed of its assets and undertaking or any part of them or any distress execution or other analogous process shall be issued against any property of Licensee, and such execution or process is not dismissed within 90 days.

7.3 Licensee may terminate this Agreement by serving upon University 3 months' notice in writing of its intention to terminate this Agreement.

7.4 Either Party may terminate this Agreement by written notice if the other Party commits a material breach of this Agreement which continues for at least sixty (60) days after the nondefaulting Party has given written notice of that breach and the required remedy.

8. Effect of Termination

8.1 Paragraphs 1, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, and 17 of the T&C's and Clauses 1, 4.4, 10, and 11 of the main part of the Agreement shall remain in force following termination or expiration.

8.2 On termination, the licence granted pursuant to this Agreement and all rights of Licensee under it shall forthwith cease and terminate without prejudice to any right of either Party which may have accrued up to the date of termination or remedy to sue and recover for any sum then due and to the remedy of either Party in respect of any previous breach of any provision contained in the Agreement.

8.3 Within a reasonable period of time after expiration or termination of this Agreement or the licences granted hereunder, each Party undertakes to return to the other Party all Information and all copies thereof and information in any form containing or covering in any way any part of the Information in its possession and/or control or provide evidence of their destruction.

8.4 Licensee will pay up all fees, expenses and payments accrued and payable to University up to the date of termination.

9. Governmental Obligations

Upon request by University and at University's expense, Licensee agrees to take all reasonable action necessary on its part as licensee to allow University to satisfy its governmental obligations and other reporting requirements, if any, relating to the Invention and/or this Agreement.

10. Time and Force Majeure

10.1 Subject to any grace or cure periods and to the provisions of Paragraph 10.2 below, time shall be of the essence.

10.2 Neither Party shall be liable to the other for delay in performance of its obligations hereunder or deemed to be in breach of this Agreement due to causes beyond its control, including but not limited to acts of God, disease outbreaks, fires, strikes, acts of war, terrorist acts, or intervention by any governmental authority, and each Party will take steps to minimize any such delay. If such an event occurs, the time set by this Agreement for performance of that obligation by the relevant Party will be extended for the period by which performance is prevented by the event PROVIDED THAT the other Party may terminate this Agreement by notice if such event continues for more than 180 days.

11. Severability

In the event that any provision or part of this Agreement is held to be invalid, illegal or otherwise unenforceable, this Agreement shall be deemed to be amended by the addition or deletion of wording as appropriate to remove the invalid part or provision but otherwise to retain the provision and the other provisions of this Agreement to the maximum extent permissible under applicable law.

12. Waiver

No indulgence given by either Party to the other shall be deemed or construed as a waiver of its rights and remedies hereunder.

13. No Implied Partnership or Agency

Nothing in this Agreement shall constitute or be deemed to constitute a partnership between the Parties and neither Party shall have the authority or power to bind the other Party or to contract in the name of and create a liability against the other Party.

14. Governing Law and Jurisdiction

This Agreement shall be governed by and construed in accordance with the laws of the Hong Kong SAR, excluding conflict-of-law principles that would cause the application of the laws of any other jurisdiction.

15. Arbitration

15.1 The Parties shall attempt to resolve any dispute, controversy or claim ("Dispute") arising out of or in connection with this Agreement between them amicably. In the event that the Parties are unable to resolve any Dispute amicably within a period of ninety (90) days from the date of a Party's notice of such Dispute to the other Parties, such Dispute, including any dispute with respect to the validity or existence of this Agreement or any provision hereof, shall be settled by arbitration in Hong Kong under the Hong Kong International Arbitration Centre ("HKIAC") Administered Arbitration Rules in force from time to time and as may be amended.

15.2 The number of arbitrators shall be three. Each Party shall be entitled to appoint one. arbitrator. The third arbitrator shall be appointed by HKIAC. All arbitration proceedings shall be conducted in the English language.

15.3 The arbitration shall be final and binding upon the Parties.

Notwithstanding the foregoing, the Parties agree that each Party shall have the right to seek interim injunction or other interim or conservatory measures from any court of competent jurisdiction, and this shall not be deemed or construed as incompatible with, or operate as a waiver of, the foregoing agreement to arbitrate.

16. Assignment

Licensee shall not assign, mortgage, charge or otherwise transfer any rights and obligations under this Agreement (and any attempt to do so will be null and void), without the prior written consent of University, except that each Licensee may, without the prior written consent of University, assign or otherwise transfer this Agreement to a successor to all or substantially all of its assets or business that pertain to this Agreement, whether by merger, operation of law, sale, or otherwise, provided that such successor agrees in writing to be bound by the terms and conditions of this Agreement.

17. Entire Agreement

17.1 This Agreement, including its Schedules, constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, representative statements, negotiations and understandings concerning the subject matter of this Agreement and University hereby excludes any implied terms which may be excluded by contract to the maximum extent permissible under applicable law.

17.2 Amendments or changes to this Agreement must be in writing and signed by duly authorized representatives of the Parties.

SCHEDULE 2

DESCRIPTION OF INVENTION

University Ref No. / Disclosure Form Title	**Prospective Patent**
1. 16/MED/750 **Detecting virus related cancers**	US Provisional Patent Application No. 62/450,541 US Provisional Patent Application No. 62/507,154

SCHEDULE 3

MILESTONES

Refer to Schedule 3 of license agreement TC1510006.

Exhibit 10.21

Certain information (indicated by asterisks) has been omitted from this document because it is both not material and would likely cause competitive harm to the registrant if publicly disclosed.

DATED 29 May 2017

(1) THE CHINESE UNIVERSITY OF HONG KONG

and

(2) CIRINA LIMITED

LICENCE AGREEMENT

THIS LICENSE AGREEMENT ("Agreement") is dated this 29th day of May 2017

BETWEEN:

(1) **The Chinese University of Hong Kong**, a university established by legislation in the Hong Kong Special Administrative Region (**"Hong Kong SAR"**) located in Shatin, New Territories, Hong Kong SAR acting in its capacity as the owner of the Invention as defined herein (**"University"**); and

(2) **Cirina Limited**, as limited liability company incorporated and existing under the laws of Hong Kong SAR having its registered office at 21st Floor, Edinburgh Tower, The Landmark, 15 Queen's Road, Central, Hong Kong SAR ("**Licensee**");

who together in this Agreement are referred to as the "**Parties**" and individually as the "**Party**".

WHEREAS:

(A) The Invention (as defined below) was invented by Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of University and his research team.

(B) University is owner of the invention within University Docket No. 07/MED/244, U.S. Patent No. 6,753,137 and European Patent No. EP1356124B1 within University Docket No. 01/Med/070, US Provisional Application No. 60/951,438, US Divisional Patent Application No. 15/474,995 (CUHK Ref. 12/MED/465 US Div1): Chinese Patent Application No. 201710089355.6 (CUHK Ref. 12/MED/465 CN Div1) and Chinese Patent Application No. 201710103299.7 (CUHK Ref. 12/MED/465 CN Div2) within University Docket No. 12/MED/465 and the underlying Proprietary IPR (as defined below) therein.

(C) University and Licensee now agree to enter into this definitive agreement with regard to Licensee's exclusive licence to use the Inventions and the Proprietary IPR therein in accordance with the provisions of this Agreement.

IT IS HEREBY AGREED as follows:

1 Definitions

In this Agreement, unless the context clearly otherwise requires, the following words and expressions shall have the following meanings and all defined terms shall apply to their singular and plural forms, as applicable: "Including" means "including without limitation". "H/herein", "hereof", "hereunder" or similar expressions refer to this Agreement. "Clause" means the referenced clauses in this Agreement.

1.1 "**Affiliate**" means any legal entity of which Licensee owns, directly or indirectly, 10% or more shareholdings.

1.2 "**Commencement Date**" means the date of commencement of the licence as referred to in Clause 3.1.

1.3 "**Effective Date**" means the date first written above of which this Agreement becomes effective.

1.4 "**Expenses**" means all costs and expenses incurred for processing, defending from invalidation attacks or maintain any of the Prospective Patent (as defined below) in a designated Patent Jurisdiction (as defined below) and includes those costs and expenses referred to in Clause 8 as payable by Licensee.

1.5 "**Information**" means information relating to the invention and any other technical information of University and any technical or business information of Licensee.

1.6 "**Intellectual Property Rights**" or "**IPR**" means any rights including but not limited to patents, know-how, confidential information, trade secret, industrial design, copyrights, trademarks, service marks, trade names, logos and the goodwill associated therewith and all rights or forms of protection having equivalent or similar effect (whether registered, unregistered or not capable of being registered) which may subsist anywhere in the world.

1.7 "**Invention**" means the invention disclosures and patent applications which were invented by Research Team and owned by University prior to the Commencement Date as listed in Schedule 2 hereto, and all Proprietary IPR and the Prospective Patent.

1.8 "**Licence Issue Fee**" means the consideration to be paid by Licensee to University in accordance with Clause 5.1.1 of this Agreement.

1.9 "**Licensed Field of Use**" means all fields except prenatal (fetal or maternal) diagnostics and/or prenatal (fetal or maternal) prognostics and/or prenatal (fetal or maternal) analysis.

1.10 "**Licensed Product**" means any product, service or process embodying, applying, adopting, using or otherwise utilizing the Invention or any part(s) thereof that is developed or produced by Licensee, its Affiliate and/or its Sub-Licensee, in the Licensed Field of Use, in each case, of which the manufacture, use, practice, sale, offer for sale, or importation, exportation, disposal or exploitation would constitute, but for the licence University grants to Licensee under this Agreement, an infringement of any valid claim of a Prospective Patent within the Invention in a country in which such activity is conducted or in which such product is sold.

1.11 "**Net Sales Value**" means, with respect to any Licensed Product, the gross sales price of such Licensed Product invoiced by Licensee, its Affiliate and/or its Sub-Licensee to customers who are not Affiliates (or are Affiliates but are the end users of such Licensed Product) less, to the extent actually paid or accrued by Licensee, its Affiliates and/or its Sub-Licensee (as applicable), (a) credits, allowances, discounts and rebates to, and chargebacks from the account of, such customers for nonconforming, damaged, out-dated and returned Licenses Product; (b) freight and insurance costs; (c) cash, quantity and trade discounts, rebates and other price reductions for such Licensed Product given to such customers under price reduction programs; (d) sales, use, value-added and other direct taxes incurred on the sale of such Licensed Product to such customers; (e) customs duties, tariffs, surcharges and other governmental charges incurred in exporting or importing such Licensed Product to such customers; (f) sales commissions incurred on the sale of such Licensed Product to such customers; and (g) an allowance for uncollectible or bad debts determined in accordance with generally accepted accounting principles. For avoidance of doubt, any consideration or royalties received from Sub-Licensee(s) are excluded. If a Licensed Product consists of components that are covered by valid claim of a Prospective Patent within the Invention (a "**Covered Component**") and components that are not covered by a Valid Claim ("**Other Components**"), then Net Sales for such Licensed Products shall be multiplied by the fraction A/(A+B), where A is the value of the Covered Component(s) as reasonably determined by Licensee, and B is the value of the Other Component(s) as reasonably determined by Licensee, and such resulting amount shall be the "Net Sales Value" for purposes of the Royalties and Sub-License Royalties calculations in Clauses 5.1.2 and 5.3.1, respectively, for such Licensed Product.

1.12 "**Patent Jurisdiction**" means convention country and/or region in which the Prospective Patent has been filed or granted or to be filed or granted and for which the application, prosecution, defence from invalidation attacks and maintenance will be made at the Licensee's expense.

1.13 "**Proprietary IPR**" means any and all underlying Intellectual Property Rights subsisting in the Invention listed in Schedule 2.

1.14 "**Prospective Patent**" means any and all patents and patent applications specified in Schedule 2 or included in the Proprietary IPR, including any patents or patent applications that claim common priority therewith or are grants, divisions, continuations, continuations-in-part, reissues, re-examinations and extensions of all such patents claiming priority therefrom (and any reference to "Prospective Patent" shall include any and all of them) as well as renewals thereof.

1.15 "**Research Team**" means Professor Yuk Ming Dennis Lo of the Department of Chemical Pathology of The Chinese University of Hong Kong and his research team.

1.16 "**Samples**" means human patient samples provided to the Licensee.

1.17 "**Standard Terms and Conditions**" or "**T&C's**" means the terms and conditions set forth in Schedule 1 hereto.

1.18 "**Sub-License Income**" means all one-time payments, net of any relevant tax, duties or similar government levies, which shall be non-recurring in nature as actually received by Licensee from Sub-Licensee(s) under any sub-licence(s) granted by Licensee to Sub-Licensee(s), including without limitation any up-front payments and milestone payments to be made by Sub-Licensee(s) to Licensee under any such sub-licence(s), in each case to the extent such amounts are received in consideration of the grant of a sublicense to the Invention, but excluding any amounts received by Licensee that are (a) Sub-License Royalties payable under Clause 5.3.2, (b) based on sales of Licensed Products, (c) loans, (d) paid for equity or securities (or rights to acquire equity or securities) to the extent not in excess of fair market value, (e) paid for supply of products or materials provide at cost or in kind exchange, and (F) reimbursements of costs and expenses incurred by Licensee, including for patent-related expenses or costs incurred in performing research, development and/or services thereunder.

1.19 "**Sub-Licensee**" means a sub-licensee, other than an Affiliate, who has a valid and subsisting licence granted to it by Licensee for the exploitation of the Licensed Product. For the avoidance of doubt, Sub-Licensee shall not be an Affiliate of Licensee.

1.20 "**Term**" means the term of licence as defined in Clause 3.1.

1.21 "**Territory**" means worldwide.

2 Grant of Licence

2.1 Subject to Clause 2.4 below, University hereby grants to Licensee, for the term and subject to the provisions of this Agreement, an exclusive and non-transferable (except as provided in Paragraph 16 of the T&C's) licence for the Invention, with the right to sublicense, subject to Clause 4, to apply, use and exploit the use of the invention and to make, authorize the making of, process, supply, sell, offer to sell, lease, otherwise commercially dispose of, import, have imported, export, or otherwise exploit in any manner the products and services in the Licensed Field of Use with the Territory. For avoidance of doubt, the Licensee shall be entitled to obtain Samples worldwide, including

from the Territory. Licensee shall solely be responsible for the safety and quality of the Licensed Product in accordance with the applicable laws, rules and regulations.

2.2 All improvements, modifications or alterations to the Licensed Product made or developed during the Term by University in the Licensed Field of Use, including any related patents and scientific or technical information, know-how or trade secrets, shall be, automatically, deemed subject to this Agreement and shall be included with the definition of Proprietary IPR. University shall, from time to time, promptly disclose to Licensee all such improvements, modification or alterations.

2.3 This grant of licence under Clause 2.1 can be extended to any Licensee's Affiliate so long as (i) such Affiliate remains as an Affiliate of Licensee as defined in Clause 1.1; and (ii) Licensee notifies University forthwith of any termination and potential termination of such relationship. Licensee shall remain fully responsible for any act done and omission on the part of Affiliate arising from or in connection with this Agreement. Licensee shall be responsible for any breach by Affiliate of the Agreement as if the breach had been that of Licensee under the Agreement. Licensee shall indemnify University and keep University harmless from and against any loss, damage, costs, expenses, demands and claims incurred or suffered by University in accordance with Paragraph 5 of the T&C's.

2.4 Licensee and University both acknowledge and agree that the grant of exclusive right to Licensee under this Agreement shall be subject to the followings:

2.4.1 University's academic rights to use the Invention, the Prospective Patent and related technology in the Territory solely for its own internal (non-commercial) research and educational purposes at all times without accounting to Licensee;

2.4.2 Governmental contractual obligations of University (if any) to the extent any government funding was used in support of the Invention and Prospective Patent; and

2.4.3 The rights granted by University to [***] under the Sponsored Research Agreement between University and [***] dated 6 March 2008 to use University Docket No. 92/MED/465, as identified in Schedule 2, solely for internal research purposes in the field of cancer detection, cancer prognostication or other analysis for the screening and management of cancer without accounting to Licensee.

2.5 University shall promptly, if requested by Licensee, execute and file applications (in the prescribed form) to register or provide notice to the relevant patents administrators of the transaction contemplated by this Agreement in accordance with relevant laws or regulations, provided that the Licensee.

2.5.1 shall, together with each request made to University, provide to University a duly executed irrevocable power of attorney in favour of University pursuant to relevant laws or regulations, to enable University to remove such registration or notice to the relevant patents administration promptly upon the expiration or early termination of the licence granted in this Agreement or any part of it, or upon the abandonment by Licenses of any Prospective Patent under Clause 8.5; and

2.5.2 shall bear all costs and expenses in connection with the requested registration or notice, as well as the removal of such registration or notice, including but not limited to University's expenses in consulting its own professional advisers about Licensee's request and attending to the filing and removal of the registration or notice.

3. Term of Licence

3.1 This Agreement shall become effective on the Effective Date. The licence granted under Clause 2.1 shall be effective and commence from the date of University's receipt of full payment of the Licence Issue Fee under Clause 5.1.1 ("**Commencement Date**"). This Agreement and the licence shall expire concurrently with the last-to-expire Prospective Patent or on the 20th anniversary of the Commencement Date, whichever is the later, unless terminated earlier under the terms of this Agreement (the "**Term**").

3.2 In the event that Licensee fails to make full payment of the Licence Issue Fee within the prescribed period under Clause 5.1.1, this Agreement shall be automatically terminated on the expiry of the prescribed period under Clause 5.1.1. University shall not be required to refund any part of the Licence Issue Fee paid by Licensee prior to such termination and Licensee shall not be required to make further payment of the Licence Issue Fee.

4 Sub-Licensee

4.1 For the Licence granted in Clause 2.1, Licensee shall be entitled to grant and authorize sub-licences of its rights thereunder to any person or entity subject to the terms of this Agreement. However, Licensee shall ensure that each sub-licence shall include obligations on the Sub-Licensee at least as restrictive as the obligations imposed on Licensee under this Agreement, excluding any economic term, which may be freely negotiated between the Licensee and Sub-Licensee, and a sub-license may allow for further sublicensing through multiple tiers.

4.2 The sub-license granted to Sub-Licensee shall be terminated by Licensee if Sub-Licensee directly or indirectly, during the term of the sub-licence or thereafter challenges the ownership and/or any rights of University in the Invention, including any Proprietary IPR in respect of the Invention, the Prospective Patent, and the validly thereof.

4.3 Within thirty (30) days of the grant of any sub-licence, the Licensee shall provide to University a true copy of the executed sub-licence agreement, provided that Licensee may redact such agreement to exclude the financial terms thereof and may provide only those provisions that are reasonably related to the Licensee's obligations to University pursuant to this Agreement.

4.4 All sub-licences granted to a Sub-licensee shall terminate automatically on the expiration or early termination of this Agreement for any reason; provided, however that sublicenses granted to a Sub-Licensee shall survive if the relevant Sub-Licensee agrees in writing to be bound by the terms of this Agreement as such terms apply to such Sub-Licensee (in which event such Sub-Licensee shall be deemed a direct licensee of University); provided that such Sub-Licensee shall only be responsible for any payments that become due as a result solely of such Sub-Licensee's activities after the effective date of any such termination.

4.5 The Licensee remains fully liable to pay to University all Royalties due from the Sub- Licensee, without prejudice to the right of University to seek indemnity from Licensee in accordance with Paragraph 5 of the T&C's.

4.6 In the event that a Sub-Licensee commits a material breach of any of Its other obligations under the sub-licence agreement (the "**Defaulting Sub-licensee**"), Licensee shall use commercially reasonable efforts to enforce the terms of the relevant sub-licence agreement against the Defaulting Sub-Licensee. If the Defaulting Sub-Licensee's material breach continues for thirty (30) days after University's written notice to Licensee, and if Licensee does not within thirty (30) days after University's written notice to Licensee (or

such longer period as University in its sole discretion may grant taking into consideration the nature and seriousness of the Defaulting Sub-Licensee's material breach on a case by case basis), provide evidence to satisfy University that Licensee has taken legally reasonable action under the circumstances to remedy the Defaulting Sub-Licensee's breach (possibly including, without limitation, commencement of legal proceedings by Licensee against the Defaulting Sub-Licensee to enforce the terms of the sub-licence agreement, or the provision of legal advice, obtained at Licensee's expense from counsel of its choosing, and reasonably acceptable to University, indicating that Licensee has taken legally reasonable action to deal with the Defaulting Sub-Licensee's breach) then unless expressly agreed to in writing by University and only if such material breach by such Sub-Licensee has a material adverse effect on University, the sub-licence granted to Sub-Licensee shall be terminated by Licensee. In any event, Licensee shall indemnify University against all third party claims, demands, actions, suits, damages, penalties, liabilities, judgments, costs (including legal costs and attorney charges) and expenses assessed against or incurred by University as a result of the breach by the Defaulting Sub-Licensee, even if the relevant sub-licence is terminated by Licensee, in accordance with Paragraph 5 of the T&C's.

5. Payments

5.1 In consideration of the granting of Licence by University under Clause 2.1, Licensee shall pay to University:

5.1.1 An upfront, non-refundable and non-recoupable licence issue fee of HK Dollars **[***]** (the "**Licence Issue Fee**"), payable within one hundred and eighty (180) days from the Effective Date of this Agreement. However, if the Licence Issue Fee is not paid in its entirety within the aforesaid period, Licensee is deemed to have reverted the licence back to University and is no longer required to pay University any outstanding payment under this Agreement; and

5.1.2 Subject to Clause 5.5, the royalty at [***] percent of Net Sales Value, in respect of each application, use, process, supply and/or sale of Licensed Product by Licensee and/or its Affiliate during the Term (the "**Royalties**"), other than any Sub-License Income and Sub-License Royalties (as defined in Clause 5.3.2); provided that if, in any calendar quarter(s), Licensee is obligated to pay University royalties on sales of products (including Licensed Product) under Licence Agreement No. TC1510006 dated 7th April 2616 signed between the Parties or any other agreement, then no Royalties shall be due on sales of such Licensed Product in such calendar quarter(s).

5.2 For the avoidance of doubt,

5.2.1 the Royalties and Minimum Guarantees (as defined in Clause 5.4) shall be payable by the Licensee to University in accordance with the terms of this Agreement throughout the Term in respect of the Net Sales Value received for the production, distribution, sale and/or use of the Licensed Product anywhere in the Territory.

5.2.2 Licensee has to pay the Minimum Guarantees in accordance with Clauses 5.4 and 5.5 herein regardless of the status of any individual Prospective Patent. Licensee's obligation to pay Minimum Guarantees is not abated by the occurrence of any event, including but not limited to the expiry or invalidation of any issued patent or any claim therein, the unsuccessful application of any patent application, or the abandonment of any Prospective Patent by Licensee under Clause 8.5 of this Agreement.

5.2.3 The Royalties, Minimum Guarantees and Sub-License Royalties (as defined in Clause 5.3.2) must be paid in full in accordance with the provisions in Clause 5 of this Agreement. Royalties shall be paid semi-annually, and shall be in arrears ninety (90) days after the last day of June and December in each year in accordance with Clause 6.1.

5.3 In the case of sub-licence, Licensee agrees to pay University:

5.3.1 [***] percent of Sub-License Income; and

5.3.2 [***] percent of Net Sales Value (the "**Sub-License Royalties**") received by such Sub-Licensee for the Licensed Products, net of any relevant tax, duties or similar government levies, excluding any up-front payments and milestone payments to be made by the Sub-Licensees) to Licensee under any such sub-licence(s), provided that if, in any calendar quarter(s), Licensee is obliged to pay University Sub-License Royalties on sales of products (including Licensed Product) under any other agreement, then no Sub-License Royalty shall be due on sales of such Licensed Product in such calendar quarter(s).

5.4 Licensee agrees to pay to University fixed sums of minimum annual royalties, subject to Clause 5.5, (the "**Minimum Guarantees**"), irrespective of whether or not Net Sales Value is generated, in advance for each year during the Term commencing on 2nd January 2018 ("**Minimum Guarantee Year**") as follows:-

Payment Date	Minimum Guarantee for the year
2nd January 2018	HK$[***]
2nd January for each and every succeeding Minimum Guarantee Year	HK$[***]

5.5 During each Minimum Guarantee Year, Licensee shall pay University for such year the higher of the applicable (i) Minimum Guarantees, or (ii) actual Royalties and Sub-License Royalties.

5.6 Licensee shall continue to pay Royalties, and Sub-License Royalties in accordance with Clauses 5.1.2 and 5.3.2 above for as long as Net Sales Value is received by Licensee, Affiliates or Sub-Licensees) (respectively), and Sub-License Income is received by Licensee.

5.7 If a court of competent jurisdiction in a particular territory, by a final decision of a court from which no further appeal or reconsideration can be taken, holds invalid any Prospective Patent or all of the relevant patent claims within a Prospective Patent, Licensee's obligation to pay Royalties corresponding to the Licensed Products) which is(are) covered solely by that patent or those claims, will cease as of the date of such decision in that jurisdiction and such territory will be excluded from the Territory as defined in Clause 1.21 insofar as the relevant Prospective Patent is concerned. Licensee, however, shall pay Royalties that accrued before that decision or that are based on all other patents or claims not involved in that decision. For the avoidance of doubt, if for a particular product any claim of a Prospective Patent is valid and covers that product, licensee's obligation to pay Royalties shall not cease. If for a particular product, no claim of any Prospective Patent is valid that covers that product, licensee's obligation to pay Royalties for that product in that jurisdiction shall cease. When Licensee's obligation to pay Royalties in any jurisdiction within the Territory ceases in respect of a Prospective Patent that is finally declared invalid, this Agreement is deemed to have terminated by expiry in respect of that Prospective Patent in that jurisdiction.

6 Commercialization Report and Accounting for and Payment of Royalties and Maintenance of Records

6.1 Licensee shall, within ninety (90) days after the last day of June and December, send to University a commercialization report (which shall be the Information of Licensee) which comprises:

6.1.1 a report for the preceding six (6) months period, except the first commercialization report as defined in Clause 6.2, to indicate development activities made, milestones achieved, activities performed towards the commercialization of the Invention, and

6.1.2 a statement specifying income, fees and royalties payable to University, which shall include the quantities of Licensed Product produced, sold and sales price of Licensed Product sold or otherwise disposed of, the number of sub-licences granted to Sub-Licensees that include the right to market and sell Licensed Products and details of income/fees/royalties received from any Sub-Licensees and a calculation showing the income, fees and royalties due, and the statement shall be accompanied by a bankers' draft for (i) any amount over and above the Minimum Guarantees paid in advance for that year under Clause 5.4; (ii) the Sub-License Royalties payable under Clause 5.3.2; and (iii) the Sub-License Income payable under Clause 5.3.1. There shall be no cross-collateralization, no accounts shall be offset and no other adjustment shall be made between the Licensed Products or between territories, areas or countries of the Territory unless provided otherwise in this Agreement.

6.2 The first commercialization report shall cover the period from Commencement Date to 31st December 2017. Each subsequent commercialization report should cover a period of six (6) months as stipulated in Clause 6.1.

6.3 licensee also agrees to make and will cause its Sub-Licensees to make a written report to University within ninety (90) days after the date of termination or early termination of this Agreement, stating in such report the number, description and Net Sales Value of all Licensed Products produced, sold, or otherwise disposed of, and upon which royalties hereunder are payable but which were not previously reported to University.

6.4 Licensee shall keep and will require its Sub-Licensees to keep during the Term and seven (7) years thereafter, records or accounts sufficient to enable accurate calculations of royalties due to University. University shall be entitled to appoint an independent auditor not employed by the University and reasonably acceptable to Licensee to determine the correctness of any royalty statement or royalties payable or paid hereunder. The cost of inspection by such auditor shall be borne by University unless the auditor's report indicates that Licensee has under-reported its sales of Licensed Product and/or receipt of fees/royalties from Sub-Licensees by more than five (5%) percent in which case Licensee shall bear the full cost of such audit. Such audit may only be conducted once per calendar year.

7 Milestones

Licensee agrees to use commercially reasonable efforts to meet the milestones as detailed in Schedule 3. In the event that Licensee does not use commercially reasonable efforts to meet any of the milestones, University may at its discretion elect to terminate the licence granted under Clause 2.1 with respect to the relevant Milestones of this Agreement pursuant to Paragraph 7 of Standard Terms and Conditions. No indulgence given by University on any particular occasion

shall be deemed or construed as a waiver of its right to terminate this Agreement on future occasions.

8 Prospective Patent

8.1 Subject to Clause 8.5, Licensee confirms and agrees that from the Commencement Date, it shall assume financial responsibility, as set forth In Clause 8.3, and shall continue to be financially responsible for and control the prosecution, defence from invalidation attacks and maintenance of any and all Prospective Patent within the Territory.

8.2 University has applied for patent applications set forth in Schedule 2. University represents and warrants that (a) it solely owns the patent applications set forth in Schedule 2 and has obtained all rights from the inventors of the inventions claimed in such patent applications, (b) it has the right to grant the licence to the Licensee as granted under the Agreement, and (c) it has not granted any rights under the patent applications set forth in Schedule Z to a third party except rights in the prenatal field and an internal research licence (with no commercialization rights) to [***], as identified in Clause 2.4.3.

8.3 Subject to Clause 8.1, Licensee agrees to (a) reimburse the University for all legal and government expenses to be incurred for the prosecution and maintenance of the Prospective Patent within the Invention within the Territory after the Commencement Date; and (b) pay for all costs and expenses involved in defending the relevant claims of the Prospective Patent from invalidation actions that may arise during the Term within the Territory. Said payments for undisputed amounts to be made to University within thirty (30) days upon presentation of invoice to Licensee. University shall cooperate with Licensee and join any enforcement action brought by Licensee at Licensee's request.

8.4 University shall provide reasonable assistance to Licensee with respect to the prosecution, maintenance, and defence of the Prospective Patent. For avoidance of doubt, any patent applications and the subsequent grants, renewals, amendments or restorations of any patent or patent application listed in Schedule 2 that do not exist as of the Effective Date shall be treated as part of the Prospective Patent hereunder.

8.5 Licensee may by at least ninety (90) days' advanced written notice terminate its financial responsibility for the expenses for the filing, prosecution, defence from invalidation attacks or maintenance of any of the Prospective Patent ("**Abandoned Patent**") in any of the Patent Jurisdiction ("**Abandoned Jurisdiction"**). The notice shall identify the Abandoned Patent, the Abandoned Jurisdiction and the date the termination is to take effect (which shall not be less than 96 days from the date of the service of the notice). The service of such notice on University shall constitute an irrevocable abandonment by Licensee of its licence hereunder in the Abandoned Patent, in the Abandoned Jurisdiction on the effective date stated in the said notice (**"Date of Abandonment"**) and the Abandoned Jurisdiction shall be excluded from the definition of "Territory" in Clause 1.21 and the licence granted in Clause 2, in each case, solely with respect to the Abandoned Patent. Upon issuing the notice, and without prejudice to the Licensee's obligations for the Abandoned Patent that have accrued up to the Date of Abandonment, Licensee shall have no further obligation, rights or interests with respect to the Abandoned Patent as from the Date of Abandonment, and University shall have the option to continue or not to continue prosecution, defence from invalidation attacks or maintenance of the Abandoned Patent at its own expense. University shall use all reasonable efforts to prepare or amend any patent applications to include claims reasonably requested by

Licensee to protect the Licensed Products) contemplated or procedures to be practiced under this Agreement.

8.6 University shall give one hundred and twenty (120) days' notice to Licensee of any desire to cease prosecution or maintenance of a particular Proprietary IPR or Prospective Patent and, in such case, shall permit Licensee, at Its sole discretion, to continue prosecution or maintenance at Licensee's own expense. If Licensee elects to continue prosecution or maintenance, University shall execute such documents and perform such acts, at Licensee's expense, as may be reasonably necessary to effect an assignment of such Proprietary IPR or Prospective Patent to Licensee. Any such assignment shall be completed in a timely manner to allow Licensee to continue such prosecution or maintenance. Any patents or patent applications so assigned shall not be considered Proprietary IPR or Prospective Patent for all purposes under this Agreement.

9.9 Patent Infringement

9.1 It either Party learns of the infringement of a Prospective Patent, in any jurisdiction within the Territory, it shall so inform the other Party in writing, including any evidence of such infringement. University may not notify a third party of the infringement of a Prospective Patent, save for its legal advisers, without first obtaining written consent of Licensee, which consent shall not be unreasonably denied or delayed. Both Parties shall use their reasonable commercial efforts in cooperation with each other to terminate such infringement.

9.2 Licensee shall have the sole right, but not the obligation, to institute, prosecute and control any action, suit or proceeding to enforce the Prospective Patent with respect to infringement of the Prospective Patent and to defend any declaratory judgment with respect thereto, in each case within the Territory ("Action"). University hereby agrees to assist and cooperate with Licensee, at Licensee's expense (including payment for University's expert's time, and other expenses so long as such expenses are properly documented), to enable Licensee to prosecute and maintain such Action. University's agreement to assist Licensee includes, at Licensee's reasonable request and when it is required by law, government regulation or court order, University's agreement to join or to procure its Affiliates to join as a nominal party to achieve sufficient legal standing for Licensee to prosecute and maintain such Action provided that, if University participates in the Action only as a nominal party, University shall have no responsibility (other than to join as a nominal party) nor be liable for any costs or expenses in relation to or arising from such Action. For clarity, such liabilities for costs or expenses shall be the responsibility of Licensee. If Licensee invites University or its Affiliates to take a more active role (other than as a nominal party) in an Action as a co-party, University shall have its sole discretion to decide joining or not and on terms to be agreed with Licensee on a case by case basis. Licensee shall have the right to settle any Action or consent to an adverse judgment thereto, in its sole discretion, except that Licensee may not settle such action by agreeing to the invalidation of a Prospective Patent or any claim therein without University's prior written consent. Any recovery obtained as a result of an Action, whether by judgment, award, decree or settlement, shall first be applied to reimbursement of Licensee's expenses in bringing such suit or proceeding (including any attorneys, expert and court fees), and the balance shall be considered to be Net Sales Value, and subject to the royalty payments at [***]% as set forth in Clause 5, and the remaining balance shall be recovered by Licensee as damages.

9.3 Subject to Clause 9.2, if University commences or defends any suit or proceedings on its own account, University shall do so at its own expense. University shall have the right to settle any such action or consent to an adverse judgment thereto, in its sole discretion, except that University may not settle such action that may impair, damage or otherwise adversely affect the licence granted to Licensee under Clause 2.1, Licensee's use of such licence, any Licensed Product, or any of Licensee's rights/obligations hereunder, without Licensee's prior written consent, which consent may not be unreasonably withheld or delayed. Any recovery obtained as a result of such action, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suit or proceeding (including expert, attorneys and court fees), and the balance shalt be distributed between University and Licensee at a ratio of 65:35 in all cases which do not result in a sub-licence to a third party. If a suit or proceedings result in a sub-licence to a third party, then any recovery, whether by judgment, award, decree, or settlement, shall first be applied to reimbursement of University's expenses in bringing such suitor proceeding(including expert, attorneys and court fees), and the balance to be paid to Licensee, provided that such balance shall be shared between University and Licensee according to the provisions in Clause 5.3 herein.

10 Notices and Payments

10.1 Any notices or communication given under this Agreement shall be in English, in writing and delivered by registered post, courier with package tracking capabilities, or by hand, to the Party at its postal address set out below or to such other address as may be notified in writing from time to time between the Parties. A notice or communication to University must specify the Agreement Number TC1711657 for identification. Any notices or communication given under this Agreement shall be deemed to be given at the time and date of receipted delivery to the relevant address.

To University: The Chinese University of Hong Kong
Room 301, Pi Ch'iu Building
Shatin, New Territories
Hong Kong SAR
Email:
Attn: Director, Office of Research and Knowledge Transfer Services

with a copy to: The Chinese University of Hong Kong
Shatin
New Territories
Hong Kong SAR
Attn: Professor Yuk Ming Dennis Lo
Department of Chemical Pathology

To Licensee: Cirina Limited
21st Floor, Edinburgh Tower
The Landmark, 15 Queen's Road,
Central, Hong Kong SAR
Attn: Dr. Yuk Ming Dennis Lo, Board Member

10.2 All payments to be paid hereunder shall be made in reference to the Agreement Number TC1711657 for purpose of identification. All payments to University are to be made payable to "The Chinese University of Hong Kong", to be in Hong Kong Dollars and to be

sent to the Director of Office of Research and Knowledge Transfer Services at the above address of University or by wire transfer to the following account:

Account Name:	[***]
Account No.:	[***]
Swift Code:	[***]
Name of Bank:	[***]

and shall be paid in full without any deductions, save for such tax as Licensee is legally bound to withhold, which amounts withheld shall be treated as if paid to University. Licensee shall provide reasonable assistance to University, free of charge, to recover any tax so withheld. If any currency conversion shall be required to make payment in a designated currency, such conversion shall be calculated using an exchange rate equal to the average of the applicable exchange rates published by the Wall Street Journal (*Internet Edition*) on the last day of each month for the four months preceding such payment.

10.3 If any payment (save and except for the Licence issue Fee) due from Licensee under this Agreement is paid late, the Licensee shall be liable to pay interest on the amount of the late payment. The rate of interest referred to in this Clause 10.3 will be the annual rate of 2% above the prime lending rate of the Hong Kong and Shanghai Banking Corporation (as at the due date for payment) and interest shall accrue from the due date for payment until the date of actual receipt of payment.

11.11 Miscellaneous

11.1 “Clause” means clauses in the main part of this Agreement and “Paragraph” means paragraphs in the Standard Terms and Conditions in Schedule 7.

11.2 Heading to clauses and paragraphs are for convenience only and have no legal effect.

11.3 Words importing the singular include the plural and vice versa, words importing a gender include every gender and references to persons include bodies corporate or incorporate.

11.4 Any schedule to this Agreement is part of It and reference to this Agreement includes reference thereto. In the event that there is any inconsistency between the Standard Terms and Conditions and the remainder of this Agreement, the latter shall prevail.

11.5 Each Party agrees to maintain in confidence the other Party’s Information and not use such information for any purpose, or disclose such information to any third party, other than as expressly provided hereunder. The terms of this Agreement shall be deemed Information of both Parties under this Agreement and there shall be no public disclosure except with prior mutual agreement, unless as provided for in this Clause. In the event that a Party is required to publicly disclose the terms of this Agreement by any law, applicable securities exchange, supervisory, regulatory or governmental body (including, but not limited to, China Securities Regulatory Commission, The Stock Exchange of Hong Kong Limited and the Securities and Futures Commission of Hong Kong) to which any Parry is subject to, the Party may disclose such term as reasonably necessary for the compliance of such court order, rule or regulation provided that the Party shall, where legally permissible, give prior written notice to the other Party and redact as much confidential information as is permitted under such rules and shall agree on all such redactions with the other Party prior to disclosure, except where such agreement may be

precluded by advice of legal counsel of a Party. Licensee may disclose the terms of this Agreement to a Sub-Licensee or potential Sub-Licensee, so long as such disclosure is made under a confidentiality agreement. Each Party may disclose and use Information of the other Party only if and to the extent such disclosure and use is reasonably necessary in the following instances:

11.5.1 filing or prosecuting Proprietary IPR and Prospective Patent as permitted by this Agreement;

11.5.2 prosecuting or defending litigation as permitted by this Agreement;

11.5.3 disclosure to third parties in connection with due diligence or similar investigations by such third parties, and disclosure to actual and potential third party investors or partners, collaborators, joint venturers, provided, in each case, that any such third party agrees to be bound by reasonable obligations of confidentiality and non-use;

11.5.4 in connection with legal proceedings relating to this Agreement;

11.5.5 in connection with the exercise of its rights under this Agreement; and

11.5.6 to employees, agents, officers, directors, auditors, advisers, partners, consultants, permitted sub-licensees, affiliates, sub-contractors requiring confidential information for the purposes of performance of this Agreement on a need to know basis.

IN WITNESS WHEREOF this Agreement has been entered into on the day and year first above written.

SIGNED by		)	
Name: Prof. Walter K K HO		)	
Title: Director, Office of Research and Knowledge Transfer Services		)	
for and on behalf of		)	/s/Walter K K Ho
THE CHINESE UNIVERSITY OF HONG KONG		)	
in the presence of:	Leung Kit Man	)	/s/Leung Kit Man

SIGNED by		)	
Name: Maneesh Jain		)	
Title: CEO		)	
for and on behalf of		)	/s/Maneesh Jain
CIRINA LIMITED		)	
in the presence of:	Angela Wu	)	/s/Angela Wu

SCHEDULE 1

STANDARD TERMS AND CONDITIONS (the “T&C’s)

1. Ownership of Intellectual Property Rights

1.1 All rights, including Intellectual Property Rights, in the Invention not expressly granted to Licensee in this Agreement shall remain vested in University.

1.2 Licensee shall, at the request of University, execute any document necessary to effect University’s title where applicable, to intellectual Property Rights in the Invention.

1.3 In the event that Licensee wishes to pursue intellectual property protection, including but not limited to patent application, for any Licensed Product, Licensee agrees to acknowledge, preserve and protect University’s pre-existing Intellectual Property Rights, where applicable, in such Licensed Product.

2. Obligations of Licensee

2.1 Licensee is responsible for the quality and safety of its products.

2.2 Licensee shall use all reasonable efforts and diligence to exploit the Invention and to proceed with the development, manufacture and sale of Licensed Product and to use commercially reasonable efforts to develop markets for the Licensed Product.

2.3 Licensee will represent the Licensed Product fairly in comparison with competitive products from other suppliers.

2.4 Licensee shall not, on behalf of University, make any representations or give any warranties or guarantees in respect of the Proprietary IPR not expressly authorised in writing by University, provided that such authorization shall not be unreasonably delayed or withheld by University.

2.5 Licensee shall not market the Licensed Product under the name of University, and not in any way create any impression that University is the seller of the Licensed Product.

2.6 Licensee shall take all such steps as are reasonably necessary to protect Intellectual Property Rights in the Invention.

2.7 Licensee shall promptly inform University upon becoming aware of any illegal or unauthorised use of the Invention or any infringement of the Prospective Patent or Proprietary IPR and Intellectual Property Rights therein.

2.8 Licensee shall comply with all laws, regulations and governmental obligations that may from time to time be applicable to the making, use or sale of the Licensed Product in each part of the Territory.

2.9 As between Licensee and University and without limiting any responsibility of an Affiliate or Sub-Licensee, Licensee shall be solely responsible for any claims arising or alleged to arise from loss or injury to persons or property caused or suffered in the course of or as a consequence of the use of the Invention by Licensee, Affiliates and Sub-Licensees or the supply and sale of the Licensed Product by Licensee, Affiliates and Sub-Licensees

except where such loss or injury are caused by the gross negligence or wilful misconduct of University.

2.10 Except as expressly set forth under this Agreement, Licensee shall use its best endeavours to keep the Invention confidential and not to reveal to any third party any confidential Information of University regarding the Invention until after a non-disclosure agreement has been signed, provided that no such obligation shall apply to any information that has been publicly disclosed through no breach of this Agreement by Licensee, including by publication of the Inventions by the applicable governmental agency, was in the possession of Licensee prior to disclosure by University, is obtained by Licensee from a third party, or is independently developed by Licensee. For clarity, Licensee's obligations to keep the Invention confidential do not apply to the extent Licensee, its Affiliate or Sub-Licensee discloses the Invention or any portion of the invention for purposes of obtaining regulatory approval for the Licensed Products, securing intellectual property on the Licensed Products or commercializing the Licensed Products.

2.11 To the extent prohibited by applicable law, Licensee shall not carry out any illegal, deceptive, or unethical practices, whether or not they are to the disparagement of the Invention, Licensed Product or University, or, subject to the foregoing in this Section 2.11, any other practices which may be detrimental to the invention, Licensed Product, University or to the public interest.

3. Restriction On Use of Name

No right or licences are granted by University to the Licensee expressly or by implication to use the name or any trademark, service mark, trade name or symbol of The Chinese University of Hong Kong or any of its employees in any public relations activities or other activities or in connection with any Licensed Product manufactured, used, or sold by the Licensee, or as part of its corporate name or Firm or trade name or for any other purpose without University's prior written consent. No right or licences are granted by Licensee to University expressly or by implication to use the name or any trademark, service mark, trade name or symbol of Licensee or any of its employees in any public relations activities or other activities or in connection with any Licensed Product or as part of its corporate name or firm or trade name or for any other purpose without Licensee's prior written consent.

4. Exclusion of Warranties

4.1 Except as expressly set forth under this Agreement, nothing in this Agreement shall be construed as a warranty or representation that anything made, used, sold, or otherwise disposed of under any licence granted in this Agreement is or will be free from infringement of any patent, copyright, trade mark or any other Intellectual property right of any third party.

4.2 Except as expressly set forth in this Agreement, neither party makes any representations and extends no warranties of any kind, either express or implied. In particular, but without limitation, there are no express or implied warranties of merchantability or fitness for a particular purpose, or the operation of the Invention under the Prospective Patent will be uninterrupted or error-free or any defects in the Invention will be corrected.

4.3 University does not assume any responsibility for any exploitation, use or any product produced, developed and manufactured in accordance with the Invention or for the sale

or use of the product processed, developed and manufactured by Licensee or Its Sub-Licensees nor shall University be deemed to make or have made any warranties of any nature whatsoever with respect to the Invention or any product processed, developed and manufactured under this Agreement.

5. Indemnity

5.1 Licensee shall defend, indemnity and hold harmless University (including its officers, directors, employees) from any and all claims, demands, actions, suits, damages, penalties, liabilities, judgements, cost or expenses (including legal fees) assessed against or incurred by University as a result of any claim or threatened claim made by any third party against University relating to the use of or other exploitation by Licensee in connection with the manufacture, use, provision or sale of or any other dealing in the Invention or Licensed Product by Licensee, its Affiliates and its Sub-Licensee, including breach of sub-licence by a Defaulting Sub-Licensee as provided for in Clause 4.6 even if the relevant sub-licence is terminated by Licensee.

5.2 To be eligible to be indemnified hereunder, the indemnified Party shall provide the indemnifying Party with prompt notice of the third party claim giving rise to the indemnification obligation pursuant to this Paragraph 5 and the exclusive ability to defend (with the reasonable cooperation of the indemnified Party) or settle any such claim. The indemnifying Party shall have no obligations with respect to any losses resulting from the indemnified Party's admission, settlement or other communication without the prior written consent of the indemnifying Party.

6. Limitation of liability

6.1 Except for liabilities arising from a Party's breach of its obligations of confidentiality, neither Party nor any of its Affiliates shall be liable to the other Party for any indirect, punitive or consequential damages or loss of profits, whether based on contract or tort, or arising under applicable law or otherwise. Except for liabilities arising from University of its obligations of confidentiality, University hereby excludes liability to Licensee and its Sub-Licensee for any and all losses or damage of any kind howsoever caused including losses of profits or other consequential or special losses arising from the use of or inability to use the Invention.

