As filed with the Securities and Exchange Commission on May 12, 2021.

Registration No. 333-255912

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Amendment No. 1 to
FORM S-1
REGISTRATION STATEMENT
Under
The Securities Act of 1933

SINGULAR GENOMICS SYSTEMS, INC.
(Exact name of Registrant as specified in its charter)

Delaware	3826	81-2948451
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

10931 N. Torrey Pines Road
Suite #100
La Jolla, CA 92037
(858) 333-7830
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Andrew Spaventa
Chief Executive Officer
and Chairperson of the Board
Singular Genomics Systems, Inc.
10931 N. Torrey Pines Road
Suite #100
La Jolla, CA 92037
(858) 333-7830
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Ryan J. Gunderson	Dalen Meeter	Charles S. Kim
Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP	Vice President, Finance	Sean M. Clayton
3570 Carmel Mountain Road, Suite 200	Singular Genomics Systems, Inc.	Kristin E. VanderPas
San Diego, CA 92130	10931 N. Torrey Pines Road	Denny Won
(858) 436-8000	Suite#100	Cooley LLP
	La Jolla, CA 92037	4401 Eastgate Mall
	(858) 333-7830	San Diego, CA 92121
		(858) 550-6000

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, please 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, 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(3)
Common Stock, $0.0001 par value per share	$100,000,000	$10,910

(1) Estimated pursuant to Rule 457(o) under the Securities Act of 1933, as amended.
(2) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase.
(3) The Registrant previously paid $10,910 in connection with the initial filing of its Registration Statement.

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, as amended, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED , 2021

Shares

SINGULAR GENOMICS

Common Stock

This is the initial public offering of shares of common stock of Singular Genomics Systems, Inc.

We are offering shares of our common stock. Prior to this offering, there has been no public market for our common stock. It is currently estimated that the initial public offering price per share will be between $ and $. We have applied to list our common stock on the Nasdaq Global Market under the symbol "OMIC."

We are an emerging growth company under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.

Investing in our common stock involves a high degree of risk. See "Risk Factors" beginning on page 20.

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds, before expenses, to us	$	$

(1) See "Underwriting" for additional disclosure regarding the estimated underwriting discounts and commissions and estimated offering expenses.

We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of our common stock.

The underwriters expect to deliver the shares against payment in New York, New York on , 2021.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

J.P. Morgan **Goldman Sachs & Co. LLC** **BofA Securities** **Cowen** **UBS Investment Bank**

, 2021

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Until , 2021 (25 days 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 a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

Neither we nor the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus, any amendment or supplement to this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

Neither we nor the underwriters have done anything that would permit this offering or possession or distribution of this prospectus or any free writing prospectus we may provide to you in connection with this offering in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus and any such free writing prospectus outside of the United States.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and is qualified in its entirety by the more detailed information and financial statements included elsewhere in this prospectus. It does not contain all of the information that may be important to you and your investment decision. You should carefully read this entire prospectus, including the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus. In this prospectus, unless context requires otherwise, references to "we," "us," "our," "Singular," or the "Company" refer to Singular Genomics Systems, Inc.

Company Overview

Our Mission

Our mission is to accelerate genomics for the advancement of science and medicine. The genomic tools and technologies developed over the last two decades since the first sequencing of the human genome have greatly improved our understanding of biology, empowered the development of novel therapies and advanced clinical diagnostics. And yet the transformative potential of genomics is just starting to be realized. For example, in oncology, we are just at the beginning of an era in which cancer can be detected early, analyzed at the molecular level, treated with targeted therapies, and monitored through blood tests able to detect and profile minimal residual disease. Today's sequencing technologies and products have made a significant impact, but real limitations remain to incorporate these tools into routine clinical practice: long analysis times, labor intensive protocols, sample batching requirements and high cost. We are developing fast, powerful, efficient, flexible sequencing platforms, along with novel applications and sample-to-result workflows to solve these challenges.

We believe the next generation of biological discovery and translational medicine will be powered by even more advanced molecular technologies. These technologies can enable a high resolution view of DNA, RNA and proteins in individual cells, along with their spatial arrangement. This multiomics view will enable greater insight into the function of both cells and tissues. We are building these new technologies by leveraging our core DNA sequencing engine as a universal detection method of biological information. We take advantage of the vast combinatorial range of DNA bases as a nature inspired barcode and combine it with powerful molecular biology techniques and the latest advances in high speed, high resolution imaging. Our goal is to unleash the full power of sequencing as a universal reader of biology, which we believe will ultimately open new frontiers in research and medicine.

Overview

We are a life science technology company that is leveraging novel next generation sequencing (NGS) and multiomics technologies to build products that empower researchers and clinicians. We developed a unique and proprietary NGS technology, which we refer to as our Sequencing Engine. This Sequencing Engine is the foundational platform technology that forms the basis of our products in development and our core product tenets: accuracy, speed, flexibility and scale. We are currently developing two integrated solutions that are purpose built to target specific applications in which these core product tenets matter most. Our first integrated solution is targeted at the NGS market and comprises an instrument (the G4 Instrument) and an associated menu of consumable kits, which we refer to collectively as our G4 Integrated Solution. The G4 Instrument is a benchtop next generation sequencer designed to produce fast and accurate genetic sequencing results. The integrated purpose built kits that run on the G4 Instrument address specific applications in fast growing markets including oncology and immune profiling. We have completed our beta pilot program (which is our first external third-party evaluation) and anticipate initiating an early access program followed by a commercial launch of the G4 Integrated Solution by the end of 2021, with intentions for units to ship in the first half of 2022. Our second

integrated solution in development comprises an instrument (the PX Instrument) and an associated menu of consumable kits, which we refer to collectively as our PX Integrated Solution. Leveraging sequencing as a universal readout, the PX Integrated Solution combines single cell analysis, spatial analysis, genomics and proteomics in one integrated instrument providing a versatile multiomics solution. We anticipate commercial launch of the PX Integrated Solution in 2023.

The core of our Sequencing Engine is comprised of unique and proprietary chemistry, including novel chemical compounds, polymers and enzymes. This chemistry is designed to produce high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS. To take full advantage of the proprietary chemistry, we are developing purpose built instrumentation consisting of high speed, high resolution imaging and innovative fluidic design. We believe that our Sequencing Engine, together with our proprietary innovations in molecular biology techniques, will enable differentiated applications in fast growing markets. These innovations are supported by our intellectual property portfolio.

Each of our two integrated solutions in development consists of an instrument that incorporates our Sequencing Engine and associated consumables that are used exclusively on each instrument. The G4 Integrated Solution is designed to target the NGS market, in particular, applications that require accuracy, speed, flexibility and scale. We are focused on oncology where there is an increasing need for higher sensitivity technology such as rare variant detection in liquid biopsy. Another area of focus is immunology where there is a need to better understand and harness the immune system in infectious disease, autoimmune disorders and cancer immunotherapy. We aim to execute a three step commercialization plan for our G4 Integrated Solution consisting of: (1) collaborating with select partners to conduct beta pilot tests, which we have completed, (2) expanding collaborations with additional potential customers in an early access program and (3) offering our G4 Integrated Solution broadly to the market, with commercial launch by the end of 2021 and shipping units in the first half of 2022.

The PX Integrated Solution is our second product in development and is a multiomics platform designed to target the markets for single cell, spatial analysis and proteomics. The PX Integrated Solution will leverage our Sequencing Engine as a readout mechanism to provide a high-resolution view of biology at the single cell and tissue level. We believe the PX Integrated Solution, when launched, will be a high-throughput, versatile platform capable of measuring levels of RNA transcription, protein expression and sequence specific information directly in cells and tissues. We believe the PX Integrated Solution will have broad application across many areas of biology. We are initially focused on applications in oncology and immunology, with future expansion into other applications such as neurology. We are currently in an advanced prototype development stage for the PX Integrated Solution and expect to begin an early access program in 2022 and full commercial launch in 2023. We believe that our G4 and PX Integrated Solutions can unleash the full power of sequencing as a universal reader of biology, and open new frontiers in research and medicine.

Our Foundational Technology

We have developed a novel and proprietary Sequencing Engine that is a foundational technology for our products in development. The core of our Sequencing Engine is a unique and proprietary chemistry that enables high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS technology and enable performance of highly accurate and massively parallel sequencing at speed. We aim to deploy our foundational technology as a universal reader of biology, which can ultimately open new frontiers in research and medicine.

We built our Sequencing Engine from the ground up, and it incorporates the following innovations:

- *Cluster amplification*: We have developed an optimized cluster amplification method that is designed to ensure generation of high quality and high density clusters with minimal sequence bias and high signal-to-background ratios. This enables high accuracy sequencing regardless of the type of genetic input material.

- *Paired end equivalent sequencing*: We are developing a novel method to achieve an accurate paired end equivalent sequencing. We believe our method will be fast and efficient with reagent usage, while still providing the critical value of efficient mapping and detection of gene rearrangements, higher quality data and single cell genomics.

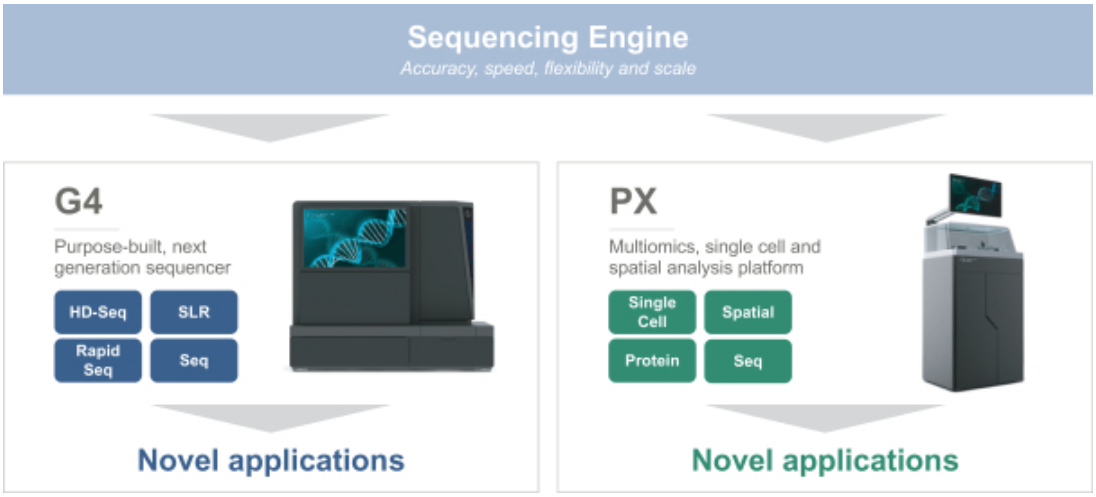
- *Sequencing chemistry*: We have recognized that chemistry has historically been a particularly challenging area to improve in the sequencing process. Therefore, we developed a new and proprietary sequencing chemistry. This chemistry includes novel enzymes and nucleotides. We have also designed and synthesized our own dyes to optimize performance. This new and proprietary chemistry enables fast sequencing cycle times.

- *Detection technology*: We have developed a proprietary high speed and high resolution imaging system. The imaging system has been designed to optimize throughput, cycle time, accuracy and efficiency.

While the above comprises the technology used in our Sequencing Engine, we also incorporate additional technologies into our G4 Instrument and PX Instrument. For example, our G4 Instrument includes a unique flow cell design to improve workflow flexibility for the user and our PX Instrument includes a well-plate format intended to push the boundaries of throughput for both single cell and spatial analysis applications.

Our Integrated Solutions

Our product development pipeline comprises two initial integrated solutions, each designed to leverage our Sequencing Engine and purpose built to address different applications. Our G4 Integrated Solution is designed to target the NGS market. Our PX Integrated Solution is designed to target the single cell, spatial analysis and proteomics markets. Each integrated solution consists of an instrument that incorporates our Sequencing Engine and associated consumables that are used exclusively on each instrument.



G4 Integrated Solution

We surveyed numerous labs and key opinion leaders (KOLs) while developing our G4 Integrated Solution to listen to their needs and to identify the limitations of current solutions. In parallel, we engineered an

instrument around our Sequencing Engine to address those real-world needs. Our G4 Integrated Solution is designed to seamlessly fit into existing workflows, including library preparation and bioinformatics. It is also designed to provide flexibility in terms of sample batching and number of flow cells in a sequencing run. We believe this design will enable customers to better manage a wide range of daily sample volume demands without sacrificing turnaround times or incurring extra expenses from inefficient reagent kit use. We are targeting applications for which we believe accuracy, speed, flexibility and scale matter, and where our novel molecular biology methods offer unique advantages.