6.2 Without prejudice to Paragraph 6.1, University's liability to the Licensee for all losses or damage of any kind howsoever caused shall be limited to the aggregate total amount received by University from Licensee under this Agreement as at the date of such breach.

6.3 No action arising out of this Agreement may be brought by either Party more than one year after the cause of action has accrued and has come to the attention of the aggrieved.

7. Termination

7.1 The licences granted hereunder, shall come into effect on the Commencement Date and, unless terminated earlier in accordance with this Paragraph 7 or relevant provisions of this Agreement, shall continue in force for the Term of Licence as detailed in Clause 3 and this Agreement and the licenses granted here under shall terminate automatically by expiry.

7.2 University shall be at liberty in every and any of the following events to terminate this Agreement in totality by written notice:

7.2.1 on failure by Licensee to meet the milestones as detailed in Schedule 3 which continues for at least thirty (30) days after University has given notices of that breach;

7.2.2 on failure by Licensee to make any undisputed payment to be paid hereunder for an aggregated amount not less than HK$ 100,00 (one hundred thousand) which continues for at least thirty (30) days after University has given written notice of that breach;

7.2.3 on any attempt by Licensee to assign or otherwise transfer any of its rights under this Agreement other than in accordance with the terms of this Agreement;

7.2.4 on cessation of Licensee's business relating to the exploitation of the Invention, unless such cessation is due to a permitted assignment or transfer of rights under this Agreement; or

7.2.5 if Licensee goes Into liquidation (other than for the purposes of amalgamation or reconstruction) or if a receiver is appointed of its assets and undertaking or any part of them or any distress execution or other analogous process shall be issued against any property of Licensee, and such execution or process is not dismissed within 90 days.

7.3 Licensee may terminate this Agreement by serving upon University 3 months' notice In writing of its intention to terminate this Agreement.

7.4 Either Party may terminate this Agreement by written notice if the other Party commits a material breach of this Agreement which continues for at least sixty (60) days after the non-defaulting Party has given written notice of that breach and the required remedy.

8. Effect of Termination

8.1 Paragraphs 1, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, and 17 of the T&C's and Clauses 1, 4.4, 10, and 11 of the main part of the Agreement shall remain in force following termination or expiration.

8.2 On termination, the licence granted pursuant to this Agreement and all rights of Licensee under it shall forthwith cease and terminate without prejudice to any right of either Party which may have accrued up to the date of termination or remedy to sue and recover for any sum then due and to the remedy of either Party in respect of any previous breach of any provision contained in the Agreement.

8.3 Within a reasonable period of time after expiration or termination of this Agreement or the licences granted hereunder, each Party undertakes to return to the other Party all information and all copies thereof and information in any form containing or covering in any way any part of the Information in its possession and/or control or provide evidence of their destruction.

8.4 Licensee will pay up alt fees, expenses and payments accrued and payable to University up to the date of termination

9. Governmental Obligations

Upon request by University and at University's expense, Licensee agrees to take all reasonable action necessary on its part as licensee to allow University to satisfy its governmental obligations and other reporting requirements, if any, relating to the Invention and/or this Agreement.

10. Time and Force Majeure

10.1 Subject to any grace or cure periods and to the provisions of Paragraph 10.2 below, time shall be of the essence.

10.2 Neither Party shall be liable to the other for delay in performance of its obligations hereunder or deemed to be in breach of this Agreement due to causes beyond its control, including but not limited to acts of God, disease outbreaks, fires, strikes, acts of war, terrorist acts, or intervention by any governmental authority, and each Party will take steps to minimize any such delay. If such an event occurs, the time set by this Agreement for performance of that obligation by the relevant Party will be extended for the period by which performance Is prevented by the event PROVIDED THAT the other Party may terminate this Agreement by notice if such event continues for more than 180 days.

11. Severability

In the event that any provision or part of this Agreement is held to be invalid, illegal or otherwise unenforceable, this Agreement shall be deemed to be amended by the addition or deletion of wording as appropriate to remove the invalid part or provision but otherwise to retain the provision and the other provisions of this Agreement to the maximum extent permissible under applicable law.

12. Waiver

No indulgence given by either Party to the other shall be deemed or construed as a waiver of its rights and remedies hereunder.

13. No Implied Partnership or Agency

Nothing in this Agreement shall constitute or be deemed to constitute a partnership between the Parties and neither Party shall have the authority or power to bind the other Party or to contract in the name of and create a liability against the other Party.

14. Governing Law and Jurisdiction

This Agreement shall be governed by and construed in accordance with the laws of the Hong Kong SAR, excluding conflict-of-law principles that would cause the application of the laws of any other jurisdiction.

15. Arbitration

15.1 The Parties shall attempt to resolve any dispute, controversy or claim ("Dispute") arising out of or in connection with this Agreement between them amicably. In the event that the Parties are unable to resolve any Dispute amicably within a period of ninety (90) days from the date of a Party's notice of such Dispute to the other Parties, such Dispute, including any dispute with respect to the validity or existence of this Agreement or any provision hereof, shall be settled by arbitration in Hong Kong under the Hong Kong

International Arbitration Centre (“HKIAC”) Administered Arbitration Rules in force from time to time and as may be amended.

15.2 The number of arbitrators shall be three. Each Party shall be entitled to appoint one arbitrator. The third arbitrator shall be appointed by HKIAC. All arbitration proceedings shall be conducted in the English language.

15.3 The arbitration shall be final and binding upon the Parties.

Notwithstanding the foregoing, the Parties agree that each Party shall have the right to seek interim injunction or other interim or conservatory measures from any court of competent Jurisdiction, and this shall not be deemed or construed as incompatible with, or operate as a waiver of, the foregoing agreement to arbitrate.

16. Assignment

Licensee shall not assign, mortgage, charge or otherwise transfer any rights and obligations under so will be null and void), without the prior written consent of this Agreement (and any attempt to do University, except that each Licensee may, without the prior written consent of University, assign or otherwise transfer this Agreement to a successor to all or substantially all of its assets or business that pertain to this Agreement, whether by merger, operation of law, sale, or otherwise, provided that such successor agrees in writing to be bound by the terms and conditions of this Agreement.

17. Entire Agreement

17.1 This Agreement, including its Schedules, constitutes the entire agreement between the Parties and supersedes all prior agreements, whether oral or written, representative statements, negotiations and understandings concerning the subject matter of this Agreement and University hereby excludes any implied terms which may be excluded by contract to the maximum extent permissible under applicable law.

17.2 Amendments or changes to this Agreement must be in writing and signed by duly authorized representatives of the Parties.

SCHEDULE 2

DESCRIPTION OF INVENTION

University Ref No./ Disclosure Form Title	Prospective Patent
1.07/MED/244 **Determining a Nucleic Acid Sequence Imbalance**	Australian Patent Application No. 2008278839 (issued as Australian Patent No. 2008278839); Canadian Patent Application No. 2694007; Chinese Patent Application No. 200880108128.3 (issued as Chinese Patent No. ZL200880108126.3); European Patent Application No. 08776038.5; Japanese Patent Application No. 2010.517480 (issued as Japanese Patent No. 5519500); Korean Patent Application No. 10-2010-7003906 (issued as Korean Patent No. 101646978); US Non-provisional Patent Application No. 12/178,116 (issued as US Patent No. 8,706,422); Hong Kong Patent Application No. 10110584.9; European Divisional 1 Patent Application No. 12180122.9; European Divisional 2 Patent Application No. 92180129.4 (issued as European Patent No. 2557518 and validated in France, Germany and Great Britain); European Divisional 3 Patent Application No. 12180133.6; European Divisional 4 Patent Application No. 12180138.5; Australian Divisional 4 Patent Application No. 2013202132 (issued as Australian Patent No. 2013202132); Australian Divisional 3 Patent Application No. 2013202141 (issued as Australian Patent No. 2013202141); Australian Divisional 2 Patent Application No. 2013202160 (issued as Australian Patent No. 2013202160); Australian Divisional 1 Patent Application No. 2013202157 (issued as Australian Patent No. 2013202157); Hong Kong Divisional 1 Patent Application No. 13109377.9; Hang Kong Divisional 2 Patent Application No. 13109380.4; Hong Kong Divisional 3 Patent Application No. 13109379.7; Hong Kong Divisional 4 Patent Application No. 13109427.9; US Divisional 1 Patent Application No. 14/030,904; Japanese Divisional 1 Patent Application No. 2013-267526; Chinese Divisional 1 Patent Application No. 201410052009.7; Chinese Divisional 2 Patent Application No. 201410051659.X; Chinese Divisional 3 Patent Application No. 201410051950.7; Macau Patent Application No. J/001408 (issued as Macau Patent No. J/001408); Hong Kong Patent Application No. 14112444.1; Australian Divisional 5 Patent Application No. 2015271883 Japanese Divisional 2 Patent Application No. 2016-131552; and Korean Divisional 1 Patent Application No. 10-2016-7021211 Korean Divisional 2 Patent Application No. 10-2016-7021212 Korean Divisional 3 Patent Application No. 10-2016-7021213 Korean Divisional 4 Patent Application No. 10-2016-7021214

2.01/MED/070 **Gastric Disease Detection System**	US Patent Application No. 10/057,579 (issued as US Patent No. 6,753,137) European Patent No. EP1356124B1
3.12/MED/485 **Diagnosing Cancer Using Genomic Sequencing**	US Provisional Application No. 60/951,438; US Divisional Patent Application No. 15/474,995 (CUHK Ref. 12/MED/465 US Div 1) Chinese Patent Application No. 201710089355.6 (CUHK Ref. 12/MED/465 CN Div 1) and Chinese Patent Application No. 201710103299.7 (CUHK Ref. 12/MED/465 CN Div 2)

SCHEDULE 3

MILESTONES

Refer to Schedule 3 of license agreement TC1510006.

LEASE

BY AND BETWEEN

MENLO PREHC I, LLC, a Delaware limited liability company,
MENLO PREPI I, LLC, a Delaware limited liability company, and
TPI INVESTORS 9, LLC, a California limited liability company, LESSOR

AND

GRAIL, INC., a Delaware corporation, LESSEE

Menlo Business Park

1525 O'Brien Drive

Menlo Park, California 94025

May 5, 2016

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LEASE

Menlo Business Park
1525 O'Brien Drive
Menlo Park, California 94025

THIS LEASE, referred to herein as this "Lease," is made and entered into as of May 5, 2016, by and between MENLO PREHC I, LLC, a Delaware limited liability company, MENLO PREPI I, LLC, a Delaware limited liability company, and TPI Investors 9, LLC, a California limited liability company, hereafter collectively referred to as "Lessor," and GRAIL, INC., a Delaware corporation, hereafter referred to as "Lessee."

RECITALS

Lessor is the owner of the real property located in Menlo Business Park, Menlo Park, California, commonly referred to as 1525 O'Brien Drive, Menlo Park, California, more particularly described on Exhibit "A" attached hereto and incorporated by reference herein, together with all easements and appurtenances thereto (collectively, the "Land") and the existing buildings thereon, containing approximately Seventy-Four Thousand Three Hundred (74,300) rentable square feet, and all other improvements located thereon (collectively, the "Improvements"). The Land and Improvements are referred to herein collectively as the "Property." The Menlo Business Park Master Plan is attached hereto as Exhibit "B" and incorporated by reference herein, and identifies the properties that comprise the Menlo Business Park (the "Park" or "Menlo Park"). The building at 1525 O'Brien Drive, Menlo Park, California is referred to herein as the "Building." The floor plan of the Building is attached hereto as Exhibits "C-1" and "C -2" and incorporated by reference herein.

Lessor and Lessee wish to enter into this Lease of the Premises defined in Paragraph l upon the terms and conditions set forth herein.

NOW, THEREFORE, the parties agree as follows:

1. Lease. Subject to the phased delivery of the Premises set forth in Paragraph 2(c) below, beginning on the Phase 1 Commencement Date (as defined in Paragraph 2(c)) as to the Phase I Space (as designated in Exhibit "C-1" attached hereto) and Phase 2 Commencement Date (as defined in Paragraph 2(c)) as to the Phase 2 Space (as designated in Exhibit "C-2" attached hereto), Lessor hereby leases to Lessee, and Lessee leases from Lessor, at the rental rate and upon the terms and conditions set forth herein, approximately 71,239 rentable square feet of the Building as identified in Exhibits "C-1" and "C-2" attached hereto (the "Premises" or "Leased Premises"), together with the right to use three (3) on-site parking spaces per one thousand rentable square feet of the Premises (rounded to the closest whole number) in accordance with Paragraph 28, and the non-exclusive right to use the common areas of the Building intended for use in common by the tenants of the Building ("Building Common Areas") and the common areas and other Improvements on the Property intended for use in common by the tenants of the Property ("Property Common Areas"). The Building Common Areas are shown on Exhibits "C-1" and "C-2". The Building Common Areas and the Property Common Areas are collectively referred to herein as the "Common Areas." Lessee's Pro Rata Share of the Building shall mean

23.904% as to the Phase 1 Space, and 95.88% as to the entire Premises. The Premises have been measured in accordance with BOMA standards. Lessor and Lessee agree that the rentable square footage of the Building shall not be subject to re-measurement. The square footage of the Premises set forth in this Lease are deemed to be accurate and shall not be subject to re-measurement.

(a) If Lessee is not in default beyond applicable notice provision and cure periods and occupies more than fifty percent (50%) of the Premises, Lessee shall have an ongoing right of first offer ("ROFO"), subject to the rights of tenants within the Menlo Business Park with leases executed prior to the date of this Lease, to lease all or any portion of the ROFO Space (as hereafter defined). The "ROFO Space" shall mean the remaining space in the Building, and space within 1605 Adams Drive and 1505 O'Brien, which are located in the Menlo Business Park, which are not leased as of the date of this Lease, or which becomes available for lease subsequent to the date of this Lease. Lessor represents that the only existing superior rights to lease any of the ROFO Space are listed in Schedule 1(a) attached hereto. If, during the Term (including any Option Term), any ROFO Space becomes available for direct lease during the Term of the Lease, then Lessor shall first offer to lease such space to Lessee by delivering written notice to Lessee (the "Availability Notice"). Such ROFO, however, shall be an ongoing right as to the ROFO Space offered during the term of the Lease. The Availability Notice shall set forth the terms upon which Lessor would be willing to lease such space to a third party, as determined by Lessor in its sole discretion. Lessee shall have ten (10) days after receipt of the Availability Notice to unconditionally accept in writing or reject the terms set forth in the Availability Notice, it being understood that Lessee's failure to respond within such ten (10) day period shall be deemed a rejection of such terms.

If Lessee does not unconditionally accept in writing the terms set forth in the Availability Notice within such ten (10) day period, then Lessor shall be entitled to lease the Available Space to any other party substantially the same terms as contained in the Availability Notice (as such terms may be modified during the Waiting Period) provided that the net aggregate of the rental rate and the landlord build-out obligations, tenant improvement allowance, and free rent, if any, shall be no less desirable than originally offered to Lessee in the Availability Notice. Lessor's requirement to lease to a third party under substantially the same terms as presented in the Availability Notice will be in effect for six (6) months from Lessor's delivery of the Availability Notice after which Lessee shall continue to have a ROFO on such space. If Lessee accepts in writing the terms set forth in the Availability Notice, then for the period starting on the date of Lessor's delivery of the Availability Notice to Lessee and ending thirty (30) days thereafter (the "Waiting Period"), Lessor shall not negotiate with another party or enter into any binding agreement to lease the available space with any other party or market the available space for lease. During the Waiting Period, Lessor and Lessee shall enter into good faith negotiations to finalize and execute a written amendment to this Lease or a new lease (a "Definitive Agreement"), consistent with the terms set forth in the Availability Notice and otherwise on the non-economic terms and conditions of this Lease. If Lessee and Lessor fail to execute and deliver a Definitive Lease Agreement within the Waiting Period, then Lessee's rights under this Paragraph shall lapse and terminate as to such offered ROFO Space, and Lessor shall be entitled to lease such space to any other party on such term as Lessor desires. Furthermore, unless

expressly mentioned and approved in the written consent of Lessor to any assignment or subletting as provided in this Lease, the ROFO under this Paragraph is granted for the personal benefit of Grail, Inc. and any Permitted Transferee of Grail, Inc. and may not be exercised any other person or entity or for the occupancy of any other person or entity other than Grail, Inc. or any Permitted Transferee. Such ROFO space shall be leased coterminous with the Term of this Lease (including renewals). Notwithstanding the foregoing, the ROFO on the existing buildings at 1605 Adams Drive and 1505 O'Brien Drive are subject to Lessor's election to redevelop those buildings. If Lessor elects to redevelop other buildings, Lessee shall have such ROFO right on the redeveloped buildings.

(b) Lessor and Lessee acknowledge that Lessor may (but is not obligated to) construct a new building ("Lot 3 North") at the site with the current address of 1315 O'Brien Drive, Menlo Park, CA. Subject to the existing superior rights listed in Schedule 1(b) attached hereto [, and if Lessee is not in default beyond applicable notice and cure periods and occupies more than fifty percent (50%) of its Premises, if, during the Term, any space in Lot 3 North becomes available for direct lease for the first time, then Lessor shall first offer to lease such space to Lessee by delivering written notice to Lessee (the "Availability Notice"). Such right of first offer, however, shall be a one-time right as to Lot 3 North, not a recurring right. The Availability Notice shall set forth the terms upon which Lessor would be willing to lease such space to a third party, as determined by Lessor in its sole discretion. Lessee shall have ten (10) days after receipt of the Availability Notice to unconditionally accept in writing or reject the terms set forth in the Availability Notice, it being understood that Lessee's failure to respond within such ten (10) day period shall be deemed a rejection of such terms. If Lessee does not unconditionally accept in writing the terms set forth in the Availability Notice within such ten (10) day period, then Lessor shall be entitled to lease the Available Space to any other party substantially the same terms as contained in the Availability Notice (as such terms may be modified during the Waiting Period) provided that the net aggregate of the rental rate and the landlord build-out obligations, tenant improvement allowance, and free rent, if any, shall be no less desirable than originally offered to Lessee in the Availability Notice. Lessor's requirement to lease to a third party under substantially the same terms as presented in the Availability Notice will be in effect for ninety (90) days from Lessor's delivery of the Availability Notice after which Lessee shall continue to have a ROFO on such space; provided that once Lessor leases such space to any other party after compliance with this paragraph, Lessee's rights under this Paragraph shall lapse and terminate as to such offered ROFO Space. If Lessee accepts in writing the terms set forth in the Availability Notice, then for the period starting on the date of Lessor's delivery of the Availability Notice to Lessee and ending thirty (30) days thereafter (the "Waiting Period"), Lessor shall not negotiate with another party or enter into any binding agreement to lease the available space with any other party or market the available space for lease. During the Waiting Period, Lessor and Lessee shall enter into good faith negotiations to finalize and execute a written amendment to this Lease or a new lease (a "Definitive Agreement"), consistent with the terms set forth in the Availability Notice and otherwise on the non-economic terms and conditions of this Lease. If Lessee and Lessor fail to execute and deliver a Definitive Lease Agreement within the Waiting Period, then Lessee's rights under this Paragraph shall lapse and terminate as to such offered ROFO Space, and Lessor shall be entitled to lease such space to any other party on such term as Lessor desires. Furthermore, unless expressly mentioned and

approved in the written consent of Lessor to any assignment or subletting as provided in this Lease, the ROFO under this Paragraph is granted for the personal benefit of Grail, Inc. and any Permitted Transferee of Grail, Inc. and may not be exercised any other person or entity or for the occupancy of any other person or entity other than Grail, Inc. or any Permitted Transferee. Such ROFO space shall be leased coterminous with the Term of this Lease (including renewals). Lot 3 North is owned by Lessor's affiliates ("Other Landlords"). By their execution at the end of this Lease, the Other Landlords acknowledge Lessee's Right of First Offer rights with respect to Lot 3 North.

(c) Lessee shall have the right, without rental or other charge, to install, operate and maintain supplemental HVAC equipment and/or telecommunications antennas, microwave dishes and other communications equipment (collectively, "Antenna Equipment") on the roof of the Building immediately above the Premises. Lessor shall have the right to approve the installation of the Antenna Equipment, and Lessor's approval shall not be unreasonably withheld or delayed, but may be conditioned in Lessor's sole but reasonable opinion. In the event the Antenna Equipment installation requires penetrating the roof of the Building, then Tenant agrees to utilize a roofing contractor reasonably approved by Lessor. Tenant shall not damage the roof during such installation. The Antenna Equipment shall be used by Lessee for use in Lessee's business operations, and Lessee shall not have the right to permit third parties unrelated to Lessee to use or install Antenna Equipment (e.g., telephone companies). Such use shall be subject to receipt of all required governmental approvals and shall not interfere with the Building Systems. Lessee shall pay for damage to the roof area to which Antenna Equipment is installed or to roof area utilized as access Antenna Equipment. The location of Antenna Equipment shall be mutually acceptable to both Lessor and Lessee. Lessee acknowledges that Lessor may decide, in its sole discretion, from time to time, to repair or replace the roof of the Building (hereinafter "Roof Repairs"). If Lessor elects to make Roof Repairs, Lessee shall, upon Lessor's request, temporarily remove Antenna Equipment so that the Roof Repairs may be completed. The cost of removing and reinstalling the Antenna Equipment shall be paid by Lessee, at Lessee's sole cost and expense. Lessor shall not be liable to Lessee for any damages, lost profits or other costs or expenses incurred by Lessee as the result of the Roof Repairs. On the termination of this Lease, Lessee shall remove the Antenna Equipment and all associated cabling and repair any damages caused thereby, at Lessee's sole cost and expenses.

(d) Except hereinafter provided, Lessor shall retain absolute dominion and control over the Property Common Area. Lessor shall operate and maintain the Common Area in good order and condition; provided, however, such right shall not materially adversely affect Lessee's access to the Premises nor shall it operate to otherwise materially adversely affect Lessee's beneficial use and enjoyment of the Premises for Lessee's permitted use. Notwithstanding anything to the contrary herein, Lessor grants Lessee, its employees, invitees, licensees, and other visitors a non-exclusive license to use the Common Area for the Term hereof. Subject to Lessee's rights in Section 15(d) below, Lessee acknowledges that, with no less than forty-five (45) days written notice to Lessee, and without any liability to Lessee in any respect so long as Lessee's access to the Premise or Lessee's parking or permitted use is not materially adversely affected, Lessor shall have the right to:

(i) Close off any of the Common Area to whatever extent required, in the opinion of Lessor, to prevent a dedication of any of the Common Area or the accrual of any rights by any person or the public to the Common Area;

(ii) Temporarily close any of the Common Area for maintenance, alteration or improvement purposes;

(iii) Select, appoint or contract with any person for the purpose of operating and maintaining the Property Common Area, on such terms and conditions as Lessor deems reasonable;

(iv) Change the size, use, shape or nature of any such Property Common Area, or the entry Common Area of the Building, without incurring any liability to Lessee or entitling Lessee to any abatement of Rent;

(v) Expand any buildings (other than the Building) within the Property to cover a portion of the Property Common Area, convert the Property Common Area to a portion of other buildings within the Property, or convert any portion of any other buildings within the Property to Property Common Area; provided, however, that Lessee's proportionate share shall not increase (except to a de minimis extent). Upon erection of any buildings or change in Property Common Area, the portion of the other buildings upon which such structures have been erected will no longer be deemed to be a part of the Property Common Area; and

(vi) In addition to the other rights of Lessor under this Lease, Lessor reserves to itself and its respective successors and assigns the right to: (i) change the street address and/or name of the Building and/or Property (provided, however, that in no event shall the name of the Building be changed to a name of any entity that is a competitor of Lessee); (ii) erect, use and maintain pipes and conduits in and through the Premises; provided that such pipes and conduits shall not be visible from the interior of the Premises and in no event shall the usable area of the Premises be diminished by other than a *de minimis* amount, and provided that the location of such pipes and conduits within the laboratory areas of the Premises be subject to Lessee's reasonable approval; (iii) grant to anyone the exclusive right to conduct any particular business or undertaking in the Property provided that Lessee shall not be bound thereby; (iv) grant to anyone the exclusive use of portions of any storage areas to tenants; (v) control the use of the roof and exterior walls of other buildings in the Property; (ii) change the boundary lines of the lot on which the Building stands and/or Property is located and to make other reasonable changes therein and grant other rights thereto, including, without limitation, the granting of easements, servitudes, rights of way and rights of ingress and egress and similar rights to users of adjacent parcels, utility companies, governmental agencies or other tenants so long as Lessee's access to the Property and Building is not materially changed; and (iii) make alterations, repairs or replacements within other premises within the Building or Property. Subject to the terms of this Paragraph, Lessor may exercise any or all of the foregoing rights without being deemed to be guilty of an eviction or disturbance or interruption of the business of Lessee or Lessee's use or occupancy of the Premises.

2. Term.

(a) The term of this Lease (the "Term") shall commence as to the Phase 1 Space (as defined in the Work Letter attached hereto as Exhibit "F) on the earlier of (i) the date that Lessor delivers the Phase 1 Space to Lessee with the Phase 1 Landlord Work (as defined in the Work Letter) and the Phase 1 Tenant Improvements (as defined in the Work Letter) Substantially Completed (as defined in the Work Letter) (the "Phase 1 Commencement Date"), and (ii) the date such work would have been Substantially Completed but for the occurrence of Tenant Delays (as defined in the Work Letter). The Phase 1 Commencement Date shall be confirmed in writing by Lessor and Lessee by the execution and delivery of a factually correct Phase 1 Commencement Memorandum in the form attached hereto as Exhibit "D-1". The parties currently expect the Phase 1 Commencement Date to occur by September 21, 2016. Lessee's access to the Phase 1 Space until the Phase 2 Commencement Date (as defined in Paragraph 2(b)), is subject to Paragraph 13.

(b) The term of this Lease (the "Term") shall commence as to the Phase 2 Space (as defined in the Work Letter) on the earlier of (i) the date that Lessor delivers the Phase 2 Space to Lessee with the Phase 2 Landlord Work (as defined in the Work Letter) and the Phase 2 Tenant Improvements (as defined in the Work Letter) Substantially Completed (as defined in the Work Letter) (the "Phase 2 Commencement Date"), and (ii) the date such work would have been Substantially Completed but for the occurrence of Tenant Delays . The Phase 2 Commencement Date shall be confirmed in writing by Lessor and Lessee by the execution and delivery of a factually correct Phase 2 Commencement Memorandum in the form attached hereto as Exhibit "D-2". The parties currently expect the Phase 2 Commencement Date to occur by January 25, 2017. In the event the Phase 2 Commencement Date does not occur by January 25, 2017 because of a Lessor Delay" (as hereafter defined), Base Rent shall abate after the Phase 2 Commencement Date for the number of days between January 25, 2017 and the Phase 2 Commencement Date for up to a total of sixty (60) days and thereafter shall abate by twice the number of days until the Phase 2 Commencement Date occurs.

If the Phase 2 Commencement Date does not occur by July 8, 2017 because of a Lessor Delay, Lessee shall have the option to terminate this Lease at any time until the Phase 2 Commencement Date occurs. "Lessor Delay" shall mean any delay that is not a Tenant Delay or a Force Majeure Event (as defined in Paragraph 36 (g)) which is caused by Lessor and is within the control of Lessor. Upon such termination, neither party shall have further obligation under the lease, except for those provisions of the Lease that expressly survive termination of the Lease, and Tenant shall be entitled to the return of the Letter of Credit and any advance rent paid to Landlord. Such rent abatement and/or right of termination shall constitute Lessee's sole remedy for a delay in delivery of possession of the Premises and commencement of the term of this Lease.

(c) Lessee shall have the option to lease from Lessor on a month-to-month basis on the terms set forth in this Paragraph approximately 9,121 rentable square feet of office space within the second floor of 1505 O'Brien Drive which is adjacent to the Building and 525 O'Brien Drive (the "Temporary Space"). Lessee may exercise such option by written notice to Lessor delivered no later than October 1, 2016. The month to month lease for the Temporary Space shall

be: (i) on a full service basis at $4.50 per rentable square foot per month; (ii) on the terms set forth in the form of month to month lease attached as Exhibit "I"; (iii) with an early access date of Nov 1, 2016 for the purpose of setting up furniture, equipment and IT; and (iv) rent commencement as of January 1, 2017.

(d) The Term of this Lease shall expire, unless sooner terminated in accordance with the provisions hereof or as permitted by law, on the last day of the one hundred twentieth (120th) full calendar month after the Phase 1 Commencement Date.

(e) Lessee shall have one (1) option to extend the Term of this Lease ("Extension Option") beyond the expiration of the Term for an additional period of sixty (60) months ("Extended Term") by giving Lessor written notice of such election ("Option Exercise Notice") not earlier than eighteen (18) months nor later than twelve (12) months prior to the expiration of the Lease Term. If Lessor does not receive the Option Exercise Notice within the time period provided above, all rights under the Extension Option shall terminate. Lessee shall have no right to exercise the Extension Option notwithstanding any provision in the grant to the contrary if Lessee does not then occupy more than fifty percent (50%) of the Premises or while Lessee is in default of this Lease after any applicable notice and cure period. The Extended Term shall be on the same terms and conditions as contained in this Lease except that (i) there shall be no further right to extend the Lease beyond the Extended Term, (ii) there shall be no initial rent concessions, tenant improvement allowance or obligation of Lessor to construct tenant improvements, and (iii) Monthly Base Rent during the Extended Term shall equal the Fair Market Rental Rate determined in accordance with this Paragraph. Lessor and Lessee agree to negotiate in good faith to determine the Monthly Base Rent based on the Fair Market Rental Rate within fifteen (15) days following the Notice Date. "Fair Market Rental Rate" shall mean the net effective rental rate per rentable square foot of the Premises taking into consideration the terms and conditions, including free rent, tenant improvement allowances, brokerage commissions, base years, construction time and all other lease concessions (an adjustment to the applicable Fair Market Rental Rate shall be made on a basis consistent with the adjustments commonly made in the market for comparable differences in concession packages), which non-renewing, non-equity tenants are receiving in an arm's length lease transaction for non-sublease space for an approximate sixty (60) month lease term in connection with the lease of comparable laboratory/office buildings in Menlo Park, California, as applicable including all relevant terms such as age, quality size, location, services, amenities, quality of construction and appearance. Subject to any confidentiality agreements, Lessor shall disclose to Lessee all relevant information concerning comparable transactions in the Park. If the parties are unable to agree upon the Monthly Base Rent for the Extended Term within thirty (30) days following the Notice Date ("Outside Agreement Date"), then each party shall submit to the other party a separate written determination of the Fair Market Rental Rate within fifteen (15) business days after the Outside Agreement Date, and such determinations shall be submitted to arbitration in accordance with the provisions below. Within fifteen (15) days thereafter, each party, at its own cost and by giving written notice to the other party, shall appoint a real estate appraiser with at least ten (10) years' full-time commercial real estate appraisal experience in San Mateo County. If a party does not appoint an independent appraiser on or before such fifteen (15) day period and if such failure continues for three (3) business days after written notice from the other party of such failure, then

the single appraiser appointed shall be the sole appraiser. If there are two (2) appraisers appointed by the parties as stated above, the appraisers shall promptly meet. The determination of the arbitrators shall be limited solely to the issue of whether Landlord's or Tenant's submitted Fair Market Rental Rate is the closer to the actual Fair Market Rental Rate as determined by the arbitrators, taking into account the requirements with respect thereto set forth above. The two (2) arbitrators so appointed shall, within fifteen (15) days of the date of the appointment of the last appointed arbitrator, agree upon and appoint a third arbitrator who shall be qualified under the same criteria set forth hereinabove for qualification of the initial two (2) arbitrators. The three (3) arbitrators shall, within thirty (30) days of the appointment of the third arbitrator, reach a decision as to which of Landlord's or Tenant's submitted Fair Market Rental Rate is closer to the actual Fair Market Rental Rate and shall select such closer determination as the Fair Market Rental Rate and notify Landlord and Tenant thereof. If the two (2) arbitrators fail to agree upon and appoint a third arbitrator, within the time period provided above, then the parties shall mutually select the third arbitrator. If Landlord and Tenant are unable to agree upon the third arbitrator within ten (10) days after the fifteen (15) day period described above, then either party may, upon at least five (5) days' prior written notice to the other party, request the Presiding Judge of the San Mateo County Superior Court, acting in his private and nonjudicial capacity, to appoint the third arbitrator. Following the appointment of the third arbitrator, the panel of arbitrators shall within thirty (30) days thereafter reach a decision as to whether Landlord's or Tenant's submitted Fair Market Rental Rate shall be used and shall notify Landlord and Tenant thereof. No appraiser shall be employed by, or otherwise be engaged in business with or affiliated with, Landlord or Tenant. No appraiser shall have the power to change any provision of this Lease or to make any determination except as to Monthly Base Rent (and other components of the Fair Market Rental Rate) for the Extended Term in accordance with this Paragraph. The foregoing determination of Fair Market Rental Rate for the Extended Term shall be binding on Lessor and Lessee. The foregoing option to extend the term of the Lease for the Extended Term is personal to Grail, Inc. or a Permitted Transferee of Grail Inc. and may not be exercised or assigned, voluntarily or involuntarily, by or to any other person or entity or exercised for the occupancy of any other person or entity.

3. Early Access. Subject to Paragraph 13, Lessor shall permit Lessee to have access to Phase 1 Space during the thirty (30) days prior to the Phase 1 Commencement Date and access to Phase 2 Space during the thirty (30) days prior to the Phase 2 Commencement Date for the purpose of installing wiring, cabling, furniture and equipment in the Premises; provided that such access shall not interfere with Substantial Completion of Landlord Work and Tenant Improvements as to the portion of the Premises then under construction. Lessor shall use commercially reasonable efforts to provide such early access to that portion of the Phase 1 Space consisting of the Pre & Post PCR BSL2 and Accessioning areas as indicated on Exhibit "F-1". If Lessee's early access interferes with Substantial Completion of Landlord Work or the Tenant Improvements, Lessor may terminate Tenant's early access by 24 hours' written notice to Lessee until such interference is stopped. Base Rent and Operating Expenses shall not be payable during any early access period, but such early access shall be at Lessee's sole risk and subject to all the other provisions of this Lease, including without limitation prior delivery to Lessor of insurance certificates evidencing that Lessee has obtained the insurance required pursuant to this Lease. Lessee shall not conduct its business in the Premises at any time during this early access period.

In addition to the foregoing, Lessor shall have the right to impose such reasonable additional conditions on Lessee's early access as Lessor shall deem appropriate.

4. Monthly Base Rent.

(a) Commencing on dates indicated below and continuing on the first day of each calendar month thereafter until the end of the Term, Lessee shall pay to Lessor in monthly installments in advance the Monthly Base Rent for the Premises in lawful money of the United States as follows:

Months	Square Feet	$/SF/Mo./NNN	Monthly Base Rent
1-3	18,000/Phase l Space	$0	$0
4-Phase 2 Commencement Date (" P2 CD")	18,000	$4.25	$76,500.00
P2 CD - 24	71,239	$4.25	$302,766.00
25-36	71,239	$4.38	$312,027.00
37 - 48	71,239	$4.51	$321,288.00
49 - 60	71,239	$4.64	$330,549.00
61 - 72	71,239	$4.78	$340,522.00
73 - 84	71,239	$4.93	$351,208.00
85 - 96	71,239	$5.07	$361,182.00
97 - 108	71,239	$5.23	$372,580.00
109 - 120	71,239	$5.38	$383,266.00

Upon the execution and delivery of this Lease by Lessee, Lessee shall pay to Lessor (1) the cash sum of Seventy-Six Thousand Five Hundred Dollars ($76,500.00) representing the installment of Monthly Base Rent due for the fourth month following the Phase 1 Commencement Date. If the Phase 1 Commencement Date or the Phase 2 Commencement Date falls on any date other than the first day of a calendar month, then the pre-paid rent shall be credited to the partial first calendar month of the term and partially to the following month's rent. Thereafter, Monthly Base Rent shall be paid monthly in advance on the first day of each calendar month. Lessee shall also pay to Lessor upon execution and delivery of this Lease, the amount of Sixty-Nine Thousand Six Hundred and Four Dollars ($69,604.00), which amount shall be applied to the Additional Rent (as hereinafter defined) for the first calendar month of the Term. Lessee shall also deliver to Lessor upon the execution and delivery of this Lease the letter of credit in the amount of the Security Deposit (as defined in Paragraph 7 below).

5. Additional Rent; Operating Expenses and Taxes.

(a) In addition to the Monthly Base Rent payable by Lessee pursuant to Paragraph 4, commencing on the Phase 1 Commencement Date Lessee shall pay to Lessor, as "Additional Rent," (1) Lessee's Pro Rata Share of the Operating Expenses of the Property, (2) Lessee's pro rata share of the operating expenses for the Park of which the Property is a part (the "Park Expenses"), and (3) Lessee's Pro Rata Share of the Taxes (as defined in Paragraph 5(c) below). Lessee's pro rata share of the operating expenses of Menlo Business Park is 7.78%, based upon

the ratio of the number of square feet of the Land allocable to the Property (3.68 acres) to the total number of square feet of land in Menlo Business Park (47.30 acres), as shown on Exhibit "B." The Park Expenses currently include maintenance of the common areas of Park, parking lot lighting (cost of electricity and maintenance of the fixtures), maintenance of the network conduit, all landscape maintenance and irrigation of the Park, Lessor's insurance coverages of the Park, and security patrol. The Park Expenses may include other commercially reasonable and customary items from time to time during the term of this Lease that would not be a cost excluded from the definition of Operating Expenses under this Lease.

(b) "Operating Expenses," as used herein, shall include all commercially reasonable and customary direct costs actually incurred by Lessor in the management, operation, maintenance, repair and replacement of the Property, including the cost of all maintenance, repairs, and restoration of the Property performed by Lessor pursuant to Paragraphs 14(b) and 14(c) hereof, as determined by generally accepted accounting principles, consistently applied ("GAAP") (unless excluded by this Lease), including, but not limited to:

Personal property taxes related to the Premises; any parking taxes or parking levies imposed on the Premises in the future by any governmental agency; a management fee charged for the management and operation of Menlo Business Park, in an amount equal to three percent (3%) of the total gross income received by Lessor from the Lessee (including Monthly Base Rent and Additional Rent), water and sewer charges; waste disposal; insurance premiums for insurance coverages maintained by Lessor pursuant to Paragraph 11(b) hereof; license, permit, and inspection fees related to Common Area improvements; charges for electricity, heating, air conditioning, gas, and any other utilities (including, without limitation, any temporary or permanent utility surcharge or other exaction); security; maintenance, repair, and replacement of the roof membrane; painting and repairing, interior and exterior; maintenance and replacement of floor and window coverings; repair, maintenance, and replacement of air-conditioning, heating, mechanical and electrical systems, elevators, plumbing and sewage systems; janitorial service; landscaping, gardening, and tree trimming; glazing; repair, maintenance, cleaning, sweeping, striping, and resurfacing of the parking area; exterior Building lighting and parking lot lighting; supplies, materials, equipment and tools in the maintenance of the Property and the cost of any other capital expenditures for any improvements or changes to the Building which are required by laws, ordinances, or other governmental regulations adopted after the Commencement Date, or for any items or capital expenditures voluntarily made by Lessor which are intended to reduce Operating Expenses (collectively, the "Permitted Capital Expenditures"). Notwithstanding the foregoing, if Lessor is required to or voluntarily incurs any capital expenses, Lessor shall, if the same constitutes a Permitted Capital Expenditure, amortize such expenses over the useful life of the capital repairs, replacements or improvements calculated in accordance with GAAP (together with interest on the unamortized balance at the rate equal to the effective rate of interest on Lessor's bank line of credit at the time of completion of said repairs, replacements or improvements, but in no event in excess of eight percent (8%) per annum) as an Operating Expense in accordance with GAAP. Operating Expenses shall also include any other expense or charge, whether or not described herein but which is not specifically excluded by other provisions of this Lease, which in accordance with GAAP would be considered an expense of managing, operating, maintaining, and repairing the Property.

(c) Real property taxes and assessments upon the Property, during each lease year or partial lease year during the term of this Lease are referred to herein as "Taxes."

As used herein, Taxes shall mean:

(1) all real estate taxes, assessments, charges and any other taxes which are levied or assessed against the Property including the Land, the Building, and all improvements located thereon, including any increase in Taxes resulting from a reassessment following any transfer of ownership of the Property or any interest therein or following any improvements to the Property, or improvements to Common Areas of Menlo Business Park which are for the beneficial use of all occupants of Menlo Business Park; and

(2) all other taxes which may be levied in lieu of real estate taxes, assessments, and other fees, charges, and levies, general and special, ordinary and extraordinary, unforeseen as well as foreseen, of any kind and nature by any authority having the direct or indirect power to tax, including without limitation any governmental authority or any improvement or other district or division thereof, for public improvements, services, or benefits which are assessed, levied, confirmed, imposed, or become a lien (1) upon the Property, and/or any legal or equitable interest of Lessor in any part thereof; or (2) upon this transaction or any document to which Lessee is a party creating or transferring any interest in the Property; and (3) any tax or excise, however described, imposed in addition to, or in substitution partially or totally of, any tax previously included within the definition of "Taxes" or any tax the nature of which was previously included in the definition "Taxes."

Not included within the definition of "Taxes" are any net income, profits, transfer, franchise, estate, gift, rental income, or inheritance taxes imposed by any governmental authority. "Taxes" also shall not include penalties or interest charges assessed on delinquent Taxes so long as Lessee is not in default in the payment of Monthly Base Rent or Additional Rent.

With respect to any assessments which may be levied against or upon the Property, which under the laws then in force may be evidenced by improvement or other bonds, or may be paid in annual installments, only the amount of such annual installment (with appropriate proration of any partial year) and statutory interest shall be included within the computation of the annual Taxes levied against the Property.

(d) The following costs ("Costs") shall be excluded from the definition of Operating Expenses:

(1) Costs occasioned by the act, omission or violation of law by Lessor, any other occupant of Menlo Business Park, or their respective agents, employees or contractors;

(2) Costs for which Lessor receives reimbursement from others, including reimbursement from insurance;

(3) Interest, charges and fees incurred on debt or payments on any deed of trust or ground lease on the Property, or Menlo Business Park;

(4) Advertising or promotional costs or other costs incurred by Lessor in procuring tenants for the Property or other portions of Menlo Business Park;

(5) Costs incurred in repairing, maintaining or replacing any structural elements of the Building for which Lessor is responsible pursuant to Paragraph 14(a) hereof;

(6) Any wages, bonuses or other compensation of employees above the grade of building manager and any executive salary of any officer or employee of Lessor or for employees to the extent not stationed at Menlo Business Park , including fringe benefits other than insurance plans and tax-qualified benefit plans, or any fee, profit or compensation retained by Lessor or its affiliates for management and administration of the Property in excess of the management fee referred to in Paragraph 5(b) of this Lease;

(7) General office overhead and general and administrative expenses of Lessor, except as specifically provided in Paragraph 5;

(8) Leasing expenses and broker commissions payable by Lessor;

(9) Costs occasioned by casualties or by the exercise of the power of eminent domain;

(10) Costs to correct any construction defect in the Building or the Premises existing on the Commencement Date;

(11) Costs of any renovation, improvement, painting or redecorating of any portion of the Property or the Menlo Business Park not made available for Lessee's use;

(12) Costs incurred in connection with negotiations or disputes with any other occupant of the Menlo Business Park and Costs arising from the violation by Lessor or any other occupant of the Menlo Business Park of the terms and conditions of any lease or other agreement;

(13) Costs incurred in connection with the presence of any Hazardous Materials on the Property or on other property in Menlo Business Park that were not caused by or the result of a release by Lessee or its employees, agents, contractors, invitees , sublessees, successors or assigns; and

(14) Expense reserves; and

(15) Capital costs, except for Permitted Capital Expenditures.

(16) capital expenditures for expansion of the Property;

(17) depreciation of the Property;

(18) legal and other expenses incurred in the negotiation or enforcement of leases;

(19) salaries, wages, benefits and other compensation paid to officers and employees of Lessor who are not assigned in whole or in part to the operation, management,

maintenance or repair of the Property (with the costs to be pro-rated if such officers and employees are assigned to the Property only in part);

(20) penalties, fines or interest incurred as a result of Lessor's inability or failure to make payment of Taxes and/or to file any tax or informational returns when due, or from Lessor's failure to make any payment of Taxes required to be made by Lessor hereunder before delinquency;

(21) overhead and profit increment paid to Lessor or to subsidiaries or affiliates of Lessor for goods and/or services in or to the Property to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(22) costs of Lessor's charitable or political contributions, or of fine art maintained at the Property;

(23) costs incurred in the sale or refinancing of the Property;

(24) net income taxes of Lessor or the owner of any interest in the Property, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Property or any portion thereof or interest therein;

(25) any costs incurred to remove, study, test, remediate or otherwise related to the existence of Hazardous Materials which was in existence in the Property prior to the applicable Commencement Date, and was of such a nature that a federal,·state or municipal governmental authority, if it had then had knowledge of the presence of such Hazardous Materials, in the state, and under the conditions that they then existed in the Property, would have then required the removal of such Hazardous Materials or other remedial or containment action with respect thereto; and costs incurred with respect to Hazardous Materials, which Hazardous Materials are brought onto the Property after the date hereof by Lessor or anyone other than Lessee or its agents, contractors or invitees and is of such a nature, at that time, that a federal, state or municipal governmental authority, if it had then had knowledge of the presence of such Hazardous Materials, in the state, and under the conditions, that they then exist in the Property, would have then required the removal, remediation or other action with respect thereto;

(26) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than tenants of the Property under leases for space in the Property.

(27) any bad debt loss, rent loss, or reserves for bad debts or rent loss;

(28) the wages and benefits attributable to personnel above the level of Property manager or Property engineer or Property accountant or bookkeeper;

(29) all items and services for which Lessee or any other tenant in the Property reimburses Lessor or which Lessor provides selectively to one or more tenants (other than Lessee) without reimbursement;

(30) any costs expressly excluded from Operating Expenses elsewhere in this Lease;

(31) costs for extra or after-hours HVAC, utilities or services which are provided to Lessee and/or any occupant of the Building and as to which :Lessee or such other occupants are separately charged and the applicable amounts are paid by Lessee or such other occupants;

(32) late charges, penalties, liquidated damages, and interest;

(33) in-house legal and/or accounting (as opposed to office building bookkeeping) fees; and

(34) costs associated with material portions of the Common Areas dedicated for the exclusive use of other tenants of the Property, except to the extent Lessee is given its pro-rata share (rentable square feet in the Premises in relation to rentable square feet in the Property) of comparable Common Areas;

(35) costs of signs in or on the Building identifying the owner of the Building or other tenants' signs;

(36) costs due to violations by Lessor of any covenants, conditions and restrictions or to create any future covenants, conditions and restrictions;

(37) to the extent applicable, electric power costs or other utility costs for which any tenant directly contracts with the local public service company;

(38) all assessments and premiums which are not specifically charged to Lessee because of what Lessee has done, which can be paid by Lessor in installments, shall be paid by Lessor in the maximum number of installments permitted by law (except to the extent inconsistent with the general practice of the comparable properties in the general vicinity of the Property) and shall be included as Operating Expenses in the year in which the assessment or premium installment is actually paid;

(39) any entertainment, dining or travel expenses for any purpose;

(40) the costs of any flowers, gifts, balloons, etc. provided to any prospective tenants, Lessee, other tenants, and occupants of the Property;

(41) costs reimbursed to Lessor under any warranty carried by Lessor for the Property;

(42) costs of tenant parties;

(43) any "validated" parking for any entity;

(44) costs of any "tap fees" or any sewer or water connection fees for the benefit of any particular tenant in the Building or the Property;

(45) costs of magazine and newspaper subscriptions;

Lessor shall reduce the amount of the Operating Expenses by any refund Lessor or Lessor's managing agent receives for any costs, goods, services, utilities or expenditures previously included in Operating Expenses.