Capabilities of the G4 Integrated Solution

We believe there are several key criteria that have determined the commercial success of sequencers, including accuracy, speed, flexibility and scale. In addition, read length and the ability to sequence DNA from both ends of the fragment, commonly referred to as paired end sequencing, are important factors. We designed the G4 Integrated Solution to have the following characteristics to address these key criteria:

- *High accuracy:* Sequencing accuracy is critical to correctly determining the order of bases present in DNA. Errors can be introduced in the sequencing process itself, or in the upstream steps involved in sample processing and library preparation. Base calling accuracy, measured by the Phred quality score (Q score), is the most common metric used to assess the accuracy of a sequencing platform. It indicates the probability that a given base is called correctly by the sequencer. We believe that a sequencer must have at least Q30 accuracy (i.e., 1 in 1000 probability of calling a base incorrectly) to be commercially successful. We have internally demonstrated Q30 accuracy on greater than 70% of base calls. This gives a demonstrated accuracy of 99.7% on 150 base reads. In our two beta pilot tests, our third-party external partners demonstrated Q30 or higher accuracy on greater than 70% of base calls. One third-party external partner conducted standard RNA sequencing, and the other conducted testing with single-cell RNA sequencing using paired-end reads consistent with the methods it currently uses. In both cases, the gene expression levels measured by these third-parties in their tests utilizing our G4 Integrated Solution correlated strongly to the independent reference data these third-parties generated with their current commercially available sequencing methods. For our commercial G4 Instrument, we are targeting Q30 for greater than 80% of base calls for 150 base reads, which we believe we can achieve through continually optimizing multiple parameters in clustering, sequencing, imaging and signal processing. Additionally, we have demonstrated uniform guanine-cytosine (G/C) coverage over the range of 20-70% G/C content. We believe this high accuracy is competitive with what customers are accustomed to with current sequencing solutions.
- *Speed of sequencing:* Dramatically decreasing the chemistry time needed for each base to be detected means that the overall sequencing time can be significantly faster, resulting in more samples being run in a day on a given platform. Cycle time is the measurement of time needed to add one nucleotide, image and prepare the elongating strand for the next nucleotide and the start of the next sequencing cycle. We are targeting a 2.5 minute cycle time for each base sequenced. We expect that this will give us a sequencing time of approximately 16 hours to complete a 2x150 base run. For other run modes such as RNA-Seq, we are targeting run times of approximately five hours. Currently, we are running a 4.0 minute cycle time, with previous demonstration of high quality sequencing with a 2.7 minute cycle time on our previous prototype. In our two beta pilot tests, our third-party external partners demonstrated a 4.0 minute cycle time. We anticipate that future versions of our chemistry will allow us to reduce the cycle time even further. Speed also gives our G4 Instrument the capacity for higher throughput as our fast runtime will facilitate the possibility of processing multiple runs in a day.
- *High, independent, flexible throughput:* Every sequencing run requires reagents and disposable parts, including flow cells. Our G4 Integrated Solution has flow cells with independent lanes, enabling

libraries to be kept separate in each lane while still retaining high throughput capacity. We believe this allows for easier and more convenient processing of samples, thus enabling the G4 Integrated Solution to cover a wide range of throughput requirements. Alternative sequencing technologies that do not have this flexibility in throughput may require customers with different volume requirements across different experiments to have multiple instruments in their lab or encounter a slow turnaround time with a backlog of projects. We have internally demonstrated the capability to produce 150 million reads per flow cell. In our two beta pilot tests, our third-party external partners demonstrated average throughput of greater than 150 million reads per flow cell for single-end reads, and an average throughput of greater than 100 million reads for paired-end reads. If all four flow cells are utilized in a sequencing run and with a full read length of 150 bases, our G4 Integrated Solution can generate 600 million reads per sequencing run. We are targeting 330 million reads per flow cell at commercial launch for a total of 1,320 million reads if all four flow cells were utilized in a sequencing run, which we believe we can achieve through ongoing upgrades to the G4 Instrument's optical system, which will allow for higher resolution imaging and cluster density.

- *Paired end equivalent sequencing:* In some applications, users value the ability to perform paired end reads and tune the system to different read lengths. Paired end sequencing is a technique involving reading from both ends of DNA fragments. This technology can (1) enable longer reads, which allows for more efficient mapping and detection of gene rearrangements for better genome assembly; (2) overlap reads for higher quality data; (3) support single cell genomics and other barcode enabled applications; and (4) enable the ability to detect insertions and deletions (indels) and inversions. We are developing and plan to offer a novel way to achieve paired end equivalent sequencing such as 2x150. We believe that this is just the starting point of our capabilities for paired end equivalent sequencing and that we will be able to improve this metric further as our technology develops.
- *Read lengths:* We are developing kits with read lengths of 50 bases to 150 bases. We also plan to extend read length beyond 150 bases in our G4 Integrated Solution with synthetic long read (SLR) kits.
- *Workflow:* We have designed our G4 Integrated Solution for customers to efficiently switch to our products and platform as the upstream workflow and downstream analysis will be compatible with current NGS processes.

Applications for the G4 Integrated Solution

We believe that our G4 Integrated Solution has broad potential application across research and clinical markets. While we believe that the G4 Integrated Solution will be able to run a wide variety of available sequencing applications that are currently available on the market today, we specifically designed our G4 Integrated Solution to excel with applications that benefit from accuracy, speed, flexibility and scale. Our initial targeted applications for our G4 Integrated Solution include rare variant detection with High Definition Sequencing (HD-Seq) and SLR. These applications target large markets across oncology, including liquid biopsy detection of cell-free DNA (cfDNA) and immunology.

- *Rare variant detection with HD-Seq:* We designed our G4 Integrated Solution to support HD-Seq, a unique library prep kit and sequencing method for double-stranded DNA, which we are designing to provide higher accuracy than standard single-strand NGS sequencing methods (including ours), and is expected to enable rare variant detection with higher efficiency and lower costs. HD-Seq is intended to achieve accuracy levels of Q50, which can help differentiate a real mutation from random errors. In our internal testing, we have demonstrated 99.99% accuracy for 100 base reads with our current methodology, and we anticipate that we will be able to reach 99.999% accuracy for greater than 100 base reads. This internal testing involved using commercial reference materials for cfDNA and preparing sequencing libraries using our HD-Seq methodology. We then clustered and sequenced the library, with bi-directional readout of 100 bases in one direction and 150 bases in the other direction.

To assess accuracy, we analyzed overlapped regions of 100 bases. For HD-Seq, the base call was only made if there was agreement in the base calls on the complementary strands. The accuracy of the HD-Seq base calls was 99.99%. Accuracy is especially important in oncology for the detection of somatic mutations, including rare single-nucleotide polymorphisms. It is also critical in liquid biopsy where the frequency of mutations in a sample is extremely low. With the accuracy that our HD-Seq could provide, we anticipate that customers will be able to achieve high accuracy in a cost-effective manner relative to other commercially available technologies.

- *Synthetic long reads (SLR):* We also plan to offer proprietary specialized library prep kits for targeted SLR, which we expect to facilitate reads of up to 2,000 to 3,000 base pairs using our G4 Integrated Solution. We have currently demonstrated approximately 450 base reads with B cells for VDJ sequencing. We expect this to be a key capability for applications requiring long sequencing reads. We believe that our G4 Integrated Solution will be able to deliver the throughput, accuracy and read lengths required to support comprehensive analysis of the immune system, especially the adaptive immune response which consists of B and T cells. We believe that a high throughput, high accuracy, cost effective solution for reading these longer gene sequences can advance the understanding of the immune system and ultimately improve the diagnosis and monitoring of blood cancers, provide new insights into immunotherapy for cancer, facilitate therapeutic antibody and T cell discovery and accelerate the development of vaccines for infectious disease.

Expansion of the G4 Product Suite

We anticipate that there will be customers who have high volumes who will still need the flexibility to batch less while still maintaining high throughput. Examples of these types of customers would include:

- Laboratories that do not want to batch together hundreds or thousands of samples onto one sequencing flow cell because of the risk that one failure might ruin data from all samples in the run; or
- Laboratories with high sample volumes of diverse sample types and/or run modes which would make it difficult to combine those samples together on one sequencing flow cell.

For these specific types of customers, which include commercial laboratories and academic laboratories, we plan to offer an expansion of our G4 Instrument in a configuration that we have named the G4x4. This special four instrument configuration will be designed to address a different part of the NGS market for those needing high sequencing output while maintaining speed and flexibility of the G4 Integrated Solution.

PX Integrated Solution

Our PX Integrated Solution is focused on the single cell and spatial analysis markets, and consists of our PX Instrument and associated consumables. The PX Instrument leverages our Sequencing Engine to enable multiomics analysis of single cells and tissues as both a universal detection method and in situ sequencing. Importantly, the PX Instrument is designed to provide high throughput analysis of nucleic acids and proteins, while also generating high resolution images of cellular morphology to enable computer-vision based analysis of cellular phenotype. This design reflects an appreciation of the tremendous potential for machine learning based image analysis to serve as a rich source of biomarker information for cancer and autoimmune disease translational research. We believe our PX Integrated Solution will eliminate the need for customers to employ multiple systems over several day workflows, which is required by existing commercial methods. Ultimately, we believe this will enable researchers to perform large scale experiments that may fundamentally advance our understanding of biology, and, in turn, advance human health.

Current challenges in single cell and spatial analysis

In recent years, systems have been developed for targeted gene sequencing in single cells, and for measuring levels of gene transcription in individual cells by sequencing readout. These tools have yielded new information that is not available from bulk sequencing measurements. However, current commercial methods have significant limitations. One limitation is that cells are broke open and tagged with DNA barcodes in droplets, then pooled together into a sequencing run, thus losing information about cell morphology. Another limitation is the number of cells and samples that can be processed in an experiment. Finally, current methods struggle to achieve multiomics readout, with only limited ability to measure proteins along with DNA or RNA, while maintaining cellular morphology.

For spatial analysis of tissue, the capabilities of current genomic technologies are even more limited. Most genomic analysis of tissue is done on a bulk basis, with no spatial resolution. Recently, several spatial analysis platforms have been developed and introduced commercially. However, we believe that these technologies currently have several limitations. First, we believe most of these platforms currently have limited resolution, unable to provide detailed information at the level of individual single cells, including subcellular localization, and information about how the cells are organized in space within the tissue. Second, we believe current commercial platforms are unable to provide high throughput. Experiments are limited to less than 20 samples per run, and in some cases just one sample per run, which limits the ability of users to conduct large scale experiments.

Although the single cell and spatial analysis fields are still in their infancy, we anticipate that the following elements will be critical for determining success in the future:

- *Cell capacity*: Historically, instruments that have been able to analyze the highest number of single cells have shown the most success. We believe this will continue to be an important success factor.
- *Resolution*: We believe that the ability to provide genomic and proteomics data at the single cell level, and even resolve subcellular features, will be informative to researchers.
- *Throughput*: Similar to NGS, we believe that researchers will continue to push the boundaries of research to understand biology and instruments will need to handle more samples to stay relevant.
- *Multiomics capabilities*: We believe that having the ability to measure multiple types of analytes (e.g. RNA transcripts and cellular proteins) from the same cell will be invaluable in piecing together how different genes and proteins interact within a spatial context. We believe that machine learning based image analysis will serve as an increasingly critical component of multiomics based discovery.
- *Tissue sample type*: 80% of translational research studies that involve tissue analysis utilize formalin-fixed paraffin-embedded (FFPE) preserved tissue. Thus, it will be critical for an instrument to be compatible with this sample type.
- *Cost*: We believe researchers want to continue to push towards larger scale single cell studies requiring millions of cells. Without integration of the cell preparation and the sequencing into one platform, we believe that the cost will become too high using current methods.

Capabilities of the PX Integrated Solution

We are designing the PX Integrated Solution to have the following characteristics, which we believe are important differentiating characteristics of single cell and spatial analysis approaches:

- *Multiomics detection*: We are developing the PX Integrated Solution to identify specific RNA and proteins (through the use of oligo-conjugated antibodies) using our core Sequencing Engine either as a

universal detection method or for in situ sequencing along with cellular morphology and tissue organization. We believe this provides significantly more information than is available today with current commercial single cell technologies. The addition of the cellular morphology along with spatial organization of biomolecules within the tissue microenvironment can provide a data rich solution across many research applications to better understand cell development, maturation and pathogenesis. We believe that the combination of these useful datasets from individual cells will provide a more complete cellular picture as it will combine both phenotypic data along with detailed molecular characterization.

- *High throughput and large scale:* We are designing the PX Integrated Solution to be high throughput in order to enable researchers to perform large scale studies that are currently inaccessible but are needed for a more complete characterization and understanding of cells, and therefore biology. Current commercially available single cell technologies detect 10,000 to 100,000 cells in an experiment. Our PX Instrument will use a well-plate approach (either with a 96 or 384-well consumable plate) designed to process 10,000 to 100,000 cells per well at a throughput of 1 million to 10 million cells in a 96 well plate. We believe that this will meet the growing need in this market for millions of cells and the large scale that is currently unattainable today. Current commercially available spatial analysis instruments can run an experiment involving only 4 to 20 tissue samples. With our PX Integrated Solution, we expect to run up to 96 tissue samples per run.

- *High resolution:* The PX Integrated Solution will be designed to resolve molecules at the single cell level including subcellular localization of targets. We anticipate that this will enable researchers to differentiate between single cells to truly understand cellular characterization.

- *Targeted panels*: We believe that current discovery efforts with bulk sequencing will lead to translational panels that are targeted on the key genes of interest. Our PX Integrated Solution will be designed for larger scale studies that will process a higher number of samples with these focused panels.