Lessor shall not collect Operating Expenses from Lessee or any other lessees of the Property in an amount which is in excess of 100% of the Operating Expenses actually paid by Lessor in connection with the Property, and Lessor shall make no profit from the collection of Operating Expenses. All costs payable by Lessee to Lessor under this Lease shall be on an actual cost basis. Lessor shall equitably allocate Operating Expenses if other buildings are constructed in the Property for use by lessees other than Lessee.

(e) Prior to the execution of this Lease, Lessor has delivered to Lessee Lessor's estimate of 2016 Operating Expenses, Taxes and Park Expenses. Throughout the term of this Lease, as close as·reasonably possible after the end of each calendar year thereafter but no later than April 1 of the following year, Lessor shall notify Lessee of the Operating Expenses, Taxes and Park Expenses estimated by Lessor for each following calendar year. Concurrently with such notice, Lessor shall provide a description of such Operating Expenses, Taxes and Park Expenses. Commencing on the Commencement Date, and on the first (1st) day of each calendar month thereafter, Lessee shall pay to Lessor, as Additional Rent, one-twelfth (1/12th) of the estimated Operating Expenses, Taxes and Park Expenses; provided, that the pre-paid Additional Rent (see Section 4) shall be credited toward the payment due on the Commencement Date, and if the Commencement Date falls on any date other than the first day of a calendar month, then the pre-paid Additional Rent shall be credited to the partial first calendar month of the term and partially to the following month's Additional Rent payment. If at any time during any such calendar year, Lessor reasonably determines that the Operating Expenses, Taxes or Park Expenses for such year will vary from Lessor's estimate, Lessor may, by written notice to Lessee, revise Lessor's estimate for such year and the Additional Rent payments by Lessee for such year shall thereafter be based upon such revised estimate. Lessor shall furnish to Lessee with such revised estimate written verification showing that the actual Operating Expenses, Taxes or Park Expenses are greater than or equal to Lessor's estimate. The increase in the monthly installments of Additional Rent resulting from Lessor's revised estimate shall not be retroactive, but the Additional Rent for each calendar year shall be subject to adjustment between Lessor and Lessee after the close of the calendar year, as provided below.

Within approximately ninety (90) days after the expiration of each calendar year of the term, Lessor shall furnish Lessee a statement certified by a responsible employee or agent of Lessor (the "Operating Statement") with respect to such year, prepared by an employee or agent of Lessor, showing the actual Operating Expenses, Taxes and Park Expenses for such year broken down by component expenses, and the total payments made by Lessee for such year on the basis of any previous estimate of such Operating Expenses, Taxes and Park Expenses, all in sufficient detail for verification by Lessee. Unless Lessee raises any objections to the Operating Statement within twelve (12) months after receipt of the same, such statement shall conclusively be deemed correct and Lessee shall have no right thereafter to dispute such statement or any item therein or the computation of Operating Expenses and/or Taxes and/or Park Expenses. Upon giving Lessor five (5) days advance written notice, Lessee or its accountants shall have the right to inspect and audit Lessor's books and records with respect to

the Operating Statement in an office of Lessor located in California, or Lessor's agent located in California, during normal business hours, once each Lease Year to verify actual Operating Expenses and/or Taxes and/or Park Expenses. Should Lessee retain any accountant or accounting firm to audit or inspect Lessor's books and records pursuant to this Paragraph 5(e), such accountant or accounting firm shall be one of national or regional standing and retained on an hourly rate basis or based upon a fixed fee and may be paid on a contingency basis. Lessor's books and records shall be kept in accord with GAAP. If Lessee's audit of the Operating Expenses and/or Taxes and/or Park Expenses for any year reveals a net overcharge of more than four percent (4%), Lessor shall promptly reimburse Lessee for the cost of the audit; otherwise, Lessee shall bear the cost of Lessee's audit. If Lessee reasonably objects to Lessor's Operating Statement, Lessee shall nonetheless continue to pay on a monthly basis the Operating Expenses, Taxes and Park Expenses based upon the Lessor's most current estimate until such dispute is resolved. Notwithstanding anything in this Lease to the contrary, Lessee's right to audit Lessor's books and records pursuant to this Paragraph shall be limited to no more than once per calendar year during the Term as may be extended.

If Lessee's Pro Rata Share of the Operating Expenses and Taxes and Lessee's pro rata share of Park Expenses for any year as finally determined exceed the total payments made by Lessee for such year based on Lessor's estimates, Lessee shall pay to Lessor the deficiency, within thirty (30) days after the receipt of Lessor's Operating Statement. If the total payments made by Lessee based on Lessor's estimate of the Operating Expenses and/or Taxes and/or Park Expenses exceed the Lessee's Pro Rata Share of Operating Expenses and/or Taxes and/or Lessee's pro rata share of Park Expenses, Lessee's extra payment, plus the cost of an audit which is the responsibility of Lessor as set forth herein, if any, shall be credited against payments of Monthly Base Rent and Additional Rent next due hereunder or returned within thirty (30) days if the term has expired or this Lease has been terminated.

Notwithstanding the expiration or termination of this Lease, within thirty (30) days after Lessee's receipt of Lessor's Operating Statement or the completion of Lessee's audit regarding the Operating Expenses and/or Taxes and/or Park Expenses for the calendar year in which this Lease terminates, Lessee shall pay to Lessor or shall receive from Lessor, as the case may be, an amount equal to the difference between the Operating Expenses and/or Taxes and/or Park Expenses for such year, as finally determined, and the amount previously paid by Lessee on account thereof (prorated to the expiration date or the termination date of this Lease).

6. Payment of Rent.

(a) All rent shall be due and payable in lawful money of the United States of America at the address of Lessor set forth in Paragraph 24, "Notices," without, except as otherwise provided herein, deduction or offset and without prior demand or notice, unless otherwise specified herein. Monthly Base Rent and Additional Rent shall be payable monthly, in advance, on the first day of each month. Additional Rent shall be payable monthly, in advance, on the first day of each month for the entire Premises for the entire term of his Lease. Lessee's obligation to pay rent for any partial month at the commencement of the term, for any partial month immediately prior to a rental adjustment date (if the rental adjustment date is other than

the first day of the calendar month), and for any partial month at the expiration or termination of the term shall be based upon the number of days in such month.

(b) If any installment of Monthly Base Rent, Additional Rent or any other sum due from Lessee is not received by Lessor within five (5) days after the same is due, Lessee shall pay to Lessor an additional sum equal to five percent (5%) of the amount overdue as a late charge; provided, however, that on no more than one (1) occasion during the first twelve (12) months following the Phase 1 Commencement Date Lessor shall not impose such late charge unless such delinquent sum is not paid within five (5) days after written notice from Lessor. The parties agree that this late charge represents a fair and reasonable estimate of the costs that Lessor will incur by reason of the late payment by Lessee. Acceptance of any late charge shall not constitute a waiver of Lessee's default with respect to the overdue amount. Any amount not paid within ten (10) days after Lessee's receipt of written notice that such amount is due shall bear interest from the date due until paid at the lesser rate of (1) the prime rate of interest as published in the "Wall Street Journal," plus two percent (2%) or (2) the maximum rate allowed by law (the "Interest Rate"), in addition to the late payment charge.

7. Security Deposit. Lessee shall deposit with Lessor (i) within fifteen (15) days after execution of this Lease, the sum of One Million Two Hundred Twenty-Eight Thousand Six Hundred Fourteen Dollars ($1,228,614.00) in the form of a letter of credit substantially in the form attached hereto as Exhibit "G." (the "Letter of Credit") and (ii) upon execution of this Lease, a cash security deposit in the amount of Six Hundred Fourteen Thousand Dollars ($614,000.00) (collectively, the "Security Deposit"), as security for Lessee's faithful performance of Lessee's obligations under this Lease. If Lessee fails to pay Monthly Base Rent or Additional Rent or charges due hereunder within applicable notice and cure periods, or otherwise defaults under this Lease (as defined in Paragraph 22), Lessor may use, apply or retain all or any portion of said Security Deposit to the extent reasonably necessary to cure the default, for the payment of any amount due Lessor, and to reimburse or compensate Lessor for any liability, cost, expense, loss or damage (including attorneys' fees) which Lessor may suffer or incur by reason thereof. If Lessor uses or applies all or any portion of the Security Deposit, Lessee shall within ten (10) days after written request therefor deposit with Lessor the amount sufficient to restore the Security Deposit to the amount then required by this Lease. Lessor shall not be required to keep all or any part of the Security Deposit separate from its general accounts. In no event or circumstance shall Lessee have the right to any use of the Security Deposit and, specifically, Lessee may not use the Security Deposit as a credit or to otherwise offset any payments required hereunder, including, but not limited to, rent or any portion thereof. Lessee waives (i) California Civil Code Section 1950.7 and any and all other laws, rules and regulations applicable to security deposits in the commercial context ("Security Deposit Laws"), and (ii) any and all rights, duties and obligations either party may now has, or in the future will have, relating to or arising from the Security Deposit Laws. Notwithstanding anything to the contrary herein, the Security Deposit may be retained and applied by Lessor (a) to offset rent which is unpaid either before or after termination of this Lease, and (b) against other damages suffered by Lessor before or after termination of this Lease. No part of the Security Deposit shall be considered to be held in trust, to bear interest or other increment for its use, or to be prepayment for any moneys to be paid by Lessee under this Lease. So long as Lessee has not failed to cure any default after applicable

notice and cure periods prior to the fifth (5th) anniversary of the Phase 1 Commencement Date, on the fifth (5th) anniversary of the Phase 1 Commencement Date, Lessee may reduce the amount of the Letter of Credit by Three Hundred Seven Thousand Dollars ($307,000.00). On each anniversary of the Phase 1 Commencement Date thereafter, so long as Lessee has not failed to cure any default after applicable notice and cure periods during the prior twelve (12) months, Lessee may reduce the amount of the Letter of Credit by Three Hundred Seven Thousand Dollars ($307,000.00) until the balance of the Letter of Credit is zero. The cash portion of the Security Deposit shall be held by Lessor in accordance with the provisions above.

8. Use. Lessee may only use and occupy the Premises for office, biotechnology, research and development or laboratories and related uses which are permitted by applicable zoning ordinances and the covenants, conditions, and restrictions for Menlo Business Park and which are approved by Lessor in writing, and for no other use or purpose without Lessor's prior written consent; provided, that the use of the Premises for the manufacture of integrated circuits is expressly prohibited . Any use of the Premises by Lessee or by any sublessee or assignee approved by Lessor pursuant to Paragraph 17 shall comply with the provisions of this Paragraph 8.

9. Hazardous Materials.

(a) The term "Hazardous Materials" as used in this Lease shall include any substance defined or regulated as radioactive, flammable, toxic, a biohazard, medical waste, "hazardous material", "extremely hazardous material", "hazardous waste", "hazardous substance," "toxic substance," "industrial process waste," or "special waste" in any Environmental Laws as hereafter defined. Hazardous Materials shall include, but not be limited to, petroleum, gasoline, natural gas, natural gas liquids, liquefied natural gas, synthetic gas, and/or crude oil or any products, by-products or fractions thereof and asbestos.

(b) Lessee shall not engage in any activity in or on the Premises or the Property which constitutes a Reportable Use of Hazardous Materials without the express prior written consent of Lessor and timely compliance (at Lessee's expense) with all Environmental Laws. "Reportable Use" shall mean (i) the installation or use of any above or below ground storage tank, (ii) the generation, possession, storage, use, transportation, or disposal of Hazardous Materials that require a permit from, or with respect to which a report, notice, registration or business plan is required to be filed with, any governmental authority, and/or (iii) the presence at the Premises or the Property of Hazardous Materials with respect to which any Environmental Law requires that a notice be given to persons entering or occupying the Premises, or the Property, or neighboring properties. Notwithstanding the foregoing, Lessee may use the Hazardous Materials on the Premises that are listed on Exhibit "E" attached hereto and incorporated by reference herein (which list may be updated by Lessee from time to time during the Lease Term upon written notice to Lessor and subject to Lessor's express prior written consent which shall be granted so long as such use is in compliance with all Environmental Laws, and does not expose the Premises, or the Property, or neighboring property to any unusual or atypical risk of contamination or damage or expose Lessor to any liability therefor), and any ordinary and customary office supplies, cleaning materials, and other materials reasonably required to be used in the normal course of Lessee's agreed use of the Premises. In

addition, Lessor may condition its consent to any Reportable Use upon receiving such additional, commercially reasonable assurances as Lessor reasonably deems necessary to protect itself, the public, the Premises and the Property, and/or the environment against damage, contamination, injury and/or liability, including, but not limited to, the installation (and removal on or before Lease expiration or termination) of any protective modifications installed by Lessee (such as concrete encasements).

(c) "Environmental Laws" shall mean and include any Federal, State, or local statute, law, ordinance, code, rule, regulation, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, element, compound, mixture or material, as now or at any time hereafter in effect including, without limitation, California Health and Safety Code §§ 25100 et seq., §§ 25300 et seq., Sections 25281(f) and 25501 of the California Health and Safety Code, Section 13050 of the Water Code, the Federal Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. §§ 9601 et seq. ("CERCLA"), the Superfund Amendments and Reauthorization Act, 42 U.S.C. §§ 9601 et seq., the Federal Toxic Substances Control Act, 15 U.S.C. §§ 2601 et seq., the Federal Resource Conservation and Recovery Act as amended, 42 U.S.C. §§ 6901 et seq., the Federal Hazardous Material Transportation Act, 49 U.S.C. §§ 1801 et seq., the Federal Clean Air Act, 42 U.S.C. § 7401 et seq., the Federal Water Pollution Control Act, 33 U.S.C. § 1251 et seq., the River and Harbors Act of 1899, 33 U.S.C. §§ 401 et seq., and all rules and regulations of the EPA, the California Environmental Protection Agency, or any other state or federal department, board or any other agency or governmental board or entity having jurisdiction over the environment, as any of the foregoing have been, or are hereafter amended.

(d) If Lessee knows, or has reasonable cause to believe, that Hazardous Materials have come to be located in, on, under or about the Premises or the Property that constitutes a Reportable Use, other than as previously consented to by Lessor, Lessee shall immediately give written notice of such fact to Lessor and provide Lessor with a copy of any report, notice, claim or other documentation which it has concerning the presence of such Hazardous Materials.

(e) Lessee and Lessee's agents, employees, and contractors shall not cause any Hazardous Materials to be discharged or released into the Building or into the plumbing or sewage system of the Building or into or onto the Land underlying or adjacent to the Building in violation of any Environmental Laws. Lessee shall promptly, at Lessee's expense, take all investigatory and/or remedial action reasonably recommended, whether or not formally ordered or required, for the cleanup of any contamination in violation of Environmental Laws or the terms of this Lease caused by Lessee or caused by any of Lessee's employees, agents, or contractors, and for the maintenance, security and/or monitoring of the Premises, the Property, or neighboring properties if such contamination is caused by a release or emission of any Hazardous Materials by Lessee or by any of Lessee's employees, agents, or contractors.

(f) Lessee shall indemnify, defend and hold Lessor and its agents, employees, and lenders and the Premises and the Property harmless from any and all claims, damages, fines, judgments, penalties, costs, liabilities or losses (including, without limitation, any and all sums paid for settlement of claims, attorneys' fees, consultant and expert fees) (collectively, "Claims")

arising during or after the term of this Lease out of or involving any Hazardous Materials brought on to the Premises, the Property, or Menlo Business Park by or for Lessee or Lessee's agents, contractors, employees or invitees in violation of Environmental Laws or the terms of this Lease; in no event shall Lessee be responsible for any pre-existing Hazardous Materials nor any Hazardous Materials contamination not caused by Lessee or its agents, contractors or invitees. Lessee's obligations under this Paragraph 9(f) shall include, but not be limited to, the effects of any contamination or injury to person, property or the environment created or suffered by Lessee, and the cost of investigation (including consultants' and attorneys' fees and testing), removal, remediation, restoration and/or abatement thereof, or of any contamination therein involved, as required by Environmental Laws, and shall survive the expiration or earlier termination of this Lease. No termination, cancellation or release agreement entered into by Lessor and Lessee shall release Lessee from its obligations under this Lease with respect to Hazardous Materials, unless specifically so agreed by Lessor in writing at the time of such agreement.

(g) Lessor represents and warrants to Lessee that, to Lessor's actual knowledge , the Property does not currently contain any Hazardous Materials in violation of any existing Environmental Laws. Lessor shall not cause any Hazardous Materials to be brought upon, kept or used in connection with the Property by Lessor, its agents, employees or contractors in a manner or for a purpose prohibited by any Environmental Laws. Lessor shall The provisions of this paragraph will survive the expiration or earlier termination of this Lease.

10. Taxes on Lessee's Property. Lessee shall pay before delinquency any and all taxes, assessments, license fees, and public charges levied , assessed, or imposed and which become payable during the Term and any extension thereof upon Lessee's equipment, fixtures, furniture, and personal property installed or located on the Premises.

11. Insurance.

(i) Types of Insurance: Lessee shall maintain in full force and effect at all times during the Term of this Lease, at Lessee's sole cost and expense, for the protection of Lessee and Lessor, as their interests may appear, policies of insurance issued by a carrier or carriers reasonably acceptable to Lessor and its lender(s) which afford the following coverages:

(ii) Commercial general liability insurance naming the Lessor as an additional insured against any and all claims for bodily injury and property damage occurring in, or about the Premises arising out of Lessee's use and occupancy of the Premises. Such insurance shall have a combined single limit of not less than One Million Dollars ($1,000,000) per occurrence with a Two Million Dollar ($2,000,000) aggregate limit and excess umbrella liability insurance in the amount of Five Million Dollars ($5,000,000). Such liability insurance shall be primary and not contributing to any insurance available to Lessor and Lessor's insurance shall be in excess thereto. In no event shall the limits of such insurance be considered as limiting the liability of Lessee under this Lease.

(iii) Personal property insurance insuring all equipment, trade fixtures, inventory, fixtures, and personal property located on or in the Premises for perils covered by the causes of loss - special form (all risk) and in addition coverage for earthquake and terrorism and

boiler and machinery (if applicable). Such insurance shall be written on a replacement cost basis in an amount equal to one hundred percent (100%) of the full replacement value of the aggregate of the foregoing. Notwithstanding anything to the contrary set forth herein, for such personal property insurance, Lessee shall have the right to self-insure solely as to coverage for earthquake so long as Lessee maintains a cash balance of no less than Twenty-Five Million Dollars ($25,000,000.00) (as evidenced by Lessee's bank statements delivered within fifteen (15) days after written request by Lessor, which request may be made no more frequently than every twelve (12) months. In the event that Lessee elects to self-insure as set forth above and a claim occurs for which Lessee has indemnified Lessor hereunder and a defense and/or coverage would have been available from the insurance company, Lessee shall: (i) undertake the defense of any such claim, including a defense of Lessor, at Lessee's' sole cost and expense; and (ii) use its own funds to pay any such claim or replace any property or otherwise provide the funding which would have been available from insurance proceeds but for such election by Lessee to so self-insure.

(iv) Business interruption and extra expense insurance in such amounts to reimburse Lessee for direct or indirect loss attributable to all perils commonly insured against by prudent lessees or attributable to prevention of access to the Premises or the Building as result of such perils.

(v) Workers' compensation insurance in accordance with statutory law and employers' liability insurance with a limit of not less than $1,000,000 per accident, $1,000,000 disease, policy limit and $1,000,000 disease limit each employee.

(vi) Such other insurance as Lessor deems necessary and prudent (so long as comparable to that carried by other landlords of comparable property in the general vicinity of the Park) or required by Lessor's beneficiaries or mortgagees of any deed of trust or mortgage encumbering the Premises.

(b) Insurance Policies: The policies required to be maintained by Lessee shall be with companies rated A-X or better by A.M. Best. Insurers shall be licensed to do business in the state in which the Premises are located and domiciled in the USA. Certificates of insurance (certified copies of the policies may be required) shall be delivered to Lessor prior to the commencement date and annually thereafter within fifteen (15) days prior to the policy expiration date. Lessee shall have the right to provide insurance coverage which it is obligated to carry pursuant to the terms hereof in a blanket policy, provided such blanket policy expressly affords coverage to the Premises and to Lessor as required by this Lease. Each policy of insurance shall provide notification to Lessor at least thirty (30) days prior to any cancellation or modification to reduce the insurance coverage but only if such prior notification is available from the insurance company, and then to the extent such prior notice is available from the insurance company.

(c) Additional Insureds and Coverage: Lessor, any property management company and/or agent of Lessor for the Premises, the Building, the Lot or the Park, and any lender(s) of Lessor having a lien against the Premises, the Building, the Lot or the Park shall be named as additional insureds under all of the policies required in Section 12.1(ii) above. Additionally, such policies shall provide for severability of interest. All insurance to be maintained by Lessee

shall, except for workers' compensation and employer's liability insurance, be primary, without right of contribution from insurance maintained by Lessor. Any umbrella/excess liability policy (which shall be in "following form") shall provide that if the underlying aggregate is exhausted, the excess coverage will drop down as primary insurance. The limits of insurance maintained by Lessee shall not limit Lessee's liability under this Lease. It is not contemplated or anticipated by the parties that the aforementioned risks of loss be borne by Lessor's insurance carriers, rather it is contemplated and anticipated by Lessor and Lessee that such risks of loss be borne by Lessee's insurance carriers pursuant to the insurance policies procured and maintained by Lessee as required herein.

(d) Failure of Lessee to Purchase and Maintain Insurance: In the event Lessee does not purchase the insurance required in this Lease or keep the same in full force and effect throughout the Term of this Lease (including any renewals or extensions), Lessor may, but without obligation to do so, purchase the necessary insurance and pay the premiums therefor. If Lessor so elects to purchase such insurance, Lessee shall promptly pay to Lessor as Additional Rent, the amount so paid by Lessor, upon Lessor's demand therefor. In addition, Lessor may recover from Lessee and Lessee agrees to pay, as Additional Rent, any and all Enforcement Expenses and damages which Lessor may sustain by reason of Lessee's failure to obtain and maintain such insurance. If Lessee fails to maintain any insurance required in this Lease, Lessee shall be liable for all losses, damages and costs resulting from such failure.

(e) Lessor's Insurance: Lessor shall obtain and carry in Lessor's name, as insured, as an Operating Expense of the Property to the extent provided in Section 6, during the Term, "all risk" property insurance coverage (with rental loss insurance coverage for a period of one (1) year), flood insurance, public liability and property damage insurance, and insurance against such other risks or casualties as Lessor shall reasonably determine, including, but not limited to, insurance coverages required of Lessor by the beneficiary of any deed of trust which encumbers the Premises, including earthquake insurance coverage insuring Lessor's interest in the Premises (including any other leasehold improvements to the Premises constructed by Lessor or by Lessee with Lessor's prior written approval) in an amount not less than the full replacement cost of the Building. The proceeds of any such insurance shall be payable solely to Lessor and Lessee shall have no right or interest therein. Lessor shall have no obligation to insure against loss by Lessee to Lessee's equipment, fixtures, furniture, inventory, or other personal property of Lessee in or about the Premises occurring from any cause whatsoever.

12. Indemnification.

(a) Lessee shall indemnify, defend, and hold harmless Lessor from claims, suits, actions, or liabilities for personal injury, death or for loss or damage to property that arise from (1) any activity, work, or thing done or permitted by Lessee in or about the Premises, the Property or the Park, and (2) bodily injury or damage to property which arises in or about the Property to the extent the injury or damage to property results from the acts or omissions of Lessee, its employees, agents or contractors. Lessee also waives all claims against Lessor and its employees, agents and contractors for damages to property, or to goods, wares, and merchandise stored in, upon, or about the Premises or the Property, and for injuries to persons in, upon, or about the Premises or the Property from any cause arising at any time, except to the extent

covered by an express indemnity provision of this Lease or caused by the active negligence or willful misconduct of Lessor or its employees, agents or contractors.

(b) Lessor shall indemnify, defend, and hold harmless Lessee from claims, suits, actions, or liabilities for personal injury, death or for loss or damage to property that arise from (1) any activity, work, or thing done by Lessor in or about the Premises or the Property, and (2) bodily injury or damage to property which arises in or about the Property to the extent the injury or damage to property results from the active negligent acts of Lessor, its employees, agents or contractors.

(c) In the absence of comparative or concurrent negligence on the part of Lessee or Lessor, their respective agents, affiliates, and subsidiaries, or their respective officers, directors, members, employees or contractors, the foregoing indemnities by Lessee and Lessor shall also include reasonable costs, expenses and attorneys' fees incurred in connection with any indemnified claim or incurred by the indemnitee in successfully establishing the right to indemnity. The indemnitor shall have the right to assume the defense of any claim subject to the foregoing indemnities with counsel reasonably satisfactory to the indemnitee. The indemnitee agrees to cooperate fully with the indemnitor and its counsel in any matter where the indemnitor elects to defend, provided the indemnitor shall promptly reimburse the indemnitee for reasonable costs and expenses incurred in connection with its duty to cooperate.

The foregoing indemnities shall survive the expiration or earlier termination of this Lease and are conditioned upon the indemnitee providing prompt notice to the indemnitor of any claim or occurrence that is likely to give rise to a claim, suit, action or liability that will fall within the scope of the foregoing indemnities, along with sufficient details that will enable the indemnitor to make a reasonable investigation of the claim.

When the claim is caused by the joint negligence or willful misconduct of Lessee and Lessor or by the indemnitor party and a third party unrelated to the indemnitor party (except indemnitor's agents, officers, employees or invitees), the indemnitor's duty to indemnify and defend shall be proportionate to the indemnitor's allocable share of joint negligence or willful misconduct.

(d) Lessor shall not be liable to Lessee for any damage because of any act or negligence of any other occupant of the Building or any other owner or occupant of adjoining or contiguous property, nor for overflow, breakage, or leakage of water, steam, gas, or electricity from pipes, wires, or otherwise in the Premises or the Building, except to the extent caused by the gross negligence or willful misconduct of Lessor or Lessor's employees, agents, or contractors. Except as otherwise provided herein, Lessee will pay for damage to the Premises or the Property caused by the misuse or neglect of the Premises or the Property by Lessee or its employees, agents, or contractors, including, but not limited to, the breakage of glass in the Building.

13. Tenant Improvements. Subject to the terms of the Work Letter, Lessor shall: (i) cause to be constructed the Landlord Work and Tenant Improvements to the Phase 1 Space described in the Work Letter, including on Exhibits "F-1" through "F-3"; (ii) cause to be constructed the Landlord Work and Tenant Improvements to the Phase 2 Space described in the Work Letter,

including on Exhibits "F-1" through "F-3". The work to be performed by Lessor pursuant to this Paragraph (collectively, the "Initial Improvement Work") shall be performed in accordance with the Work Letter. Upon at least twenty-four (24) hours prior written notice to Lessee, Lessor may impose temporary commercially reasonable restrictions on Lessee's access to certain portions of the Phase 1 Space and other portions of the Premises as reasonably necessary for Lessor to perform certain of the Initial Improvement Work, such as installation of the generator, installation of certain HVAC units and performance of certain ADA (as defined in Paragraph 14(j)) work to the exterior of the Building.

14. Maintenance and Repairs; Alterations; Surrender and Restoration.

(a) Lessor shall, at Lessor's sole expense (and not as part of Operating Expenses), keep in good order, condition, and repair and replace when necessary, the structural elements of the roof (excluding the roof membrane which Lessor shall maintain, but the cost of which shall be included as an Operating Expense as permitted under Paragraph 5), the structural elements of the foundation and exterior walls (except the interior faces thereof) of the Building, and other structural elements of the Building and the Property as "structural elements" are defined in building codes applicable to the Building, excluding any alterations, structural or otherwise, made by Lessee to the Building which are not approved in writing by Lessor prior to the construction or installation thereof by Lessee. Lessor shall perform and construct, and Lessee shall not be responsible for performing or constructing, any repairs, maintenance, or improvements (1) required as a result of any casualty damage (not caused by the willful or negligent acts or omissions of Lessee or its employees, agents, contractors or invitees), which shall be subject to Paragraph 20 below, or as a result of any taking pursuant to the exercise of the power of eminent domain, or (2) for which Lessor has a right of reimbursement from third parties based on construction or other warranties, contractor guarantees, or insurance claims.

(b) Lessor shall provide or cause to be provided and shall supervise the performance of, as an Operating Expense of the Property to the extent permitted under Paragraph 5 hereof, all services and work relating to the operation, maintenance, repair, and replacement, as needed, of the Property, including the HVAC, mechanical, electrical, and plumbing systems in the Building (collectively, "Building Systems"); the interior of the Building; the roof membrane; the outside areas of the Property; the janitorial service for the Property (but not the interior of the Building); landscaping, tree trimming, resurfacing and restriping of the parking lot, repairing and maintaining the walkways; exterior building painting, exterior building lighting, parking lot lighting, and exterior security patrol. In the event Lessee provides Lessor with written notice of the need for any repairs, Lessor shall commence any such repairs promptly following receipt by Lessor of such notice and Lessor shall diligently prosecute such repairs to completion.

(c) Subject to the foregoing and except as provided elsewhere in this Lease, Lessee shall at all times use and occupy the Premises in a manner which keeps the Premises in good and safe order and condition including providing janitorial services for the interior of the Building. Lessor shall execute and maintain in full force and effect throughout the term as an Operating Expense of the Property to the extent permitted under Paragraph 5 a service contract with a recognized air conditioning service company. Lessor may, if Lessor determines that it is necessary to do so, obtain on a semi-annual basis an inspection report of the HVAC system from

a separate HVAC service firm designated by Lessor for the purpose of monitoring the performance of the HVAC maintenance and repair work performed by the HVAC service firm which performs the regular repair and maintenance. The cost of such inspection report shall be an Operating Expense pursuant to Paragraph 5. Subject to the release of claims and waiver of subrogation contained in Paragraphs 11(c) and 11(d), if Lessor is required to make any repairs to the Property by reason of Lessee's negligent acts or omissions, Lessor may add the cost of such repairs to the next installment of rent which shall thereafter become due, and Lessee shall promptly pay the same upon receipt of an invoice therefor.

(d) Lessee may, from time to time, at its own cost and expense and without the consent of Lessor make nonstructural alterations to the interior of the Premises which do not affect the Building Systems, the cost of which in any one instance is Fifty Thousand Dollars ($50,000) or less, and the aggregate cost of all such work during the Term this Lease does not exceed Two Hundred Fifty Thousand Dollars ($250,000) (collectively, "Exempted Alterations"), provided Lessee first notifies Lessor in writing of any Exempted Alterations. Otherwise, Lessee shall not make any additional alterations, improvements, or additions to the Premises without delivering to Lessor a complete set of plans and specifications for such work, obtaining and delivering copies to Lessor of all permits or other governmental approvals (if any) required for such work and obtaining Lessor's prior written consent thereto, which approval shall not be unreasonably withheld, conditioned or delayed. Failure by Lessor to respond within ten (10) days to Lessee's request for approval shall be deemed Lessor's approval of such alteration by Lessor only if Lessee provided such request in writing via personal delivery to an officer of Tarlton Properties, Inc. All alterations and additions shall be installed by a licensed contractor approved by Lessor, at Lessee's sole expense in compliance with all applicable laws, rules, regulations and ordinances. Lessee shall keep the Premises and the Property on which the Premises are situated free from any liens arising out of any work performed, materials furnished or obligations incurred by or on behalf of Lessee. For any alterations other than Exempted Alterations, Lessee shall pay a fee to Tarlton Properties, Inc. for Landlord's oversight of such alterations at a fee equal to five percent (5%) of hard construction costs (i.e., the amounts paid to any general contractor, subcontractors, vendors, and suppliers for labor and materials for the construction of the alterations or improvements). Lessor may condition its consent to, among other things, Lessee agreeing in writing to remove any such alterations prior to the expiration of the Lease term and Lessee agreeing to restore the Premises to its condition prior to such alterations at Lessee's expense, but only if in Lessor's reasonable and good faith discretion such alterations would decrease the value or re-leasibility of the Premises. Lessor shall advise Lessee in writing at the time consent is granted whether Lessor reserves the right to require Lessee to remove any alterations from the Premises prior to the expiration or sooner termination of this Lease.

All alterations, trade fixtures and personal property installed in the Premises solely at Lessee's expense shall during the term of this Lease remain Lessee's property and Lessee shall be entitled to all depreciation, amortization and other tax benefits with respect thereto (excluding the Tenant Improvements).

(e) Lessee shall, at Lessee's sole cost and expense, fully, diligently and in a timely manner, comply with all present and future "Laws," which term is used in this Lease to mean all laws, rules, regulations, ordinances, directives, orders, covenants, permits of all governmental

agencies and authorities, easements and restrictions of record, the requirements of any applicable fire insurance underwriter or rating bureau or board of fire underwriters, relating in any manner to Lessee's use or occupancy of the Premises (including but not limited to the use, generation, manufacture, production, installation, maintenance, removal, transportation, storage, spill, or release of any Hazardous Materials (which are addressed in Paragraph 9 hereof)), now in effect or which may hereafter come into effect. Lessee shall, within five (5) days after receipt of Lessor's written request, provide Lessor with copies of all documents and information, including but not limited to permits, registrations, manifests, applications, reports and certificates, evidencing Lessee's compliance with any Laws specified by Lessor, and shall immediately upon receipt, notify Lessor in writing (with copies of any documents involved) of any threatened or actual claim, notice, citation, warning, complaint or report pertaining to or involving failure by Lessee or the Premises to comply with any Laws. Notwithstanding the foregoing, any structural changes or other changes to the Property of any nature which would be considered a capital expenditure under GAAP to the Premises shall be made by Lessor at Lessee's expense if such structural changes are required by reason of the specific nature of the use of the Premises by Lessee. If such changes are not required by reason of the specific nature of Lessee's use of the Premises and are capital expenditures, the cost of such changes shall be treated as an Operating Expense and amortized in accordance with the provisions of Paragraph 5(b).

(f) Subject to Paragraph 31 (including Lessee's Secured Area protections), Lessor, Lessor's agents, employees, contractors and designated representatives, and the holders of any mortgages, deeds of trust or ground leases on the Premises ("Lenders") shall have the right to enter the Premises at any time in the case of an emergency, and otherwise at reasonable times after at least 24 hours prior notice to Lessee, for the purpose of inspecting the condition of the Premises and for verifying compliance by Lessee with this Lease and all Laws, and Lessor shall be entitled to employ experts and/or consultants in connection therewith to advise Lessor with respect to Lessee's activities, including but not limited to Lessee's installation, operation, use, monitoring, maintenance, or removal of any Hazardous Substance on or from the Premises. The costs and expenses of any such inspections shall be paid by the party requesting same, unless a default or breach of this Lease by Lessee or a violation of Laws or a contamination, caused or materially contributed to by Lessee, is found to exist or to be imminent, or unless the inspection is requested or ordered by a governmental authority as the result of any such existing or imminent violation or contamination. In such case, Lessee shall upon request reimburse Lessor or Lessor's Lender, as the case may be, for the costs and expenses of such inspections.

(g) During the term of this Lease, Lessee shall comply, at Lessee's expense, with all of the covenants, conditions, and restrictions affecting the Premises which are recorded in the Official Records of San Mateo County, California, and which are in effect as of the date of this Lease.

(h) Lessee shall surrender the Premises by the last day of the lease Term or any earlier termination date, with all of the improvements to the Premises, parts, and surfaces thereof clean and free of debris and in good operating order, condition, and state of repair, ordinary wear and tear excepted. Lessee's failure to surrender the Premises in accordance with the terms and conditions of this Lease, including, without limitation, this Paragraph 14(h) shall be deemed to be a material default under the Lease. "Ordinary wear and tear" shall not include any damage or

deterioration that would have been prevented by good maintenance practice or by Lessee performing all of its obligations under this Lease. Notwithstanding the foregoing, prior to the last day of the Term (or earlier termination of the Lease), Lessee shall (i) restore all walls in the Premises to the same condition existing immediately following completion of the Tenant Improvements, including patching and sanding all holes to match the original texture of the walls and touch-up painting to match the original paint; (ii) replace any broken, chipped, stained or discolored ceiling tiles in the Premises to match the existing tiles; and (iii) vacuum and steam clean all carpets and remove all stains, and throughout the term of the Lease purchase an excess of five percent (5%) of any carpet that is installed in the Premises and deliver such excess carpet to Lessor upon surrender if such carpet is still installed in the Premises. In addition to the foregoing, the obligations of Lessee shall include the repair of any damage occasioned by the installation, maintenance, or removal of Lessee's trade fixtures, furnishings, equipment, and alterations, and, subject to Lessee's right not to remove certain alterations in accordance with subparagraph (d) above, the restoration by Lessee of the Premises to its condition upon completion of the Initial Improvement Work. Subject to the foregoing, upon the expiration or sooner termination of this Lease all alterations, fixtures and improvements to the Premises, whether made by Lessor or installed by Lessee at Lessee's expense, shall be surrendered by Lessee with the Premises and shall become the property of Lessor; provided, however, that Lessee's furniture and other personal property, not provided by or paid for by Lessor and not permanently affixed to the Premises which can be removed without materially damaging the Premises may be removed by Lessee. Lessee shall repair to Lessor's reasonable satisfaction all damage to the Premises occasioned by removal of Lessee's Property. Prior to the expiration of the term of this Lease or any earlier termination date, Lessee shall, at Lessee's expense, obtain written closure reports from the San Mateo County Health Department and from the Menlo Park Fire Protection District with respect to any Hazardous Materials used, stored, or released by Lessee on or about the Premises. Both written closure reports shall provide written certification that all Hazardous Materials have been removed from the Premises and that no further action is required in connection with the closure of the Premises. Any removal and remediation of Hazardous Materials by Lessee shall be certified in writing as (1) complete and (2) having been properly performed, by the San Mateo County Health Department and the Menlo Park Fire Protection District and a copy of such written certifications shall be delivered by Lessee to Lessor no later than the last day of the Term of this Lease.

(i) Except as otherwise provided in this Lease, Lessee waives all right to make repairs at the expense of Lessor, or to deduct the costs thereof from the rent, and Lessee waives all rights under Section 1941 and 1942 of the Civil Code of the State of California.

(j) Compliance with Americans with Disabilities Act: Lessee hereby waives any and all rights under, and benefits of, California Civil Code 1938 and acknowledges that neither the Building nor the Premises has undergone inspection by a Certified Access Specialist (CASp). Lessee shall not engage any CASp to inspect the Premises without the Lessor's prior written consent, which shall not be unreasonably withheld, conditioned or delayed. Lessor may require that Lessee select a CASp reasonably approved by Lessor for any inspection of the Premises. Lessor and Lessee hereby agree and acknowledge that the Premises, the Building and/or the Park may be subject to the requirements of the Americans with Disabilities Act, a federal law codified

at 42 U.S.C. 12101 et seq., including, but not limited to Title III thereof, all regulations and guidelines related thereto, together with any and all laws, rules, regulations, ordinances, codes and statutes now or hereafter enacted by local or state agencies having jurisdiction thereof, including all requirements of Title 24 of the State of California, as the same may be in effect on the date of this Lease and may be hereafter modified, amended or supplemented (collectively, the "ADA"). Any alterations shall be in compliance with the requirements of the ADA, and all costs incurred for purposes of compliance therewith shall be a part of and included in the costs of such alterations. Lessee shall be solely responsible for conducting its own independent investigation of this matter and for ensuring that the design of all such alterations strictly comply with all requirements of the ADA. Subject to reimbursement pursuant to Section 5 of the Lease, if any barrier removal work or other work is required to the Building, the Common Areas or the Park under the ADA, then such work shall be the responsibility of Lessor; provided, if such work is required under the ADA as a result of Lessee's specific use of the Premises or any work or alteration made to the Premises by or on behalf of Lessee, then such work shall be performed by Lessor at the sole cost and expense of Lessee. Nothing in this subparagraph (j) is intended to limit or reduce Lessor's obligations under the Work Letter. Except as otherwise expressly provided in this provision, Lessee shall be responsible at its sole cost and expense for fully and faithfully complying with all applicable requirements of the ADA pertaining to Lessee's use of the Premises, including without limitation, not discriminating against any disabled persons in the operation of Lessee's business in or about the Premises, and offering or otherwise providing auxiliary aids and services as, and when, required by the ADA. Within ten (10) days after receipt, Lessor and Lessee shall advise the other party in writing, and provide the other with copies of (as applicable), any notices alleging violation of the ADA relating to any portion of the Premises or the Building; any claims made or threatened in writing regarding noncompliance with the ADA and relating to any portion of the Premises or the Building; or any governmental or regulatory actions or investigations instituted or threatened regarding noncompliance with the ADA and relating to any portion of the Premises or the Building. Lessee shall and hereby does agrees to protect, defend (with counsel acceptable to Lessor) and hold Lessor and the other Indemnitees harmless and indemnify the Indemnitees from and against all liabilities, damages, claims, losses, penalties , judgments, charges and expenses (including reasonable attorneys' fees, costs of court and expenses necessary in the prosecution or defense of any litigation including the enforcement of this provision) arising from or in any way related to, directly or indirectly, Lessee's or Lessee's Representatives' violation or alleged violation of the ADA. Lessee agrees that the obligations of Lessee herein shall survive the expiration or earlier termination of this Lease.

(k) In the event that Lessee leases or finances the acquisition of office equipment, furnishings or other personal property of a removable nature utilized by Lessee in the operation of Lessee's business (which Lessee shall have the right to do), Lessee warrants that any Uniform Commercial Code financing statement shall, upon its face or by exhibit thereto, indicate that such financing statement is applicable only to removable personal property of Lessee located within the Premises. In no event shall the address of the Premises be furnished on a financing statement without qualifying language as to applicability of the lien only to removable personal property located in an identified suite leased by Lessee. Should any holder of a financing statement record or place of record a financing statement that appears to constitute a lien against

any interest of Lessor, Lessee shall, within ten (10) days after filing such financing statement, cause (a) a copy of the lender security agreement or other documents to which the financing statement pertains to be furnished to Lessor to facilitate Lessor's ability to demonstrate that the lien of such financing statement is not applicable to Lessor's interest and (b) Lessee's lender to amend such financing statement and any other documents of record to clarify that any liens imposed thereby are not applicable to any interest of Lessor in the Premises. Upon Lessee's request, Lessor shall promptly execute and deliver to Lessee a commercially reasonable form of Lessor's waiver reasonably acceptable to Lessor in favor of any equipment lienor.

15. Utilities and Services.

(a) Lessor shall contract for and pay for, and Lessee shall reimburse Lessor the actual cost therefor pursuant to Paragraph 5 as an Operating Expense, all water, heat and air conditioning service, janitorial service (but not including the interior of the Building), refuse pick-up, sewer charges, and all other utilities or services supplied to or consumed by Lessee, its agents, employees, contractors, and invitees on or about the Premises, excluding gas, electrical and telephone service to the Premises for which Lessee shall contract and pay directly. Lessee shall pay Lessor, within fifteen (15) days after receipt of written invoice, the cost of installing separate metering of electrical service to the Premises, estimated to be Ten Thousand Dollars ($10,000.00).

(b) Lessor shall not be liable to Lessee for any interruption or failure of any utility services to the Building or the Premises which is not caused by the active negligence or willful acts of Lessor. Lessee shall not be relieved from the performance of any covenant or agreement in this Lease because of any such failure. Lessor shall make al1 repairs to the Premises required to restore such services to the Premises and the cost thereof shall be payable by Lessee pursuant to Paragraph 5 as a current Operating Expense, or as a capital expense which is amortized over its useful life (together with interest thereon) as an Operating Expense in accordance with GAAP as described in Paragraph 5(b); provided, however, if such failure is caused by the active negligence or willful acts of Lessor, then Lessor shall bear such costs.

(c) In the event that Lessee, pursuant to the terms of this Lease, contracts directly for the provision of electricity, gas and/or water services to the Premises with the third-party provider thereof (all in Lessor's reasonable discretion), Lessee shall within ten (10) business days following its receipt of written request from Lessor, provide Lessor with a copy of each requested invoice from the applicable utility provider. Lessee acknowledges that pursuant to California Public Resources Code Section 25402.10 and the regulations adopted pursuant thereto (collectively, the "Energy Disclosure Requirements"), Lessor may be required to disclose information concerning Lessee's energy usage at the Building to certain third parties, including without limitation, prospective purchasers, lenders and Lessees of the Building (the "Lessee Energy Use Disclosure"). Lessee hereby (A) consents to all such Lessee Energy Use Disclosures, and (B) acknowledges that Lessor shall not be required to notify Lessee of any Lessee Energy Use Disclosure. Further, Lessee hereby releases Lessor from any and all losses, costs, damages, expenses and liabilities relating to, arising out of and/or resulting from any Lessee Energy Use Disclosure. The terms of this Paragraph shall survive the expiration or earlier termination of this Lease.

(d) Lessor will not be liable to Lessee or any other person, for direct or consequential damages, or otherwise, for any failure to supply any heat, air conditioning, elevator, cleaning, water, lighting or for any surges or interruptions of electricity, or other service Lessor has agreed to supply during any period or that prevent access to the Premises. However, if such services are, or access is, interrupted such that Lessee is prevented from using the Premises (or a portion thereof) for a period of more than 5 consecutive business days (the "Eligibility Period") and such interruption is attributable to: (a) Lessor's failure to effect repairs required to be made by Lessor hereunder as a result of Lessor's negligence or breach of the Lease; (b) the negligence or willful misconduct of Lessor; or (c) Lessor's failure to act reasonably to restore such interruption after notice from Lessee or any governmental authority or utility company, then the Rent shall abate with regard to the proportion of the Premises that is unusable until such time as Lessee is able to use the Premises (or any portion thereof); provided that Lessee shall be entitled to abatement if such interruption is not caused by Lessee's negligence or willful misconduct or failure to maintain, repair or operate its back-up generator. To the extent Lessee shall be entitled to abatement because of damage or destruction pursuant to Article 20 or a taking pursuant to Article 21, the Eligibility Period shall not be applicable .