Applications for the PX Integrated Solution

We are developing our PX Integrated Solution to have a broad set of applications in single cell and tissue analysis. Examples of applications for our PX Integrated Solution may include but are not limited to the following:

- *Single cell RNA counting for differential gene expression:* Targeted gene panels (with customization available) for specific research areas and diagnostic applications to measure the gene expression within each cell. It is anticipated that the imaging readout will also provide cell morphology information.
- *Single cell proteomics:* Targeted protein panels for specific research areas and diagnostic applications to measure intracellular and surface proteins.
- *Single cell RNA sequencing for variant detection:* In situ sequencing of selected gene targets directly within each cell while also simultaneously providing phenotype data for each cell, such as binding of antigens to B cells.
- *Spatial RNA and proteomics applications for tissue in development:* Targeted panels (with customization available) for specific basic and translational research applications to measure gene transcription and protein expression within tissue and then link this information to additional phenotypic data to help provide biological context.

Key disease areas for the PX Integrated Solution

We are designing our PX Integrated Solution to have broad applicability across multiple large disease areas. Although our initial applications will focus on indications across oncology and immunology, we are designing

our PX Integrated Solution to possess the foundational technology and capabilities to address additional areas, including neurology and developmental biology. We believe that key existing biological challenges can be addressed through improved multiomics information, higher resolution and enhanced spatial context, which we are designing our PX Integrated Solution to provide. The following large disease areas are examples of where we are designing our PX Integrated Solution to address significant challenges.

- *Oncology*: We believe the PX Instrument will be ideally suited to study blood cancers initially. We are designing the PX Instrument to enable the mapping of the progression of blood cancers as they develop, pre and post treatment, to fully characterize them across multiple molecular markers. The cellular phenotype, including morphology, could be valuable in helping to further characterize these cancer cells along with the molecular data of gene expression. We anticipate that the coupling of molecular data with the cellular phenotype and morphology can help to drive further understanding and identification of different types of cancer as well as provide the ability to interpret biological function.
- *Immunology*: We anticipate that our single cell sequencing will be valuable for identifying the paired receptor data (light and heavy chains in B-cell or alpha and beta chains in T cell) that is currently lacking at scale today. By having a high throughput method that will sequence and retain the linkage of the two chains of the immune receptors, we believe researchers will be able to study in more depth the immune repertoire while also correlating each cell with its cellular phenotype. Additionally, we believe that we will be able to use a DNA conjugated antibody that recognizes the antigen to confirm the immune cell is binding to a specific antigen. We anticipate this combination of data can provide powerful information to interpret biological function as well as to further characterize immune cell types.

We believe that using our three-step commercialization plan will allow us to build our sales and marketing organization and customer support services to support the commercial launch of our G4 Integrated Solution. We are also investing in our manufacturing operations to be prepared for the commercial launch of our G4 Integrated Solution and our planned PX Integrated Solution. As we have not yet commercially launched our G4 Integrated Solution and as our PX Integrated Solution is still in the development stage, we have limited sales and marketing and customer support experience and although we have some limited manufacturing experience, we have no experience manufacturing our products at commercial scale.

Markets

We believe our product pipeline targets multiple market opportunities across life sciences. Due to the comprehensive capability to analyze biology that we are designing into our products, we anticipate that much of this opportunity will ultimately be available to us. We estimate that the products we have currently under development in the G4 and the PX Integrated Solutions target substantial market opportunities such as: NGS, single cell, spatial analysis, proteomics and potential new markets based on our estimates that these markets are underserved by existing genomics products and technologies and our target customers will recognize the value proposition offered by our products.

NGS market: According to Allied Market Research, the global NGS market is expected to grow to approximately $18.6 billion in 2026 at a compound annual growth rate (CAGR) of approximately 19.2% between 2020 and 2026. According to DeciBio, the NGS market in 2020 consisted of 58% basic research and translational medicine and 42% clinical applications, and in 2021, the basic research and translational medicine market was estimated to be approximately $4 billion and the clinical applications market was estimated to be approximately $3 billion, which we believe we can access based on the capabilities of our G4 Integrated Solution and assuming that target customers will view our G4 Integrated Solution as a competitive alternative to existing tools and technologies. The current landscape of NGS instruments available in the market today are comprised of lower and medium throughput benchtop platforms, and production scale high throughput platforms. We purposely

designed our G4 Integrated Solution to target specific applications and to be capable of competing with other instruments across a range of throughput levels, particularly in the medium throughput segment. We also believe the G4 Integrated Solution can capture market share from both the lower throughput applications but also some of the higher throughput applications given its speed and cost capabilities.

Single cell, spatial analysis and proteomics markets: We are building our PX Integrated Solution to address the single cell and spatial analysis markets, which we estimate to be approximately $17 billion in 2021 based on available market data. We believe that the single cell capabilities of our G4 and PX Integrated Solutions will address an estimated global market opportunity of approximately $15 billion. According to DeciBio, the spatial analysis market, which will be addressed by our PX Integrated Solution, has a total addressable market of more than $2 billion of which less than 10% has been penetrated as of 2020. According to Allied Market Research, the life sciences research portion of the global proteomics market, which will be addressed by our PX Integrated Solution, was estimated at approximately $20 billion in 2020. We believe we can access these markets based on the capabilities we have designed for our PX Integrated Solution and assuming that target customers will view our PX Integrated Solution as a competitive alternative to existing tools and technologies.

New markets: Both of our integrated solutions can be used in many different and diverse market segments, including basic biology, oncology, immunology, neurology, genetic diseases, infectious diseases, the human microbiome and many others. Therefore, we believe that the capabilities offered by our integrated solutions and future products may potentially lead to new end markets, applications and business models that complement our current addressable markets, and will expand our market opportunity.

These markets are characterized by rapid technological changes, frequent new product introductions, established and emerging competition, extensive intellectual property disputes and litigation, price competition, aggressive marketing practices, evolving industry standards and changing customer preferences. Accordingly, our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by new companies operating in rapidly changing and competitive markets.

We plan to sell and market our products for research use only (RUO) to academic institutions, life sciences and research laboratories that conduct research, and biopharmaceutical and biotechnology companies for non-diagnostic and non-clinical purposes. Additionally, CLIA-certified laboratories have the ability to develop laboratory developed tests (LDTs) using RUO products, and we believe that the capabilities of our products may enable our customers to use them in clinical applications as LDTs. In fact, today a significant majority of NGS-based diagnostic tests are performed as LDTs on DNA sequencers that are labeled for RUO. Over the near term, references in this prospectus to clinicians, clinical markets and clinical practice all refer to the potential use of our RUO labeled products for LDTs. While our initial products are intended for RUO, our longer-term plans include seeking FDA clearance for IVD products, and corresponding clearances in other countries.

Competitive Strengths

To address the challenges of sequencing, single cell, spatial and proteomics we aim to bring together the following unique capabilities:

- We are developing innovative purpose built products to address underserved applications.
- Our Sequencing Engine is a foundational platform technology that optimizes key performance characteristics for our products.
- Our integrated solutions are built around customer needs and have or are designed to have strong performance relative to key performance metrics.

- Our innovative assays in development are designed to support novel applications in oncology and immunology.
- Our complementary product portfolio can serve multiple customer needs.

Our Growth Strategy

Our goal is to establish our Sequencing Engine as the standard for genomics and proteomics detection and to drive adoption of our platforms. Our growth strategy includes the following key elements:

- Drive commercial adoption and utilization of the G4 Integrated Solution.
- Complete development and drive commercial adoption of our PX Integrated Solution.
- Create an ecosystem of customers, partners and collaborators whose expertise and offerings complement and enhance the capabilities and utility of our integrated solutions.
- Expand the G4 and PX Integrated Solutions beyond initial applications.
- Expand our commercial geographic presence.

Columbia License Agreement

We entered into an exclusive license agreement (the License Agreement) with The Trustees of Columbia University in the City of New York (Columbia) covering two (2) pending U.S. Utility patent applications, one (1) pending European patent application and certain materials and technical information provided by Columbia. The License Agreement requires us to use commercially reasonable efforts to research, discover, develop and market products covered by the claims of the licensed patents or patent applications (the Patent Products) or that directly use or incorporate the materials and technical information licensed to us by Columbia (the Other Products). Under the License Agreement, we are required to pay an annual license fee that increases each year, until it reaches a low six digit fee for the fifth year, and for each subsequent year, for so long as the License Agreement remains in force. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single digit royalty rates on net sales of Other Products. We are also required to make milestone payments to Columbia upon our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement.

We do not believe that our G4 or PX Instruments or the associated consumables, as we presently intend to commercialize them, fit within the definitions of Patent Products or Other Products as defined in the License Agreement. As a result, we do not believe that we will be required to make milestone payments or pay royalties on sales of these products or any associated consumables or services based on our current commercialization plans. However, in the future, we may decide to incorporate features covered by one or more licensed patent(s) or directly use or incorporate materials and/or technical information provided by Columbia, such that we would incur milestone and royalty obligations under the License Agreement.

The License Agreement includes a number of diligence obligations that require us to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products by certain dates. To the extent that we do not commercialize a Patent Product or Other Product, Columbia may contend that we have not complied with our diligence obligations under the License Agreement. In such case, Columbia could take the position that the License Agreement should convert to a non-exclusive license or pursue actions to terminate the License Agreement alleging that we have not satisfied our diligence obligations. Columbia could also file additional claims to the pending patent applications they licensed to us to attempt to cause our products to become Patent Products. Columbia could also disagree with our interpretation of our milestone and royalty obligations under the License Agreement and contend that a failure to make milestone payments or pay royalties

constitutes a breach of the License Agreement. We are currently engaged in discussions with Columbia regarding the application of the License Agreement to our products and our efforts to satisfy the diligence obligations under the License Agreement. There is no assurance that Columbia will agree with our interpretation of the License Agreement or our payment obligations thereunder or agree that we have complied with our diligence obligations.

Risks Related to Our Business

Our ability to execute our business strategy is subject to numerous risks, as more fully described in the section titled "Risk Factors" immediately following this prospectus summary. These risks include, among others:

- Our limited operating history makes it difficult to evaluate our future prospects and the risks and challenges we may encounter.
- We have incurred significant losses since inception, we expect to incur significant losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability.
- We have no history commercializing our products or technology, which makes it difficult to evaluate our prospects and predict our future performance.
- The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer.
- If we are sued for infringing, misappropriating or otherwise violating intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our product candidates.
- If our products fail to achieve early customer and scientific acceptance, we may not be able to achieve broader market acceptance for our products, and our revenues and prospects may be harmed.
- We expect to be highly dependent upon revenue generated from the sale of our G4 Integrated Solution, and any delay or failure by us to finalize the development and to begin to commercialize our G4 Integrated Solution will have a substantial adverse effect on our business and results of operations.
- Our business will depend significantly on research and development spending by academic institutions and other research institutions, and any reduction in spending could limit demand for our products and adversely affect our business, results of operations, financial condition and prospects.
- Our operating results may fluctuate significantly in the future, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.
- The COVID-19 pandemic and efforts to reduce its spread have adversely impacted, and are expected to continue to materially and adversely impact, our business and operations.
- We have not commercially launched any products, and we may not be able to successfully commercially launch our G4 Integrated Solution or planned PX Integrated Solution as planned.
- If we are unable to obtain and maintain sufficient intellectual property protection for our products and technology, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our products may be impaired.
- We may require substantial additional funding, which may not be available to us on acceptable terms, or at all, and, if not available, may require us to delay, scale back, or cease our product development programs or operations.

Corporate Information

We were incorporated in Delaware in 2016. Our principal executive offices are located at 10931 North Torrey Pines Road, Suite #100, La Jolla, California 92037. Our telephone number is (858) 333-7830. Our website address is www.singulargenomics.com. Information contained on the website is not incorporated by reference into this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Singular Genomics, the Singular Genomics logo and our other registered or common law trademarks appearing in this prospectus are the property of Singular Genomics Systems, Inc. This prospectus contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ®, TM or SM symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

Recent Developments

2021 Notes Financing

In February 2021, we sold and issued approximately $130.5 million aggregate principal amount of convertible promissory notes (the 2021 Notes) in a private placement transaction. The 2021 Notes accrue 6% interest per annum and will automatically convert into shares of our common stock in connection with the completion of this offering at a conversion price equal to the lower of (i) 80% of the initial public offering price per share and (ii) the price per share obtained by dividing $1.5 billion by the fully-diluted capitalization of our Company prior to the completion of this offering. In connection with 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, we anticipate the 2021 Notes will convert into an aggregate of shares of our common stock. For further information regarding the Note Conversion, see the section titled "Capitalization—2021 Notes".

Implications of Being an Emerging Growth Company

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual gross revenue; (ii) the date we qualify as a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, with at least $700 million of equity securities held by non-affiliates; (iii) the issuance, in any three-year period, by us of more than $1.0 billion in non-convertible debt securities; or (iv) the last day of the fiscal year ending after the fifth anniversary of our initial public offering. As a result of this status, we have taken advantage of certain exemptions from various reporting requirements in this prospectus that are applicable to other publicly-traded entities that are not emerging growth companies and may elect to take advantage of other exemptions from reporting requirements in our future filings with the SEC. In particular, in this prospectus, these exemptions include:

- the option to present only two years of audited financial statements and only two years of Management's Discussion and Analysis of Financial Condition and Results of Operations;
- not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes Oxley Act;
- not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes;" and

- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation.