16. Liens. Lessee agrees to keep the Premises free from all liens arising out of any work performed, materials furnished, or obligations incurred by Lessee. Lessee shall give Lessor at least ten (10) calendar days prior written notice before commencing any work of improvement on the Premises, the contract price for which exceeds Fifty Thousand Dollars ($50,000). Lessor shall have the right to post notices of non-responsibility with respect to any such work. If Lessee shall, in good faith, contest the validity of any such lien, claim or demand, then Lessee shall, at its sole expense, defend and protect itself, Lessor and the Property against the same,and shall pay and satisfy any such adverse judgment that may be rendered thereon before the enforcement thereof against the Lessor or the Property.

17. Assignment and Subletting. Lessee or any Permitted Transferee (as hereinafter defined) of Lessee shall be permitted to assign the Lease or sublease all or any portion of the Premises, subject to Lessor's consent, which consent will not be unreasonably withheld, conditioned or delayed. Lessor's consent shall not be required for (i) assignments or subleases to affiliates, where Lessee remains liable for the Lease, (ii) assignments arising out of a merger, consolidation or comparable transactions, where the resulting successor entity satisfies a minimum net worth requirement to be provided for in the Lease, (iii) or use of individual offices and other spaces within the Premises on an undemised basis by affiliates, or, to the extent of up to 10% of the Premises, by business partner or clients and others having a business relationship with Lessee ("Special Transferee"), as further described in Paragraph 17(f) below. While Lessor's consent may not be required, Lessor shall nonetheless be entitled to prior notice of the proposed assignment and sublease and in the case of Lessee entering into sublease agreement or an assignment of the Lease or other occupancy agreement, Lessor shall have the right to reasonably review and consent to the form and require, among other things, all assignees and subtenants to provide evidence of the required insurance under the Lease. As more particularly described in the Lease, other than to a Permitted Transferee certain of the Tenant's rights and privileges under the Lease shall not be transferable to assignees, subtenants and other transferees occupying space

in the Premises. Tenant and Lessor shall split equally any Net Profits derived from any sublease contemplated above.

"Net Profits" shall mean all cash rent payable by an assignee or subtenant ("Transferees") in connection with the assignment or sublease ("Transfer") in excess of the Base Rent and Operating Expenses payable by Lessee under this Lease during the term of the Transfer (on a per rentable square foot basis if less than all of the Premises is transferred) after deducting the expenses incurred or to be incurred by Lessee for the following (collectively, "Transfer Cost"):(i) any changes, alterations and improvements to the Premises in connection with the Transfer,(ii) any space planning, architectural or design fees or other expenses incurred in marketing such space or in connection with such Transfer, (iii) any improvement allowance, rent abatement or other monetary concessions provided by Lessee to the Transferee, (iv) any brokerage commissions incurred by Lessee in connection with the Transfer, (v) any attorneys' fees incurred by Lessee in connection with the Transfer, (vi) any lease takeover costs incurred by Lessee in connection with the Transfer, (vii) any costs of advertising the space which is the subject of the Transfer, with all such costs amortized over the term of the sublease, viii) all initial Tenant Improvement Costs solely paid for by Lessee for only the original Lease Term.

(a) Except as otherwise provided in this Paragraph 17, Lessee shall not assign this Lease, or any interest, voluntarily or involuntarily, and shall not sublet the Premises or any part thereof, or any right or privilege appurtenant thereto, or suffer any other person (the agents and servants of Lessee excepted) to occupy or use the Premises, or any portion thereof, without the prior written consent of Lessor in each instance pursuant to the terms and conditions set forth below, which consent shall not be unreasonably withheld, conditioned or delayed, subject to the following provisions; provided, however, Lessee shall not assign this Lease, or any interest, voluntarily or involuntarily, and shall not sublet the Premises or any part thereof, or any right or privilege appurtenant thereto, or suffer any other person (the agents and servants of Lessee excepted) to occupy or use the Premises, or any portion thereof, if Lessee shall be in default under this Lease past any applicable cure period.

(b) Except with respect to a Permitted Transferee, if at the time Lessee provides written notice ("Intention Notice") to Lessor that Lessee intends to assign the Lease or sublease more than fifty percent (50%) of the Building (along with the rental rate and other lease concessions at which Lessee intends to lease such space) and Lessor reasonably determines that there is, or will be, within nine (9) months, space within the Menlo Business Park available for lease of approximately the same square footage, Lessor may, no later than ten (10) days after receipt of Lessee's Intention Notice, notify Lessee that Lessor elects to terminate this Lease (as to the entire Premises in the case of an assignment or the portion being sublet in the case of a sublease), and the effective date of termination shall be ninety (90) days after Tenant provides notice to Landlord. If Lessor elects to terminate this Lease pursuant to the foregoing provision, upon the effective date of termination, Lessor and Lessee shall each be released and discharged from any liability or obligation to the other under this Lease accruing thereafter with respect to the Premises or the portion thereof to which the termination applies, except for any obligations which survive the expiration or termination of this Lease by the express terms hereof, and Lessee agrees that Lessor may enter into a direct lease with any proposed assignee or sublessee without any obligation or liability to Lessee. Lessor's failure to respond to Lessee on or before the

expiration of such ten (10) day period shall be deemed Lessor's waiver of its right under this Section l7(b) and Lessee shall thereafter be free to assign the Lease or sublease the Premises on rate and terms acceptable to Lessee in its sole and absolute discretion (subject, however, to Section 17(c) below); provided that if Lessee does not assign or sublet such space within nine (9) months after delivery of the Intention Notice, Lessee must deliver to Lessor a new Intention Notice prior to assigning or subletting such space.

(c) Prior to any assignment or sublease which Lessee desires to make, other than a Permitted Transfer (as defined in Paragraph 17(f) below), Lessee shall provide to Lessor the name and address of the proposed assignee or sublessee, and true and complete copies of all documents relating to Lessee's prospective agreement to assign or sublease, a copy of a current financial statement for such proposed assignee or sublessee, and any other relevant information requested by Lessor within five (5) days after receipt of notice of the proposed assignment or sublease and Lessee shall specify all consideration to be received by Lessee for such assignment or sublease in the form of lump sum payments, installments of rent, or otherwise. For purposes of this Paragraph 17, the term "consideration" shall include all money or other consideration to be received by Lessee for such assignment or sublease. Within ten (10) days after the receipt of such documentation and other information, Lessor (1) shall notify Lessee in writing that Lessor elects to consent to the proposed assignment or sublease subject to the terms and conditions hereinafter set forth; or (2) shall notify Lessee in writing that Lessor refuses such consent, specifying reasonable grounds for such refusal.

In deciding whether to consent to any proposed assignment or sublease, Lessor may take into account whether reasonable conditions have been satisfied, including, but not limited to, the following:

(1) In Lessor's reasonable judgment, the proposed assignee or subtenant is engaged in such a business, that the Premises, or the relevant part thereof, will be used in such a manner which complies with Paragraph 8 hereof entitled "Use" and Lessee or the proposed assignee or sublessee submits to Lessor documentary evidence reasonably satisfactory to Lessor that such proposed use constitutes a permitted use of the Premises pursuant to the ordinances and regulations of the City of Menlo Park; and

(2) The proposed assignee or subtenant is an entity or individual with sufficient financial creditworthiness so as to reasonably indicate that it will be able to meet its obligations under this Lease or the sublease in a timely manner.

(d) As a condition to Lessor's granting its consent to any assignment or sublease, except with respect to any Permitted Transferees, (1) Lessor may require that Lessee pay to Lessor, as and when received by Lessee, fifty percent (50%) of the amount of any excess of the consideration to be received by Lessee in connection with said assignment or sublease over and above the Monthly Base Rent and Additional Rent fixed by this Lease and payable by Lessee to Lessor, after deducting only (i) any changes, alterations and improvements to the Premises in connection with the Transfer, (ii) any space planning, architectural or design fees or other expenses incurred in marketing such space or in connection with such Transfer, (iii) any improvement allowance, rent abatement or other monetary concessions provided by Lessee to the Transferee, (iv) any brokerage commissions incurred by Lessee in connection with the

Transfer, (v) any attorneys' fees incurred by Lessee in connection with the Transfer, (vi) any lease takeover costs incurred by Lessee in connection with the Transfer, (viii) any costs of advertising the space which is the subject of the Transfer, with all such costs amortized over the term of the sublease, (viii) all initial Lessee Improvement costs solely paid for by Lessee for only the initial Lease Term.

(e) Each assignment or sublease agreement to which Lessor has consented shall be an instrument in writing in form reasonably satisfactory to Lessor, and shall be executed by both Lessee and the assignee or sublessee, as the case may be, and such assignee or sublessee shall provide evidence of the insurance required by this Lease. Each such assignment or sublease agreement shall recite that it is and shall be subject and subordinate to the provisions of this Lease, that the assignee or sublessee accepts such assignment or sublease, that Lessor's consent thereto shall not constitute a consent to any subsequent assignment or subletting by Lessee or the assignee or sublessee, and, except as otherwise set forth in a sublease approved by Lessor, agrees to perform all of the obligations of Lessee hereunder (to the extent such obligations relate to the portion of the Premises assigned or subleased), and that the termination of this Lease shall, at Lessor's sole election, constitute a termination of every such assignment or sublease.

(f) In the event Lessor shall consent to an assignment or sublease, Lessee shall nonetheless remain primarily liable for all obligations and liabilities of Lessee under this Lease, including but not limited to the payment of rent.

(g) Notwithstanding the foregoing, Lessee (including any Permitted Transferee of Lessee) may, without Lessor's prior written consent and without any participation by Lessor in assignment and subletting proceeds, but with prior notice and documentation, as required pursuant to this Paragraph 17(f), provided to Lessor, sublet a portion or the entire Premises or assign this Lease to (i) a subsidiary, affiliate, division or corporation controlled or under common control with Lessee ("affiliate"); (ii) to a successor corporation related to Lessee by merger, consolidation or reorganization; or (iii) to a purchaser of substantially all of Lessee's business operations conducted on the Premises (each such transaction referred to herein as a "Permitted Transfer" and each of the foregoing transferees referred to herein as a "Permitted Transferee"), provided that any such Permitted Transferee shall have a current verifiable net worth prior to the transfer at least equal to that of Lessee on the Commencement Date of this Lease, or, if less, financial resources sufficient, in Lessor's reasonable good faith judgment, to perform the obligations under the assignment or sublease, as applicable. Additionally, Lessee may, without Lessor's prior written consent and without any participation by Lessor in assignment and subletting proceeds, but with prior notice and documentation, as required pursuant to this Paragraph 17(f) provided to Lessor, permit the use of individual offices and other spaces within the Premises on an undemised basis by affiliates, or, to the extent of up to an aggregate of 10% of the Premises, by business partners or clients and others having a business relationship with Lessee. Lessee's foregoing rights in this Paragraph 17(f) to assign this Lease or to sublease all or a portion of the entire Premises shall be subject to the following conditions: (1) Lessee shall not be in default hereunder past any applicable cure period; (2) in the case of an assignment or subletting to an affiliate, Lessee shall remain liable to Lessor hereunder if Lessee is a surviving entity; (3) the transferee or successor entity shall expressly assume in writing all of Lessee's obligations hereunder; and (4) Lessee shall provide Lessor with prior notice of such proposed

transfer (or as soon thereafter as possible in the event that the giving of notice would cause Lessee to be in violation of a confidentiality agreement) and deliver to Lessor all documents reasonably requested by Lessor relating to such transfer, including but not limited to documentation sufficient to establish such proposed transferee's current verifiable net worth prior to the transfer at least equal to that of Lessee on the Commencement Date of this Lease, or, if less, financial resources sufficient, in Lessor's reasonable good faith judgment, to perform the obligations under the assignment or sublease, as applicable.

(h) Subject to the provisions of this Paragraph 17 any assignment or sublease (if such consent is required hereunder) without Lessor's prior written consent shall at Lessor's election be void. The consent by Lessor to any assignment or sublease shall not constitute a waiver of the provisions of this Paragraph 17, including the requirement of Lessor's prior written consent, with respect to any subsequent assignment or sublease. If Lessee shall purport to assign this Lease, or sublease all or any portion of the Premises, or permit any person or persons other than Lessee to occupy the Premises, without Lessor's prior written consent (if such consent is required hereunder), Lessor may collect rent from the person or persons then or thereafter occupying the Premises and apply the net amount collected to the rent reserved herein, but no such collection shall be deemed a waiver of Lessor's rights and remedies under this Paragraph 17, or the acceptance of any such purported assignee, sublessee, or occupant, or a release of Lessee from the further performance by Lessee of covenants on the part of Lessee herein contained.

(i) Lessee shall not hypothecate or encumber its interest under this Lease or enter into any license or concession agreement respecting all or any portion of the Premises, without Lessor's prior written consent which consent shall not be unreasonably withheld, conditioned or delayed. Lessee's granting of any such license, or concession agreement shall constitute an assignment for purposes of this Paragraph 17.

(j) In the event of any sale or exchange of the Premises by Lessor and assignment of this Lease by Lessor, Lessor shall, upon providing Lessee with written confirmation that the assignee has assumed (in writing) all obligations of Lessor under this Lease and Lessor has delivered any Security Deposit held by Lessor to Lessor's successor in interest, be and hereby is entirely relieved of all liability under any and all of Lessor's covenants and obligations contained in or derived from this Lease with respect to the period commencing with the consummation of the sale or exchange and assignment.

18. Non-Waiver.

(a) No waiver of any provision of this Lease shall be implied by any failure of Lessor or Lessee to enforce any remedy for the violation of that provision, even if that violation continues or is repeated. Any waiver by Lessor or Lessee of any provision of this Lease must be in writing.

(b) No receipt of Lessor of a lesser payment than the rent required under this Lease shall be considered to be other than on account of the earliest rent due, and no endorsement or statement on any check or letter accompanying a payment or check shall be considered an accord and satisfaction. Lessor may accept checks or payments without prejudice to Lessor's right to recover all amounts due and pursue all other remedies provided for in this Lease.

Lessor's receipt of any rent or other payment from Lessee after giving notice to Lessee terminating this Lease shall in no way reinstate, continue, or extend the Lease term or affect the termination notice given by Lessor before the receipt of such rent or payment. After serving notice terminating this Lease, filing an action, or obtaining final judgment for possession of the Premises, Lessor may receive and collect any rent, and the payment of that rent shall not waive or affect such prior notice, action, or judgment.

19. Holding Over. Lessee shall vacate the Premises and deliver the same to Lessor upon the expiration or sooner termination of this Lease. In the event of holding over by Lessee after the expiration or termination of this Lease, such holding over shall be on a month-to-month tenancy and all of the terms and provisions of this Lease shall be applicable during such period, except that in addition to the payment of Additional Rent, Lessee shall pay Lessor as.Monthly Base Rent during such holdover an amount equal to the greater of (i) one hundred fifty percent (150%) of the Monthly Base Rent in effect at the expiration of the term, or (ii) the then market rent for comparable research and development/office space. If such holdover is without Lessor's written consent, Lessee shall be liable to Lessor for all costs, expenses and damages incurred by Lessor as a result of such holdover, including but not limited to damages resulting from Lessor's inability to timely deliver possession of the Premises to a new tenant. The rental payable during such holdover period without Lessor's written consent shall be payable to Lessor on demand.

20. Damage or Destruction.

(a) In the event of a total destruction of the Building during the term from any cause, either party may elect to terminate this Lease by giving written notice of termination to the other party within thirty (30) days after the casualty occurs. A total destruction shall be deemed to have occurred for this purpose if the Building or the Premises that are the subject of this Lease are destroyed to the extent of seventy-five percent (75%) or more of the replacement cost thereof. If the Lease is not terminated, Lessor shall repair and restore the Premises in a diligent manner and this Lease shall continue in full force and effect, except that Monthly Base Rent and Additional Rent of the Premises which are the subject of this Lease shall be abated in accordance with Paragraph 20(d) below.

(b) In the event of a partial destruction of the Building or the Premises to an extent less than seventy-five percent (75%) of the replacement cost thereof, and if Lessor reasonably believes that the damage thereto can be repaired, reconstructed, or restored within a period of two hundred forty (240) days from the date of such casualty, there are at least twelve (12) months. remaining in the term of this Lease, and the casualty is from a cause which is insured under Lessor's "all risk" property insurance, or is insured under any other coverage then carried by Lessor, Lessor shall forthwith repair the same, and this Lease shall continue in full force and effect, except that Monthly Base Rent and Additional Rent shall be abated in accordance with Paragraph 20(d) below. If any of the foregoing conditions are not met, Lessor shall have the option of either repairing and restoring the Building and Improvements, or terminating this Lease by giving written notice of termination to Lessee within sixty (60) days after the casualty. Notwithstanding anything to the contrary contained in this Paragraph 20, Lessor shall not have the right to terminate this Lease if the cost to repair the damage to the Building or to restore the Premises would cost less than five percent (5%) of the replacement cost of the Building,

regardless of whether or not the casualty is insured provided that there are at least twelve (12) months remaining in the term of this Lease.

(c) Lessor's election to repair and restore the Building and Improvements or to terminate this Lease, shall be made and written notice thereof shall be given to Lessee within sixty (60) days after the casualty. Notwithstanding the foregoing, (1) Lessee may terminate this Lease by written notice to Lessor if Lessor has not obtained all necessary governmental permits for the restoration and commenced construction of the restoration within ninety (90) days after the casualty; or (2) if Lessor elects to repair and restore the Building and Improvements under Paragraph 20(b) above, but the repairs and restoration are not substantially completed within two hundred forty (240) days after the casualty plus the period of any force majeure delays (as defined in subparagraph (e)), Lessee may terminate this Lease by written notice to Lessor given within thirty (30) days after the expiration of said period of two hundred forty (240) days after the casualty, provided that the repairs and restoration are not substantially completed prior to the receipt by Lessor of such notice of termination.

(d) In the event of repair, reconstruction, or restoration as provided herein, the Monthly Base Rent and Additional Rent shall be abated proportionally in the ratio which the Lessee's use of the Premises is impaired and Lessee does not use such portion of the Premises during the period of such repair, reconstruction, or restoration, from the date of the casualty until such repair, reconstruction or restoration is substantially completed and a certificate of occupancy (or its functional equivalent) has been issued by the applicable governmental authority.

(e) With respect to any destruction of the Building and Improvements which Lessor is obligated to repair, or may elect to repair, under the terms of this Paragraph 20, the provisions of Section 1932, Subdivision 2, and of Section 1933, Subdivision 4, of the Civil Code of the State of California are waived by the parties. Lessor's obligation to repair and restore the Building and Improvements shall include the Tenant Improvements referred to in Paragraph 13(a) up to the cost of the Tenant Improvement Allowance. Lessor's time for completion of the repairs and restoration of the Building and Improvements referred to above shall be extended by a period equal to any delays ("force majeure delays") caused by strikes, labor disputes, unavailability of materials, inclement weather, circumstances not within Lessor's control, or acts of God, but in no event by more than sixty (60) days.

(f) In the event of termination of this Lease pursuant to any of the provisions of this Paragraph 20, the Monthly Base Rent and Additional Rent shall be apportioned on a per diem basis and shall be paid to the date of the casualty. In no event shall Lessor be liable to Lessee for any damages resulting to Lessee from the occurrence of such casualty, or from the repairing or restoration of the Building and Improvements, or from the termination of this Lease as provided herein, nor shall Lessee be relieved thereby from any of Lessee's obligations hereunder, except to the extent and upon the conditions expressly set forth in this Paragraph 20.

21. Eminent Domain.

(a) If the whole or any substantial part of the Property is taken or condemned by any competent public authority for any public use or purpose, the term of this Lease shall end upon

the earlier to occur of the date when the possession of the part so taken shall be required for such use or purpose or the vesting of title in such public authority. Rent shall be apportioned as of the date of such termination. Any award arising from the condemnation of any portion of the Property or the settlement thereof shall belong to and be paid to Lessor. However, Lessee may file a separate claim at Lessee's sole cost and expense for (i) leasehold improvements installed at Lessee's expense or other property owned by Lessee, and (ii) reasonable costs of moving by Lessee to another location in San Mateo County or surrounding areas within the San Francisco Bay Area. In all events, Lessor shall be solely entitled to any award with respect to the real property, including the bonus value of the leasehold.

(b) If there is a partial taking of the Property by eminent domain which is not a substantial part of the Property and the Premises remain reasonably suitable for continued use and occupancy by Lessee for the purposes referred to in Paragraph 8, Lessor shall complete any necessary repairs in a diligent manner and this Lease shall remain in full force and effect with a just and proportionate abatement of the Monthly Base Rent and Additional Rent, based on the extent to which Lessee's use of the Premises is completely impaired thereafter. If after a partial taking, the Premises are not reasonably suitable for Lessee's continued use and occupancy for the uses permitted herein, Lessee may terminate this Lease effective on the earlier of the date title vests in the public authority or the date possession is taken. Subject to the provisions of Paragraph 21(a), the entire award for such taking shall be the property of Lessor.

(c) If, in Lessee's reasonable judgment, so much of the Premises or Building is taken so as to (i) materially interfere with the conduct of Lessee's business from the Premises, and (ii) substantially impairs access to the Premises or the parking facilities, or (iv) substantially impairs use of the parking facilities, in each case for a period in excess of ninety (90) days, Lessee shall have the option to terminate this Lease upon ninety (90) days' notice, provided such notice is given no later than one hundred eighty (180) days after the date of such taking.

22. Remedies. If Lessee fails to make any payment of rent or any other sum due under this Lease for five (5) days after receipt by Lessee of written notice from Lessor; or if Lessee fails to comply with any term, provision or covenant of this Lease and does not cure such failure within twenty (20) days after receipt by Lessee of written notice from Lessor or such shorter time period specified in this Lease (unless such default is incapable of cure within twenty (20) days and Lessee commences cure within twenty (20) days and thereafter diligently prosecutes the cure to completion within a reasonable time; or if Lessee's interest herein, or any part thereof, is assigned or transferred, either voluntarily or by operation of law (except as expressly permitted by other provisions of this Lease); or if Lessee makes a general assignment for the benefit of its creditors; or if this Lease is rejected (i) by a bankruptcy trustee for Lessee, (ii) by Lessee as debtor in possession, or (iii) by failure of Lessee as a bankrupt debtor to act timely in assuming or rejecting this Lease; then any of such events shall constitute an event of default and breach of this Lease by Lessee and Lessor may, at its option, elect the remedies specified in either subparagraph (a) or (b) below. Any such rejection of this Lease referred to above shall not cause an automatic termination of this Lease. Whenever in this Lease reference is made to a default by Lessee, such reference shall refer to an event of default (beyond the expiration of the applicable notice and cure period) as defined in this Paragraph 22.

(a) Lessor may repossess the Premises and remove all persons and property therefrom. If Lessor terminates this Lease because of a breach of this Lease, this Lease shall terminate and Lessor may recover from Lessee:

(1) the worth at the time of award of the unpaid rent which had been earned at the time of termination including interest thereon at a rate equal to the discount rate established by the Federal Reserve Bank of San Francisco for member banks, plus one percent (1%), or the maximum legal rate of interest, whichever is less, from the time of termination until paid;

(2) the worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Lessee proves could have been reasonably avoided, including interest thereon at a rate equal to the Federal discount rate plus one percent (1%) per annum, or the maximum legal rate of interest, whichever is less, from the time of termination until paid;

(3) the worth at the time of award of the amount by which the unpaid rent for the balance of the term after the time of award exceeds the amount of such rental loss for the same period that Lessee proves could be reasonably avoided discounted at the discount rate established by the Federal Reserve Bank of San Francisco for member banks at the time of the award plus one percent (1%); and

(4) any other amount necessary to compensate Lessor for all the detriment proximately caused by Lessee's breach or by Lessee's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom.

(b) If Lessor does not terminate this Lease, then this Lease shall continue in effect and Lessor may enforce all of its rights and remedies under this Lease, including the right to recover the rent and other sums due from Lessee hereunder. For the purposes of this Paragraph 22, the following do not constitute a termination of the Lease by Lessor:

(1) Acts of maintenance or preservation by Lessor or efforts by Lessor to relet the Premises; or

(2) The appointment of a receiver by Lessor to protect Lessor's interests under

this Lease.

(c) Lessor's failure to perform or observe any of its obligations under this Lease or to correct a breach of any warranty or representation made in this Lease within twenty (20) days after receipt of written notice from Lessee setting forth in reasonable detail the nature and extent of the failure referencing pertinent Lease provisions or if more than twenty (20) days is required to cure the breach, Lessor's failure to begin curing within the twenty (20) day period and diligently prosecute the cure to completion, shall constitute a default. If Lessor commits a default, Lessee may exercise all rights and remedies under this Lease, at law or in equity; provided, however, in no event shall Lessor be liable for any consequential damages which may suffered by Lessee.

(d) All covenants and agreements to be performed by Lessee under this Lease shall be at its sole cost and expense and without abatement of rent or other sums due under this Lease, unless otherwise specified in this Lease. If Lessee shall fail to pay any sum of money required to be paid by Lessee under this Lease or shall fail to perform any other act on Lessee's part to be performed under this Lease within the time periods described in the first paragraph of Paragraph 22(a), Lessor may, but shall not be obligated so to do and without waiving or releasing Lessee from any obligations of Lessee, make any such payment or perform any such other act on Lessee's part to be made or performed as provided in this Lease. All sums paid by Lessor, whether to fulfill Lessee's unfulfilled payment obligations, to perform Lessee's unfulfilled performance obligations, or to compel Lessee to fulfill or perform its obligations under this Lease, and all incidental costs, including attorneys' fees, plus an administrative fee of five percent (5%) of all amounts so expended by Lessor, shall be deemed additional rent hereunder and shall be payable to Lessor upon demand.

23. Lessee's Personal Property. If any personal property of Lessee remains on the Premises after (1) Lessor terminates this Lease pursuant to Paragraph 22 above following an event of default by Lessee, or (2) after the expiration of the Lease Term or after the termination of this Lease pursuant to any other provisions hereof, Lessor shall give written notice thereof to Lessee pursuant to applicable law. Lessor shall thereafter release, store, and dispose of any such personal property of Lessee in accordance with the provisions of applicable law.

24. Notices. All notices, demands, consents or approvals (collectively, "Notices") which may or are required to be given by either party to the other under this Lease shall be in writing and shall be deemed to have been fully given as provided in Paragraph 36(u). Each Notice shall be addressed to Lessor and Lessee at the following address or facsimile number, or to such place as either party may from time to time designate in a written notice to the other party:

Lessor:	Menlo PREHC I, LLC Menlo PREPI I, LLC TPI Investors 9, LLC c/o Tarlton Properties, Inc. 1530 O'Brien Drive, Suite C Menlo Park, California 94025 Attention: John C. Tarlton, President Telephone: (650) 330-3600 Facsimile Number: (650) 330-3636
Lessee – Before Commencement Date:	Grail, Inc. 200 Cardinal Way Redwood City, California 94063 Attention: Jeff Huber, CEO
Lessee – After Commencement Date:	Grail, Inc. 1525 O'Brien Drive Menlo Park, California 94025 Attention: Jeff Huber, CEO

25. Estoppel Certificate. Lessee and Lessor shall within ten (10) days following request by the other party (the "Requesting Party"), execute and deliver to the Requesting Party an estoppel certificate (1) certifying that this Lease has not been modified and certifying that this Lease is in full force and effect, or, if modified, stating the nature of such modification and certifying that this Lease, as so modified, is in full force and effect; (2) stating the date to which the rent and other charges are paid in advance, if at all; (3) stating the amount of any Security Deposit held by Lessor; (4) acknowledging that there are not, to the responding party's knowledge, any uncured defaults on the part of the Requesting Party hereunder, or if there are uncured defaults on the part of the Requesting Party, stating the nature of such uncured defaults; and (5) any other provisions reasonably requested by either party.

26. Signage. Lessee may install all legally permitted signage at and in the Premises, monument signage at the driveway to the front of the Building, and signage on the Building facade at the side of each entrance to the Building (but otherwise not including building exterior signage). All of Lessee's signage shall comply with the City of Menlo Park sign ordinances and regulations and shall be subject to Lessor's Project signage standards as reasonably determined by Lessor. Lessee shall pay all costs associated with fabrication, installation, maintenance and eventual removal of Lessee's signage, except any signage to be delivered as part of the Initial Improvement Work.

27. Real Estate Brokers. Lessee's broker is Cushman & Wakefield and Kidder Matthews (collectively, "Lessee's Broker") and Lessor's broker is Kidder Matthews ("Lessor's Broker" and collectively with Lessee's Broker, the "Brokers"). Lessor shall pay a leasing commission to the Brokers pursuant to a separate agreement. Each party represents and warrants to the other party that it has not had any dealings with any real estate broker, finder, or other person with respect to this Lease other than Lessee's Broker and Lessor's Broker and each party shall hold harmless the other party from all damages, expenses, and liabilities resulting from any claims that may be asserted against the other party by any broker, finder, or other person with whom the other party has or purportedly has dealt, other than the above named brokers.

28. Parking. Lessee shall have the right to the nonexclusive use of three (3) unreserved on-site vehicular parking spaces per one thousand (1,000) rentable square feet of the Premises (rounded to the closest whole number), at no additional cost to Lessee, in the parking area for the Building or nearby parking areas in Menlo Business Park, subject to such rules and regulations for such parking facilities which may be established or altered by Lessor at any time from time to time during the Lease Term, provided that Lessee, at its cost, may mark up to ten (10) parking spaces in close proximity to Lessee's main entrance of the Building as reserved for invitees of Lessee. Such marking and marked parking spaces shall be in compliance with all applicable laws, including the ADA, and may be coupled with alternative uses, such as carpool and electronic vehicle parking. Rules and regulations for parking established by Lessor shall not unreasonably interfere with Lessee's parking rights. Vehicles of Lessee or its employees shall not park in driveways or occupy parking spaces or other areas reserved for deliveries, or loading or unloading.

29. Subordination; Attornment.

(a) This Lease, without any further instrument, shall at all times be subject and subordinate to the lien of any and all mortgages and deeds of trust which may now or hereafter be placed on, against or affect Lessor's estate in the real property of which the Premises form a part, and to all advances made or hereafter to be made upon the security thereof, and to all renewals, modifications, consolidations, replacements and extensions thereof. This clause shall be self-operative and no further instrument of subordination need be required by any owner or holder of any security instrument provided, however, that in consideration of Lessee's agreement to subordinate this Lease to any future security instrument, such subordination shall be subject to the receipt by Lessee of a subordination non-disturbance and attornment agreement in a commercially reasonable form provided by the holder of such future security instrument, which requires the holder of such security instrument to accept this Lease, and not disturb Lessee's possession, so long as an event of Lessee's default has not occurred and be continuing, executed by the holder of such security instrument. Lessor shall provide to Lessee a non-disturbance agreement from the existing lender with a deed of trust encumbering the Property in the form of Exhibit "H" attached hereto ("Existing Lender SNDA").

(b) In confirmation of such subordination, Lessee covenants and agrees to execute and deliver within ten (10) days of Lessor's request any certificate or other instrument which Lessor may reasonably deem proper to evidence such subordination in commercially reasonable form (the parties agree that Exhibit "H" that is such a commercially reasonable form), without expense to Lessee.

(c) If Lessee is notified in writing of Lessor's default under any deed of trust affecting the Premises and if Lessee is instructed in writing by the party giving notice to make Lessee's rental payments to such beneficiary, Lessee shall comply with such request without liability to Lessor (and with full credit of any amounts paid to such party by Lessee to the corresponding amounts owed to Lessor) until Lessee receives written confirmation that such default has been cured by Lessor and that the deed of trust has been reinstated.

30. Intentionally Omitted.

31. Lessor's Entry. Except in the case of an emergency, Lessor and Lessor's agents shall provide Lessee with at least twenty-four (24) hours' notice prior to entry of the Premises. Lessor may enter the Premises for any reasonable purpose related to Lessor's ownership and operation of the Property. Such entry by Lessor and Lessor's agents shall not impair Lessee's operations more than reasonably necessary. Lessor may enter the Premises at any time without prior notice to Lessee if the Premises are vacant, if Lessee is no longer conducting its ordinary business at the Premises, or if Lessee has made a general assignment for the benefit of creditors. Notwithstanding anything to the contrary set forth in this Lease, Lessee may, upon prior written notice to Lessor, reasonably designate certain areas of the Premises as "Secured Areas". Except in the case of emergency, Lessor shall be accompanied by a representative of Lessee before entering any such Secured Area, and Lessor shall otherwise follow Lessee's commercially reasonable security procedures in connection with any entry into the Premises by Lessor.

32. Attorneys' Fees. If any action at law or in equity shall be brought to recover any rent under this Lease, or for or on account of any breach of or to enforce or interpret any of the provisions of this Lease or for recovery of the possession of the Premises (including litigation, or a proceeding in a bankruptcy court), the prevailing party shall be entitled to recover from the other party costs of suit and reasonable attorneys' fees, the amount of which shall be fixed by the court and shall be made a part of any judgment rendered.

33. Quiet Enjoyment. Upon payment by Lessee of the rent for the Premises·and the observance and performance of all of the covenants, conditions, and provisions on Lessee's part to be observed and performed under this Lease within applicable notice and cure periods, Lessee shall have quiet enjoyment and possession of the Premises for the entire term hereof subject to all of the provisions of this Lease.

34. Financial Information. Lessee represents and warrants to Lessor that all financial and other information that it has provided to Lessor prior to the date of this Lease is true, correct and complete. Within fifteen (15) days after Lessor's written request (which shall be no more than two (2) times per calendar year) and if and for so long as Lessee is not a publically traded company, Lessee will furnish Lessee's most recent financial statements (audited if available and if not certified by the chief financial officer of Lessee) to Lessor. Lessor agrees that it will not disclose any aspect of such information which Lessee designates as confidential except: (i) to Lessor's lenders or prospective purchasers of the Building; (ii) in litigation; and (iii) if required by court order.

35. SDN List. Lessee represents and warrants to Lessor that Lessee is not, and the entities or individuals that constitute Lessee, that may own or control Lessee, or that may be owned or controlled by Lessee (in all cases, other than through the ownership of publicly traded , direct or indirect ownership interests) (each a "Subject Lessee Party") are not, (i) in violation of any laws relating to terrorism or money laundering, or (ii) among the individuals or entities identified on any list compiled pursuant to Executive Order 13224 or published by the Office of Foreign Assets Control, U.S. Department of the Treasury ("OFAC") for the purpose of identifying suspected terrorists or on the most current list published by the OFAC at its official website, http://www.treas.gov/ofac/tllsdn.pdf or any replacement website or other replacement official publication of such list which identifies an "Specially Designated National" or "blocked person" (either of which are referred to herein as a "SDN"). If at any time during the Lease Term Lessor discovers that Lessee has breached the foregoing representations and warranties, or Lessor reasonably believes that Lessee or any Subject Lessee Party is in violation of any laws relating to terrorism or money laundering or that Lessee or any Subject Lessee Party is identified as an SDN, Lessee shall be deemed in default under this Lease following three (3) days written notice from Lessor to Lessee unless, within such three day period, Lessee delivers written evidence, reasonably acceptable to Lessor, that Lessee is not in violation of such laws or that Lessee (or the Subject Lessee Party, as applicable) is not a person or entity identified as an SDN. Except as otherwise expressly provided in the foregoing sentence, and without further notice, any default by Lessee under this Paragraph 35 shall be deemed an incurable default by Lessee and, in addition to any other rights and remedies that Lessor may have upon such default, Lessor shall also have the right to immediately terminate this Lease upon written notice to Lessee and recover possession of the Premises.

36. General Provisions.

(a) Nothing contained in this Lease shall be deemed or construed by the parties hereto or by any third person to create the relationship of principal and agent or of partnership or of joint venture of any association between Lessor and Lessee, and neither the method of computation of rent nor any other provisions contained in this Lease nor any acts of the parties hereto shall be deemed to create any relationship between Lessor and Lessee other than the relationship of landlord and tenant.

(b) Each and all of the provisions of this Lease shall be binding upon and inure to the benefit of the parties hereto, and except as otherwise specifically provided elsewhere in this Lease, their respective heirs, executors, administrators, successors, and assigns, subject at all times, nevertheless, to all agreements and restrictions contained elsewhere in this Lease with respect to the assignment, transfer, encumbering, or subletting of all or any part of Lessee's interest in this Lease.

(c) The captions of the paragraphs of this Lease are for convenience only and shall not be considered or referred to in resolving questions of interpretation or construction.

(d) This Lease is and shall be considered to be the only agreement between the parties hereto and their representatives and agents. All negotiations and oral agreements acceptable to both parties have been merged into and are included herein. There are no other representations or warranties between the parties and all reliance with respect to representations is solely upon the representations and agreements contained in this instrument.

(e) Notwithstanding which of the parties may be deemed to have prepared this Lease, this Lease shall not be interpreted either for or against Lessor or Lessee, but this Lease shall be interpreted in accordance with the general tenor of the language in an effort to reach an equitable result.

(f) Time is of the essence with respect to the performance of each of the covenants and agreements contained in this Lease.

(g) "Force Majeure Event" shall mean if either Lessor or Lessee is delayed, hindered in or prevented from the performance of any act required under this Lease by reason of strikes, lock- outs, labor troubles, inability to procure standard materials, failure of power, restrictive governmental laws, regulations or orders or governmental action or inaction (including failure, refusal or delay in issuing permits, approvals, authorizations and/or inspections which is not the result of the action or inaction of the party claiming such delay), riots, civil unrest or insurrection, war, fire, earthquake, flood or other natural disaster, unusual and unforeseeable delay which results from an interruption of any public utilities (e.g., electricity, gas, water, telephone) or other unusual and unforeseeable delay not within the reasonable control of the party delayed in performing work or doing acts required under the provisions of this Lease (collectively "Force Majeure"), then performance of such act shall be excused for the period of the delay and the period for the performance of any such act shall be extended for a period equivalent to the period of such delay. Unless otherwise provided herein, the provisions of this

Paragraph shall not operate to excuse Lessee from prompt payment of Rent or to excuse Lessor or Lessee from any other payments required under the provisions of this Lease.

(h) Recourse by Lessee for breach of this Lease by Lessor shall be expressly limited to the amount of Lessor's interest in the Property and the rents, issues, insurance, condemnation, and sales proceeds actually received by Lessor, and profits therefrom, and in the event of any such breach or default by Lessor, Lessee hereby waives the right to proceed against any other assets of Lessor or against any other assets of any manager or member of Lessor. If Lessee is a corporation, then the shareholders, directors, officers, employees and agents of such corporation shall not be personally liable for Lessee's obligations under this Lease, and no shareholder, director, officer, employee or agent of Lessee shall be sued or named as a party in any suit or action, and service of process shall not be made against any shareholder, director, officer, employee or agent of Lessee. If Lessee is a limited liability company, then the members of such limited liability company shall not be personally liable for Lessee's obligations under this Lease, and no member of Lessee shall be sued or named as a party in any suit or action, and service of·process shall not be made against any member of Lessee except as may be necessary to secure jurisdiction of the limited liability company.

(i) Any provision or provisions of this Lease which shall be found·to be invalid, void or illegal by a court of competent jurisdiction, shall in no way affect, impair, or invalidate any other provisions hereof, and the remaining provisions hereof shall nevertheless remain in full force and effect.

(j) Each party represents to the other that the person signing this Lease on its behalf is properly authorized to do so, and in the event this Lease is signed by an agent or other third party on behalf of either Lessor or Lessee, written authority to sign on behalf of such party in favor of the agent or third party shall be provided to the other party hereto either prior to or simultaneously with the return to such other party of a fully executed copy of this Lease.

(k) No binding agreement between the parties with respect to the Premises shall arise or become effective until this Lease has been duly executed by both Lessee and Lessor and a fully executed copy of this Lease has been delivered to both Lessee and Lessor.

(l) Lessor and Lessee acknowledge that the terms and conditions of this Lease constitute confidential information of Lessor and Lessee. Each party shall use its reasonable good faith efforts to prevent the dissemination orally or in written form, of this Lease, lease proposals, lease drafts, or other documentation containing the terms, identity of the parties, details or conditions contained herein to any third party without obtaining the prior written consent of the other party, except to the attorneys, accountants, lenders, investors, potential investors, potential business or merger partners, potential subtenants and assignees, or other authorized business representatives or agents of the parties, or except to the extent required to comply with applicable laws, including any filings by Lessee pursuant to state or federal securities laws. Neither Lessor nor Lessee shall make any public announcement of the consummation of this Lease transaction without the prior approval of the other party. Nothing in this Paragraph shall prevent Lessor from submitting a copy of this Lease to the Court in connection with any action to enforce the provisions hereof.

(m) Except as provided in Paragraph 22(c), the rights and remedies that either party may have under this Lease or at law or in equity, upon any breach, are distinct, separate and cumulative and shall not be deemed inconsistent with each other, and no one of them shall be deemed to be exclusive of any other.

(n) Lessee waives any claim for consequential damages which Lessee may have against Lessor for breach of or failure to perform or observe the requirements and obligations created by this Lease. Lessor waives any claim for consequential damages which Lessor may have against Lessee for breach of or failure to perform or observe the requirements and obligations created by this Lease, other than consequential damages arising from Lessee's breach of or failure to perform or observe the requirements of Section 9 (Hazardous Materials), Section 14(e) (Compliance with Laws), Section 14(h) (Restoration) and Section 19 (Holding Over). Notwithstanding the foregoing, Lessee's liability for such consequential damages with regard to Section 19 shall not begin to accrue unless Lessor gives no less than thirty (30) days written notice to Lessee after Lessor executes a new lease or letter of intent to lease the Premises or a portion thereof to a new tenant.

(o) Lessor and Lessee each agree to and they hereby do, to the maximum extent permitted by law, waive trial by jury in any action, proceeding or counterclaim brought by either of the parties hereto against the other on any matters whatsoever arising out of or in any way connected with this Lease, the relationship of Lessor and Lessee, Lessee's use or occupancy of the Premises and/or any claim of injury or damage, and any statutory remedy.

(p) This Lease shall not be recorded.

(q) Whenever this Lease requires an approval, consent, determination, selection or judgment by either Lessor or Lessee, unless another standard is expressly set forth, such approval, consent, determination, selection or judgment and any conditions imposed thereby shall be reasonable and shall not be unreasonably withheld or delayed and, in exercising any right or remedy hereunder, each party shall at all times act reasonably and in good faith.

(r) Subject to the terms of this Lease, and subject to Tenant obtaining Lessor's consent, which shall not be unreasonably withheld or delayed, Tenant shal1 have the right, at Tenant's sole cost and expense, to bring to the Buildings comprising the Premises such fiber optic cabling as Tenant shall desire. Lessor shall reasonably cooperate with Tenant, at Tenant's sole cost and expense, in connection with Tenant's securing access to the fiber optic cabling of Tenant's choice.

(s) Tenant shall have the right to contract with any internet service provider desired by Tenant, at Tenant's sole cost and expense.

(t) The laws of the State of California shall govern the validity, performance, and enforcement of this Lease.

(u) Notices. All notices required under the Lease and other information concerning this Lease ("Communications") shall be personally delivered or sent by first class mail, postage prepaid, by overnight courier. In addition, the Landlord may, in its sole discretion, send such Communications to the Lessee electronically, or permit Lessee to send such Communications to the Lessor electronically, in the manner described in this Paragraph. Such Communications sent by personal delivery, mail or overnight courier will be sent to the addresses on the signature page of this Agreement, or to such other addresses as the Lessor and Lessee may specify from time to time in writing. Communications shall be effective (i) if mailed, upon the earlier of receipt or five (5) days after deposit in the U.S. mail, first class, postage prepaid, or (ii) if hand-delivered, by courier or otherwise (including telegram, lettergram or mailgram), when delivered.

Such Communications may be sent electronically by the Lessor and Lessee (i) by transmitting the Communication to the electronic address provided by the Lessee or to such other electronic address as the Lessee may specify from time to time in writing, or (ii) by posting the Communication on a website and sending the Lessee a notice to the Lessee's postal address or electronic address telling the Lessee that the Communication has been posted, its location, and providing instructions on how to view it. Communications sent electronically to the Lessee will be effective when the Communication, or a notice advising of its posting to a website, is sent to the Lessee's electronic address.

Such Communications may be sent electronically to the Lessor by the Lessee by transmitting the Communication to an electronic address specified by the Lessor for the express purpose of receiving such Communications. Communications sent electronically to the Lessor will be effective when the Communication is received at the specified electronic address.

Acknowledged &
Accepted: JH
Lessee's Initials

(v) Amendments. This Lease may only be amended by a writing signed by the parties hereto, or by an electronic record that has been electronically signed by the parties hereto and has been rendered tamper-evident as part of the signing process. The exchange of email or other electronic communications discussing an amendment to this Agreement, even if such communications are signed, does not constitute a signed electronic record agreeing to such an amendment.

Acknowledged &
Accepted: JH
Lessee's Initials

(w) Counterparts; Electronic Signatures. This Lease, and any amendment to this Lease, may be executed in counterparts. All executed counterparts shall constitute one agreement, and each counterpart shall be deemed an original. The parties hereby acknowledge and agree that electronic signatures, facsimile signatures or signatures transmitted by electronic mail in so-called "pdf " format shall be legal and binding and shall have the same full force and effect as if an original of this Agreement has been delivered. Lessor and Lessee (i) intend to be bound by the signatures (whether original, faxed or electronic) on any document sent by facsimile or electronic mail, (ii) are aware that the other party will rely on such signatures, and (iii) hereby waive any defenses to the enforcement of the terms of this Agreement based on the foregoing forms of signature.

Acknowledged & Accepted: JH
Lessee's Initials

IN WITNESS WHEREOF, the Lessor and Lessee have duly executed this Lease as of the date first set forth herein.

"LESSOR"

MENLO PREHC I, LLC,
a Delaware limited liability company

By: PRINCIPAL REAL ESTATE INVESTORS, LLC,
a Delaware limited liability company, its authorized signatory

By: /s/ Jeffrey D. Uittenbogaard Investment Director
Jeffrey D. Uittenbogaard (May 11, 2016)

By: /s/ Michael Benson Asst Managing Director
Michael Benson (May 12, 2016)

MENLO PREPI I, LLC,
a Delaware limited liability company

By: PRINCIPAL REAL ESTATE INVESTORS, LLC,
a Delaware limited liability company, its authorized signatory

By: /s/ Jeffrey D. Uittenbogaard Investment Director
Jeffrey D. Uittenbogaard (May 11, 2016)

By: /s/ Michael Benson Asst Managing Director
Michael Benson (May 12, 2016)

TPI INVESTORS 9, LLC
a California limited liability company

By: /s/ John C. Tarlton
John C. Tarlton, Manager

"LESSEE"

GRAIL, INC.,
a Delaware Corporation

By: /s/ Jeffery T. Huber

Its: CEO

By: _____

Its: _____

[Note: Two signatures required for CA corporation or corporate resolution authorizing execution of Lease.]

OTHER LESSOR AGREEMENT AND ACKNOWLEDGMENT OF ROFO GRANTED AS TO LOT 3 NORTH IN PARAGRAPH 2(c):

MENLO PARK PORTFOLIO II, LLC,
a Delaware limited liability company

By: PREHC MENLO PARK PORTFOLIO II MEMBER, LLC,
a Delaware limited liability company
Its Co-Managing Member

By: PRINCIPAL REAL ESTATE INVESTORS, LLC
a Delaware limited liability company, authorized signatory

By: /s/ Jeffrey D. Uittenbogaard
Name: Jeffrey D. Uittenbogaard (May 11, 2016)
Title: Investment Director

By: /s/ Michael Benson
Name: Michael Benson (May 12, 2016)
Title: Asst Managing Director

By: TPI INVESTORS II, LLC,
a California limited liability company, ~~Managing Member~~

By: TARLTON PROPERTIES, INC.,
a California corporation, Managing Member

By: /s/ John C. Tarlton
John C. Tarlton, President & CEO

EXHIBIT "A"

Legal Description

The land referred to in this Report is situated in the State of California, County of San Mateo, City of Menlo Park and is described as follows:

PARCEL F:

Parcel 2 as shown on that certain map entitled "MENLO BUSINESS PARK PARCEL MAP FOR MERGER OF PARCELS B AND C AS SHOWN ON MAP FILED AUGUST 19, 1986 IN VOLUME 57 OF PARCEL MAPS AT PAGES 86-87 AND LOTS 17 AND 18 OF THE TRACT OF MENLO BUSINESS PARK FILED APRIL 9, 1984 IN VOLUME 111 OF MAPS AT PAGES 50-52, SAN MATEO COUNTY RECORDS MENLO PARK SAN MATEO COUNTY CALIFORNIA", filed February 28, 1990 in Book 61 of Parcel Maps at Pages 94 and 95, Records of San Mateo County, State of California.

A.P. No.: 055-474-150 JPN 111 050 000 0012 T
111 050 000 0013 T
111 050 000 0022 T
111 050 000 0023 T

FIRST AMENDMENT TO LEASE

THE FIRST AMENDMENT TO LEASE (this "**Amendment**") is dated as of June 8, 2017 and is among MENLO PREHC I, LLC, a Delaware limited liability company, MENLO PREPI I, LLC, a Delaware limited liability company, and TPI INVESTORS 9, LLC, a California limited liability company (collectively, "**Lessor**"), and GRAIL, INC., a Delaware corporation ("**Lessee**"), with respect to the following recitals:

RECITALS

A. Lessee and Lessor entered into that certain Lease dated May 5, 2016 (the "Lease") for the premises consisting of approximately 71,239 rentable square feet at the building commonly known as 1525 O'Brien Drive, Menlo Park, California (the "**Premises**").

B. Pursuant to Section 1(a) of the Lease, Lessor offered to Lessee a Right of First Offer as to the entirety of the building at 1605 Adams Drive, Menlo Park, CA ("**1605 Adams Building**") which was declined by Lessee. After leasing Suite B of the 1605 Adams Building to a third party (the "**Suite B Lease**"), Lessor offered to lease to Lessee Suite A of the 1605 Adams Building and Lessee agreed and then subsequently requested to lease the entirety of the 1605 Adams Building.

C. Accordingly, Lessor and Lessee now desire to amend the Lease to expand the Premises that is subject to the Lease to include the entirety of the 1605 Adams Building on the terms hereinafter set forth, including the condition precedent that the termination of the Suite B lease.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is acknowledged here, Lessor and Lessee agree as follows:

1. Recitals & Defined Terms. Recitals A through C, inclusive, set forth above are incorporated into this Amendment in full by this reference. Capitalized terms shall have the meaning ascribed to them in the Lease unless otherwise defined herein.

2. Suite B Lease Termination Date. This Amendment is conditioned upon the concurrent execution of a termination agreement of the Suite B Lease ("**Effective Date**").

3. Premises.

a. Commencing on the Effective Date, the Premises subject to the Lease shall be expanded to include the entirety of the 1605 Adams Building located on the real property described in Exhibit "A-1" and as delineated in Exhibit "A-2" attached hereto and made a part hereof ("the **Expansion Premises**"), subject to Lessee's right to terminate the Lease as to certain portions of the Expansion Premises as provided in Section 4 of this Agreement.

b. From and after the Effective Date, within the Lease: "**Land**" shall include the real property described in Exhibit "A"; "Improvements" shall include the existing buildings on such real property; "**Property**" shall include the Land and Improvements as modified by this

subparagraph (b); and, except provided in this Amendment and except as context of the Lease otherwise requires, "**Building**" shall also refer to the 1605 Adams Building.

c. Lessee shall have the same rights with respect to the roof of the 1605 Adams Building that Lessee has to the roof of the Premises under Section 1(c) of the Lease. Lessor shall not permit third parties rights to use or install Antenna Equipment (as defined in Section 1(c) of the Lease) on the roof of the 1605 Adams. Building.

4. Term.

a. Lessor and Lessee agree that the Phase 1 Commencement Date under the Lease was September 30, 2016 and the Phase 2 Commencement Date under the Lease was February 21, 2017 and, accordingly, that the Expiration Date of the Lease is September 30, 2016 (the "**Expiration Date**").

b. Lessor shall deliver the Expansion Premises in the condition required by the Work Letter attached hereto as Exhibit "B" and made a part hereof ("**Work Letter**") to Lessee in the following phases:

Expansion Space Phase	Square Footage	Scheduled Delivery Date	Rent Commencement Date	Termination Date
1	4,500	Effective Date	10/1/17	N/A
2	23,500	8/1/2017	3/1/2018	8/1/2018
3	18,000	12/1/2017	5/1/2018	12/31/2018

c. If Lessor delivers an Expansion Space Phase to Lessee in the condition required by the Work Letter (each a "**Delivery Date**") later than its Scheduled Delivery Date due to a Lessor Delay (as defined in the Lease), then the Rent Commencement Date as to such Expansion Space Phase shall be delayed by the same number of days that the Delivery Date was delayed. Lessor and Lessee shall execute a Rent Commencement Memorandum, substantially in the form attached to the lease, promptly following the Delivery Date of each Expansion Space Phase.

d. If Lessor has not delivered an Expansion Space Phase to Lessee in the condition required by the Work Letter by its Termination Date due to a Lessor Delay, Lessee may terminate the Lease as to such undelivered Expansion Space Phase by written notice to Lessor delivered within ten (10) days after such Expansion Space Phase's Termination Date. In the event that Lessee exercises a right of termination under this Section, Lessee and Lessor will execute an amendment to the Lease reflecting the resulting reduction in the Premises, resulting reduction in Lessee's Pro Rata Share and such other commercially reasonable amendments in Lessor's reasonable discretion that are necessary to reflect the resulting multi-tenant nature of the 1605 Adams Building.

5. Rent.

a. Lessee shall pay to Lessor in monthly installments in advance Additional Rent, and Monthly Base Rent at the rate per rentable square foot set forth in the Monthly Base Rent table set forth in Section 4(b) below, beginning on the Rent Commencement Date for each Expansion Space Phase. Notwithstanding the foregoing, if at Lessee's written request, Lessor delivers all or any portion of an Expansion Space Phase to Lessee prior to its Schedule Delivery Date ("**Early Delivery Space**"), then the Rent Commencement Date as to such Early Delivery Space shall be advanced by the number of days between the Delivery Date of such Early Delivery Space and its applicable Scheduled Delivery Date. Lessor may in Lessor's sole discretion, but shall not be obligated to, deliver to Lessee any Expansion Phase Space prior to its Scheduled Delivery Date upon Lessee's written request thereafter.

b. Monthly Base Rent on any portion of the Expansion Premises shall be payable at the following rate per rentable square foot as of the durations indicated in the Monthly Base Rent table below:

Duration	**S/SF/Mo./NNN**
2/21/2017 - 9/28/2018	4.25
9/29/2018 - 9/28/2019	4.38
9/29/2019 - 9/28/2020	4.51
9/29/2020 - 9/28/2021	4.64
9/29/2021 - 9/28/2022	4.78
9/29/2022 - 9/28/2023	4.93
9/29/2023 - 9/28/2024	5.07
9/29/2024 - 9/28/2025	5.23
9/29/2025 - 9/30/2026	5.38

6. Operation Expenses.

a. Lessee's Pro Rata Share of Operation Expenses relating to the 1605 Adams Building shall mean 100%. The Expansion Premises have been measured in accordance with the BOMA standard: single tenant industrial – to the drip line. Lessor and Lessee agree that the approximate 7,500 rentable square foot second floor space to be constructed by Lessor pursuant to the Work Letter ("**2nd Floor**") but shall be subject to re-measurement by Lessor upon Substantial Completion of Lessor's Work in accordance with such BOMA standard. If the rentable square feet of the 2nd floor upon such re-measurement is more or less than 7,500 rentable square feet, Lessor and Lessee shall amend the Lease to reflect the rentable square feet of the Expansion Premises and the resulting change to Lessee's pro rata share of Park Expenses.

b. As of the Effective Date of this Amendment, Lessee's pro rata share of Park Expenses (taking into account both the original Premises and the Expansion Premises) is amended to be 5.95%.

c. Lessee shall pay to Lessor upon execution and delivery of this Lease, the amount of Sixty-Four Thousand Seven Hundred Dollars ($64,704.00), which amount shall be applied to the Additional Rent attributable or relating to the Expansion Premises beginning on the Expansion Space Phase 1 Commencement Date.

7. Security Deposit. The cash portion of the Security Deposit shall be increased by Two Hundred Thirty-Three Thousand Seven Hundred Fifty Dollars ($233,750.00). Upon execution of this Amendment, Lessee shall deliver to Lessor the sum of Two Hundred Thirty-Three Thousand Seven Hundred Fifty Dollars ($233,750.00) in immediately available funds. The increased Security Deposit shall apply to the Premises, and Lessee's performance under the Lease, as amended by this Amendment.

8. Condition of Expansion Premises; Lessor's Work; Tenant Improvements.

a. Except as provided in the Section and in the Work Letter, the Expansion Premises shall be delivered to Lessee in its AS-IS condition. As of the Rent Commencement Date as to each Expansion Space Phase delivered to Lessee, Lessor warrants that the roof membrane and the plumbing, electrical and HVAC systems within or serving such Expansion Space Phase are in good operating condition. If Lessee gives written notice to Lessor of violations of such warranty within sixty (60) days after the Rent Commencement Date as to such Expansion Space Phase, Lessor will correct such violations at Lessor's cost; provided that normal maintenance and repair of ordinary wear and tear during such period shall be reimbursed as an Operating Expense.

b. Subject to the terms of the Work Letter, Lessor shall: (i) cause to be constructed the alterations to the Expansion Premises described in the Work Letter as "**Lessor's Work**"; (ii) cause to be constructed the tenant improvements and modifications to the Expansion Premises described in the Work Letter as the "**Tenant Improvements**"; and (ii) provided the tenant improvement allowance described in the Work Letter ("**Tenant Improvement Allowance**").

c. Notwithstanding anything to the contrary in the Lease, Lessee shall not be required to remove or restore the gym or standard office or standard laboratory improvements constructed by or on behalf of Lessee within the Expansion Premises that are approved by Lessor in accordance with the terms of the Lease. "**Standard office**" for purposes of this subparagraph shall include exposed ceilings and concrete floors. "**Standard laboratory**" for purposes of this subparagraph shall include finishes and layout similar to the labs constructed by Lessor as the initial tenant improvements within 1525 O'Brien Drive, which existing layout for 1525 O'Brien Drive is depicted in Exhibit "C" attached hereto; provided, however, that the layout depicted on Exhibit "C" is only a representation of the lab layout for the Expansion Premises and the actual layout may include a more open plan.

9. Utilities and Services. In accordance with Section 14 (c) of the Lease, Lessee, at its cost, will provide janitorial services for the interior of the Expansion Premises. In accordance with Section 15(a) of the Lease, Lessee shall contract and pay directly for gas, electrical and telephone service to the Expansion Premises (and not as part of Operating Expenses).

10. Extension Option. The Extension Option set forth in Section 2(e) of the Lease shall, at Lessee's sole discretion, apply to either or both of the Original Premises (1525 O'Brien Drive) and the Expansion Premises (1605 Adams Drive) so that the 50% occupancy requirement shall apply to each of the Original Premises and Expansion Premises.

11. Right to First Offer. The "**ROFO Space**" that is subject to Section 1(a) of the Lease shall also include 1555 Adams Drive (but shall not include 1455 Adams Drive); provided that such right as to 1555 Adams Drive is subject to the following pre-existing superior rights as of the Effective Date: existing tenant Intersect ENT has an option to extend its lease on its entire premises. For purposes of illustration and not to create any additional or greater rights than those created in this Section and in Section 1(a) of the Lease, Exhibit "C" attached hereto and made a part hereof depicts the ROFO Space and 1555 Adams Drive. As a point of clarification, 1555 Adams Drive is also subject to Lessor's election to redevelop the building. If Lessor elects to redevelop another building at 1555 Adams, Lessee shall have such ROFO right on the redeveloped building.

12. CASp. For purposes of Section 1938 of the California Civil Code, Lessor hereby discloses to Lessee, and Lessee hereby acknowledges, that (check one):

☐ To Lessor's actual knowledge, the Premises have undergone inspection by a Certified Access Specialist (CASp).

If the Premises have undergone inspection by a CASp prior to the execution of this Lease and, to the best of Lessor's knowledge, there have been no modifications or alterations completed or commenced between the date of the inspection and the date of this Lease which have impacted the Premises' compliance with construction-related accessibility standards, Section 1938 requires Lessor to provide to Lessee, prior to execution of this Lease, a copy of any report prepared by the CASp. If, prior to the date of this Lease, the Premises were issued an inspection report by a CASp indicating that it meets applicable standards, as defined in paragraph (4) of subdivision (a) of California Civil Code Section 55.52, Lessor is required to provide a copy of the current disability access inspection certificate and any inspection report to Lessee that was not already provided pursuant to the foregoing sentence, within seven (7) days of the date of the execution of this Lease.

☒ To Lessor's actual knowledge , the Premises have not undergone inspection by a CASp.

☐ To Lessor's actual knowledge, the Premises have undergone inspection by a CASp but, to the best of Lessor's knowledge, there have been intervening modifications or alterations completed or commenced which have impacted the Premises compliance with construction related accessibility standards.

California Civil Code Section 1938 states:

"A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises,

the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if required by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standard within the premises."

Notwithstanding anything to the contrary in this Lease, Lessor and Lessee hereby agree that, during the term of this Lease, as the same may be extended, Lessee shall be responsible for (i) the payment of the fee for any CASp inspection that Lessee desires, and (ii) making, at Lessee's cost, any repairs necessary to correct violations of construction-related accessibility standards within the Premises provided that such repairs shall be in accordance with the terms of the Lease. Lessee hereby agrees that: any CASp inspecting the Premises shall be selected by Lessor; Lessee shall promptly deliver to Lessor any CASp report regarding the Premises obtained by Lessee: and Lessee shall keep information contained in any CASp report regarding the Premises confidential, except as may be necessary for Lessee or its agents to complete any repairs or correct violations with respect to the Premises that Lessee agrees to undertake. Lessee shall have no right to cancel or terminate the Lease due to violations of construction-related accessibility standards within the Premises identified in a CASp report obtained during the Term of the Lease.

13. Signage. Notwithstanding anything in the Lease to the contrary, Lessee shall have a right to monument signage in front of the 1605 Adams Building and signage on the building façade at the side of each entrance thereof, buy no other building façade signage or any other building exterior signage on the 1605 Adams Building. Lessee shall be entitled to signage within Expansion Premises and door signage. All of Lessee's signage shall comply with the City of Menlo Park sign ordinances and regulations and shall be subject to Lessor's Project signage standards as reasonably determined by Lessor. Lessee shall pay all costs associated with fabrication, installation, maintenance and eventual removal of Lessee's signage.

14. Parking. At no additional cost, Lessee shall have nonexclusive use of the unreserved on-site vehicular parking spaces located at the 1605 Adams Building; provided that if the City of Menlo Park requires that the number of striped parking spaces located at the 1605 Adams Building to be reduced to conform to maximum parking allowances adopted by the City of Menlo, and so long as such requirement was not triggered by Lessor, Lessor shall be entitled to reduce the number of striped parking spaces at the 1605 Adams Building to comply with such ordinance. Parking at the Expansion Premises shall be subject to such commercially reasonable rules and regulations for such parking facilities which may be reasonably established or altered by Lessor at any time from time to time during the Lease Term.

15. Use. Lessee's use of the Expansion Premises may also include a fitness/workout area.

16. Brokers. Lessee's broker is Cornish & Carey Commercial dba Newmark Cornish & Carey represented by Ben Stern, Wayne Kumagai and Jay Phillips (collectively, "**Lessee's Broker**") and Lessor's broker is Cornish & Carey Commercial dba Newmark Cornish & Carey represented by Mary Hines and Kidder Matthews represented by Gregg Domanico (collectively,

"**Lessor's Broker**" and collectively with Lessee's Broker, the "**Broker**"). Lessor shall pay a leasing commission to the Brokers pursuant to a separate agreement. Each party represents and warrants to the other party that it has not had any dealings with any real estate broker, finder, or other person with respect to this Lease other than Lessee's Broker and Lessor's Broker and each party shall hold harmless the other party from all damages, expenses, and liabilities resulting from any claims that may be asserted against the other party by any broker, finder or other person with whom the other party has or purportedly has dealt, other than the above named brokers.

17. Counterparts; Electronic Signatures. This Amendment may be executed in counterparts, including both counterparts that are executed on paper and counterparts that are in the form of electronic records and are executed electronically. An electronic signature means any electric sound, symbol or process attached to or logically associated with a record and executed and adopted by a party with the intent to sign such record, including facsimile or e-mail electronic signatures. All executed counterparts shall constitute one agreement, and each counterpart shall be deemed an original. The parties hereby acknowledge and agree that electronic records and electronic signatures, as well as facsimile signatures, may be used in connection with the execution of this Amendment electronic signatures, facsimile signatures or signatures transmitted by electronic mail in so-called pdf format shall be legal and binding and shall have the same full force and effect as if a paper original of this Amendment had been delivered had been signed using a handwritten signature. Lessor and Lessee (i) agree that an electronic signature, whether digital or encrypted, of a party to this Amendment is intended to authenticate this writing and to have the same force and effect as a manual signature, (ii) intended to be bound by the signatures (whether original, faxed or electronic) on any document sent or delivered by facsimile or, electronic mail, or other electronic means, (iii) are aware that the other party will reply on such signatures, and (iv) hereby waive any defenses to the enforcement of the terms of this Amendment based on the foregoing forms of signature. If this Amendment has been executed by electronic signature, all parties executing this document are expressly consenting under the Electronic Signatures in Global and National Commerce Act ("**E-SIGN**") and Uniform Electronic Transactions Act ("**UETA**"), that a signature by fax, email or other electronic means shall constitute an Electronic Signature to an Electronic Record under both E-SIGN and UETA with respect to this specific transaction.

Acknowledged &
Accepted: /s/ JH
Lessee

18. Miscellaneous. This Amendment, together with the Lease, constitutes the entire agreement between Lessor and Lessee regarding the Lease and the subject matter contained therein and herein and supersedes any and all prior and/or contemporaneous oral or written negotiations, agreements or understandings. Except as specifically amended hereby, the Lease and all of the terms and conditions of the Lease are and shall remain in full force and effect and are hereby ratified and confirmed. To the extend the provisions of this Amendment conflict with or are inconsistent with the terms of the Lease, the terms of this Amendment shall prevail. This

Amendment shall be interpreted neutrally between the parties regardless of which party drafted or caused to be drafted this Amendment.

[Signatures on Following Page]

IN WITNESS WHEREOF, the Parties have executed this First Amendment as of the date and year first above written.

LESSEE:

GRAIL, INC.,
a Delaware Corporation

By: /s/ Jeffrey T. Huber
Name: JEFFREY T. HUBER
Its: CEO

By: _____
Name: _____
Its: _____

LESSOR:

MENLO PREHC I, LLC,
a Delaware limited liability company

By: PRINCIPAL REAL ESTATE INVESTORS, LLC,
a Delaware limited liability company, its authorized signatory

By: /s/ Jeff Uittenbogaard — /s/ Troy Koerselman
Name: Jeff Uittenbogaard — Troy Koerselman
Its: Investment Director — Asst Managing Director

MENLO PREPI I, LLC,
a Delaware limited liability company

By: PRINCIPAL REAL ESTATE INVESTORS, LLC,
a Delaware limited liability company, its authorized signatory

By: /s/ Jeff Uittenbogaard — /s/ Troy Koerselman
Name: Jeff Uittenbogaard — Troy Koerselman
Its: Investment Director — Asst Managing Director

TPI INVESTORS 9, LLC
a California limited liability company

By: Tarlton Properties, Inc.
Manager

By: /s/ John C. Tarlton
Name: John C. Tarlton
Its: CEO

EXHIBIT A-1

1605 Adams Drive, Menlo Park

Building 18 Property – Legal Description

The land referred to in this Report is situated in the State of California, County of San Mateo, City of Menlo Park and is described as follows:

PARCEL J:

Parcel 1 as shown on that certain map entitled "MENLO BUSINESS PARK PARCEL MAP, FOR MERGER OF PARCELS B AND C AS SHOWN ON MAP FILED AUGUST 19, 1986 IN VOLUME 57 OF PARCEL MAPS AT PAGES 86-87 AND LOTS 17 AND 18 OF THE TRACT OF MENLO BUSINESS PARK FILED APRIL 9, 1984 IN VOLUME 111 OF MAPS AT PAGES 50-52, SAN MATEO COUNTY RECORDS, MENLO PARK SAN MATEO COUNTY, CALIFORNIA", filed February 28, 1989 in Book 61 of Parcel Maps at pages 94 and 95, Records of San Mateo County, State of California.

A.P. NO.: 055-474-140 JPM 11 050 000 17T
111 050 000 18 T

EXHIBIT A-2

Expansion Premises

LEASE AGREEMENT

THIS LEASE AGREEMENT is executed this 4th day of June, 2020, (the "***Lease Date***"), by and between **PP OFFICE OWNER 1, L.P.**, a Delaware limited partnership ("***Landlord***"), and **GRAIL, INC.**, a Delaware corporation ("***Tenant***").

ARTICLE 1 - LEASE OF LEASED PREMISES

Section 1.01. Basic Lease Provisions and Definitions.

(a) Leased Premises (shown outlined on **Exhibit A** attached hereto): The building commonly known as the "Assembly Building" (the "***Building***"), located at 4001 E. NC Hwy. 54, Durham, North Carolina, within the Park Point office and research park (the "***Park***"), which is itself located within the Research Triangle Park (the "***RTP***").

(b) Rentable Area: Subject to Section 1.03, approximately 200,340 rentable square feet, consisting of the portion of the Leased Premises shown highlighted on **Exhibit A** attached hereto (the "***Initial Leased Premises***") and the portion of the Leased Premises shown highlighted on **Exhibit A** attached hereto (the "***Deferred Leased Premises***"), collectively being all of the rentable square feet within the Building. The Rentable Area of the Leased Premises includes the square footage within the Leased Premises plus a thirteen and 2/10ths percent (13.2%) load factor, subject to Section 1.03(b).

(c) Tenant's Proportionate Share: 66% prior to Tenant commencing use of the Deferred Leased Premises, and 100% following earlier to occur of (i) Tenant commencing use of the Deferred Leased Premises (or any portion thereof) or (ii) the first day of the thirty-seventh (37th) month of the Lease Term (such earlier date the "***Deferred Leased Premises Trigger Date***").

(d) Building's Share: 30.73% as of the Lease Date, determined, from time to time, by dividing the Rentable Area of the Building by the rentable share footage of all tenant space within the Park (being approximately 652,000 rentable square feet as of the Lease Date), subject to Section 1.03(b).

(e) Minimum Annual Rent and Monthly Rental Installments:

Time Period (months)		Minimum Annual Rent / SF (Initial Leased Premises)	Minimum Monthly Rental Installments (Initial Leased Premises)	Minimum Annual Rent / SF (Deferred Leased Premises)	Minimum Monthly Rental Installments (Deferred Leased Premises)	Total Monthly Rental Installments	Total Period Rental Installments
1	3*	$0.00	$0.00#	$0.00	$0.00	$0.00	$0.00
4	12	$31.00	$310,527.00#	$0.00	$0.00	$310,527.00	$2,794,743.00
13	24	$31.85	$319,066.49#	$0.00	$0.00	$319,066.49	$3,828,797.91
25	36	$32.73	$327,840.82#	$0.00	$0.00	$327,840.82	$3,934,089.85
37	48	$33.63	$336,856.44	$33.63	$224,570.96	$561,427.41	$6,737,128.87
49	60	$34.55	$346,120.00	$34.55	$230,746.66	$576,866.66	$6,922,399.92

61	72	$35.50	$355,638.30	$35.50	$237,092.20	$592,730.49	$7,112,765.91
73	84	$36.48	$365,418.35	$36.48	$243,612.23	$609,030.58	$7,308,366.98
85	96	$37.48	$375,467.35	$37.48	$250,311.57	$625,778.92	$7,509,347.07
97	108	$38.51	$385,792.71	$38.51	$257,195.14	$642,987.84	$7,715,854.11
109	120	$39.57	$396,402.01	$39.57	$264,268.00	$660,670.01	$7,928,040.10
121	132	$40.66	$407,303.06	$40.66	$271,535.37	$678,838.43	$8,146,061.20
133	144	$41.78	$418,503.89	$41.78	$279,002.60	$697,506.49	$8,370,077.89
145	150	$42.93	$430,012.75^	$42.93	$286,675.17^	$716,687.92^	$4,300,127.51^

* "Months" refer to monthly periods following the Commencement Date, and Minimum Annual Rent for the Initial Leased Premises during the first thirty-six (36) months of the Lease Term will be calculated based on sixty percent (60%) of the Rentable Area of the entire Leased Premises, regardless of the actual Rentable Area of the Initial Leased Premises.

Subject to the provisions in Section 2.02 below regarding Landlord's Work and Additional Improvements.

^ The amount shown reflects six (6) months. If the Commencement Date is not the first day of a calendar month and the final Month of the Lease Term is automatically extended to include the remaining partial calendar month following the date on which the Lease Term would otherwise expire (pursuant to Section 1.01(h) below), Tenant shall pay Minimum Annual Rent relative to such partial calendar month (at the same rate and on a prorated basis) in addition to the amount shown.

(f) Intentionally omitted.

(g) Delivery Date: The date that Landlord delivers the Leased Premises to Tenant with a sufficient portion of the Shell Improvements completed to allow Tenant to commence installation and construction of the Tenant Improvements (as defined in **Exhibit B**).

(h) Target Delivery Date: The date that is the later to occur of (i) September 5, 2020, or (ii) the date that Tenant delivers evidence to Landlord that all Tenant Improvements Commencement Conditions (as defined in **Exhibit B**) have been satisfied by Tenant (as same may be extended for delays resulting from Force Majeure Matters).

(i) Outside Delivery Date: The date that is five (5) months following the Target Delivery Date (as same may be extended for delays resulting from Force Majeure Matters).

(j) Shell Completion Date: The date that Landlord Substantially Completes the Shell Improvements.

(k) Target Shell Completion Date: The date that is the later to occur of (i) January 21, 2021, or (ii) the date that Tenant delivers evidence to Landlord that all Tenant Improvements have been Substantially Completed (as same may be extended for delays resulting from Force Majeure Matters).

(l) Outside Shell Completion Date: The date that is five (5) months following the Target Shell Completion Date (as same may be extended for delays resulting from Force Majeure Matters).

(m) Commencement Date: The earlier of (i) the date that is five (5) business days following Tenant's receipt of a certificate of occupancy for the Leased Premises following completion of the Tenant Improvements and Tenant's installation of all of Tenant's furniture, fixtures and equipment; (ii) the date that is the later to occur of (A) one hundred eighty (180) days following the Delivery Date or (B) ninety (90) days following Substantial Completion (as

defined in **Exhibit B**) of the Shell Improvements; or (iii) the date on which Tenant occupies and begins conducting business in any portion of the Leased Premises.

(n) Lease Term: The period beginning on the Commencement Date and ending upon the expiration or earlier termination of the term of this Lease. The initial Lease Term shall be one hundred fifty (150) months, beginning on the Commencement Date. Provided, however, if the Commencement Date is any day other than the first day of a calendar month, the Lease Term shall be extended automatically until midnight on the last day of the calendar month in which the Lease Term otherwise would expire.

(o) Letter of Credit Amount: $3,349,000.00 (as same may be adjusted pursuant to the terms of Article 4 herein).

(p) Broker(s): Cushman & Wakefield and TP Triangle, LLC, representing Landlord and Newmark Knight Frank, representing Tenant.

(q) Permitted Use: General administrative, office and laboratory research and development use, and all other uses permitted under Applicable Laws (as defined in Section 5.02(a)), subject to compliance with Applicable Laws and the RTP Covenants.

(r) Address for notices and payments are as follows:

LANDLORD NOTICES TO:

Landlord:	PP Office Owner 1, L.P. c/o Starwood Capital Group 1255 23rd Street NW, Suite 675 Washington, DC 20037 Attention: Andres Panza Email: apanza@starwood.com
With a copy to:	TP Triangle, LLC 3020 Carrington Mill Boulevard, Suite 425 Morrisville,North Carolina 27560 Email: amayer@trinity-partners.com
With a copy to:	Vanderbilt Office Properties, LLC 625 W. Adams, Suite 1715 Chicago, Illinois 60601 Email: mrhea@vanderbiltop.com

WITH PAYMENTS TO LANDLORD TO:

If by USPS:
PP Office Owner 1 LP
c/o VPTC Management Partners,LLC
625 W Adams Suite 1715
Chicago, IL 60661

If by Overnight Delivery:
PP Office Owner 1 LP
c/o VPTC Management Partners, LLC
625 W Adams Suite 1715
Chicago, IL 60661

If by ACH or Wire:
PP Office Owner 1, L.P.
c/o Wells Fargo Bank
Account: 4811029297
Routing: 121000248

TENANT NOTICES TO:

Tenant: Grail, Inc.
1525 O'Brien Drive
Menlo Park, CA 94025
Attention: Michael Myers, FP&A Director
Email: mmyers@grail.com

With a copy to: Grail, Inc.
1525 O'Brien Drive
Menlo Park, CA 94025
Attention: Thomas Nollie, Facilities Director
Email: tnollie@grail.com

With a copy to: Baker Botts L.L.P.
101 California Street, Suite 3600
San Francisco, CA 94111
Attention: Jeff Wutzke
Email: jeff.wutzke@bakerbotts.com

(s) Allowance: $30,051,000.00 (*i.e.*, $150.00 per square foot of Rentable Area in the Leased Premises).

(t) Test Fit Allowance: $40,068.00 (*i.e.*, $0.20 per square foot of Rentable Area in the Leased Premises), which amount is in addition to the Allowance and subject to the limitations of **Exhibit B**.

(u) Soft Cost Allowance: $5,007,500.00 (i.e., $25.00 per square foot of Rentable Area in the Leased Premises), which amount is part of (and not in addition to) the Allowance and subject to the limitations of **Exhibit B**.

(v) Additional Allowance: $4,006,800.00 (i.e., $20.00 per square foot of Rentable Area in the Leased Premises), which amount is in addition to the Allowance and subject to the limitations of **Exhibit B**.

(w) Training Space Allowance: $40,000.00, which amount is in addition to the Allowance and subject to the provisions of Section 16.24.

(x) HVAC Allowance: $1,183,900.00, which amount is in addition to the Allowance and subject to **Exhibit B**.

EXHIBITS
Exhibit A – Leased Premises
Exhibit B – Improvements
Exhibit B-1 – Shell Improvements Specifications
Exhibit B-2 – Proposed Shell Change Orders Exhibit C – Letter of Understanding
Exhibit D – Site Plan for Park
Exhibit E – Rules and Regulations
Exhibit F – SNDA Form
Exhibit G – Expansion Area
Exhibit H – Outside Supporting Equipment Areas
Exhibit I – Tenant's Signage
Exhibit J – Additional Improvements and Amenities
Exhibit K – Projected Operating Expenses
Exhibit L – Memorandum of Lease

Section 1.02. Lease of Leased Premises. Landlord hereby leases to Tenant and Tenant hereby leases from Landlord the Leased Premises for the Lease Term, under the terms and conditions herein, together with a non-exclusive right, in common with others, to use the following (collectively, the "***Common Areas***"): the areas of the Park and the underlying land and improvements thereto owned by Landlord, from time to time, that are designed for use in common by all tenants of the Park and their respective employees, agents, customers, invitees and others, which as of the Commencement Date will include the Fitness Center, the Café, approximately two (2) acres of recreational fields, two (2) tennis courts, approximately one and one-half (1.5) miles of walking trails within the Park (which walking trails currently connect to a larger network trails within RTP), and certain parking fields and entrance and access drives. Following Substantial Completion of the Additional Improvements, Landlord reserves the right to convey ownership of (which may be by deed or by easement) and/or delegate operating responsibility for all or any portion of the Common Areas to a property owners' association (a "***POA***") established to maintain and oversee the operation and use of certain portions of the Park

in a "Class A" manner (including neat, clean, orderly and operable conditions, properly lighted and landscaped (where applicable), in accordance with Applicable Law and free from Hazardous Substances in violation of Applicable Law), in which case Landlord shall be released from any ongoing obligations relative to such Common Areas and such obligations shall be assumed by such POA and documented in a written set of recorded covenants specific to the Park reasonably acceptable to Tenant, and to which Tenant is an explicit third-party beneficiary; provided that the POA shall be liable for and obligated to perform all of Landlord's obligations under this Lease relative to any such Common Areas so conveyed or delegated, (ii) Landlord agrees to use commercially reasonable efforts to enforce the POA's obligations relative to such Common Areas and shall share with Tenant copies of all material correspondence with the POA that relate to the subject matter of this Lease, (iii) no such conveyance or delegation by Landlord shall materially or adversely affect Tenant's use of such portions of the Common Areas consistent with the terms of this Lease, and (iv) the costs allocated to Tenant pursuant to Sections 3.02 and shall not be higher than if Landlord were maintaining and operating such areas itself.

Subject to Section 15.06, Tenant hereby acknowledges that the Park (or certain portions thereof, which may include the Building) either has been or may be (provided Landlord is successful in such efforts to achieve such classification) classified as a "Brownfields Property," as such term is defined under the North Carolina Brownfields Property Reuse Act, N.C. Gen. Stat. §§ 130A-310.20 et seq. (the "***Brownfields Act***").

Section 1.03. Remeasurement.

(a) Remeasurement Upon Substantial Completion. Within thirty (30) days of Substantial Completion of the Tenant Improvements, Landlord, at Landlord's expense, will cause a third-party architect to measure the rentable square footage, usable square footage, and resulting Rentable Area of the Leased Premises (with the usable square footage to be measured in accordance with the then-current BOMA standards, and the Rentable Area being calculated by applying a load factor of thirteen and 2/10ths percent (13.2%) to the usable square footage) and submit the findings to Tenant. The parties shall use good faith efforts to agree upon the usable square footage of the Leased Premises within ten (10) business days following the submission of such findings to Tenant. In the event that the parties cannot agree upon the usable square footage within the ten (10) business day period referenced in the preceding sentence, either party shall be entitled to submit the matter to an unaffiliated third party architect reasonably selected by such submitting party (which architect and his or her current or former firm shall not have done business with Landlord or Tenant or their respective principals in the prior three (3) years, unless approved, in writing by the non-submitting party) (the "***Arbitration Architect***"), with the decision of the Arbitration Architect being binding on the parties. Promptly following the parties' mutual agreement or the determination by the Arbitration Architect, as applicable, the parties shall enter into an amendment to this Lease confirming any revisions to the Rentable Area of the Leased Premises and all calculations in this Lease that are dependent thereon (*e.g.*, Minimum Annual Rent, Allowance, etc.).

(b) Remeasurement Upon Additional Construction. Landlord shall adjust the Building's Share percentage and provide written notice to Tenant thereof promptly after substantial completion (as evidenced by the issuance of a temporary or permanent certificate of

occupancy after completion of a tenant's improvements) of any new building(s) constructed or expanded within the Park.

ARTICLE 2 - TERM; DELIVERY AND CONSTRUCTION

Section 2.01. Term. The Commencement Date and Lease Term shall be as set forth in Sections 1.01(m) and 1.01(n) above.

Section 2.02. Construction of Landlord's Work. Landlord shall construct and install the Shell Improvements to the Building and will construct and install the Additional Improvements within the Park (collectively referred to as the "***Landlord's Work***") in accordance with **Exhibit B** attached hereto and made a part hereof.

(a) Delivery Date.

(i) Subject to delays resulting from Force Majeure Matters (as defined in Section 16.03) and/or Tenant Delays (as defined in **Exhibit B**), Landlord shall deliver the Leased Premises to Tenant with the Shell Improvements completed to a point that Tenant is able to enter the Leased Premises to commence installation and construction of the Tenant Improvements on or before the Target Delivery Date. If Landlord for any reason whatsoever cannot cause the Delivery Date to occur by the Target Delivery Date, this Lease shall not be void or voidable nor shall Landlord be liable to Tenant for any loss or damage resulting therefrom; but in that event, Landlord shall act diligently and in good faith to complete the work that is necessary to allow Landlord to cause the Delivery Date to occur. In such event, the following terms shall apply:

(1) In the event the Delivery Date does not occur by the date that is two (2) months following the Target Delivery Date, Tenant shall receive a credit against the Monthly Rental Installments due hereunder equal to one (1) day of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for each day that elapses between the end of such two (2) month period and the Delivery Date (the "***Delivery Date Credit***"), which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(2) In the event the Delivery Date does not occur by the date that is three (3) months following the Target Delivery Date, the Delivery Date Credit shall increase to two (2) days of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for each day that elapses between the end of such three (3) month period and the Delivery Date, which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(3) In the event the Delivery Date does not occur by the date that is four (4) months following the Target Delivery Date, the Delivery Date Credit shall be increased to three (3) days of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for each day that elapses between the end of such four (4) month period and the Delivery Date, which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(4) Notwithstanding the foregoing, in the event the Delivery Date does not occur by the Outside Delivery Date, then thereafter until the earlier to occur of (i) the occurrence of the Delivery Date or (ii) thirty (30) days after the Outside Delivery Date, Tenant shall have the right to terminate this Lease by delivering written notice to Landlord. For purposes of clarification, Tenant's failure to terminate this Lease pursuant to this subsection shall not cut off the accrual of the Delivery Date Credit, if applicable.

Notwithstanding anything to the contrary contained in the Lease, if the Delivery Date is delayed as a result of Tenant Delay, then, for purposes of determining the Commencement Date, the Delivery Date shall be deemed to have occurred on the date that the Delivery Date would have occurred but for such Tenant Delay.

(b) Completion of Shell Improvements.

(i) Subject to delays resulting from Force Majeure Matters or Tenant Delays, Landlord shall Substantially Complete the Shell Improvements on or before the Target Shell Completion Date. If Landlord for any reason whatsoever cause the Shell Improvements to be Substantially Completed by the Target Shell Completion Date, this Lease shall not be void or voidable nor shall Landlord be liable to Tenant for any loss or damage resulting therefrom; but in that event, Landlord shall act diligently and in good faith to complete the work that is necessary to allow Landlord to cause the Shell Improvement to be Substantially Completed. In such event, the following terms shall apply:

(1) In the event Substantial Completion of the Shell Improvements does not occur by the date that is one (1) month following the Target Shell Completion Date, Tenant shall receive a credit against the Monthly Rental Installments due hereunder equal to one (1) day of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for each day that elapses between the end of such one (1) month period and the date Substantial Completion of the Shell Improvements occurs (the "***Shell Completion Credit***"), which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(2) In the event Substantial Completion of the Shell Improvements does not occur by the date that is three (3) months following the Target Shell Completion Date, the Shell Completion Credit shall increase to two (2) days of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for each day that elapses between the end of such three (3) month period and the date Substantial Completion of the Shell Improvements occurs, which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(3) In the event Substantial Completion of the Shell Improvements does not occur by the date that is four (4) months following the Target Shell Completion Date, the Shell Completion Credit shall be increased to three (3) days

of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for each day that elapses between the end of such four (4) month period and the date Substantial Completion of the Shell Improvements occurs, which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(4) In the event Substantial Completion of the Shell Improvements does not occur by the Outside Shell Completion Date, then thereafter until the earlier to occur of (i) the occurrence of the Delivery Date or (ii) the date that is one (1) months following the Outside Shell Completion Date, Tenant shall have the right to terminate this Lease by delivering written notice to Landlord. For purposes of clarification, Tenant's failure to terminate this Lease pursuant to this subsection shall not cut off the accrual of the Shell Completion Credit, if applicable.

Notwithstanding anything to the contrary contained in the Lease, (1) the number of days of Minimum Annual Rent credits included in the Shell Completion Credit are in addition to (and not overlapping with) the number of days of Minimum Annual Rent credits included in the Delivery Delay Credit (for example, if there is ultimately a ten (10) day delay in the Delivery Date for which Tenant is entitled to rental credits, and there is ultimately a twelve (12) day delay in Substantial Completion of the Shell Improvements for which Tenant is entitled to rental credits, Tenant shall receive a total of twenty-two (22) days of rental credits), and (2) if Substantial Completion of the Shell Improvements is delayed as a result of Tenant Delay, then Substantial Completion of the Shell Improvements shall be deemed to have occurred on the date that Substantial Completion would have occurred but for such Tenant Delay.

(c) Construction of Additional Improvements.

(i) Subject to delays resulting from Force Majeure Matters and/or Tenant Delays, Landlord shall Substantially Complete the following additional improvements within the Park by the applicable completion dates set forth herein: (i) the refurbishment of the two buildings located immediately adjacent to the Building (the "***Grid Buildings***"), as identified on **Exhibit D** attached hereto, and construction of the Café (as defined in Section 16.23) in the location shown on **Exhibit D** attached hereto (collectively, the "***Phase II Improvements***") not later than April 30, 2021 (the "***Phase II Completion Date***"), (ii) the construction of the Fitness Center (as defined in Section 16.23) in the location identified on **Exhibit D** attached hereto and generally consistent with the depictions of same on **Exhibit J** attached hereto not later than June 30, 2021 (the "***Fitness Center Completion Date***"), and (iii) the refurbishment of the two buildings located next to the Grid Buildings (the "***Edge Buildings***"), as identified on **Exhibit D** attached hereto (the "***Phase III Improvements***") not later than September 1, 2021 (the "***Phase III Completion Date***"). If Landlord for any reason other than Force Majeure Matters and/or Tenant Delays is unable to Substantially Complete any of the aforementioned additional improvements (each, an "***Additional Improvement***") by the applicable completion date (each, a "***Completion Date***"), this Lease shall not be void or

voidable nor shall Landlord be liable to Tenant for any loss or damage resulting therefrom; but in that event, Landlord shall act diligently and in good faith to complete the work that is necessary for Landlord to Substantially Complete such improvements. In such event, the following terms shall apply:

(1) In the event Substantial Completion of an Additional Improvement does not occur by the date that is sixty (60) days following the applicable Completion Date for such Additional Improvement, Tenant shall receive a credit against the Monthly Rental Installments due hereunder equal to one (1) day of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for every three (3) days that elapse between the end of such sixty (60) day period until Substantial Completion of the applicable Additional Improvement occurs (each, an "***Additional Improvement Credit***"), which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(2) In the event Substantial Completion of an Additional Improvement does not occur by the date that is one hundred twenty (120) days following the applicable Completion Date for such Additional Improvement, the Additional Improvement Credit shall increase to two (2) days of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for every three (3) days that elapse between the end of such one hundred twenty (120) day period and the date Substantial Completion of the applicable Additional Improvement occurs, which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(3) In the event Substantial Completion of an Additional Improvement does not occur by the date that is one hundred eighty (180) days following the Target Shell Completion Date, the Additional Improvement Credit shall be increased to three (3) days of Minimum Annual Rent and Additional Rent with respect to the Leased Premises for every three (3) days that elapse between the end of such one hundred eighty (180) day period and the date Substantial Completion of the applicable Additional Improvement occurs, which credit(s) shall be applied to the Monthly Rental Installment(s) first becoming payable hereunder.

(4) In the event Substantial Completion of any Additional Improvement does not occur by July 1, 2022, then thereafter until the earlier to occur of (i) the occurrence of Substantial Completion of all Additional Improvements or (ii) August 1, 2022, Tenant shall have the right to terminate this Lease by delivering written notice to Landlord. For purposes of clarification, Tenant's failure to terminate this Lease pursuant to this subsection shall not cut off the accrual of the Additional Improvement Credit, if applicable.

Section 2.03. Construction of Tenant Improvements. Following the Delivery Date, Tenant shall cause the construction and installation of all leasehold improvements to the Leased Premises (collectively, the "***Tenant Improvements***") in accordance with **Exhibit B** attached hereto and made a part hereof.

Section 2.04. Letter of Understanding. Promptly following the Commencement Date, Tenant shall execute Landlord's Letter of Understanding in substantially the form attached hereto as **Exhibit C** and made a part hereof, acknowledging, among other things, that Tenant has accepted the Leased Premises. If, within ten (10) business days of receipt of Landlord's Letter of Understanding, Tenant fails to (i) execute and deliver same to Landlord or (ii) notify Landlord in writing of any requested revisions, all of the terms set forth in Landlord's Letter of Understanding, including, without limitation, the dates provided therein, shall be deemed true and incorporated into this Lease. If Tenant takes possession of and occupies the Leased Premises, Tenant shall be deemed to have accepted the Leased Premises and that the condition of the Leased Premises and the Building was at the time satisfactory and in conformity with the provisions of the Lease in all respects.

Section 2.05. Surrender of the Leased Premises. Upon the expiration or earlier termination of this Lease, Tenant shall, at its sole cost and expense, immediately (a) surrender the Leased Premises to Landlord in broom-clean condition and in good order, condition and repair, subject to casualty and reasonable wear and tear, (b) remove from the Leased Premises or where located (i) Tenant's Property (as defined in Section 8.01 below), (ii) all data and communications equipment, wiring and cabling (including above ceiling, below raised floors and behind walls) and (iii) any alterations required to be removed pursuant to Section 7.03 below (expressly excluding the Tenant Improvements), and (c) repair any damage caused by any such removal and restore the Leased Premises to the condition existing upon the Commencement Date (or, if later, with respect to the Deferred Leased Premises the date of Tenant's occupancy of the Deferred Leased Premises), reasonable wear and tear excepted. All of Tenant's Property that is not removed within ten (10) business days following Landlord's written demand therefor shall be conclusively deemed to have been abandoned and Landlord shall be entitled to dispose of such property at Tenant's cost without incurring any liability to Tenant. This Section 2.05 shall survive the expiration or any earlier termination of this Lease.