As a result, we do not know if some investors will find our common stock less attractive. The result may be a less active trading market for our common stock, and the price of our common stock may become more volatile.

In addition, Section 107 of 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, delaying the adoption of these accounting standards until they would apply to private companies. We have elected to avail ourselves of this exemption and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for private companies. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock.

THE OFFERING

Common stock offered by us	shares.
Option to purchase additional shares	We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of our common stock.
Common stock to be outstanding immediately after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full).
Use of proceeds	We estimate that the net proceeds from this offering will be approximately $ million (or $ million if the underwriters exercise their option to purchase additional shares in full), based on 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, and after deducting the estimated underwriting discounts and commissions and estimated offerings expenses payable by us. We currently intend to use the net proceeds from this offering, together with our existing cash and cash equivalents and short-term investments, to finalize the development and commercialization of our G4 Integrated Solution; to fund the product development and commercialization of our PX Integrated Solution; and the remainder, if any, for other development work associated with advancing the integration of our core sequencing engine into other platforms and kits, working capital and other general corporate purposes. In addition, we may use a portion of the net proceeds to acquire complementary businesses, products, services, or technologies. However, we have no current understandings, agreements or commitments for any specific material acquisitions at this time. See the section titled “Use of Proceeds” for additional information.
Directed share program	At our request, the underwriters have reserved up to 5% of the common stock being offered by this prospectus for sale at the initial public offering price to our directors, officers, employees and other individuals associated with us and members of their families. The sales will be made by UBS Financial Services Inc., a selected dealer affiliated with UBS Securities LLC, an underwriter of this offering, through a directed share program. We do not know if these persons will choose to purchase all or any

	portion of these reserved shares, but any purchases they do make will reduce the number of shares available to the general public. Any reserved shares not so purchased will be offered by the underwriters to the general public on the same terms as the other shares of common stock. Participants in the directed share program who purchase more than $1 million of shares shall be subject to a 25-day lock-up with respect to any shares sold to them pursuant to that program. This lock-up will have similar restrictions and an identical extension provision to the lock-up agreements described below. Any shares sold in the directed share program to our directors or executive officers shall be subject to the lock-up agreements described below.
Risk Factors	See the section titled "Risk Factors" and the other information included in this prospectus for a discussion of factors you should consider carefully before deciding to invest in our common stock.
Proposed Nasdaq trading symbol	"OMIC"

The number of shares of our common stock to be outstanding after this offering is based on shares of our common stock outstanding as of March 31, 2021 and reflects shares of our common stock issuable upon conversion of the 2021 Notes 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 (the Note Conversion). For further information regarding the Note Conversion, see the section titled "Capitalization—2021 Convertible Notes." The number of shares of our common stock to be outstanding after this offering excludes the following:

- 4,475,799 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2021, with a weighted-average exercise price of $3.05 per share;
- shares of common stock issuable upon the exercise of stock options granted after March 31, 2021, with a weighted-average exercise price of $ per share;
- 3,202,996 shares of common stock issued as of March 31, 2021 upon the early exercise of certain stock options, but not deemed outstanding as they are subject to a right of repurchase;
- 129,156 shares of our common stock issuable upon the exercise of an outstanding warrant held by Silicon Valley Bank to purchase shares of our Series B convertible preferred stock (the SVB warrant) (which will convert into a warrant to purchase 129,156 shares of our common stock immediately prior to the completion of this offering) with an exercise price of $2.32 per share;
- 934,124 shares of common stock reserved for future issuance under our 2016 Stock Plan (the 2016 Plan), as of March 31, 2021, which shares will be added to the shares to be reserved under our 2021 Equity Incentive Plan (the 2021 Plan) upon its effectiveness;
- shares of common stock reserved for future issuance under our 2021 Plan, which will become effective on the business day immediately prior to the date of effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan; and
- shares of common stock reserved for issuance under our 2021 Employee Stock Purchase Plan (the 2021 ESPP), which will become effective on the business day immediately prior to the date of

effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan.

Unless otherwise indicated, all information in this prospectus assumes or gives effect to:

- no exercise of the outstanding stock options and warrant described above;
- a -for- reverse stock split of our common stock, which was effected on , 2021;
- the automatic conversion of the SVB warrant to purchase 129,156 shares of our convertible preferred stock described above into a warrant to purchase an aggregate of 129,156 shares of our common stock immediately prior to the completion of this offering;
- the automatic conversion of all outstanding shares of our convertible preferred stock into 38,826,388 shares of our common stock immediately prior to the completion of this offering;
- the conversion of the 2021 Notes into shares of our common stock immediately prior to the completion of this offering;
- the filing of our amended and restated certificate of incorporation (certificate of incorporation), and the adoption of our amended and restated bylaws (bylaws), immediately prior to the completion of this offering; and
- no exercise by the underwriters of their option to purchase up to an additional shares of our common stock.

SUMMARY FINANCIAL DATA

The following tables set forth a summary of our historical financial data as of, and for the periods ended on, the dates indicated. The statements of operations data for the years ended December 31, 2019 and 2020 are derived from our audited financial statements and related notes included elsewhere in this prospectus. The statements of operations data for the three months ended March 31, 2020 and 2021 are derived from our unaudited financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of results that may be expected in the future and the results for the three months ended March 31, 2021, are not necessarily indicative of results that may be expected for the full year or any other period. You should read these data together with our financial statements and 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." Our historical results are not necessarily indicative of the results to be expected in the future.

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
			(unaudited)	
	(in thousands, except share and per share data)			
Statements of Operations and Comprehensive Loss				
Operating expenses:				
Research and development	$ 10,484	$ 21,247	$ 4,026	$ 6,608
General and administrative	2,286	6,287	1,377	3,654
Total operating expenses	$ 12,770	$ 27,534	$ 5,403	$ 10,262
Loss from operations	(12,770)	(27,534)	(5,403)	(10,262)
Other income (expense):				
Interest and other income	463	505	216	131
Interest expense	(17)	(718)	(66)	(188)
Change in fair value of convertible promissory notes	—	—	—	(11,400)
Change in fair value of warrant liability	—	(198)	—	(2,202)
Total other income (expense)	501	(370)	150	(13,659)
Net loss	$ (12,324)	$ (27,945)	$ (5,253)	$ (23,921)
Other comprehensive loss:				
Unrealized gain on available-for-sale securities	48	3	(542)	(49)
Comprehensive loss	$ (12,276)	$ (27,942)	$ (5,795)	$ (23,970)
Net loss per share attributable to common stockholders:				
Basic and diluted	$ (1.43)	$ (2.64)	$ (0.52)	$ (2.05)
Weighted-average shares of common stock outstanding:				
Basic and diluted	8,620,121	10,575,941	10,191,923	11,652,998
Pro forma net loss per share, basic and diluted (unaudited)(1)		$		$
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1)				

(1) For the calculation of our basic and diluted net loss per share, basic and diluted pro forma net loss per share and weighted-average number of shares used in the computation of the per share amounts, see Note 2 to our financial statements included elsewhere in this prospectus.