Section 2.06. Holding Over. If Tenant retains possession of the Leased Premises after the expiration or earlier termination of this Lease, Tenant shall be a tenant at sufferance. Tenant's occupancy shall be subject to all the terms and provisions of this Lease, and Tenant shall (a) pay an amount (on a per month basis without reduction for partial months during the holdover) equal to one hundred fifty percent (150%) of the Monthly Rental Installment (as defined in Section 3.03(a)) due for the period immediately preceding the holdover and the monthly installment of Additional Rent (as defined in Section 3.03(a)) that would be due for the period; (b) if such holdover continues for thirty (30) days after the expiration or earlier termination of this Lease, be liable to Landlord for any payment or rent concession that Landlord is required to make (and does make) to any tenant obtained by Landlord for all or any part of the Leased Premises (a "***New Tenant***") in order to induce such New Tenant not to terminate its lease by reason of the holding-over by Tenant, provided that Landlord notified Tenant of a signed lease with New Tenant at least thirty (30) days prior to the end of the Lease Term; (c) if such holdover continues for ninety (90) days after the expiration or earlier termination of this Lease, be liable to Landlord for the loss of the benefit of the bargain if any New Tenant shall terminate its lease by reason of the holding-over by Tenant; and (d) indemnify Landlord against all claims for damages by any New Tenant. No holdover by Tenant or payment by Tenant after the

termination of this Lease shall be construed to extend the Lease Term or prevent Landlord from immediate recovery of possession of the Leased Premises by summary proceedings or otherwise, and this Section 2.06 shall in no way constitute consent by Landlord to any holding over by Tenant upon the expiration or earlier termination of this Lease, nor limit Landlord's remedies in such event.

ARTICLE 3 - RENT

Section 3.01. Base Rent. Tenant shall pay to Landlord the Minimum Annual Rent in the Monthly Rental Installments in advance, without demand, deduction or offset, on the Commencement Date and on or before the first day of each and every calendar month thereafter during the Lease Term. The Monthly Rental Installments for partial calendar months shall be prorated.

Section 3.02. Annual Operating Expense Adjustment Definitions.

(a) "***Annual Operating Expense Adjustment***" shall mean the amount of Tenant's Proportionate Share of Operating Expenses for a particular calendar year.

(b) "***Operating Expenses***" shall mean (i) the Building's Share of all Park Expenses (as defined below), including, and, without duplication, (ii) all of Landlord's costs and expenses paid or incurred in operating, repairing, replacing and maintaining the Building in good condition and repair for a particular calendar year. For purposes of the forgoing, "***Park Expenses***" means the costs and expenses paid or incurred by Landlord (or, if such portions of the Park are conveyed to or operated by a POA, such POA) in operating, repairing, replacing and maintaining the Common Areas in good condition and repair for a particular calendar year. In the event that the Park (relative to Park Expenses) is less than ninety-five percent (95%) occupied, or at any time that the Building is less than ninety-five percent (95%) occupied (*e.g.*, prior to the Deferred Leased Premises Trigger Date), Operating Expenses shall be grossed up to include all additional costs and expenses that Landlord (or a POA) reasonably determines it would have paid or incurred during such year if the Park or the Building, as applicable, had been ninety-five percent (95%) occupied. Operating Expenses shall include, by way of illustration and not limitation (but subject to the following paragraph), the following: all Real Estate Taxes (as hereinafter defined), insurance premiums and deductibles; water, sewer, electrical and other utility charges other than the separately billed electrical and other charges paid by Tenant as provided in this Lease (or other tenants in the Park); service and other charges incurred in the repair, replacement, operation and maintenance of the heating, ventilation and air-conditioning systems serving the Common Areas; costs associated with providing fitness, conference or food service facilities, if any; cleaning and other janitorial services for the Common Areas; tools; repair costs; landscape maintenance costs; security patrols; license, permit and inspection fees; management fees; supplies used at the Building or with respect to the Common Areas; costs, wages and related employee benefits payable for the management, maintenance and operation of the Building and the Park; maintenance, repair and replacement of the driveways, parking and sidewalk areas (including snow and ice removal, but not including any initial development expenses), landscaped areas, and lighting; costs paid or incurred by Landlord in bringing the Building or the Common Areas into compliance with Applicable Laws enacted after the effective date of this Lease, but not including any initial development expenses; and all maintenance and

repair costs, dues, fees, assessments and other expenses charged with respect to the Building (or the Building's Share of such costs charged relative to the Park) incurred under any covenants or charged by any POA (subject to Section 1.02) for the Park and the Building's Share of all charges payable under the terms of the RTP Covenants after the Lease Date. Costs and expenses which according to generally accepted accounting principles (GAAP) are required to be capitalized will not be included in Operating Expenses, except where the capital improvements are proven to actually reduce other Operating Expenses, in which case the costs of such capital improvements will be amortized basis over the useful life of the applicable improvement and only the amortized portion shall be included in Operating Expenses. As of the Lease Date, Landlord's good-faith estimate of grossed-up Park Expenses for 2021 is attached hereto as **Exhibit K**.

Notwithstanding the foregoing, Operating Expenses shall not include the following items; personal property taxes paid directly by any tenant of the Park; debt service payments and any late fees, penalties, and reimbursements due to lenders or lenders' counsel with respect thereto; reserves; costs of selling, syndicating, financing, or mortgaging Landlord's interest in the Building or the Park; general corporate overhead of Landlord and its affiliates; brokers' and finders' fees or other commissions; leasing expenses (including space planning costs, concessions or credits, allowances, advertising expenses, and attorney's fees with respect to negotiations or disputes with tenants); permitting, licensing and inspection costs associated with the installation or renovation of tenant improvements of other tenants; depreciation on improvements or equipment and machinery; expenses for items which are not generally available for use by all tenants of the Park; advertising or promotional expenses; attorneys' fees; wages, salaries, employee benefits and payroll taxes for Landlord's personnel (except to the extent such personnel are employed to operate or repair the Common Areas, buildings, or other improvements within the Park; provided, if such personnel also service other assets in the Raleigh/Durham market, only their pro-rata costs for servicing this Building or the Park shall be included); costs incurred by Landlord in connection with the testing, response to, clean-up or removal of any Hazardous Materials; costs or expenses incurred due to violation by any party (other than Tenant) of any term or condition of this Lease or Applicable Law; costs and expenses incurred by Landlord in connection with disputes with tenants of the Park; artwork and sculpture in the Common Areas; late fees, penalties and charges associated with the late payment of Real Estate Taxes, assessments, liens, or utilities; costs paid or incurred by Landlord in bringing the Building or the Common Areas into compliance with Applicable Laws enacted prior to the Lease Date; costs for the maintenance, repair and replacement of the structural elements of the Building or Park any costs to the extent insurance recoveries are received by Landlord as payment for or refund of such costs; and any other costs or expenses directly paid by individual tenants or other third parties (other than as a component of such Tenant's Proportionate Share of Operating Expenses).

(c) "***Tenant's Proportionate Share of Operating Expenses***" shall mean an amount equal to the product of Tenant's Proportionate Share multiplied by an amount equal to the Operating Expenses incurred during or properly chargeable to the calendar year in question.

Notwithstanding anything herein to the contrary, for purposes of computing Tenant's Proportionate Share of Operating Expenses, Operating Expenses that constitute Controllable

Expenses (as defined herein) shall not exceed the Cap Amount (as defined herein). As used herein, the term "***Controllable Expenses***" means all Operating Expenses exclusive of charges for security services unaffiliated with Landlord, utilities, insurance, compliance with Applicable Laws going into effect following the Commencement Date, taxes and assessments, snow and ice removal, management fees for the Building (capped at two and 5/10ths percent (2.5%) of gross rentals), POA management fees (capped at five percent (5%) of Common Area expenses, and in any event the Building's Share of such POA management fees shall not exceed $20,000 for any calendar year), other Park Expenses, and any other charges beyond Landlord's reasonable control. The term "***Cap Amount***" means (i) with respect to calendar year 2022, the Controllable Expenses in calendar year 2021 multiplied by 1.05, and (ii) with respect to all subsequent calendar years during the Lease Term, the Cap Amount for the preceding calendar year multiplied by 1.05.

(d) "***Real Estate Taxes***" shall mean any form of real estate tax or assessment or service payments in lieu thereof, any state franchise taxes assessed on tangible property, and any license fee, commercial rental tax, improvement bond or other similar charge or tax (other than inheritance, personal income or estate taxes) imposed upon the Building or Common Areas, or against Landlord's business of leasing the Building, by any authority having the power to so charge or tax, together with costs and expenses of contesting the validity or amount of the Real Estate Taxes. In the event the tax parcel on which the Building is located (the "***Tax Parcel***") includes other buildings or improvements, the Real Estate Taxes allocated to the Building will be based on the relative value of the Building and such other improvements, as evidenced by the applicable tax bill. In the event such tax bill does not specifically allocate such value, the Real Estate Taxes allocated to the Building shall be determined by multiplying the total value of such improvements shown on the tax bill for the Tax Parcel by a fraction, the numerator of which is the Rentable Area of the Building and the denominator of which is the square footage of all buildings located on the Tax Parcel. Tenant acknowledges that, at any time during the Lease Term, Landlord may enter into a Brownfields Agreement relative to the Tax Parcel pursuant to and subject to the terms and provisions in Section 15.06 that will result in a partial exclusion of the appraised value of such parcel(s) and improvements for purposes of calculating ad valorem taxes as provided in N.C.G.S. § 105-277.13 (the "***Brownfields Tax Abatement***"). In that regard, for any year that a Brownfields Tax Abatement is applicable relative to the Building, Real Estate Taxes allocated to the Building and included in Operating Expenses shall be equal to the Unadjusted Tax Amount, less Tenant's Abatement Share.

For each tax bill issued during the Lease Term for which a Brownfields Tax Abatement is applicable, Landlord shall notify Tenant in writing of (1) the value of the Brownfields Tax Abatement for such year evidenced by the tax bill issued for the Tax Parcel, (2) the amount that the Real Estate Taxes for the Tax Parcel would have been for that year had the appraised value of the Tax Parcel not been partially excluded for tax purposes by virtue of the Brownfields Agreement (the "***Unadjusted Tax Amount***"). "***Tenant's Abatement Share***" shall be determined by (i) reducing the Brownfield Tax Abatement by all of Landlord's costs and expenses incurred with respect to the Brownfields application process, qualifying for the Brownfields Program, the negotiation of the Brownfields Agreement and obtaining the Brownfields Tax Abatement, and multiplying the result by a fraction, (1) the numerator of which will be Tenant's expenditures

(exclusive of the Allowance) of constructing and completing the Tenant Improvements for the Initial Leased Premises and the Deferred Leased Premises, as certified to Landlord with reasonable supporting documentation (the "***Tenant Costs***"), and (2) the denominator of which will be the sum of the Tenant Costs, the Allowance, all of Landlord's costs and expenses in completing the Shell Improvements, and all costs and expenses incurred by Landlord (or any future tenant thereof, from time to time) in developing, improving and renovating any additional improvements on the Tax Parcel, in as reasonably certified to Tenant. (By way of example, if the Building's Tax Abatement for a year was $250,000.00, and Tenant's Costs in clause (1) were $10,000,000, and Landlord's expenditures in clause (2) were $40,000,000, then the Tenant's Abatement Share would be $50,000.00).

Section 3.03. Payment of Additional Rent.

(a) Any amount required to be paid by Tenant hereunder (in addition to Minimum Annual Rent) and any charges or expenses incurred by Landlord on behalf of Tenant under the terms of this Lease shall be considered "Additional Rent" payable in the same manner and upon the same terms and conditions as the Minimum Annual Rent reserved hereunder, except as set forth herein to the contrary. Any failure on the part of Tenant to pay such Additional Rent when and as the same shall become due shall entitle Landlord to the remedies available to it for non- payment of Minimum Annual Rent.

(b) In addition to the Minimum Annual Rent specified in this Lease, commencing as of the Commencement Date, Tenant shall pay to Landlord as Additional Rent for the Leased Premises, in each calendar year or partial calendar year during the Lease Term, an amount equal to the Annual Operating Expense Adjustment for such calendar year. Landlord shall estimate the Annual Operating Expense Adjustment annually, and written notice thereof shall be given to Tenant prior to the beginning of each calendar year. Tenant shall pay to Landlord each month, at the same time the Monthly Rental Installment is due, an amount equal to one-twelfth (1/12) of the estimated Annual Operating Expense Adjustment. Tenant shall be responsible for delivering the Additional Rent to the payment address set forth in Section 1.01(l) above in accordance with this Section 3.03. If Operating Expenses increase during a calendar year, Landlord may increase the estimated Annual Operating Expense Adjustment during such year by giving Tenant thirty (30) days' advance written notice to that effect, and thereafter Tenant shall pay to Landlord, in each of the remaining months of such year, an amount equal to the amount of such increase in the estimated Annual Operating Expense Adjustment divided by the number of months remaining in such year. Landlord will endeavor to prepare and deliver to Tenant within one hundred twenty (120) days after the end of each calendar year a statement showing the actual Annual Operating Expense Adjustment and the underlying Operating Expenses therefor (each such statement the "***Annual Statement***"). Within thirty (30) days after receipt of the Annual Statement, Tenant shall pay to Landlord, or Landlord shall credit against the next rent payment or payments due from Tenant (or refund to Tenant, if this Lease has expired or terminated), as the case may be, the difference between the actual Annual Operating Expense Adjustment for the preceding calendar year and the amount paid by Tenant during such year. This Section 3.03 shall survive the expiration or any earlier termination of this Lease.

(c) Tenant shall have the right to inspect records of Landlord which are reasonably necessary for Tenant to conduct a review of the Operating Expenses for the period covered by an Annual Statement. Any such inspection shall be subject to the following conditions: (i) such inspection must be commenced within six (6) months following Tenant's receipt of an Annual Statement (or Tenant's right to such inspection shall be deemed waived), and only one (1) such inspection may be performed in any calendar year, (ii) Tenant shall provide Landlord with at least ten (10) business days' prior written notice of such inspection, (iii) any such inspection shall be performed on a non-contingency basis, (iv) any such inspection shall be conducted at the office reasonably designated by Landlord and shall be conducted during normal business hours, (v) any such inspection shall be at the sole cost and expense of Tenant (provided, however, that if Tenant's inspection reveals that Tenant has been overcharged by more than five percent (5%), Landlord shall pay up all reasonable and actual third party costs and expenses incurred in connection with such review, up to a maximum of $20,000.00 per review), (vi) in no event shall Tenant's rights hereunder relieve Tenant of its obligation to pay all amounts due as and when provided in this Lease, (vii) Tenant agrees that it will not disclose, but will keep in strict confidence, the information furnished to Tenant by Landlord, but nothing herein shall prohibit Tenant from making such disclosures as necessary to Tenant's employees, agents, attorneys, and accountants, subtenants (and prospective subtenants) and assignees (and prospective assignees) and otherwise as necessary to prosecute its claim or to comply with Applicable Laws; and (viii) in no event shall Tenant be entitled to conduct such inspection if Tenant is then in Default under this Lease pursuant to Sections 13.01(a) or (e), Article 4, or Section 8.04. In the event Landlord disputes the results of Tenant's inspection, and the parties cannot in good faith agree upon the actual applicable charges, such matter shall be submitted to an independent certified public accountant mutually and reasonably acceptable to Landlord and Tenant, whose determination of the actual charges shall be binding. The cost of such independent audit shall be borne by the party whose determination of Operating Expenses was further from the determination made by the independent auditor. Following the final resolution of Tenant's inspection, Tenant shall pay to Landlord or Landlord shall credit Tenant's account (or, if such adjustment occurs at the end of the Lease Term, pay to Tenant), as the case may be, within thirty (30) days of the final resolution, the amount of any excess or deficiency. This Section 3.03 shall survive the expiration or any earlier termination of this Lease.

Section 3.04. Late Charges. Tenant acknowledges that Landlord shall incur certain additional unanticipated administrative and legal costs and expenses if Tenant fails to pay timely any payment required hereunder. Therefore, in addition to the other remedies available to Landlord hereunder, if any payment required to be paid by Tenant to Landlord hereunder shall not be paid within five (5) business days of the date due, such unpaid amount shall bear interest from the due date thereof to the date of payment at the greater of: (i) the prime rate of interest, as reported in the Wall Street Journal (the "***Prime Rate***"), plus five percent (5%) per annum, or (ii)ten percent (10%) per annum.

ARTICLE 4 -– LETTER OF CREDIT

Section 4.01. As security for the performance of its obligations under the Lease (including, without limitation, payment of Minimum Annual Rent and Additional Rent), Tenant, within five (5) business days following the Lease Date, shall deliver to Landlord an irrevocable,

unconditional, transferable, stand-by letter of credit issued in favor of Landlord, as beneficiary, and issued for Tenant, as account party (the "***Letter of Credit***"), in the amount of Three Million Three Hundred Forty-Nine Thousand and No/100 Dollars ($3,349,000.00) (the "***Letter of Credit Amount***"). In the event Tenant fails to timely deliver the Letter of Credit (which Letter of Credit shall comply fully with all terms and provisions of this Section 4.01) in the Letter of Credit Amount, Landlord may, up until such time as such Letter of Credit is actually received by Landlord, terminate the Lease by giving written notice of such termination to Tenant. All costs and fees incurred in connection with the issuance of the Letter of Credit shall be borne entirely by Tenant. The Letter of Credit shall be issued by a federally-chartered bank reasonably approved by Landlord (and Landlord hereby approves Silicon Valley Bank), shall be in form and content reasonably satisfactory to Landlord, shall permit partial draws, shall permit draws upon presentation to a bank office located in the State of North Carolina, and shall either be automatically renewing for "evergreen", or have an expiration date (the "***Letter of Credit Expiration Date***") that is no earlier than the day immediately preceding the first (1st) anniversary of the Commencement Date.

Section 4.02. Continuation Letters of Credit. Subject to Section 4.05, Tenant shall continue to provide security for the performance of its obligations under the Lease by causing the Letter of Credit to automatically renew or by providing Landlord with additional irrevocable, unconditional, transferable, stand-by letters of credit in the Letter of Credit Amount issued in favor of Landlord, as beneficiary, and issued for Tenant, as account party (collectively, the "***Continuation Letters of Credit***"; each, a "***Continuation Letter of Credit***") during the entire Lease Term. The original of the first Continuation Letter of Credit shall be issued and delivered to Landlord no later than the date that is thirty (30) days prior to the Letter of Credit Expiration Date (but shall not be effective until the Letter of Credit Expiration Date). The original of each subsequent Continuation Letter of Credit (and the applicable Letter of Credit Accompanying Documentation) shall be delivered to Landlord no later than the date that is thirty (30) days prior to the expiration date of the preceding Continuation Letter of Credit and each Continuation Letter of Credit shall have an expiration date that is no earlier than the day immediately preceding the first (1st) anniversary of the expiration date of the preceding Continuation Letter of Credit (but shall not be effective until the expiration date of the preceding Continuation Letter of Credit).

Section 4.03. Draws. If Tenant fails to timely deliver the Letter of Credit or any Continuation Letter of Credit to Landlord and such failure continues for five (5) business days after written notice to Tenant (with any other notice and cure periods afforded to Tenant hereunder being inapplicable in such circumstances), such failure by Tenant shall entitle Landlord to immediately draw upon the full outstanding amount of the Letter of Credit or the then-applicable Continuation Letter of Credit (as the case may be) and hold such funds as a cash security deposit (which such deposit shall be held and applied in accordance with Applicable Laws and this Lease, including without limitation Section 4.05). Additionally, Landlord shall be entitled to draw upon the Letter of Credit and/or any Continuation Letter of Credit (as the case may be) to fund the performance of any obligation(s) of Tenant under the Lease if Tenant is in default in the performance of such obligation(s) beyond the expiration of any applicable notice and cure period (if any) set forth in the Lease. The issuing bank shall be required (up to the face

amount(s) of the Letter of Credit and/or any applicable Continuation Letter of Credit) to disburse amounts to Landlord under the Letter of Credit and/or the applicable Continuation Letter of Credit (as the case may be) based solely on the written statement of Landlord (i) certifying that Tenant is in default in the performance of its obligation(s) under the Lease beyond the expiration of any applicable notice and cure period (if any) set forth in the Lease and (ii) certifying the amount due to Landlord as a result of such uncured default(s) (which shall be the amount payable, up to an aggregate ceiling amount equal to the face amount(s) of the Letter of Credit and/or any applicable Continuation Letter of Credit (as the case may be), to Landlord under such instrument). Landlord agrees to concurrently provide Tenant with a copy of any such written statement Landlord provides to the issuing bank pursuant to the immediately preceding sentence.

Section 4.04. Transfers. If Landlord's interest in the Leased Premises is sold or otherwise transferred, Landlord shall transfer the Letter of Credit and any of the Continuation Letters of Credit to the new owner (and such instruments shall each expressly permit such transfers), at Landlord's sole cost and expense, if any, and upon completion of such transfer (including an acknowledgement by the transferee of the same), Landlord shall thereupon be released from all liability for the safekeeping and administration of the Letter of Credit and the Continuation Letters of Credit and Tenant shall thereafter look solely to such new owner for the safekeeping and administration of the Letter of Credit and the Continuation Letters of Credit. The terms hereof shall apply to every transfer of the Letter of Credit and/or the Continuation Letters of Credit.

Section 4.05. Adjustments to Letter of Credit Amount. Notwithstanding anything to the contrary set forth in this Article 4, so long as no Default exists by Tenant under the terms of the Lease which is then continuing, the Letter of Credit Amount shall be adjusted as follows:

Event/Timing	Letter of Credit Amount
Tenant engages in an initial public offering for the sale of Tenant's stock on a public securities exchange (an "***IPO***") and Tenant's market capitalization equals or exceeds $3.5 billion.	$1,674,500.00
Fifth (5th) Anniversary of Commencement Date (assuming no IPO has then occurred)	$1,674,500.00
Seventh (7th) Anniversary of the Commencement Date (whether or not an IPO has occurred)	$0.00

ARTICLE 5 - OCCUPANCY AND USE

Section 5.01. Use. Tenant shall use the Leased Premises for the Permitted Use and for no other purpose without the prior written consent of Landlord, not to be unreasonably withheld, conditioned or delayed.

Section 5.02. Covenants of Tenant Regarding Use.

(a) Tenant shall (i) use and maintain the Leased Premises and conduct its business thereon in a lawful manner, (ii) comply in all material respects with all covenants, conditions and restrictions that encumber the Building (including, without limitation, the RTP Covenants (as defined below)) and all laws, rules, regulations, codes, orders, ordinances, directions and requirements of any governmental authority or agency, now in force or which may hereafter be in force, including, without limitation, the Americans with Disabilities Act of 1990, and including, without limitation, those which shall impose upon Landlord or Tenant any duty with respect to or triggered by a change in the use or occupation of, or any improvement or alteration to, the Leased Premises (collectively, "***Applicable Laws***"), and (iii) comply with and obey all reasonable and non-discriminatory directions, rules and regulations of Landlord that are requiredof all tenants in the Park and do not materially and adversely affect Tenant's use of the Leased Premises or rights under this Lease, including the Building Rules and Regulations attached hereto as **Exhibit E** and made a part hereof, as may be modified from time to time by Landlord on reasonable notice to Tenant. Tenant shall promptly provide Landlord with copies of any notices it receives regarding an alleged violation of the foregoing. For purposes of the foregoing, the "***RTP Covenants***" means the restrictive covenants encumbering property within the RTP, as evidenced by that certain Amended and Restated Conditions, Covenants, Restrictions and Reservations Affecting The Research Triangle Park recorded in Book 7515, Page 459 in the Durham County, North Carolina Office of the Register of Deeds (the "***Registry***"), as corrected by (Corrected) Amended and Restated Conditions, Covenants, Restrictions and Reservations Affecting The Research Triangle Park recorded in Book 7559, Page 1 in the Registry; as amended by First Amendment to (Corrected) Amended and Restated Conditions, Covenants, Restrictions and Reservations Affecting The Research Triangle Park recorded in Book 8564, Page 575 in the Registry; as affected by Waiver of Right of First Refusal recorded in Book 8693, Page 802 in the Registry, as same may be amended, supplemented or modified from time to time.

(b) Tenant shall not do or permit anything to be done in or about the Leased Premises that will in any way cause a nuisance, obstruct or interfere with the rights of other tenants or occupants of the Park. Landlord shall not be responsible to Tenant for the non-performance by any other tenant or occupant of the Park of any of Landlord's directions, rules and regulations, but agrees that any enforcement thereof shall be done uniformly. Tenant shall not use the Leased Premises, nor allow the Leased Premises to be used, for any purpose or in any manner that would (i) invalidate any policy of insurance now or hereafter carried by Landlord on the Building made known to Tenant, or (ii) increase the rate of premiums payable on any such insurance policy made known to Tenant, unless Tenant reimburses Landlord for any increase in premium charged. Landlord hereby represents and warrants that Tenant's current intended use for laboratory diagnostic testing using DNA sequencing does not violate the preceding conditions.

Section 5.03. Landlord's Rights Regarding Use. Without limiting any of Landlord's rights specified elsewhere in this Lease (but without modifying Landlord's obligations to maintain and operate the Common Areas and construct, maintain and operate the Additional Improvements in accordance with the other provisions of this Lease) (a) Landlord shall have the right at any time, without notice to Tenant, to control, change or otherwise alter the Common

Areas in such manner as it deems necessary or proper, and (b) Landlord, its agents, employees and contractors and any mortgagee of the Building shall have the right to enter any part of the Leased Premises, at reasonable times upon at least five (5) business day's prior notice (except in the event of an emergency or to perform emergency or immediate repair and maintenance that Landlord is required to perform under this Lease, in which case no notice shall be required), for the purposes of examining or inspecting the same, showing the same to prospective purchasers, mortgagees or tenants (in the latter case, only during the last eighteen (18) months of the Lease Term), and making such repairs, alterations or improvements to the Leased Premises or the Building as Landlord may deem necessary or desirable. All such access by Landlord or any other party pursuant to the preceding sentence shall be subject to Landlord or such party abiding by Tenant's security requirements and procedures, and except in the case of emergency Landlord or such party must be accompanied by a representative of Tenant; provided that if Tenant does not make a representative available for a properly noticed access by Landlord (or waive such requirement) then Landlord may proceed to enter without such accompaniment. In the absence of negligence or willful misconduct Landlord shall incur no liability to Tenant for such entry, nor shall such entry constitute an eviction of Tenant or a termination of this Lease or entitle Tenant to any abatement of rent therefor. In addition, Landlord has the right at any time to change the name, number or designation by which the Building is commonly known, provided that Landlord shall pay Tenant's reasonable, actual costs and expenses (not to exceed $2,500) incurred as a result of any such change by Landlord. Landlord shall use reasonable efforts to minimize interference with Tenant's use and occupancy of the Leased Premises during the making of such repairs, alterations or improvements provided that Landlord shall have no obligation to employ contractors or labor at overtime or other premium pay rates or to incur any other overtime costs or additional expenses whatsoever.

ARTICLE 6 - UTILITIES AND OTHER BUILDING SERVICES

Section 6.01. Services to be Provided. Landlord shall furnish to Tenant, except as noted below, the following utilities and other services to the extent reasonably necessary for Tenant's use of the Leased Premises for the Permitted Use, or as may be required by law or directed by governmental authority:

(a) Water in the Common Areas for lavatory and drinking purposes (with Tenant being responsible to install and connect a separate water line to the Building, to be separately metered);

(b) Washing of exterior windows at intervals reasonably established by Landlord, to be no less frequent that two (2) times per year;

(c) Maintenance of the Common Areas, including the regular removal of rubbish, graffiti, dead or diseased plants, and ice and snow (the latter to include preparation of surfaces prior to the ice/snow event, and prompt and regular removal of ice and snow from driveways, parking lots and walkways to insure safe and reasonable access to the Building and use of the driveways, parking lots and walkways by Tenant and its employees and invitees).

Section 6.02. Additional Services. If Tenant requests utilities or building services in addition to those identified above, or if Tenant uses any of the above utilities or services in

frequency, scope, quality or quantity substantially greater than that which Landlord determines is normally required by other tenants in the Building, then Landlord shall use reasonable efforts to attempt to furnish Tenant with such additional utilities or services. In the event Landlord is able to and does furnish such additional utilities or services, the costs thereof (which shall be deemed to mean the cost that Tenant would have incurred had Tenant contracted directly with the utility company or service provider) shall be borne by Tenant, who shall reimburse Landlord monthly for the same as Additional Rent. Landlord shall also have the right to submeter or separately meter the Leased Premises at Tenant's sole cost, and Tenant shall pay such utilities based on the submeter or separate meter.

Section 6.03. Use of Electrical Services by Tenant. Tenant acknowledges that electrical services provided to the Leased Premises are separately metered and will not be included in Operating Expenses. Tenant shall separately contract with Duke Energy to provide electrical service to the Leased Premises, and Tenant shall pay all cost of electricity supplied to the Leased Premises prior to delinquency.

Section 6.04. Interruption of Services. Tenant acknowledges and agrees that any one or more of the utilities or other services identified in Sections 6.01 or 6.02 or otherwise hereunder may be interrupted by reason of accident, emergency or other causes beyond Landlord's control, or may be discontinued or diminished temporarily by Landlord or other persons until certain repairs, alterations or improvements can be made. Landlord shall not be liable in damages or otherwise for any failure or interruption of any utility or service and no such failure or interruption shall entitle Tenant to terminate this Lease or withhold sums due hereunder. Notwithstanding the foregoing to the contrary, if (A) there is an interruption or stoppage of any of utility services provided to the Leased Premises which is caused by the gross negligence or willful misconduct of Landlord or its contractors, employees or agents, and (B) such interruption or stoppage materially, adversely interferes with Tenant's use of the Leased Premises (or a portion thereof) as contemplated herein for a continuous period in excess of two (2) calendar days after Tenant delivers written notice of such event or occurrence to Landlord (or Landlord otherwise becomes aware of such material interruption) (and to each Mortgagee for which notice addresses have been provided to Tenant), and (C) Tenant actually does not use the affected portion or all, as the case may be, of the Leased Premises for the operation of Tenant's business therein for a continuous period in excess of such two (2) calendar days (other than to stabilize or shut down ongoing laboratory procedures), then, during the period of time that the condition continues beyond such second (2nd) calendar day, Tenant shall be entitled to an equitable abatement of Rent for the affected portion or all (as the case may be) of the Leased Premises for which such utilities are interrupted and which Tenant actually does not use for the operation of Tenant's business. Such Rent abatement shall cease immediately upon the earlier to occur of (i) the restoration of such service(s) or the restoration of such service(s) to a degree and extent sufficient to remove the material, adverse interference with Tenant's use of the Leased Premises as contemplated herein or (ii) Tenant's recommencement of use of the Leased Premises (or the relevant portion thereof) for the operation of Tenant's business therein.

ARTICLE 7 - REPAIRS, MAINTENANCE AND ALTERATIONS

Section 7.01. Repair and Maintenance of Building and Common Areas. Except as set forth in Section 7.02, and in accordance with the standards set forth in Section 5.03, Landlord shall make all necessary repairs and replacements to the roof, exterior walls, exterior doors, and exterior windows of the Building and the Common Areas owned by Landlord and all utility, electrical, and plumbing and irrigation lines and air conditioning and heating systems serving such Common Areas. Without limiting the foregoing, during the Lease Term Landlord shall operate, manage and maintain the portions of the Common Areas owned by Landlord in a "Class A" manner, which shall include neat, clean, orderly and operable conditions, properly lighted and landscaped (where applicable), in compliance with Applicable Law, and free from any Hazardous Substances in violation of Applicable Law. Landlord shall not make (nor allow any POA to make) any changes, alterations, reconfigurations, reductions or modifications to the Common Area or the Building which would materially or unreasonably interfere with Tenant's use and enjoyment of the Leased Premises, Tenant's access to or view from the Leased Premises, the visibility of Tenant's exterior signage, or any other material rights Tenant has under this Lease. Any construction work performed by Landlord shall be done in a manner which causes the least amount of interference to Tenant's use of the Leased Premises and the Common Area as is reasonably possible. The cost of such repairs, replacements and maintenance shall be included in Operating Expenses to the extent provided in Section 3.02; provided however, to the extent any such repairs, replacements or maintenance are required because of the negligence, misuse or Default of Tenant, its employees, agents, contractors, customers or invitees, or are made at the specific request of Tenant, Landlord shall make such repairs at Tenant's sole expense, in which case Tenant shall reimburse Landlord for all costs and expenses incurred by Landlord in making such repair as Additional Rent within thirty (30) days of Landlord's written demand together with delivery of applicable invoices therefor.

Section 7.02. Repair and Maintenance of Leased Premises. Tenant shall keep and maintain the Leased Premises in good condition and repair, including providing routine janitorial services consistent with other first-class research and development facilities located within the RTP, other than with respect to repairs that are Landlord's responsibility pursuant to Section 7.01. If Tenant fails to perform such repair and maintenance obligations, Landlord shall make such repairs or perform such maintenance at Tenant's sole expense, in which case Tenant shall reimburse Landlord for all costs and expenses incurred by Landlord in making such repairs or performing such maintenance as Additional Rent within thirty (30) days of Landlord's delivery of applicable invoices therefor, together with underlying supporting invoices and documentation. Tenant's repair and maintenance obligations include, without limitation, repairs and maintenance to: (a) floor coverings; (b) interior partitions; (c) interior doors; (d) the interior side of demising walls; (e) electronic, fiber, phone and data cabling and related; (f) all heating and air conditioning systems, exhaust systems and life safety systems (including all fire sprinkler/suppression systems, annunciators/horns/strobes, emergency communication boosters, fire extinguishers, fire panels and associated equipment) serving the Leased Premises; (g) all plumbing (including back flow inspections and annual certifications) and electrical lines located within the interior walls and above the floor structures, equipment and fixtures within the Leased Premises; (h) all alterations performed by Tenant; (i) all installations and equipment located

within the Outside Supporting Equipment Areas (as defined in Section 16.21); (j) all Roof Equipment; and (k) all lighting and lighting fixtures and equipment. Tenant shall contract for any pay for collection and disposal of trash and refuse generated by operations at the Leased Premises, including all costs associated with installing and maintaining any dumpsters and compactors installed from time to time within the Outside Supporting Equipment Area. Tenant shall be solely responsible for any repair or replacement with respect to Tenant's Property located in the Leased Premises, the Building, the Outside Supporting Equipment Areas or the Common Areas. Nothing in this Article 7 shall obligate Landlord or Tenant to repair normal wear and tear to any paint, wall covering or carpet in the Leased Premises. Tenant shall have full control over heating and air condition systems serving the Leased Premises. Tenant's duty to maintain the heating and air conditioning systems serving the Leased Premises shall specifically include the duty to inspect the system, to replace filters as recommended and to perform other recommended periodic servicing; provided, in the event repairs or replacements to the heating and air conditioning systems serving the Building are required during the last two (2) years of the Lease Term, and such repairs or replacements are properly classified as capital improvements under GAAP, then upon the expiration of the Lease Term, Landlord will reimburse Tenant for the unamortized cost of such capital repairs or replacements, based on the estimated remaining useful life of same (such amortization calculated based on the date such repairs or replacements are completed through the estimated useful life), unless such replacement is due to the acts of Tenant or Tenant's failure to perform ordinary course maintenance on the same. Tenant shall obtain and maintain at all times a service contract with an independent maintenance contractor reasonably satisfactory to Landlord to provide such service for the heating and air conditioning system and for the life safety system. The service contract must include all services required by the applicable equipment manufacturer(s) in the operation and maintenance manual(s) and must become effective on the Commencement Date. If any repairs required to be made by Tenant hereunder are not made (or commenced) within thirty (30) days after written notice delivered to Tenant by Landlord (provided no advance written notice shall be required in cases of emergency), Landlord may, at its option, make such repairs without liability to Tenant, and Tenant shall pay to Landlord immediately upon demand, as additional rental hereunder, the cost of such repairs plus ten percent (10%) of the amount thereof.

Section 7.03. Alterations. Except for the initial Tenant Improvements and Non-Material Alterations (as defined below), Tenant shall not make alterations in or to the Leased Premises unless and until Landlord has approved the plans therefor and the general contractor that will be engaged by Tenant to perform such alterations. Landlord shall notify Tenant of its approval or disapproval of Tenant's alterations within ten (10) business days after notice from Tenant specifying the proposed alteration and delivery of plans and specifications detailing same. Landlord shall not unreasonably withhold, delay, or condition approval for any alterations, additions, or improvements in or to the Leased Premises or Building. As a condition of such approval (and at the time of such approval), Landlord may require Tenant to remove the alterations and restore the Leased Premises upon termination of this Lease; otherwise, all such alterations shall at Landlord's option become a part of the realty and the property of Landlord at the expiration or earlier termination of this Lease, and shall not be removed by Tenant. For purposes of clarification, Tenant will not be required to remove (i) the initial Tenant Improvements, (ii) alterations for which Landlord did not notify Tenant of the removal

requirement at the time of Landlord's approval, and (iii) any Alterations for which Landlord gives a removal notice less than thirty (30) days before the termination of this Lease. Tenant shall ensure that all alterations shall be made in accordance with all Applicable Laws in a good and workmanlike manner and of quality equal to or better than the original construction of the Building; provided Landlord's approval of such plans shall not be deemed a representation by Landlord that same comply with Applicable Laws. No person shall be entitled to any lien derived through or under Tenant for any labor or material furnished to the Leased Premises, and nothing in this Lease shall be construed to constitute Landlord's consent to the creation of any lien. If any lien is filed against the Leased Premises for work claimed to have been done for or materials claimed to have been furnished to Tenant, Tenant shall cause such lien to be discharged of record or bonded against within thirty (30) days after filing. Tenant shall indemnify Landlord from all costs, losses, expenses and attorneys' fees in connection with any construction or alteration and any related lien. Notwithstanding the foregoing, Tenant shall be required to give prior written notice to Landlord, but Tenant shall not be required to obtain Landlord's consent, for alterations to the Leased Premises totaling less than $250,000.00 individually or $750,000.00 in the aggregate over any twenty-four (24) month period, provided such alterations (i) are non- structural in nature, (ii) do not materially affect any of the Building systems (including, without limitation, the heating and air conditioning and plumbing systems), and (iii) do not affect the exterior or aesthetics of the Building (the foregoing being "***Non-Material Alterations***"). Tenant shall not be required to obtain Landlord's prior approval, to use a specific contractor, or to furnish performance bonds or completion guaranties for Non-Material Alterations; provided, Landlord reserves the right to require that Tenant remove any Non-Material Alterations upon the expiration or earlier termination of this Lease and restore any resulting damage to the Building, upon written notice to Tenant at least one hundred eighty (180) days prior to the end of the Lease Term.

ARTICLE 8 - INDEMNITY AND INSURANCE

Section 8.01. Release. All of Tenant's trade fixtures, merchandise, inventory, special fire protection equipment, telecommunication and computer equipment, supplemental air conditioning equipment, kitchen equipment, all partitions, hardware, built-in machinery and all other personal property in or about the Leased Premises, the Building or the Common Areas, which is deemed to include the trade fixtures, merchandise, inventory and personal property of others located in or about the Leased Premises or Common Areas at the invitation, direction or acquiescence (express or implied) of Tenant, all Roof Equipment and all equipment and fixtures located within the Outside Supporting Systems Area (all of which property shall be referred to herein, collectively, as "***Tenant's Property***"), shall be and remain at Tenant's sole risk. Landlord shall not be liable to Tenant or to any other person for, and Tenant hereby releases Landlord (and its affiliates, property managers and mortgagees) from, (a) any and all liability for theft or damage to Tenant's Property, and (b) any and all liability for any injury to Tenant or its employees, agents, contractors, guests and invitees in or about the Leased Premises, the Building or the Common Areas, except to the extent of personal injury caused by the negligence or willful misconduct of Landlord, its agents, employees or contractors. Nothing contained in this Section 8.01 shall limit (or be deemed to limit) the waivers contained in Section 8.06 below. In the event of any conflict between the provisions of Section 8.06 below and this Section 8.01, the

provisions of Section 8.06 shall prevail. This Section 8.01 shall survive the expiration or earlier termination of this Lease.

Section 8.02. Indemnification by Tenant. Tenant shall protect, defend, indemnify and hold Landlord, its trustees, members, principals, beneficiaries, partners, officers, shareholders, directors, agents, employees, licensees, invitees, representatives, property managers, mortgagees and contractors (collectively, "***Landlord Related Parties***") of all tiers harmless from and against any and all claims, damages, demands, penalties, costs, liabilities, losses, and expenses (including reasonable attorneys' fees and expenses at the trial and appellate levels) to the extent (a) arising out of or relating to any act, omission, negligence, or willful misconduct of Tenant or Tenant's agents, employees, contractors, customers or invitees in or about the Leased Premises, the Building or the Common Areas, (b) arising out of or relating to any of Tenant's Property, or arising out of any other act or occurrence within the Leased Premises, in all such cases except to the extent of personal injury caused by the negligence or willful misconduct of Landlord, its agents, employees or contractors. Nothing contained in this Section 8.02 shall limit (or be deemed to limit) the waivers contained in Section 8.06 below or the indemnities in Section 15.04 below. In the event of any conflict between the provisions of Section 8.06 below and this Section 8.02, the provisions of Section 8.06 shall prevail. This Section 8.02 shall survive the expiration or earlier termination of this Lease.

Section 8.03. Indemnification by Landlord. Landlord shall protect, defend, indemnify and hold Tenant, its agents, employees, licensees, invitees, representatives, and contractors of all tiers harmless from and against any and all claims, damages, demands, penalties, costs, liabilities, losses and expenses (including reasonable attorneys' fees and expenses at the trial and appellate levels) to the extent arising out of or relating to any negligence or willful misconduct of Landlord or Landlord's agents, employees or contractors. Nothing contained in this Section 8.03 shall limit (or be deemed to limit) the waivers contained in Section 8.06 below. In the event of any conflict between the provisions of Section 8.06 below and this Section 8.03, the provisions of Section 8.06 shall prevail. This Section 8.03 shall survive the expiration or earlier termination of this Lease.

Section 8.04. Tenant's Insurance.

(a) During the Lease Term (and any period of early entry or occupancy or holding over by Tenant, if applicable), Tenant shall maintain the following types of insurance, in the amounts specified below:

(i) Liability Insurance. Commercial General Liability Insurance, ISO Form CG 00 01, or its equivalent, covering Tenant's use of the Leased Premises against claims for bodily injury or death or property damage, which insurance shall be primary and non- contributory and shall provide coverage on an occurrence basis with a per occurrence limit of not less than $5,000,000 for each policy year, which limit may be satisfied by any combination of primary and excess or umbrella per occurrence policies.

(ii) Property Insurance. Special Form Insurance in the amount of the full replacement cost of Tenant's Property (including, without limitation, alterations or additions performed by Tenant pursuant hereto, but excluding those improvements, if

any, made pursuant to Section 2.02 above), which insurance shall waive coinsurance limitations.

(iii) Worker's Compensation Insurance. Worker's Compensation insurance in amounts required by Applicable Law; provided, if there is no statutory requirement for Tenant, Tenant shall still obtain Worker's Compensation insurance coverage.

(iv) Business Interruption Insurance. Business Interruption Insurance with limits not less than an amount equal to one (1) year's Minimum Annual Rent hereunder.

(v) Automobile Insurance. Comprehensive Automobile Liability Insurance insuring bodily injury and property damage arising from all owned, non-owned and hired vehicles, if any, with minimum limits of liability of $1,000,000 combined single limit, per accident.

(b) All insurance required to be carried by Tenant hereunder shall (i) be issued by one or more insurance companies licensed to do business in the State of North Carolina and having an AM Best's rating of A-IX or better, and (ii) provide that said insurance shall not be materially changed or permitted to lapse on less than ten (10) days' prior written notice to Landlord, and the insurance carriers will endeavor to provide ten (10) days' notice of cancellation or non-renewal. In addition, Tenant shall name Landlord, Landlord's managing agent, and any mortgagee requested by Landlord, as additional insureds under its commercial general liability, excess and umbrella policies (but only to the extent of the limits required hereunder). On or before the Commencement Date (or the date of any earlier entry or occupancy by Tenant), and thereafter, within a reasonable time after the expiration of each such policy, Tenant shall furnish Landlord with certificates of insurance in the form of ACORD 25 (or other evidence of insurance reasonably acceptable to Landlord), evidencing all required coverages, and that with the exception of Worker's Compensation insurance, such insurance is primary and non-contributory. If Tenant fails to carry such insurance and furnish Landlord with such certificates of insurance, Landlord may obtain such insurance on Tenant's behalf and Tenant shall reimburse Landlord upon demand for the cost thereof as Additional Rent. Landlord reserves the right from time to time to require Tenant to obtain higher minimum amounts or different types of insurance if it becomes customary for other landlords of similar buildings in the area to require similar sized tenants in similar businesses to carry insurance of such higher minimum amounts or of such different types.

Section 8.05. Landlord's Insurance. During the Lease Term, Landlord shall maintain the following types of insurance, in the amounts specified below (the cost of which shall be included in Operating Expenses):

(a) Liability Insurance. Commercial General Liability Insurance, ISO Form CG 00 01, or its equivalent, covering the Common Areas against claims for bodily injury or death and property damage, which insurance shall be primary and non-contributory and shall provide coverage on an occurrence basis with a per occurrence limit of not less than $5,000,000 for each policy year, which limit may be satisfied by any combination of primary and excess or umbrella per occurrence policies.

(b) Property Insurance. Special Form Insurance in the amount of the full replacement cost of the Building, including, without limitation, any improvements, if any, made pursuant to Section 2.02 above, but excluding Tenant's Property and any other items required to be insured by Tenant pursuant to Section 8.04 above.

Section 8.06. Waiver of Subrogation. Notwithstanding anything contained in this Lease to the contrary, Landlord (and its affiliates, property managers and mortgagees) and Tenant (and its affiliates) hereby waive any rights each may have against the other on account of any loss of or damage to their respective property, the Leased Premises, its contents, or other portions of the Building or Common Areas arising from any risk which is required to be insured against by Sections 8.04(a)(ii), 8.04(a)(iii), and 8.05(b) above. The special form property insurance policies and worker's compensation insurance policies maintained by Landlord and Tenant as provided in this Lease shall include an endorsement containing an express waiver of any rights of subrogation by the insurance company against Landlord and Tenant, as applicable.

ARTICLE 9 - CASUALTY

Section 9.01. Notice of Casualty. Tenant shall give prompt notice to Landlord if all or any portion of the Leased Premises becomes damaged by fire or other casualty to the Leased Premises (collectively a "***Casualty***"). Landlord shall, within sixty (60) days after the occurrence of any Casualty, notify Tenant of the estimated amount of time it will take to repair the applicable damage, as jointly determined by Landlord's architect and a general contractor unaffiliated with Landlord and experienced in the construction and restoration of buildings such as the Building (the "***Repair Notice***"). In the event of such Casualty which materially damages all or a significant portion of the Leased Premises or otherwise renders all or a significant portion of the Leased Premises untenantable (a "***Material Casualty***"), Landlord, by notice to Tenant within thirty (30) days after the date of such Material Casualty, shall have the right to terminate this Lease if: (1) there is less than two (2) years of the Lease Term remaining on the date of the Material Casualty; (2) any mortgagee requires that all or the material portion of the insurance proceeds be applied to the payment of the mortgage debt; (3) a material loss to the Building or Leased Premises occurs from a cause not actually insured against and not required to be insured against pursuant to the Lease; or (4) the Repair Notice states that the reconstruction or restoration of the Building is reasonably anticipated to take longer than two hundred seventy (270) days following such Material Casualty. If this Lease is so terminated, (a) the Lease Term shall expire upon the date set forth in Landlord's termination notice, which shall not be less than thirty (30) days after such notice is given, and Tenant shall vacate the Leased Premises and surrender the same to Landlord no later than the date set forth in the notice, (b) Tenant's liability for rent shall cease as of the date of the Material Casualty, (c) any prepaid rental amounts for any period after the date of the Material Casualty shall be refunded by Landlord to Tenant, and (d) Landlord shall be entitled to collect all insurance proceeds of policies held by Landlord or Tenant providing coverage for alterations and other improvements to the Leased Premises (provided that for purposes of clarification Tenant shall not be responsible for paying or crediting to Landlord any deductibles applicable to Tenant's insurance policies). Landlord shall retain such proceeds from Tenant's insurance only to the extent that Landlord performed or paid for covered alterations and improvements, whether by contribution, offset or otherwise, and the balance of such proceeds, if any, shall be paid to Tenant.

Section 9.02. Restoration. If this Lease is not terminated, Landlord shall promptly and diligently, subject to reasonable delays for insurance adjustment or other matters beyond Landlord's reasonable control, restore the Building, Leased Premises and Common Areas. Such restoration shall be to substantially the same condition that existed prior to the Casualty, except for modifications required by Applicable Laws or any other modifications to the Common Areas deemed desirable by Landlord (provided, such Common Areas shall be of a materially consistent utility and functionality as same existed prior to such Casualty). Upon notice from Landlord, Tenant shall assign or endorse over to Landlord (or to any party designated by Landlord) all property insurance proceeds payable to Tenant under Tenant's insurance with respect to any alterations or improvements performed by or for the benefit of Tenant (provided that for purposes of clarification Tenant shall not be responsible for paying or crediting to Landlord any deductibles applicable to Tenant's insurance policies); provided if the estimated cost to repair such Tenant alterations or improvements exceeds the amount of insurance proceeds received by Landlord from Landlord's and Tenant's insurance carriers, the excess cost of such repairs shall be paid by Tenant to Landlord prior to Landlord's commencement of repairs. Within thirty (30) days of written demand, together with supporting documentation, Tenant shall also pay Landlord for any additional excess costs that are reasonably incurred during the performance of the repairs. In no event shall Landlord be required to spend more for the restoration than the proceeds received by Landlord, other than with respect to deductibles under Landlord's insurance policies. Except as otherwise set forth in this Lease, Landlord shall not be liable for any inconvenience or annoyance to Tenant or injury to the business of Tenant occasioned by damage by fire or other casualty or the repair thereof. Landlord will not carry insurance of any kind on Tenant's Property and shall not be obligated to restore or repair any damage to Tenant's Property except to the extent that Landlord receives Tenant's insurance proceeds as set forth above. Provided that Tenant is not then in Default beyond any applicable notice and cure periods, during any period of time that all or a material portion of the Leased Premises is rendered untenantable as a result of a Casualty, rent shall abate for the portion of the Leased Premises that is untenantable and not used by Tenant. Notwithstanding the foregoing, Landlord shall be liable for all excess costs if Landlord did not carry insurance it was required to under this Lease.

Section 9.03. Additional Termination Rights. In addition to Landlord's rights under Section 9.01, in the event of a Material Casualty, if (a) the Repair Notice states that the reconstruction or restoration of the Building is reasonable estimated to take longer than two hundred seventy (270) days of such Material Casualty, or (b) Landlord fails to repair the Leased Premises to substantially the same condition as immediately prior to such Casualty within two hundred seventy (270) days of such Casualty, then, in either circumstance, Tenant may, not later than thirty (30) days after receipt of the Repair Notice (under clause (a)) or the expiration of such 270-day period (but before Landlord's completion of repairs (under clause (b))), terminate this Lease by written notice to Landlord. If this Lease is so terminated, (a) the Lease Term shall expire upon the date set forth in Tenant's notice, which shall not be earlier than thirty (30) days following the date of Tenant's notice (nor more than sixty (60) days after such notice), and Tenant shall promptly vacate the Leased Premises and surrender the same to Landlord, (b) Tenant's liability for rent shall cease as of the date of the Casualty, (c) any prepaid rent for any period after the date of the damage shall be refunded by Landlord to Tenant, and (d) Landlord

shall be entitled to collect all insurance proceeds of policies held by Landlord or Tenant providing coverage for alterations and other improvements to the Leased Premises.

ARTICLE 10 - EMINENT DOMAIN

If all or any substantial part of the Building or Common Areas shall be acquired by the exercise of eminent domain, Landlord may terminate this Lease by giving written notice to Tenant on or before the date possession thereof is so taken. If all or any part of the Leased Premises shall be acquired by the exercise of eminent domain so that the Leased Premises shall become impractical for Tenant to use for the Permitted Use, Tenant may terminate this Lease by giving written notice to Landlord (to be effective as of the date possession thereof is so taken). All damages awarded shall belong to Landlord; provided, however, that Tenant may assert a separate claim for dislocation damages if such amount is not subtracted from Landlord's award.

ARTICLE 11 - ASSIGNMENT AND SUBLEASE

Section 11.01. Assignment and Sublease.

(a) Tenant shall not assign this Lease or sublet the Leased Premises in whole or in part without Landlord's prior written consent, not to be unreasonably withheld, conditioned or delayed. In the event of any permitted assignment or subletting, Tenant shall remain primarily liable hereunder, and any extension, expansion, rights of first offer, rights of first refusal or other options granted to Tenant under this Lease shall be rendered void and of no further force or effect. The acceptance of rent from any other person shall not be deemed to be a waiver of any of the provisions of this Lease or to be a consent to the assignment of this Lease or the subletting of the Leased Premises. Any assignment or sublease consented to by Landlord shall not relieve Tenant (or its assignee) from obtaining Landlord's consent to any subsequent assignment or sublease. Tenant shall provide Landlord with at least thirty (30) days' prior notice of Tenant's intent to market all or a portion of the Leased Premises for assignment or sublease to third parties.

(b) By way of example and not limitation, Landlord shall be deemed to have reasonably withheld consent to a proposed assignment or sublease if in Landlord's opinion (i) the Leased Premises are or with the consummation of the proposed assignment or sublease would be reasonably likely to be adversely affected; (ii) the business reputation of the proposed assignee or subtenant is unacceptable, or (iii) the financial condition of the proposed assignee or subtenant is insufficient, in Landlord's commercially reasonable judgment, to meet its obligations hereunder. Landlord shall deny or give its consent to any proposed assignment or subletting within five (5) business days after receiving a request to consent, and if Landlord denies such request then it shall provide Tenant with a detailed reason therefor. If Landlord has not responded to Tenant's request within five (5) business days of delivery of a final execution-ready assignment or sublease document, together with the materials necessary to satisfy the consent requirements (if any) set forth in this Lease, then Tenant shall be entitled to send Landlord a second (2nd) notice containing the following statement in **bold and CAPITAL** letters "**THIS NOTICE IS BEING SENT PURSUANT TO ARTICLE 11 OF THE LEASE. LANDLORD HAS FAILED TO RESPOND TO TENANT'S REQUEST FOR APPROVAL OF AN ASSIGNMENT OR SUBLEASE TRANSACTION, AND IF LANDLORD FAILS TO RESPOND WITHIN**

TWO (2) BUSINESS DAYS FOLLOWING DELIVERY OF THIS NOTICE, LANDLORD SHALL BE DEEMED TO HAVE APPROVED TENANT'S PROPOSED ASSIGNMENT OR SUBLEASE TRANSACTION," then Landlord shall be deemed to have approved the proposed transaction consistent with Tenant's request.

(c) If Tenant shall make any assignment or sublease, with Landlord's consent, for a rental in excess of the rent payable under this Lease, then after reimbursement to Tenant of Tenant's expenses related to such assignment or sublease, Tenant shall pay to Landlord fifty percent (50%) of any such excess rental within three (3) business days of receipt. Tenant agrees to pay Landlord $1,500.00 within thirty (30) days of written demand by Landlord for reasonable accounting and attorneys' fees incurred in conjunction with the processing and documentation of any requested assignment, subletting or any other hypothecation of this Lease or Tenant's interest in and to the Leased Premises as consideration for Landlord's consent.

Section 11.02. Permitted Transfer. Notwithstanding anything to the contrary contained in Section 11.01 above, Tenant shall have the right, without Landlord's consent, but upon ten (10) days prior notice to Landlord, to (a) sublet all or part of the Leased Premises to any related corporation or other entity which controls Tenant, is controlled by Tenant or is under common control with Tenant; (b) assign all or any part of this Lease to any related corporation or other entity which controls Tenant, is controlled by Tenant, or is under common control with Tenant, or to a successor entity into which or with which Tenant is merged or consolidated or which acquires substantially all of Tenant's assets or property; or (c) effectuate any public offering of Tenant's stock; provided that in the event of a transfer pursuant to clause (b), the tangible net worth after any such transaction is not less than the tangible net worth of Tenant as of the date hereof and provided further that such successor entity assumes all of the obligations and liabilities of Tenant (any such entity is hereinafter referred to as a "***Permitted Transferee***"; and any transfer to a Permitted Transferee is hereinafter referred to as a "***Permitted Transfer***"). For the purpose of this Article 11 (i) "control" shall mean ownership of not less than fifty percent (50%) of all voting stock or legal and equitable interest in such corporation or entity, and (ii) "tangible net worth" shall mean the excess of the value of tangible assets (*i.e.*, assets excluding those which are intangible such as goodwill, patents and trademarks) over liabilities. Any such transfer shall not relieve Tenant of its obligations under this Lease. Nothing in this paragraph is intended to nor shall permit Tenant to transfer its interest under this Lease as part of a fraud or subterfuge to intentionally avoid its obligations under this Lease (for example, transferring its interest to a shell corporation that subsequently files a bankruptcy), and any such transfer shall constitute a Default hereunder. A change in control of Tenant resulting from a merger, consolidation, or a transfer of partnership or membership interests, a stock transfer, or any sale of substantially all of the assets of Tenant shall be deemed a Permitted Transfer if the tangible net worth of Tenant after any such transaction is not less than the tangible net worth of Tenant as of the date hereof. Any change of control of Tenant that does not meet the requirements in the preceding sentence shall be deemed an assignment or transfer that requires Landlord's prior written consent pursuant to Section 11.01 above. For purposes of clarification, nothing in this Article 11 restricts Tenant's ability to conduct an IPO, nor shall Landlord have any consent rights with respect thereto.

Section 11.03. Brownfields Notification. In the event Landlord enters into a Brownfields Agreement that encumbers the Leased Premises in accordance with Section 15.06, any sublease or assignment of this Lease by Tenant (each, a "***Transfer Document***") shall contain the following notice: "The property which is the subject of this instrument is subject to the Brownfields Agreement attached as Exhibit A to the Notice of Brownfields Property recorded in the Durham County, North Carolina land records." A copy of the final, executed Transfer Document shall be promptly sent to Landlord and to DEQ's representative as stated in the applicable provisions of the Brownfields Agreement; however, all financial figures may be redacted from DEQ's copy of such instrument.

ARTICLE 12 - TRANSFERS BY LANDLORD

Section 12.01. Sale of the Building. Landlord shall have the right to sell the Building at any time during the Lease Term, subject only to the rights of Tenant hereunder; and such sale shall operate to release Landlord from liability hereunder after the date of such conveyance.

Section 12.02. Estoppel Certificate. Within ten (10) business days following receipt of a written request from Landlord, Tenant shall execute and deliver to Landlord, without cost to Landlord, an estoppel certificate in such form as Landlord may reasonably request certifying (a) that this Lease is in full force and effect and unmodified or stating the nature of any modification, (b) the date to which rent has been paid, (c) that there are not, to Tenant's knowledge, any uncured defaults or specifying such defaults if any are claimed, and (d) any other matters or state of facts reasonably required respecting the Lease. Such estoppel may be relied upon by Landlord and by any purchaser or mortgagee of the Building. Except in the instance of a Default by Tenant, a sale of the Building (or ten percent (10%) or more of any direct or indirect interest therein) or a financing or refinancing of the Building, Landlord shall not request an estoppel certificate from Tenant more than twice in any twelve (12) month period.

Section 12.03. Subordination. This Lease is and shall be expressly subject and subordinate at all times to the lien of any present or future mortgage or deed of trust encumbering fee title to the Leased Premises. If any such mortgage or deed of trust be foreclosed, upon request of the mortgagee or beneficiary, as the case may be, Tenant will attorn to the purchaser at the foreclosure sale. The foregoing provisions are declared to be self- operative and no further instruments shall be required to effect such subordination and/or attornment; provided, however, that subordination of this Lease to any present or future mortgage or trust deed shall be conditioned upon the mortgagee, beneficiary, or purchaser at foreclosure, as the case may be, agreeing that Tenant's occupancy of the Leased Premises and other rights under this Lease shall not be disturbed by reason of the foreclosure of such mortgage or trust deed, as the case may be, so long as Tenant is not in Default under this Lease. Within ten business days following receipt of a written request from Landlord, Tenant shall execute and deliver to Landlord, without cost, any customary instrument reasonably acceptable to Tenant that Landlord deems reasonably necessary or desirable to confirm the subordination of this Lease. Prior to or promptly following the execution of this Lease, Landlord shall use commercially reasonable efforts to cause the current mortgagee relative to the Leased Premises to execute and deliver a subordination, non-disturbance and attornment agreement in a form acceptable to Tenant in its commercially reasonable discretion, and upon the agreement as to such form it shall

be attached hereto as **Exhibit F** (the "***SNDA***"); provided, however, Tenant shall be responsible, at Tenant's expense, for recording such SNDA in the appropriate real estate records (unless Landlord's lender requires recordation (in which case the expense of recording shall be a Landlord expense)) and, if requested by Landlord, terminating such SNDA of record upon the expiration or earlier termination of this Lease; and provided, further, that if Landlord, Tenant, and Landlord's lender are unable to agree on an SNDA form after good faith negotiations, it shall not be a default by either party hereunder.

ARTICLE 13 - DEFAULT AND REMEDY

Section 13.01. Default. The occurrence of any of the following shall be a "***Default***":

(a) Tenant fails to pay any Monthly Rental Installments or Additional Rent within five (5) days after the same is due; provided, however, relative to the first (1st) failure to timely pay such sums in any twelve (12) month period, Tenant shall not be in Default if Tenant makes full payment within five (5) days after receipt of written notice of such delinquency (*i.e.*, Landlord shall not be required to provide written notice of delinquency more than one (1) time in any twelve (12) month period during the Lease Term).

(b) Tenant fails to perform or observe any other term, condition, covenant or obligation required under this Lease for a period of thirty (30) days after written notice thereof from Landlord; provided, however, that if the nature of Tenant's default is such that more than thirty (30) days are reasonably required to cure, then such default shall be deemed to have been cured if Tenant commences such performance within said thirty (30) day period and thereafter diligently completes the required action within a reasonable time.

(c) Tenant shall abandon the Leased Premises the Leased Premises for a period of thirty (30) days; provided, however, Tenant shall not be in Default under this Section 13.01(c) if Tenant provides reasonably satisfactory assurances of Tenant's financial condition and solvency within ten (10) business days after Landlord's written request for such assurances and continues to pay Rent and perform its maintenance obligations hereunder.

(d) Tenant shall assign or sublet all or a portion of the Leased Premises in contravention of the provisions of Article 11 of this Lease.

(e) All or substantially all of Tenant's assets in the Leased Premises or Tenant's interest in this Lease are attached or levied under execution (and Tenant does not discharge the same within sixty (60) days thereafter); a petition in bankruptcy, insolvency or for reorganization or arrangement is filed by or against Tenant (and Tenant fails to secure a stay or discharge thereof within sixty (60) days thereafter); Tenant is insolvent and unable to pay its debts as they become due; Tenant makes a general assignment for the benefit of creditors; Tenant takes the benefit of any insolvency action or law; the appointment of a receiver or trustee in bankruptcy for Tenant or its assets if such receivership has not been vacated or set aside within thirty (30) days thereafter; or, dissolution or other termination of Tenant's corporate charter if Tenant is a corporation.

In addition to the Defaults described above, the parties agree that if Tenant receives written notice of a violation of the performance of any (but not necessarily the same) term or condition

of this Lease three (3) or more times during any twelve (12) month period, regardless of whether such violations are ultimately cured, then such conduct shall, at Landlord's option, represent a separate Default.

Section 13.02. Remedies. Upon the occurrence and during the continuance of any Default, in accordance with Applicable Laws Landlord shall have the following rights and remedies, in addition to those stated elsewhere in this Lease and those allowed by law or in equity, any one or more of which may be exercised without further notice to Tenant:

(a) Landlord may re-enter the Leased Premises and cure any Default of Tenant, and Tenant shall reimburse Landlord as Additional Rent for any costs and expenses that Landlord thereby incurs; and Landlord shall not be liable to Tenant for any loss or damage that Tenant may sustain by reason of Landlord's action.

(b) Landlord may terminate this Lease by giving Tenant notice of termination, in which event this Lease shall expire and terminate on the date specified in such notice of termination and all rights of Tenant under this Lease and in and to the Leased Premises shall terminate. Tenant shall remain liable for all obligations under this Lease arising up to the date of such termination, and Tenant shall surrender the Leased Premises to Landlord on the date specified in such notice. Furthermore, Tenant shall be liable to Landlord for the unamortized balance of any leasehold improvement allowance and brokerage fees paid in connection with the Lease.

(c) Without terminating this Lease, Landlord may terminate Tenant's right to possession of the Leased Premises, and thereafter, neither Tenant nor any person claiming under or through Tenant shall be entitled to possession of the Leased Premises. In such event, Tenant shall immediately surrender the Leased Premises to Landlord. Upon termination of possession, Landlord may re-let all or any part of the Leased Premises as the agent of Tenant for a term different from that which would otherwise have constituted the balance of the Lease Term and for rent and on terms and conditions different from those contained herein, whereupon Tenant shall be immediately obligated to pay to Landlord an amount equal to (i) the excess, if any, discounted at the ten-year treasury rate, of the rent provided for herein less the rent provided for in any lease covering a subsequent re-letting of the Leased Premises, for the period which would otherwise have constituted the balance of the Lease Term had this Lease not been terminated (said period being referred to herein as the "***Remaining Term***"), (ii) the costs of recovering possession of the Leased Premises and all other expenses, loss or damage incurred by Landlord by reason of Tenant's Default ("***Default Damages***"), which shall include, without limitation, expenses of preparing the Leased Premises for re-letting, demolition, repairs, tenant finish improvements, brokers' commissions and attorneys' fees, and (iii) all unpaid Minimum Annual Rent and Additional Rent that accrued prior to the date of termination of possession, plus any interest and late fees due hereunder (the "***Prior Obligations***"). Neither the filing of any dispossessory proceeding nor an eviction of personalty in the Leased Premises shall be deemed to terminate the Lease.

(d) Landlord may terminate this Lease and recover from Tenant all damages Landlord may incur by reason of Tenant's Default, including, without limitation, an amount which, at the date of such termination is equal to the sum of the following: (i) the value of the

excess, if any, discounted at the ten-year treasury rate, of (A) the Minimum Annual Rent, Additional Rent and all other sums that would have been payable hereunder by Tenant for the Remaining Term, less (B) the aggregate reasonable rental value of the Leased Premises for the Remaining Term, as determined by a real estate broker licensed in the State of North Carolina who has at least ten (10) years of experience, (ii) all of Landlord's Default Damages, and (iii) all Prior Obligations. Landlord and Tenant acknowledge and agree that the payment of the amount set forth in clause (i) above shall not be deemed a penalty, but shall merely constitute payment of liquidated damages, it being understood that actual damages to Landlord are extremely difficult, if not impossible, to ascertain. It is expressly agreed and understood that all of Tenant's liabilities and obligations set forth in this subsection (d) shall survive termination.

(e) With or without terminating this Lease, declare immediately due and payable the sum of the following: (i) the present value, discounted at the ten-year treasury rate, of all Minimum Annual Rent and Additional Rent due and coming due under this Lease for the entire Remaining Term (as if by the terms of this Lease they were payable in advance), (ii) all Default Damages, and (iii) all Prior Obligations, whereupon Tenant shall be obligated to pay the same to Landlord; provided, however, that such payment shall not be deemed a penalty or liquidated damages, but shall merely constitute payment in advance of all Minimum Annual Rent and Additional Rent payable hereunder throughout the Remaining Term, and provided further, however, that upon Landlord receiving such payment, Tenant shall be entitled to receive from Landlord all rents received by Landlord from other assignees, tenants and subtenants on account of said Leased Premises during the Remaining Term (but only to the extent that the monies to which Tenant shall so become entitled do not exceed the entire amount actually paid by Tenant to Landlord pursuant to this subsection (e)), less all Default Damages of Landlord incurred but not yet reimbursed by Tenant.

(f) Landlord may sue for injunctive relief or to recover damages for any loss resulting from the Default.

(g) If Landlord has terminated this Lease or Tenant's right to possession, Landlord agrees to use commercially reasonable efforts to mitigate its damages, to the extent required by Applicable Laws. Subject to such Applicable Laws, Landlord shall be required to use only reasonable efforts to mitigate, which shall not exceed such efforts as Landlord generally uses to lease other space in the Building and the Park, and Landlord will not be deemed to have failed to mitigate if Landlord leases any other portions of the Building before re-letting all or any portion of the Leased Premises. Tenant shall bear the burden of proof that Landlord failed to mitigate.

Section 13.03. Landlord's Default and Tenant's Remedies. Except with respect to Landlord's obligations in Section 2.02 (for which any cure period and Tenant remedies are set forth therein), Landlord shall be in default if it fails to perform any term, condition, covenant or obligation required under this Lease for a period of thirty (30) days after written notice thereof from Tenant to Landlord; provided, however, that if the term, condition, covenant or obligation to be performed by Landlord is such that it cannot reasonably be performed within thirty (30) days, such default shall be deemed to have been cured if Landlord commences such performance within said thirty-day period and thereafter diligently undertakes to complete the same. Upon the occurrence of any such default, Tenant may sue for injunctive relief or to recover damages for

any loss directly resulting from the breach, but Tenant shall not be entitled to terminate this Lease or withhold, offset or abate any sums due hereunder. In no event, however, shall Landlord be liable to Tenant for any consequential or punitive damages.

Section 13.04. Limitation of Liability. NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS LEASE, THE LIABILITY OF LANDLORD (AND OF ANY SUCCESSOR LANDLORD) SHALL BE LIMITED TO LANDLORD'S (AND ANY SUCCESSOR TO LANDLORD) INTEREST IN THE PARK. TENANT SHALL LOOK SOLELY TO LANDLORD'S INTEREST IN THE PARK FOR THE RECOVERY OF ANY JUDGMENT OR AWARD AGAINST LANDLORD OR ANY LANDLORD RELATED PARTY. NEITHER LANDLORD NOR ANY LANDLORD RELATED PARTY SHALL BE PERSONALLY LIABLE FOR ANY JUDGMENT OR DEFICIENCY, AND IN NO EVENT SHALL LANDLORD OR ANY LANDLORD RELATED PARTY BE LIABLE TO TENANT FOR ANY LOST PROFIT, DAMAGE TO OR LOSS OF BUSINESS OR ANY FORM OF SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGE. TO THE EXTENT THAT TENANT HAS BEEN PROVIDED WITH THE NECESSARY INFORMATION, BEFORE FILING SUIT FOR AN ALLEGED DEFAULT BY LANDLORD, TENANT SHALL GIVE LANDLORD AND THE MORTGAGEE(S) WHOM TENANT HAS BEEN NOTIFIED HOLD MORTGAGES NOTICE AND REASONABLE TIME TO CURE THE ALLEGED DEFAULT, SUBJECT TO THE TERMS OF ANY SNDA EXECUTED PURSUANT TO SECTION 12.03. NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS LEASE, NEITHER TENANT NOR ITS OWNERS, OFFICERS, SHAREHOLDERS, DIRECTORS, AGENTS, EMPLOYEES, OR REPRESENTATIVES (THE "***TENANT RELATED PARTIES***") SHALL BE PERSONALLY LIABLE FOR ANY JUDGMENT OR DEFICIENCY, AND IN NO EVENT SHALL LANDLORD OR ANY TENANT RELATED PARTY BE LIABLE TO LANDLORD FOR ANY LOST PROFIT, DAMAGE TO OR LOSS OF BUSINESS OR ANY FORM OF SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGE.

Section 13.05. Nonwaiver of Defaults. Neither party's failure nor delay in exercising any of its rights or remedies or other provisions of this Lease shall constitute a waiver thereof or affect its right thereafter to exercise or enforce such right or remedy or other provision. No waiver of any default shall be deemed to be a waiver of any other default. Landlord's receipt of less than the full rent due shall not be construed to be other than a payment on account of rent then due, nor shall any statement on Tenant's check or any letter accompanying Tenant's check be deemed an accord and satisfaction. No act or omission by Landlord or its employees or agents during the Lease Term shall be deemed an acceptance of a surrender of the Leased Premises, and no agreement to accept such surrender shall be valid unless in writing and signed by Landlord.

Section 13.06. Attorneys' Fees. If either party defaults in the performance or observance of any of the terms, conditions, covenants or obligations contained in this Lease and the non- defaulting party obtains a judgment against the defaulting party, then the defaulting party agrees to reimburse the non-defaulting party for reasonable attorneys' fees incurred in connection therewith. In addition, if a monetary Default shall occur and Landlord engages outside counsel to exercise its remedies hereunder, and then Tenant cures such monetary Default, Tenant shall pay to Landlord, on demand, all expenses incurred by Landlord as a result thereof, including reasonable attorneys' fees, court costs and expenses actually incurred.

ARTICLE 14 - INTENTIONALLY DELETED

ARTICLE 15 - TENANT'S RESPONSIBILITY REGARDING ENVIRONMENTAL LAWS AND HAZARDOUS SUBSTANCES

Section 15.01. Environmental Definitions.

(a) "***Environmental Laws***" shall mean all present or future federal, state and municipal laws, ordinances, rules and regulations applicable to the environmental and ecological condition of the Leased Premises, and the rules and regulations of the Federal Environmental Protection Agency and any other federal, state or municipal agency or governmental board or entity having jurisdiction over the environmental and ecological condition of the Leased Premises.

(b) "***Hazardous Substances***" shall mean those substances included within the definitions of "hazardous substances," "hazardous materials," "toxic substances" "solid waste" or "infectious waste" under Environmental Laws and petroleum products.

Section 15.02. Restrictions on Tenant. Tenant shall not cause or permit the use, generation, release, manufacture, refining, production, processing, storage or disposal of any Hazardous Substances on, under or about the Leased Premises, or the transportation to or from the Leased Premises of any Hazardous Substances, except as necessary and appropriate for its Permitted Use in which case the use, storage or disposal of such Hazardous Substances shall be performed in compliance with the Applicable Laws (including all Environmental Laws). Notwithstanding the foregoing, it is understood that Tenant's use of the Leased Premises for operation of laboratory and research may result in the generation of "medical waste" as defined in North Carolina General Statutes ("***G.S.***") §130A-290(a)(18). Tenant's generation of medical waste shall not constitute a violation of this Lease so long as the medical waste generated by Tenant is consistent with the medical waste generated by similar laboratory and research facilities, and Tenant complies with all applicable legal requirements with respect to the collection, storage and disposal of all waste generated by Tenant, including without limitation the requirements of G.S. §130A-309.26, and the regulations issued thereunder at 15A NCAC 13B .1201-.1207, both as amended and supplemented from time to time.

Section 15.03. Notices, Affidavits, Etc. Tenant shall promptly (a) notify Landlord of (i) any violation by Tenant, its employees, agents, representatives, customers, invitees or contractors of any Environmental Laws on, under or about the Leased Premises, or (ii) the presence or suspected presence of any Hazardous Substances on, under or about the Leased Premises, and (b) deliver to Landlord a copy of any notice received by Tenant relating to (a)(i) and (a)(ii) above from any source. Tenant shall execute affidavits, representations and the like within ten (10) business days of Landlord's request therefor concerning Tenant's best knowledge and belief regarding the presence of any Hazardous Substances on, under or about the Leased Premises.

Section 15.04. Indemnification. Prior to its execution and delivery of the Lease, Tenant has obtained, at Landlord's cost, (i) a Phase I environmental report from WithersRavenel dated May 29, 2020, and (i) the results of interior air sampling by Mid-Atlantic Associates, Inc., Analytical Report No. 0520-176. Tenant shall indemnify Landlord and Landlord's managing

agent from any and all claims, losses, liabilities, costs, expenses and damages, including attorneys' fees, costs of testing and remediation costs, incurred by Landlord in connection with any breach by Tenant of its obligations under this Article 15. Landlord shall indemnify, defend and hold harmless Tenant and the Tenant Related Parties from any and all claims, losses, liabilities, costs, expenses and damages, including attorneys' fees, costs of investigation, testing and remediation costs, incurred by any of them in connection with the environmental condition of the Building and Park as of the Commencement Date and/or incurred with respect to any (i) testing, remediation or investigations associated with, or (ii) land use and operations restrictions arising from, Landlord's application for, grant of, or outcome of the Brownfields Agreement and LURs (whether known or unknown as of the Commencement Date, but excluding any claims relating to any component of the Brownfields Agreement and/or LURs that are approved in writing by Tenant), including any such conditions discovered during any investigation, remediation and removal of any Hazardous Substances required by any Brownfields Agreement or related documentation; provided, however, that the foregoing indemnity is not intended to cover any speculative lost profits or "diminution in value" claims. The covenants and obligations under this Article 15 shall survive the expiration or earlier termination of this Lease.

Section 15.05. Existing Conditions. Notwithstanding anything contained in this Article 15 to the contrary, Tenant shall not have any liability to Landlord under this Article 15 resulting from (i) any conditions existing, or events occurring, or any Hazardous Substances existing or generated, at, in, on, under or in connection with the Leased Premises prior to the Commencement Date of this Lease (or any earlier occupancy of the Leased Premises by Tenant), nor (ii) any Hazardous Substances on or about the Leased Premises or the Park which were not created or introduced to the Property by Tenant, except to the extent Tenant exacerbates the same. Landlord shall be responsible for remediating or removing any Hazardous Substances within the Building and the portions of the Park owned by Landlord that were present as of the Commencement Date, to the extent required by Environmental Laws, and for investigating, remediating and removing any Hazardous Substances identified in connection with Landlord's entry into the Brownfields Agreement and any related documentation, unless created or introduced to the Property by Tenant.

Section 15.06. Landlord's Environmental Representation. Landlord represents to Tenant that, to Landlord's current, actual knowledge, as of the date of this Lease, without further inquiry, there are no Hazardous Substances in or about the Building or the Leased Premises in violation of applicable Environmental Laws.

(a) Brownfields Property. As noted above, Tenant acknowledges that the Park (or applicable portions thereof, which may include the Building) either has been or may be (provided Landlord is successful in such efforts to achieve such classification) classified as a "Brownfields Property" under the Brownfields Act. If such efforts of Landlord are successful, Landlord shall enter into a Notice of Brownfields Property, a Brownfields Plat and a Brownfields Agreement (collectively and individually, each document referred to as the "***Brownfields Agreement***") with the North Carolina Department of Environmental Quality ("***DEQ***") pursuant to the Brownfields Act, and such documents shall be recorded in the Registry. The Brownfields Agreement will place obligations on Landlord and future owners and users with respect to the Park and will place land use restrictions ("***LURs***") in the chain of title for the Park.

Notwithstanding anything to the contrary in this Lease, Tenant and the Tenant Related Parties shall comply with the LURs, and Tenant and all Tenant-Related Parties shall also comply with obligations in the Brownfields Agreement applicable to such parties, in each case so long as such LURs and Brownfields Agreement (i) do not materially interfere with Tenant's business, or Tenant's access to or use of the Leased Premises, nor (ii) result in any out-of-pocket expenses to Tenant. Promptly after becoming aware thereof, Tenant agrees to give Landlord written notice of any violation of the LURs or the Brownfields Agreement by Tenant or any Tenant-Related Party. Subject to the restrictions on the LURs and Brownfields Agreement above in this paragraph, neither Tenant nor any Tenant-Related Party shall seek any waiver or exemption from DEQ with respect to the LURs or any other provision in the Brownfields Agreement, without first acquiring written permission from Landlord regarding same, such permission to be in Landlord's reasonable discretion. Tenant acknowledges that on the Commencement Date and annually during the Lease Term thereafter, Landlord will be obligated to provide a written certification to DEQ (i) detailing any violation of the LURs or the Brownfields Agreement at the Park (or expressly stating that no such violation(s) has/have occurred during the period covered by the statement); and (ii) providing a list of all chemicals and Hazardous Substances used or permitted at the Park (excepting *de minimis* amounts of such chemicals or materials used for cleaning and other routine office use and janitorial and housekeeping purposes). Tenant shall reasonably cooperate with Landlord's certification, including providing a list to Landlord of all Hazardous Substances used by Tenant at the Leased Premises and confirming to Landlord whether to Tenant's knowledge any violation of the LURs have occurred by Tenant or any Tenant-Related Party provided that such cooperation is at no cost to Tenant and does not materially increase Tenant's obligations under this Lease. Tenant shall provide DEQ, its authorized officers, employees, representatives and all other persons performing assessment, response or remediation activities under DEQ's oversight, access to the Leased Premises as DEQ determines is reasonably necessary, such access to be in accordance with Section 5.03. Tenant agrees to cooperate, at no cost to Tenant, with any such activities at the Leased Premises by DEQ and Tenant agrees not to interfere with such activities provided that such activities do not materially interfere with Tenant's business, nor Tenant's access to or use of the Leased Premises. Tenant consents to Landlord's delivery of a redacted copy of this Lease and any amendments thereto, in each case upon review and reasonable approval by Tenant, to DEQ as required by Applicable Law.

ARTICLE 16 - MISCELLANEOUS

Section 16.01. Benefit of Landlord and Tenant. This Lease shall inure to the benefit of and be binding upon Landlord and Tenant and their respective successors and assigns.

Section 16.02. Governing Law. This Lease shall be governed in accordance with the laws of the State of North Carolina.

Section 16.03. Force Majeure. Landlord and Tenant (except with respect to the payment of any monetary obligation) shall be excused for the period of any delay in the performance of any obligation hereunder when such delay is occasioned by causes beyond its control, including but not limited to general work stoppages, boycotts, slowdowns or strikes; shortages or unavailability of materials, equipment, labor or energy; unusual weather conditions (taking into

account typical weather events in the area); acts or omissions of governmental or political bodies not requested or lobbied for by the claiming party; and public health issues, including epidemics and pandemics that result in restrictions on activities (collectively, "***Force Majeure Matters***"). For purposes of the foregoing, Landlord and Tenant acknowledge and agree that any delays in Landlord's ability to construct the Shell Improvements and the Additional Improvements within the time frames contemplated by this Lease resulting from the novel coronavirus (COVID-19) pandemic, including any resulting inability to acquire materials, equipment, labor, permitting, inspections, materials or approvals, shall constitute Force Majeure Matters. The party claiming a Force Majeure Matter shall provide written notice to the other party promptly after commencement or discovery of delays resulting from a Force Majeure Matter, and thereafter shall provide the non-claiming party with updates as to the claimed delays upon reasonable request, until the cessation of the delays resulting from such Force Majeure Matter.

Section 16.04. Examination of Lease. Submission of this instrument by Landlord to Tenant for examination or signature does not constitute an offer by Landlord to lease the Leased Premises. This Lease shall become effective, if at all, only upon the execution by and delivery to both Landlord and Tenant. Execution and delivery of this Lease by Tenant to Landlord constitutes an offer to lease the Leased Premises on the terms contained herein. The offer by Tenant will be irrevocable until 6:00 p.m. EST, two (2) business days after the date Landlord receives the Lease executed by Tenant.

Section 16.05. Indemnification for Leasing Commissions. The parties hereby represent and warrant that the only real estate brokers involved in the negotiation and execution of this Lease are the Brokers and that no other party is entitled, as a result of the actions of the respective party, to a commission or other fee resulting from the execution of this Lease. Each party shall indemnify the other from any and all liability for the breach of this representation and warranty on its part and shall pay any compensation to any other broker or person who may be entitled thereto. Landlord shall pay any commissions due Brokers based on this Lease pursuant to separate agreements between Landlord and Brokers.

Section 16.06. Notices. Any notice required or permitted to be given under this Lease or by law shall be deemed to have been given if it is written and delivered (i) in person during normal business hours on a business day; (ii) by overnight courier or mailed by certified mail, postage prepaid, to the party who is to receive such notice at the address specified in Section 1.01(l), or (iii) by email to the party who is to receive such notice at the email address specified in Section 1.01(l). If sent by overnight courier, the notice shall be deemed to have been given one (1) business day after sending. If mailed, the notice shall be deemed to have been given on the date that is three (3) business days following mailing. If sent by email, the notice shall be deemed to have been given when sent, if sent prior to 5:00 p.m. at the recipient's time on a business day, and otherwise at 9:00 a.m. at the recipient's time on the next business day, provided that any notice sent by email shall also be sent by one of the other methods. Either party may change its address by giving written notice thereof to the other party.

Section 16.07. Partial Invalidity; Complete Agreement. If any provision of this Lease shall be held to be invalid, void or unenforceable, then to the largest extent practicable the remaining provisions shall remain in full force and effect. This Lease represents the entire

agreement between Landlord and Tenant covering everything agreed upon or understood in this transaction. There are no oral promises, conditions, representations, understandings, interpretations or terms of any kind as conditions or inducements to the execution hereof or in effect between the parties. No change or addition shall be made to this Lease except by a written agreement executed by Landlord and Tenant.

Section 16.08. Financial Statements. During the Lease Term and any extensions thereof, Tenant shall provide to Landlord, within thirty (30) days following Landlord's written request therefor (such requests shall not be made more than one (1) time in any calendar year, unless in connection with a sale or financing transaction relative to the Building or any interest of Landlord therein), a copy of Tenant's most recent audited annual financial statements. Prior to an IPO, such financial statements shall be signed by Tenant or an officer of Tenant, if applicable, who shall attest to the truth and accuracy of the information set forth in such statements.

Section 16.09. Representations and Warranties.

(a) Tenant hereby represents and warrants that (i) Tenant is duly organized, validly existing and in good standing (if applicable) in accordance with the laws of the State under which it was organized; (ii) Tenant is authorized to do business in the State where the Building is located; and (iii) the individual(s) executing and delivering this Lease on behalf of Tenant has been properly authorized to do so, and such execution and delivery shall bind Tenant to its terms.

(b) Landlord hereby represents and warrants that (i) Landlord is duly organized, validly existing and in good standing (if applicable) in accordance with the laws of the State under which it was organized; (ii) Landlord is authorized to do business in the State where the Building is located; (iii) the individual(s) executing and delivering this Lease on behalf of Landlord has been properly authorized to do so, and such execution and delivery shall bind Landlord to its terms; (iv) Landlord is party to an existing loan agreement or credit line sufficient, when combined with obligatory capital contribution commitments from direct or indirect owners of Landlord, sufficient to allow Landlord to timely construct and complete Landlord's Work; (v) as of the Lease Date, Landlord has not contacted or corresponded with any third party with respect to the marketing or sale of the Building or the Park; (vi) Landlord has no knowledge or notice of any default, whether by Landlord or any other party, under the RTP Covenants with respect to the Park, and, to the best of Landlord's knowledge, all amounts owed by Landlord thereunder (if any) have been paid in full, and (vii) upon Substantial Completion thereof the Shell Improvements will comply with all Applicable Laws, including without limitation, any necessary upgrades to the base building improvements required to bring same into compliance with applicable fire codes as a result of the construction of the Shell Improvements.

Section 16.10. Signage. Tenant, at its cost and expense, shall be entitled to install Tenant identification signage at the entrance to the Leased Premises, subject to Landlord's approval, not to be unreasonably withheld, conditioned or delayed. Landlord may install such other signs, advertisements, notices or tenant identification information on the Building, tenant access doors or other areas of the Building, as it shall deem necessary or proper. Tenant shall not place any exterior signs on the Leased Premises or interior signs visible from the exterior of the Leased Premises without the prior written consent of Landlord. Notwithstanding any other

provision of this Lease to the contrary, Landlord may immediately remove any sign(s) placed by Tenant in violation of this Section 16.10.

For so long as the Tenant originally named herein (or a Permitted Transferee) is leasing at least sixty percent (60%) of the Rentable Area of the Leased Premises, Tenant shall be entitled, at Tenant's expense, to install Tenant's name in two (2) locations on the parapet of the Building, with one such location being depicted on **Exhibit I** and the second subject to mutual agreement of Landlord and Tenant; provided, however (i) any such signage installed by Tenant shall be installed in accordance with the Building standard criteria, the RTP Covenants, all Applicable Laws and all ordinances and regulations applicable to the Building, and except as depicted on **Exhibit I** shall be subject to Landlord's prior written approval as to its location, size, configuration, lettering, content and method of attachment, such approval not to be unreasonably withheld, conditioned or delayed; (ii) upon the expiration or earlier termination of the Lease Term Tenant shall be required, at Tenant's expense, to remove any such signage and repair any damage caused by such removal (which obligations shall survive the expiration or earlier termination of this Lease); and (iii) Tenant shall not be entitled to grant or assign to any third party (other than a Permitted Transferee of Tenant's rights under this Lease or other assignee or sublessee approved by Landlord in accordance with Article 11) the right to install such signage without Landlord's prior written consent (which consent may be granted or withheld in Landlord's discretion).

Tenant shall be entitled, at Tenant's expense, to install Tenant's name and logo (in color) in the top position on each current or future general tenant identification monument sign located within the Park along Highway 54, with the logo in the form shown in **Exhibit I** being hereby approved by Landlord; provided, however (i) any such signage installed by Tenant shall be installed in accordance with the Building standard criteria, the RTP Covenants, all Applicable Laws and all ordinances and regulations applicable to the Building, and shall be subject to Landlord's prior written approval as to its location, size, configuration, lettering, content and method of attachment, such approval not to be unreasonably withheld, conditioned or delayed; (ii) upon the expiration or earlier termination of the Lease Term Tenant shall be required, at Tenant's expense, to remove any such signage and repair any damage caused by such removal (which obligations shall survive the expiration or earlier termination of this Lease); (iii) Tenant shall not be entitled to grant or assign to any third party (other than a Permitted Transferee of Tenant's rights under this Lease or other assignee or sublessee approved by Landlord in accordance with Article 11) the right to install such signage without Landlord's prior written consent (which consent may be granted or withheld in Landlord's discretion); and (iv) Landlord reserves the right to install the names of other tenants within the Park on all such monument signage, so long as the same are in a lower or equal vertical position. In addition to the monument sign, Landlord will install and maintain at Landlord's cost and expense (as an Operating Expense) wayfaring signage throughout the Park as reasonably determined by Landlord.

Section 16.11. Parking. Tenant shall be entitled to the non-exclusive use of a minimum of three and 5/10ths (3.5) parking spaces for each one thousand (1,000) square feet of Rentable Area of the Leased Premises ("***Tenant's Parking Allocation***"), in the area designated for the Building by Landlord. Tenant agrees to cooperate with Landlord and other tenants in the use of

the parking facilities. In the event Tenant is determined to be overburdening the parking facilities, Landlord shall be entitled (but not required) to monitor or restrict use of the parking facilities at Tenant's expense. If any other tenant or third party inhibits Tenant's utilization of Tenant's Parking Allocation, Landlord will take all actions reasonably necessary to protect Tenant's parking rights, at Landlord's cost and expense. There will be no assigned parking unless Landlord, in its sole discretion, deems such assigned parking advisable. No vehicle may be repaired or serviced in the parking area and any vehicle brought into the parking area by Tenant, or any of Tenant's employees, contractors or invitees, and deemed abandoned by Landlord will be towed and all costs thereof shall be borne by the Tenant. All driveways, ingress and egress, and all parking spaces are for the joint use of all tenants. There shall be no parking permitted on any of the streets or roadways located within the Park. In addition, Tenant agrees that its employees will not park in the spaces designated visitor parking. Tenant shall have twenty (20) dedicated visitor parking stalls (with visitor markings to be installed by Tenant, at Tenant's cost, subject to Landlord's reasonable approval), to be closest to the main entrance of the Building. These exclusive visitor stalls will be included in tenant's parking allocation.

Section 16.12. Electric Vehicles. As part of Landlord's Work, Landlord will install at least ten (10) Electric Vehicle Charging Stations ("***EV Stations***") in the parking areas located near the Building and such EV Stations shall be available on a non-exclusive, first come basis to tenants and occupants of the Park. In addition, Tenant shall have the right to install additional EV Stations (which may be installed as part of the Tenant Improvements) at Tenant's cost and expense; provided, no such installation shall result in any decrease in the number of parking spaces within the parking areas serving the Building or alter the configuration or use of the existing driveways and drive aisles located within such parking areas. Any and all such installations by Tenant shall be made pursuant to plans and specifications approved in advance in writing by Landlord, not to be unreasonably withheld, conditioned or delayed, and otherwise in accordance with the requirements of this Lease. Tenant shall have the right, at its sole cost and expense, to post signage at the location indicating the EV Stations installed by Tenant are exclusively for use by Tenant's employees (provided, Landlord shall not be liable for any unpermissive violation of such exclusivity by third parties). Landlord shall keep all such EV Stations installed by Landlord in good working order and repair and the cost of all maintenance, repair, replacement and utility expenses associated with the ongoing operation of such EV Stations shall be included in Operating Expenses. Tenant shall keep all such EV Stations installed by Tenant in good working order and repair and shall be solely responsible for all maintenance, repair, replacement and utility expenses associated with the ongoing operation of such EV Stations.

Section 16.13. Time. Time is of the essence of each term and provision of this Lease.

Section 16.14. Patriot Act. Each of Landlord and Tenant, each as to itself; hereby represents its compliance and its agreement to continue to comply with all applicable anti-money laundering laws, including, without limitation, the USA Patriot Act, and the laws administered by the United States Treasury Department's Office of Foreign Assets Control, including, without limitation, Executive Order 13224 (the "***Executive Order***"). Each of Landlord and Tenant further represents (such representation to be true throughout the Lease Term) (i) that it is not, and it is not owned or controlled directly or indirectly by any person or entity, on the SDN List published

by the United States Treasury Department's Office of Foreign Assets Control and (ii) that it is not a person otherwise identified by government or legal authority as a person with whom a U.S. Person is prohibited from transacting business. As of the date hereof, a list of such designations and the text of the Executive Order are published under the internet website address www.ustreas.gov/offices/enforcement/ofac. The provisions of this Section 16.14 shall survive the expiration or earlier termination of this Lease.

Section 16.15. Intentionally Omitted.

Section 16.16. Option to Renew.

(a) Provided that (i) this Lease is in full force and effect as of the date of the Renewal Notice (as defined below) and as of the originally scheduled expiration of the Lease Term; (ii) Tenant is not then in Default under this Lease as of the dates referred to in clause (i) above; and (iii) Tenant has been continuously operating in the Leased Premises throughout the Lease Term and has not assigned this Lease or sublet more than sixty percent (60%) of the Leased Premises (other than to a Permitted Transferee), Tenant shall have three (3) separate options to extend the Lease Term for the entire Leased Premises, each for a period of five (5) years (each, a "***Renewal Term***", and collectively, the "***Renewal Terms***") commencing on the date immediately following the expiration of the initial Lease Term (or the previous Renewal Term, as applicable). Tenant may exercise each such option by delivering written notice (a "***Renewal Notice***") to Landlord not less than twelve (12) months prior to (but not more than twenty-four (24) months prior to) the expiration of the initial Lease Term (or the expiring Renewal Term, as applicable). Each Renewal Term, if properly exercised by Tenant as set forth herein, shall constitute an extension of the Lease Term and shall be upon all of the same terms and conditions then in effect under this Lease, except that (i) there shall be no further option to renew or extend the Lease Term during the third Renewal Term, and (ii) Minimum Annual Rent for each Renewal Term shall be payable at a rate per annum equal to the Fair Market Rental (as defined below) for the Leased Premises for the applicable Renewal Term. If Tenant shall duly and timely exercise one of Tenant's rights to extend the Lease Term for a Renewal Term pursuant to the terms hereof, all of the applicable references in this Lease to the Lease Term shall be deemed to include such Renewal Term. During each Renewal Term, Tenant shall continue to pay Tenant's Proportionate Share of Operating Expenses without interruption unless otherwise agreed to by Landlord and Tenant in writing.

(b) If Tenant shall timely deliver a Renewal Notice to Landlord, then not later than twenty (20) days after the date such Renewal Notice is delivered, Landlord shall notify Tenant of Landlord's determination of the Fair Market Rental for the applicable Renewal Term. For purposes of the foregoing, the "***Fair Market Rental***" shall be the rental rate charged for leased premises of comparable size and condition as the Leased Premises in the Research Triangle Park office and research and development market, taking into consideration the location and quality of the Building, term of lease, and any material economic differences between the terms of this Lease and the terms of any comparable lease (including abatement periods, tenant improvement or refurbishment allowances, architectural fees, brokerage commissions and any other relevant cash and non-cash incentives, inducements, concessions and other relevant factors). If Tenant delivers to Landlord a written objection to Landlord's calculation of the Fair Market Rental

within ten (10) business days after Tenant's receipt of Landlord's determination of the Fair Market Rental, then the parties shall meet and confer in good faith (which such meeting may be telephonic or electronic) and if the parties cannot agree on the Fair Market Rental within twenty (20) days after Tenant's written objection, then Tenant may retract its exercise of its option to extend at no cost to Tenant, or Tenant may choose arbitration to determine the Fair Market Rental. If Tenant chooses arbitration, Tenant shall give Landlord written notice of its desire to seek arbitration within five (5) business days after expiration of such twenty (20) day period ("***Arbitration Notice***"). Within ten (10) days after Tenant provides Landlord with its Arbitration Notice, the parties shall each appoint an appraiser to determine the Fair Market Rental for the Leased Premises during the applicable Renewal Term. Each appraiser so selected shall be an MAI appraiser or a licensed real estate broker, each having at least ten (10) years prior experience in the appraisal or leasing of comparable space in the metropolitan area in which the Leased Premises are located and with a working knowledge of current rental rates and practices. If the two appraisers cannot agree upon the Fair Market Rental for the Leased Premises within twenty (20) days after their appointment, then, within five (5) business days after the expiration of such twenty (20) day period, the two appraisers shall select a third appraiser meeting the above criteria. Once the third appraiser has been selected as provided for above, each of the initial appraisers shall deliver its determination of the Fair Market Rental to the third appraiser, and such third appraiser shall within ten (10) business days after its appointment select the determination made by one of the initial two appraisers that most closely approximates the third appraiser's own determination of the Fair Market Rental. The determination of the Fair Market Rental selected by the third appraiser shall be used as the Minimum Annual Rent for the applicable Renewal Term and shall be binding on both Landlord and Tenant. Landlord and Tenant shall each bear the cost of its appraiser and shall share the cost of the third. If Tenant delivers a written objection to Landlord's calculation of the Fair Market Rental within the 10- business day time period referenced above but fails to provide the Arbitration Notice as provided above, then Tenant's exercise of its option to extend shall be deemed retracted.

(c) Following the determination of Fair Market Rental, Landlord and Tenant will mutually execute, acknowledge and deliver an amendment to this Lease setting forth the Minimum Annual Rent for the applicable Renewal Term, the applicable Renewal Term commencement date, and the new expiration of the Lease Term; provided, the failure of either party to execute and deliver such an amendment shall not affect the rights or the parties under this Lease relating to such Renewal Term.

(d) Tenant's right to extend the Lease Term for any remaining Renewal Terms shall automatically terminate and become null, void and of no force and effect upon the earlier to occur of (i) the termination of this Lease by Landlord or pursuant to this Lease or Applicable Law, (ii) the termination or surrender of Tenant's right to possession of the Leased Premises or any portion thereof, (iii) the failure of Tenant to timely and properly deliver a Renewal Notice to Landlord, or (iv) the expiration of the third (3rd) Renewal Term.

Section 16.17. Grid Expansion Right. Provided that (i) Tenant is not then in Default under this Lease, and (ii) Tenant has not assigned this Lease or sublet more than sixty percent (60%) of the Leased Premises for the entire remaining term (other than to a Permitted Transferee), Tenant shall, during the initial Lease Term (*i.e.*, Tenant's rights under this Section

16.17 shall not be applicable during the Renewal Term(s) or any subsequent renewal or extension of the Lease Term), during the initial thirty-six (36) month period following the Commencement Date (the "***Grid Expansion Period***"), Tenant shall the right to lease any tenant space located within the adjacent Grid Buildings that is available for lease by Landlord (the "***Grid Expansion Space***"). For the avoidance of doubt, any space relative to which Landlord is negotiating a lease with a third-party tenant after complying with (and subject to) the terms of Section 16.18 below shall not be considered "available for lease" for purposes of this Section 16.17 Tenant's rights relative to the Grid Expansion Space are subject to the following terms and conditions:

(a) Election by Tenant. If Tenant elects to lease any portion of the Grid Expansion Space, Tenant shall send written notice to Landlord of its intent to lease such space within the Grid Buildings (the "***Grid Expansion Notice***"). Tenant may send a Grid Expansion Notice at any time and from time to time (but no more frequently than monthly) prior to the third (3rd) anniversary of the Commencement Date. Within ten (10) business days following Landlord's receipt of Tenant's Grid Expansion Notice, Landlord notify Tenant of the tenant space within the Grid Buildings that is available for lease (the "***Availability Notice***"). For the avoidance of doubt, any space relative to which Landlord is negotiating a lease with a third-party tenant after complying with the terms of Section 16.18 below shall not be considered "available for lease" for purposes of this Section 16.17 unless and until the earlier of (i) Landlord's negotiations with such proposed tenant are terminated by either party, or (ii) the lease which resulted with such third-party tenant terminates by its terms. Tenant shall have ten (10) business days after Landlord delivers the Availability Notice to specify (by so notifying Landlord in writing) the portion of the Grid Expansion Space that Tenant desires to lease (provided, such space shall contain at least 25,000 square feet of space (and, following Tenant's initial exercise of its expansion rights under this Section 16.17, such space, where practical, will be contiguous with other space leased by Tenant, and shall be subject to Landlord's reasonable approval as to configuration based on applicable code requirements and leasability of the remaining space)) (the "***Exercised Space***").

(b) Terms. Tenant's lease of such Exercised Space shall be on all of the same terms and conditions as set forth in the Lease relative to the Leased Premises (including, without limitation, the Minimum Annual Rental rate (at the then-escalated rate, with future escalations as provided relative to the Leased Premises) and remaining Lease Term); provided, however, Landlord shall not be obligated to provide an Additional Allowance to Tenant, the rental abatement for such Exercised Space shall be limited to three (3) months, and the improvements allowances offered by Landlord for such Exercised Space shall be limited to $150.00, multiplied by the rentable square footage of the applicable Exercised Space, multiplied by a fraction, the numerator of which is the number of months remaining in the initial Lease Term, and the denominator is 150. The Exercised Space will be delivered in substantially the same condition of finish as the Shell Improvements in the initial Lease, with the exception of ceiling height and materials and construction of the applicable Grid Building. Tenant's obligation to commence payment of rent relative to the Exercised Space shall commence on the date that is the earlier of (x) six (6) months after delivery date of the First Offer Space, or (y) the date the tenant improvements in the First Offer Space are substantially completed.

(c) Tenant's Failure to Exercise Rights. Tenant's right to lease any portion of the Grid Expansion Space automatically terminates upon the expiration of the Grid Expansion Period, and Landlord shall be entitled, at any time thereafter (without triggering any further rights of Tenant under this Section 16.17), to enter into a lease agreement with the prospective tenant or any other party relative to all or any portion of such space within the Grid Buildings; provided, for purposes of clarification, that if Tenant as of the end of the Grid Expansion Period has specified an Exercised Space and Landlord and Tenant are negotiating the Lease amendment with respect thereto, but such amendment has not yet been signed, then such Exercised Space shall not be available for lease by Landlord to any prospective tenant unless and until Landlord and Tenant are unable to reach agreement on such amendment within three (3) months following Tenant's Grid Expansion Notice.

Section 16.18. Right of First Refusal. Provided that (i) Tenant is not then in Default under this Lease, and (ii) Tenant has not assigned this Lease or sublet more than sixty percent (60%) of the Leased Premises for the entire remaining term (other than to a Permitted Transferee), Tenant shall, during the initial Lease Term (*i.e.*, Tenant's rights under this Section 16.18 shall not be applicable during the Renewal Term(s) or any subsequent renewal or extension of the Lease Term), have a right of first refusal to lease any space located within the Grid Buildings (the "***First Refusal Space***"). Tenant's first refusal rights relative to the First Refusal Space are subject to the following terms and conditions:

(a) Offer by Landlord. If Landlord receives a written bona fide offer or proposal from a prospective tenant for the lease of part or all of the First Refusal Space (which may be in the form of a non-binding "letter of intent" or similar document), prior to entering into any lease with such prospective tenant, Landlord shall send written notice to Tenant of the prospective lease (and of Landlord's receipt from the prospective tenant of a written offer or proposal relating thereto which is acceptable to Landlord) (the "***ROFR Notice***"), and such ROFR Notice also shall identify all of the space to be leased, the effective rent commencement date, the term of the proposed lease, the rental rate, the terms of any options to renew or expansion rights and all other material economic terms and conditions provided for in the third party's offer or proposal; provided, however, Landlord shall not be required to notify Tenant of the identity of the prospective tenant. Tenant shall have ten (10) business days after such notification is delivered to Tenant by Landlord (the "***First Refusal Response Period***") to elect (by so notifying Landlord in writing) to lease all (but not less than all) of the space described in the ROFR Notice on the outlined in Section 16.18(b) below.

(b) Tenant's Election of Rights. If Tenant elects, pursuant to subsection (a) above, to lease from Landlord all of the space described in the ROFR Notice prior to the date that that is thirty-six (36) months following the Commencement Date, Tenant's lease of such space shall be on all of the terms and conditions set forth in Section 16.17(b) above. If Tenant elects, pursuant to subsection (a) above, to lease from Landlord all of the space described in the ROFR Notice following the date that that is thirty-six (36) months following the Commencement Date, Tenant's lease of such space shall be on all of the terms and conditions set forth in Landlord's ROFR Notice (including, without limitation, the rental rate); provided, however, if the "lease term" relative to such First Refusal Space shall be coterminous with the Lease Term; provided, further, that if at the time of Tenant's election to lease the space described in the ROFR Notice

there are less than eight (8) years remaining in the initial Lease Term, Landlord and Tenant shall amend the Lease to extend the Lease Term relative to the remainder of the Leased Premises such that same is co-terminus with the lease term applicable to the space described in the ROFR Notice, and the Minimum Annual Rent payable relative to remainder of the Leased Premises during such extension of the Lease Term shall continue to increase 2.75% annually. Tenant and Landlord shall proceed diligently and in good faith to finalize and execute a lease amendment to memorialize Tenant's lease of the space described in the ROFR Notice within fifteen (15) business days after the expiration of the First Refusal Response Period (provided, however, in any event, Tenant's exercise of its rights relative to such space shall be irrevocable, and the terms set forth in the offer accepted by Tenant shall be binding on Tenant).

(c) Tenant's Failure to Exercise Rights. If Tenant elects not to lease from Landlord the space described in the ROFR Notice (as evidenced either by Tenant's written notice to Landlord to that effect or by Tenant's failure to respond to Landlord within the First Refusal Response Period), then, in such event, Landlord shall be entitled, within two hundred seventy (270) days after the expiration of the First Refusal Response Period (without triggering any further rights of Tenant under this Section 16.18), to enter into a lease agreement with the prospective tenant for all or substantially the same portion of the space encompassed by ROFR Notice, in which case all of Tenant's first refusal rights under this Section 16.18 shall immediately and automatically terminate relative to such portion or all (as the case may be) of the First Refusal Space that Landlord so leases; provided, however, and notwithstanding the foregoing, (i) Landlord shall not be entitled to enter into a lease of the applicable portion of the First Refusal Space that provides for a net economic value to Landlord that is less than ninety- five percent (95%) of the net economic value provided for in the terms of the proposal offered to Tenant, unless Landlord first reoffers such revised terms to Tenant in the manner set forth above in this Section 16.18, and (ii) Tenant's rights under this Section 16.18 continue in effect to any portion of the First Refusal Space not so leased, and/or which becomes available again during the Lease Term.

Section 16.19. Expansion Building Option.

(a) Landlord represents and warrants to Tenant that as of the date hereof, Landlord owns fee simple title to the area of land identified on **Exhibit G** attached to this Lease (the "***Expansion Area***"). Landlord agrees to keep the Expansion Area under unified ownership with the Building and available for development in the event Tenant exercises its rights under this Section 16.19 prior to the expiration of the Expansion Period (as defined below). At all times prior to the expiration of the Expansion Period, Tenant's rights under this Section 16.19 shall be in a prime position with respect to all third parties, and not subordinate to the right of any other party to lease space on such Expansion Area.

(b) So long as on the date Tenant exercises the Expansion Option (as hereinafter defined), (i) Tenant has not assigned this Lease or sublet more than forty percent (40%) of the Leased Premises for the entire remaining term (other than to a Permitted Transferee), (ii) Tenant is not in Default under this Lease, and (iii) Tenant's financial condition is equal to or better than the Tenant's financial condition as of the date of this Lease (as determined by Landlord in its reasonable discretion), Tenant shall have the option (the "***Expansion Option***") during the period

beginning on the Effective Date and continuing through the date that is forty-eight (48) months after the Commencement Date (the "***Expansion Period***") to require that the Landlord construct a new office, research and laboratory building containing at least 150,000 rentable square feet (the "***Expansion Building***") on the Expansion Area and lease same to Tenant (or a Permitted Transferee) on the terms set out herein. Tenant may exercise the Expansion Option by delivering written notice of such exercise (the ***"Expansion Notice"***) to Landlord on or before the end of the Expansion Period. Within sixty (60) days following Tenant's exercise of the Expansion Option (provided, such time period may be extended up to one hundred eighty (180) days by mutual agreement of the parties), Tenant and Landlord shall promptly negotiate and finalize a mutually approved (which approval shall be reasonable) lease agreement for the construction and occupancy of an Expansion Building on the Expansion Area (an "***Expansion Building Lease***"), which Expansion Building Lease shall be in a form substantially consistent with this Lease, modified as follows:

(i) Expansion Owner and Tenant shall work diligently and in good faith to prepare and finalize plans and specifications for the Expansion Building, including site plans, parking plans and layout;

(ii) Tenant shall be required to lease at least the lesser of (i) 150,000 rentable square feet or (ii) seventy-five percent (75%) of the rentable square footage of such Expansion Building, and the location and configuration of same within the Expansion Building shall be subject to mutual approval of Landlord and Tenant (as applicable, the "***Expansion Premises***"), and if Tenant does not elect to lease the entire Expansion Building, then the location and configuration of the Expansion Building shall be mutually acceptable to Landlord and Tenant;

(iii) The commencement date of the Expansion Building Lease will be the date that Landlord delivers possession of the applicable premises within the Expansion Building ("***Expansion Premises Delivery***");

(iv) The minimum annual rent and other economic terms of the lease of the Expansion Building (the "***Expansion Building Rent***") (inclusive of a market based rental abatement period) shall be subject to mutual agreement by Landlord and Tenant determined pursuant to the provisions of Section 16.16(b), and such Expansion Building Rent shall commence upon the earlier of (1) nine (9) months after the Expansion Premises Delivery (provided Tenant has been given at least four (4) months of unfettered access during such period for installing upfitting improvements), and (2) the date Tenant commences business operations in the Expansion Premises; and

(v) The lease term for the Expansion Building Lease shall be one hundred twenty (120) months following Expansion Premises Delivery (and to the extent that the Lease Term applicable to this Lease is scheduled to expire prior to the contemplated term of the Expansion Building Lease, such Lease Term shall be extended (with continued annual 2.75% increases in Minimum Annual Rental consistent with the Lease) such that such terms are co- terminus).

In the event Landlord and Tenant are unable to negotiate and execute an Expansion Building Lease within the sixty (60) day period referenced above (as same may be extended to

one hundred eighty (180) days), at any time thereafter, Landlord or Tenant may terminate negotiations of the Expansion Building Lease by delivering written notice to the other party, at which time Tenant's right to cause Landlord to construct an Expansion Building (and to lease space in such Expansion Building) shall terminate and be of no further force or effect.

Tenant acknowledges that Landlord may convey the Expansion Area to a separate single purpose Delaware limited partnership or limited liability company that will be an affiliate of Landlord; provided, however, that (i) the Expansion Area and the Building shall remain under common ownership during the Expansion Period, (ii) the affiliate taking title to the Building and the Expansion Area shall agree in writing that it is bound by all of Landlord's obligations under this Section 16.19, and (iii) such affiliate transferee has adequate capital or access to capital to fulfill the obligations of Landlord under this Section 16.19.

Section 16.20. Rooftop Rights.

(a) License of the Roof Area. Provided Tenant complies with all Applicable Laws and all applicable restrictions of record (including, without limitation, the RTP Covenants), Tenant shall have the nonexclusive right, at its own cost and expense and subject to the terms hereof, to install, operate and maintain satellite dishes and communications equipment of a size and number reasonably acceptable to Landlord and related equipment, and climate control equipment (collectively, the "***Rooftop Equipment***") on the surface of the roof of the Building (the "***Roof Area***"), provided, however, the Rooftop Equipment shall be used only in the operation of the business of Tenant and/or any other permitted occupant of the Leased Premises and shall not be sold to or utilized in any manner by any other third party. Tenant shall be solely responsible for obtaining all necessary permits and licenses required to install and operate the Rooftop Equipment. Copies of such permits and licenses shall be provided to Landlord. Tenant may not install any Rooftop Equipment onto the Roof Area during the pendency of an uncured Default.

(b) Installation of the Rooftop Equipment.

(i) The size, location, design and manner of installation of the Rooftop Equipment and all related wiring shall be designated and approved by Landlord (not to be unreasonably withheld or delayed). Landlord, in its sole discretion, may require Tenant to install reasonable screening around the Rooftop Equipment to block view from ground level at Tenant's expense. Tenant shall have reasonable access to the roof for installation and maintenance of the Rooftop Equipment and shall have the right to install all reasonable wiring related thereto. Unless otherwise approved by Landlord in writing (in Landlord's sole discretion), in no event shall Tenant be permitted to penetrate the roof membrane in connection with the installation or maintenance of the Rooftop Equipment. Tenant shall be responsible for repairing any damages caused by the installation or maintenance of the Rooftop Equipment.

(ii) Tenant shall use the roofing company reasonably acceptable by Landlord to perform any work affecting the roof. All cable runs, conduit and sleeving shall be installed in a good and workmanlike manner. Cables and transmission lines shall be routed and attached in accordance with the then current, state of the art industry practices

and plans approved by Landlord (not to be unreasonably withheld or delayed). The Rooftop Equipment shall be identified with permanently marked, weatherproof tags at the following locations: (A) at each equipment bracket; (B) at the transmission line building entry point; (C) at the interior wall feed through or any other transmission line exit point; and (D) at any transmitter combiner, duplexer or multifeed receive port. In addition, all Tenant telephone blocks, demarcs and cables shall be clearly identified with Tenant's name, type of line and circuit number.

(iii) Tenant shall install, operate and maintain the Rooftop Equipment in accordance with all federal, state and local laws and regulations. Prior to installation of the Rooftop Equipment, Tenant shall confirm that its installer carries sufficient insurance coverage.

(c) Roof Work. If, during the Lease Term, Landlord needs to perform maintenance work to Landlord's equipment on the roof of the Building or repair or replace the roof of the Building ("***Roof Work***"), Tenant agrees to cooperate and work with Landlord (at Tenant's sole cost and expense to the extent such Roof Work is due solely to Tenant's Rooftop Equipment, but otherwise at Landlord's cost and expense as an Operating Expense) to achieve said Roof Work. Landlord agrees to provide at least thirty (30) days' prior written notice to Tenant of Landlord's intention to perform said work; except in the case of emergency Roof Work, in which case Landlord shall give as much notice as possible under the circumstances. Such Roof Work may require the relocation of any portion of the Rooftop Equipment, or Tenant's installation of temporary equipment, in each case at Landlord's sole cost and expense unless such Roof Work is due solely to Tenant's Rooftop Equipment. All Roof Work will be performed in such a manner as to refrain from interference or disturbance with Tenant's use of the Leased Premises (other than the potential disruption of use of Rooftop Equipment as described in this paragraph). Moreover, if a temporary relocation of the Rooftop Equipment is required to accommodate the Roof Work, Landlord agrees to exercise commercially reasonable efforts to identify a technically feasible alternative location for the relocation portion of the Rooftop Equipment that will not impede the Roof Work. Notwithstanding the foregoing, Landlord does not warrant and represent that an alternative location will be available, and, consequently, Landlord's obligation to provide such alternative location is subject to the availability of such space. Under no circumstances shall Landlord be liable to Tenant for any consequential damages as a result of such relocation, including, but not limited to, loss of business income or opportunity. Notwithstanding the foregoing, Tenant shall move the Rooftop Equipment back to its original location after the Roof Work is completed unless the parties agree to utilize the relocated area permanently.

(d) Emergencies. Notwithstanding the foregoing, if an emergency situation exists that Landlord reasonably determines, in its sole discretion, is attributable to the Rooftop Equipment (such as leaks or electrical hazards), Landlord shall immediately notify Tenant verbally, who shall act diligently and expediently to remedy the emergency situation. Should Tenant fail to so remedy the emergency situation, then subject to Section 5.03 Landlord may shut down the Rooftop Equipment (provided that Landlord shall use commercially reasonable efforts to avoid an interruption in Tenant's use of the Leased Premises), and in the absence of gross negligence or willful misconduct Tenant shall have no recourse against Landlord as a result of such action.

(e) Removal of the Rooftop Equipment upon Termination. Following any termination or the expiration of the Lease, Tenant shall remove the Rooftop Equipment from the Building. In performing such removal, Tenant shall restore the Roof Area and any personal property and fixtures thereon to as good a condition as existed prior to the installation or placement of the Rooftop Equipment, reasonable wear and tear excepted. If Tenant fails to remove the Rooftop Equipment within ten (10) days after the expiration or earlier termination of the Lease, Landlord may remove and dispose of the Rooftop Equipment and restore the Roof Area, and Tenant shall reimburse Landlord for the reasonable costs of such removal and restoration within forty-five (45) days of Landlord's written request therefor. Moreover, Landlord may deem the Rooftop Equipment abandoned, in which event the Rooftop Equipment shall become Landlord's property. This grammatical paragraph shall survive the expiration or earlier termination of the Lease.

(f) Indemnification. Any language in this Lease notwithstanding, Landlord shall not be liable for, and Tenant shall indemnify and defend Landlord and hold Landlord harmless from and against, any and all liability, damages (including, without limitation, personal injury, death or property damages), costs and expenses (including, without limitation, reasonable attorneys' fees, without regard to statutory interpretation) incurred by Landlord arising from any Rooftop Equipment-related cause whatsoever, including the voiding of any roof warranties and those costs arising from the installation, use, maintenance and removal thereof (but not the negligence or willful misconduct of Landlord or a Landlord Related Party, nor the performance of Landlord's Roof Work).

Section 16.21. Outside Supporting Equipment Area. Tenant, at Tenant's sole cost and expense, will be permitted to construct maintain, and use additional supporting equipment and store related supplies and materials in the two (2) locations noted on **Exhibit H** (the "***Outside Supporting Equipment Areas***") (provided, all equipment and screening located within the Outside Supporting Equipment Areas will be located so as to comply with applicable fire code requirements). Tenant shall be solely responsible for reimbursing Landlord for all incremental additional costs incurred by Landlord in connection with the relocation and/or construction of the fire access drive along the south side of the Building (such drive shown generally on **Exhibit D**) to accommodate Tenant's Outside Supporting Equipment Areas as Additional Rent within thirty (30) days following Landlord's delivery of applicable invoices accompanied by reasonable supporting documentation, including all costs of obtaining any required site plan amendments or other governmental approvals required in connection with the relocation of such fire access drive or the installation and use of any improvements to be constructed or installed by Tenant within the Outdoor Supporting Equipment Areas. For purposes of clarification, the incremental additional costs for which Tenant will be responsible are limited to the additional costs and expenses incurred by Landlord in relocating or reconfiguring the fire access drive and exterior utilities above the costs Landlord would have occurred had such improvements been completed as shown on the existing approved site plan. Tenant shall be solely responsible, at Tenant's cost, for ensuring that all such equipment in the Outdoor Supporting Equipment Areas, including without limitation laboratory gas tanks, air chillers, a pH neutralization system, dumpsters and compactors, and a storage location for Hazardous Substances generated or used by Tenant consistent with the foregoing terms and provisions in an area (a "***Hazardous Substances Storage***

Location") located entirely within the Outside Supporting Equipment Areas. If Tenant elects to construct and maintain a Hazardous Substances Storage Location, Tenant shall construct and install at Tenant's expense a concrete pad and containment area for the Hazardous Substances Storage Location in the Outside Supporting Equipment Area located along the south side of the Building in accordance with Applicable Law and the RTP Covenants, with permanent screening reasonably approved in advance by Landlord. Tenant shall be solely responsible for the cost of construction, operation, and maintenance of the Outside Supporting Equipment Areas (including any Hazardous Substances Storage Location therein); and Tenant shall construct, maintain, and operate the Outside Supporting Equipment Areas in accordance with all Applicable Laws including obtaining and maintaining any and all permits, approvals, and licenses required to install and operate the Hazardous Substances Storage Location by any governmental authority having jurisdiction; provided, however, that (i) such construction shall be completed pursuant to plans and specifications approved in advance by Landlord, which approval shall not be unreasonably withheld, conditioned or delayed, and in compliance with all Applicable Laws and the RTP Covenants, (ii) such construction, operation, and maintenance shall be at Tenant's sole cost and expense and shall be completed in a good and workmanlike manner and pursuant to all other relevant terms and provisions in this Lease, and (iii) Tenant shall maintain the Outside Supporting Equipment Areas, including the Hazardous Substances Storage Location and all concrete pads and equipment, in a safe, clean, good and functional condition, and in compliance with all Applicable Laws and the RTP Covenants. Upon the expiration or earlier termination of the Lease Term, the Hazardous Substances Storage Location and any and all equipment, apparatus, and supplies installed within the Outdoor Supporting Equipment Areas shall be removed by Tenant and disposed of in accordance with all Applicable Laws prior to the end of the Lease Term, and Tenant shall repair any damage to the Building and the Common Areas caused by such removal (including the installation of landscaping improvements). In addition, Landlord may perform a Phase I assessment in the area immediately surrounding the Outdoor Supporting Equipment Areas, and if such Phase I assessment identifies any environmental contamination originating from Tenant's use thereof, then Tenant shall reimburse Landlord for Landlord's reasonable third-party costs, liability, claims, expenses or obligations with respect to the presence of Hazardous Substances in such area and any and all required cleanup activities and/or remediation, within forty-five (45) days of Landlord's written request therefor. Tenant shall not be entitled to grant or assign or lease to any third party (other than a Permitted Transferee) the right to use the Outdoor Supporting Equipment Areas without Landlord's prior written consent (which consent shall not be unreasonably withheld, conditioned or delayed).

Section 16.22. Generator. Tenant shall be entitled to install, operate, and maintain one or more generators (collectively, the "***Generator***") at Tenant's sole cost and expense and connect same to the electrical and other systems serving the Leased Premises (without paying any additional fee or rental to Landlord for the use thereof). The Generator shall be installed in the Outside Supporting Equipment Area. If Tenant elects to install and maintain a Generator as part of the Tenant Improvements, Tenant may construct and install at Tenant's expense (subject to application of the Allowance) a concrete generator pad and containment area for fuel filling operations, with permanent screening (the "***Generator Pad***") and underground connections to utility gas lines, if practicable. If subsequent to the completion of Tenant Improvements Tenant elects to install and maintain a Generator, Tenant may install the Generator Pad, subject to the

terms of this Section 16.22. Tenant shall be solely responsible for the cost of acquisition, installation, operation, and maintenance of the Generator; and Tenant shall install, maintain, and operate the Generator in accordance with all Applicable Laws including obtaining and maintaining any and all permits, approvals, and licenses required to install and operate the Generator by any governmental authority having jurisdiction. Landlord shall reasonably assist and cooperate with Tenant, at no out-of-pocket expense to Landlord (unless reimbursed), to obtain any required licenses or permits relating to the installation and operation of the Generator. In connection with Tenant's installation of the Generator, Landlord shall permit Tenant to install wires, conduits, and similar appurtenant facilities in the Building (including using the Building's risers, conduits, and towers, subject to reasonable space limitations and Landlord's reasonable requirements for use of such areas, for purposes of installing cabling from the Generator to the Building) to connect the Generator with Tenant's equipment in the Leased Premises; provided, however, that (i) such installation shall be completed pursuant to plans and specifications approved in advance by Landlord, which approval shall not be unreasonably withheld, conditioned or delayed, and (ii) such installation and maintenance shall be at Tenant's sole cost and expense and shall be completed in a good and workmanlike manner and pursuant to all other relevant terms and provisions in this Lease. Upon the expiration or earlier termination of the Lease Term, the Generator and/or any and all associated lines, cables, wires, conduit, equipment, apparatus, and supplies used in connection with the operation and maintenance of the Generator, including without limitation any above-ground fuel storage tanks and all related equipment and facilities shall be left in place, and Tenant shall execute and deliver a bill of sale conveying such items to Landlord in its "as-is, where-is" condition without any warranties or representations as to condition or operational status, and such items shall become Landlord's property, free and clear of any rights of Tenant or third parties claiming by, through or under Tenant. Landlord may perform a Phase I assessment in the area immediately surrounding the Generator, and if such Phase I assessment identifies any environmental contamination originating from Tenant's use thereof, then Tenant shall reimburse Landlord for Landlord's reasonable third-party costs, liability, claims, expenses or obligations with respect to the presence of such Hazardous Substances in such area and any and all required cleanup activities and/or remediation, within forty-five (45) days of Landlord's written request therefor. Notwithstanding the foregoing, unless Tenant uses a portion of the Allowance (or Additional Allowance) to fund the acquisition and installation of the Generator, Tenant shall have the right to remove the Generator (provided Tenant also removes all associated lines, cables, wires, conduit, equipment, apparatus, and supplies used by Tenant in connection with the operation and maintenance of the Generator, including without limitation any above-ground fuel storage tanks and all related equipment and facilities) prior to the end of the Lease Term, in which event Tenant shall repair any damage to the Building and the Common Areas caused by such removal (including the installation of landscaping improvements) and shall cause all related fuel and other Hazardous Substances to be removed in accordance with all Environmental Laws. In addition, if Tenant removes the Generator or if Tenant ceases to occupy and pay Rent with respect to the entire Rentable Area of the Building, Tenant shall be responsible, at Tenant's sole cost and expense, for any alterations or modifications that are required to the electrical distribution wiring and systems within the Building as a result of such removal. To the extent available and generally maintained by operators of similar generators in the general area of the Building, Tenant shall carry commercially reasonable pollution insurance relative to the Generator so long as the Generator

remains in place, naming Landlord as an additional insured. Tenant shall not be entitled to grant or assign or lease to any third party (other than a Permitted Transferee) the right to operate the Generator without Landlord's prior written consent (which consent shall not be unreasonably withheld, conditioned or delayed). Tenant shall (i) operate the Generator only as reasonably necessary in Tenant's good faith judgment (subject in all cases to the terms and provisions of the next sentence); (ii) so long as the Generator remains in place, maintain, repair, and keep the Generator in good condition and repair, at Tenant's sole cost and expense; and (iii) pay for all operating costs for the same, including without limitation fuel and other operational requirements. Except in the case of an emergency, power outage, or for testing and maintenance purposes, Tenant's operation of the Generator (*e.g.*, for testing purposes) shall be limited to reasonable and customary intervals occurring after business hours to the extent commercially practicable. The timing of any such non-emergency operation shall be coordinated with Landlord to minimize any resulting interference with neighboring tenants.

Section 16.23. Direct Competitors. So long as Tenant (together with any Permitted Transferees) is leasing at least sixty percent (60%) of the Rentable Area of the Building and occupying at least ten percent (10%) of such Rentable Area, no Default exists under the terms of the Lease, and Tenant's current financial statements confirm that Tenant's creditworthiness is as good or better than Tenant's creditworthiness as of the Lease Date, Landlord will not enter into any lease or other occupancy or use agreement with a Direct Competitor (as hereinafter defined) for space in any building in the Park owned by Landlord. For purposes of the foregoing, as of the Lease Date, Tenant's ***"Direct Competitors"*** are Exact Sciences, Guardant Health, Freenome, Foundation Medicine (an affiliate of Roche) and Thrive Early Detection Corp. (an affiliate of Johns Hopkins). So long as no Default exists under the terms of the Lease, Tenant shall have the right by delivering written notice to Landlord (a ***"Substitution Notice"***) to substitute or add new entities to the foregoing list of Direct Competitors (substitutions or additions shall only be effective on a prospective basis); provided such substituted or additional entity has as its primary business the conduct of liquid biopsy cancer screening (and, if such screening is done by a subsidiary or discrete business division of a company, the identified Direct Competitor shall be limited to the subsidiary or business division performing such screening). Tenant shall only have the right to deliver a Substitution Notice starting on the second (2nd) anniversary of the Commencement Date (A) one (1) time during any twenty-four (24) month period during the remainder of the Lease Term so long as Tenant remains a privately held company (*i.e.*, no IPO has occurred), or (B) one (1) time during any twelve (12) month period if Tenant engages in an IPO and Tenant's stock is publicly traded (in which case the updated list of Direct Competitors shall limited to the entities listed as Tenant's competitors in Tenant's 10-K filing that meet the criteria of Direct Competitor); provided, however, that (x) there shall at no point in time be more than five (5) entities listed so long as Tenant remains a privately held company, and (y) except as otherwise provided below, Tenant may not add to such list any entity which is then a tenant of the Park or with whom Landlord is then actively negotiating to lease space in the Park.

Section 16.24. Additional Improvements.

(a) Fitness Center. Landlord will construct, furnish and operate (or cause to be constructed, furnished and operated by a third party) an approximately 10,699 square foot fitness center (the "***Fitness Center***") in the location shown on **Exhibit D** and in accordance with

Exhibit J to provide a fitness/exercise amenity to tenants of the Park. The exercise areas of the Fitness Center will be equipped with certain exercise and fitness equipment, and the Fitness Center may or may not be operated with an attendant on duty. Tenant's employees shall be entitled to utilize the Fitness Center during Normal Business Hours, and Tenant acknowledges and agrees that access to and use of the Fitness Center shall be further subject to rules and regulations adopted by Landlord in effect from time to time relating to the use, safety and welfare of the Fitness Center. Each individual desiring to utilize the Fitness Center will be required to first sign and deliver Landlord's form waiver and acknowledgment as a condition to the use of the Fitness Center. Landlord, in Landlord's discretion, may engage a third-party operator to provide programming for the Fitness Center, and in such event, any costs associated therewith shall be included in Operating Expenses. The Fitness Center will have modern finishes with locker room/shower facilities and will incorporate customary functions such as first-class weight and cardio machines. Landlord may arrange for community-based active programming with group classes and programming, subject to demand, the costs of which will all be included in Park Costs and Operating Expenses. Additional services and activities may be made available from time to time with payment of additional registration or usage fees on an *a la cart* basis.

(b) Café. Landlord will construct, furnish and operate (or cause to be constructed, furnished and operated by a third party) an approximately 3,000 square foot "grab and go" or similar food service operation (the "***Café***") in the location shown on **Exhibit D** and in accordance with **Exhibit J** to provide a food service amenity to tenants of the Park. The Café will serve breakfast and lunch options from 8:00 a.m. to 2:00 p.m. on weekdays, and will have tables and chairs for on-premises consumption, which food items and menus will be prepared by and subject to periodic changes by the operator of the Café.

Section 16.25. Training Space Allowance. Landlord shall provide Tenant with the Training Space Allowance to be used by Tenant to lease or license temporary office and training space (consisting of approximately 10,000 square feet of space, including office space sufficient for twenty-five (25) people and two (2) conference rooms) (the "***Training Space***") commencing on the date that is ten (10) days following the Lease Date through the date that is thirty (30) days following the Commencement Date. Tenant shall be responsible for locating and securing use of the Training Space. Landlord shall, subject to and in accordance with the provisions of this Section 16.25, reimburse Tenant for costs and expenses of securing use of the Training Space up to an amount equal to the Training Space Allowance. Landlord shall disburse the Training Space Allowance monthly to Tenant, within five (5) business days after the first of each month, in reimbursement for costs paid to the third party landlord or other provider of the Training Space utilized by Tenant as evidenced by statements from Tenant showing such payments. Tenant shall be solely responsible for payment of all costs incurred relative to Tenant's use of the Training Space (subject to reimbursement from the Training Space Allowance), and to the extent that Tenant fails to submit payment applications or invoices for use of the Training Space in an amount equal to or greater than the Training Space Allowance, Landlord shall be entitled to retain any excess of the Training Space Allowance for Landlord's account.

Section 16.26. Memorandum of Lease. Within ten (10) business days after the Lease Date, Landlord and the Tenant shall execute, acknowledge and deliver, and Tenant shall be

entitled to record in the Registry against title to the Building, the Grid Buildings and the Expansion Area, a memorandum of this Lease in the form attached hereto as **Exhibit L**, sufficient to provide record notice of Tenant's rights under this Lease, including Tenant's rights relative to the Grid Expansion Space, First Refusal Space and Expansion Area, provided that Tenant shall be solely responsible for the cost of recording the Memorandum.

Section 16.27. Access Control System. Notwithstanding anything in this Lease to the contrary, while Tenant is leasing all of the Rentable Area in the Building, Tenant shall have the right, subject to Landlord's reasonable approval of the plans and specifications therefor, at Tenant's sole cost and expense, to install and implement (i) a controlled access system or other similar access system regulating access to and from the Building and (ii) a Tenant-controlled security system which provides security measures to and within the Leased Premises (the "***Security Devices***"), provided that (A) Tenant shall comply with all Applicable Laws in connection with the installation, implementation and monitoring of such Security Devices, (B) the Security Devices shall not adversely affect the mechanical or utility systems which serve the Leased Premises or Building, the structural integrity of the Building, and (C) Landlord and its designees shall continue to have access to the Building subject to the terms forth in this Lease.

(SIGNATURES CONTAINED ON THE FOLLOWING PAGES)

IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the day and year first above written.

LANDLORD:

PP OFFICE OWNER l , L.P.,
a Delaware limited partnership

By: PP Office Owner l GP, L.L.C., a Delaware limited liability company, its General Partner

Dated: June 4, 2020

By: /s/ Andres Panza

Printed: Andres Panza

Title: Authorized Signatory

[SIGNATURES CONTINUED ON THE FOLLOWING PAGE]

TENANT:

GRAIL, INC.,
a Delaware corporation

Dated: 3rd June 2020

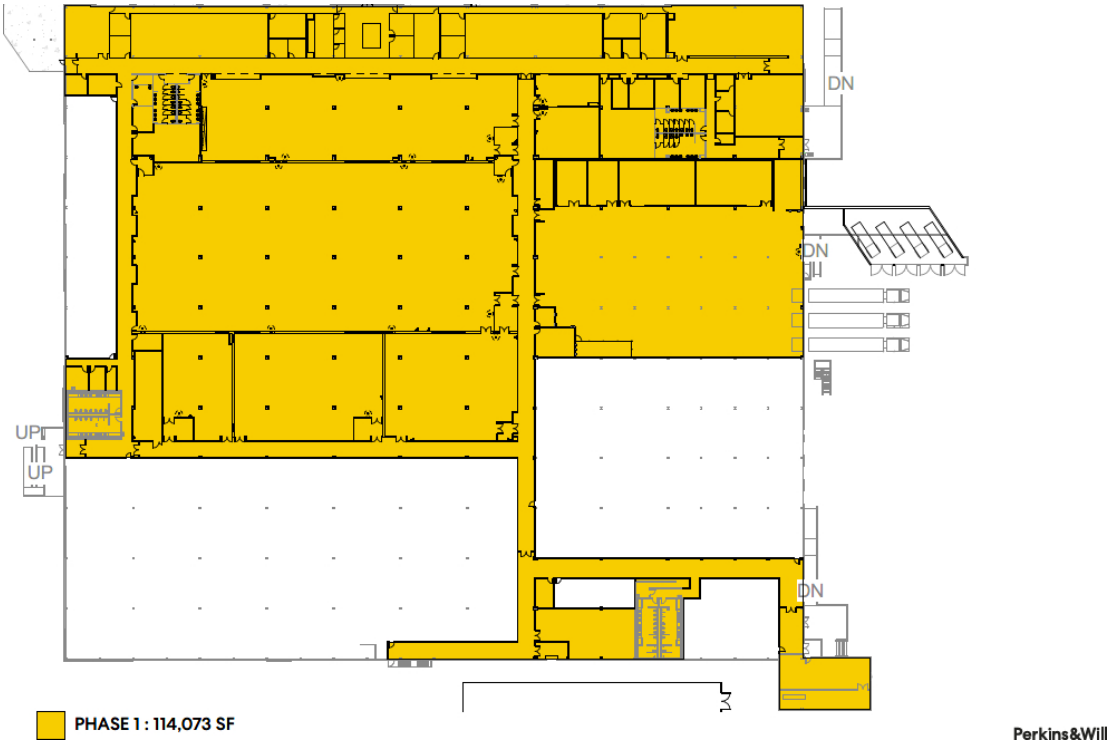
By: /s/ H. BISHOP

Printed: H. BISHOP

Title: C.E.O.

EXHIBIT A

LEASED PREMISES
(Initial Leased Premises shown as "Phase 1" below)



(Deferred Leased Premises shown as "Phase 2" below)

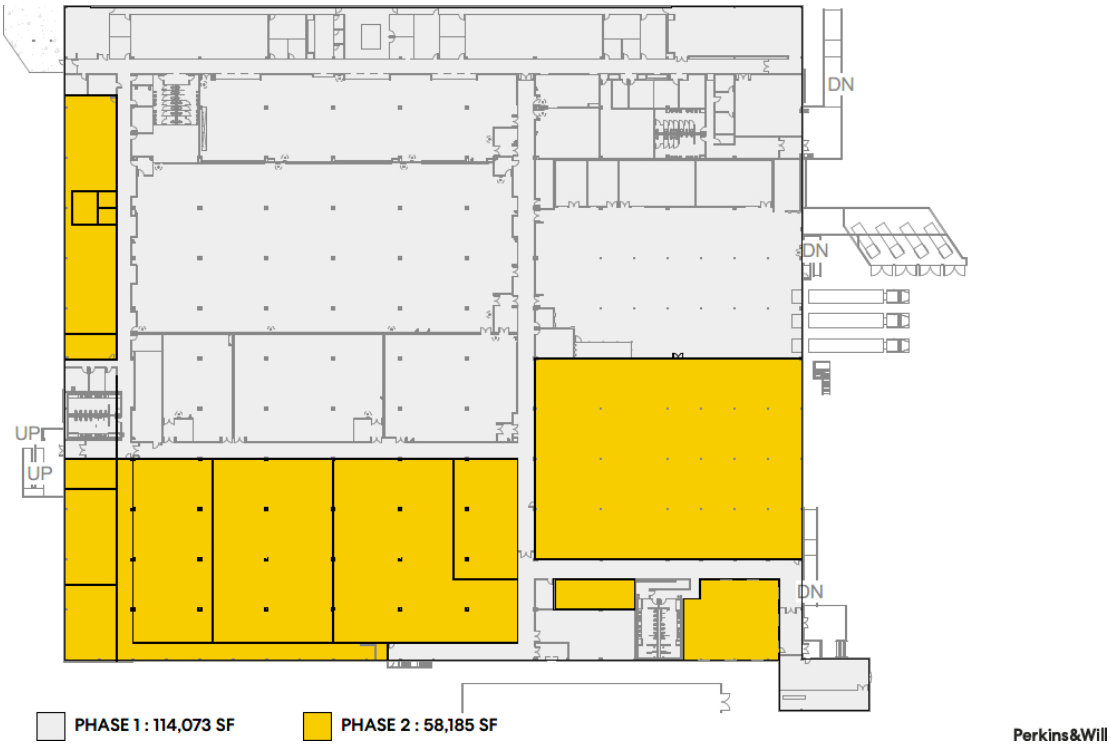


Exhibit 21.1

List of Subsidiaries of
GRAIL, Inc.

Name	**Jurisdiction of Incorporation or Organization**
Grail (BVI) Limited	British Virgin Islands
Grail Bio UK Limited	United Kingdom
Grail Hong Kong Limited	Hong Kong
Grail Limited	Hong Kong

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the use in this Registration Statement on Form S-1 of GRAIL, Inc. of our report dated April 21, 2020 relating to the financial statements of GRAIL, Inc., which appears in this Registration Statement. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ PricewaterhouseCoopers LLP
San Jose, California
September 8, 2020