	As of March 31, 2021		
	Actual	Pro Forma(1) (unaudited) (in thousands)	Pro Forma As Adjusted(2)(3)
Balance Sheet Data			
Cash and cash equivalents	$45,526	$	$
Short-term investments	104,595		
Working capital(4)	143,600		
Total assets	155,623		
Convertible Promissory Notes	130,500		
Long-term debt, net of debt discount	9,473		
Convertible preferred stock	69,184		
Total stockholders' (deficit) equity	(73,342)		

(1) The pro forma balance sheet data gives effect to (i) the conversion of all outstanding shares of our convertible preferred stock as of March 31, 2021 into an aggregate of shares of common stock, which will occur immediately prior to the completion of this offering and the filing and effectiveness of our amended and restated certificate of incorporation, (ii) the automatic conversion of our outstanding warrant to purchase convertible preferred stock into a warrant to purchase shares of our common stock, (iii) the conversion of the 2021 Notes into shares of our common stock and a charge to accumulated deficit of $ million related to the conversion of the 2021 Notes , 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, in connection with the closing of this offering (which is reflected in pro forma cash and cash equivalents, short-term investments and additional paid in capital) and (iv) the filing and effectiveness of our amended and restated certificate of incorporation, which will be in effect immediately prior to the completion of this offering.

(2) The pro forma as adjusted balance sheet data gives effect to: (i) the pro forma adjustments described in footnote (1) above and (ii) to the issuance and sale of shares of common stock in this offering at 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, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the offering price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the pro forma as adjusted amount of each of our cash and cash equivalents, short-term investments, working capital, total assets, and total stockholders' (deficit) equity by approximately $ 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 the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase or decrease of 1.0 million shares in the number of shares offered by us at the assumed initial public offering price after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us would increase or decrease, as applicable, each of our cash and cash equivalents, short-term investments, working capital, total assets and total stockholders' (deficit) equity by approximately $ million. The pro forma information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of our initial public offering determined at pricing.

(4) Working capital is defined as current assets less current liabilities. See our financial statements and the related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock is speculative and involves a high degree of risk. Before investing in our common stock, you should consider carefully the risks described below, together with the other information contained in this prospectus, including our consolidated financial statements and the related notes appearing at the end of this prospectus and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this prospectus. If any of the following risks occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment. This prospectus also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a number of factors, including the risks described below.

Risks Related to Our Business and Industry

Our limited operating history makes it difficult to evaluate our future prospects and the risks and challenges we may encounter.

We operate in a highly competitive market characterized by rapid technological advances, frequent new product introductions, evolving industry standards and changing customer preferences. Our limited operating history makes it difficult to evaluate our future prospects and our ability to respond to our competitors, changes in our market and the risks and challenges we may encounter as we expand our business operations. If we fail to address the risks, uncertainties and difficulties that we face, including those described elsewhere in this "Risk Factors" section, our business, financial condition and results of operations could be adversely affected. We have encountered in the past, and will encounter in the future, risks and uncertainties frequently experienced by companies developing and introducing new products in competitive and rapidly changing markets. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, are incorrect or change, or if we do not address these risks and uncertainties successfully, our results of operations could differ materially from our expectations and our business, financial condition and results of operations could be adversely affected.

We have incurred significant losses since inception, we expect to incur significant losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability.

We are a pre-revenue life science technology company and have incurred significant losses since we were formed in 2016. We expect to continue to incur significant losses for the foreseeable future as we expand our business operations, continue to develop our products and implement our business plans and strategies. Our net loss for the years ended December 31, 2019 and 2020 was $12.3 million and $27.9 million, respectively. During the three months ended March 31, 2021, we incurred a net loss of $23.9 million. As of March 31, 2021, we had an accumulated deficit of $77.0 million. We expect that our losses will continue for the foreseeable future as we continue to invest significant additional funds toward ongoing research and development and toward the timely commercialization of our products. We have experienced these losses and accumulated deficit primarily due to the investments we have made in developing our proprietary technologies and products, building our team and manufacturing capabilities and preparing for the commercial launch of our first product, the G4 Integrated Solution. Over the next several years, we expect to continue to incur significant expenses as we continue our research and development activities, finalize the development of our G4 and PX Integrated Solutions, continue to build our sales and marketing organization and increase our manufacturing and commercialization capabilities. These efforts may prove to be more costly, or take longer, than we currently anticipate. Additionally, we may encounter unforeseen expenses, product development or manufacturing delays, declines in revenue or other unknown factors that may result in losses in future periods. We have not generated any product revenue, and we may never generate revenue sufficient to offset our expenses, or at all. In addition, as a public company, we will incur significant legal, accounting, administrative, insurance and other expenses that we did not incur as a private

company. To date, we have financed our operations principally from the sale of convertible preferred stock, convertible notes and the incurrence of other indebtedness. There can be no assurance that our revenue and gross profit will increase sufficiently such that our net losses decrease, or that we attain profitability, in the future. Further, our limited operating history makes it difficult to effectively plan for and model our operating expenses and our ability to generate revenue. Our ability to achieve and then sustain profitability is based on numerous factors, many of which are beyond our control, including the impact of market acceptance of our products, product development results and timing, offerings or actions taken by our competitors, our market penetration and margins and current and future litigation. We may never be able to generate sufficient revenue to achieve or sustain profitability, which could negatively impact the value of our common stock.

We are a pre-revenue life science technology company in the development stage and have no history commercializing our products or technology, which makes it difficult to evaluate our prospects and predict our future performance.

We have not finalized the development or commercialized any of our products or technology and have not generated any revenue to date. There can be no assurance that we will be able to generate sufficient revenue in the future to support our operations and plans. Our operations to date have been focused on developing our technologies and products, including our G4 Integrated Solution. We have completed our beta pilot program for our G4 Integrated Solution and anticipate initiating an early access program followed by a commercial launch of our G4 Integrated Solution by the end of 2021, with intentions for units to ship in the first half of 2022. The performance of our integrated solutions in our beta pilot program and early access program may not be indicative of the performance our customers experience following commercial launch and may prove to be inaccurate. There can be no assurance that we will be able to timely finalize the development of or achieve market acceptance for our G4 Integrated Solution in the future. In particular, it is possible that customers in the early access program may form negative impressions of our G4 Integrated Solution, encounter errors in results or otherwise believe that our G4 Integrated Solution does not compare favorably to competing systems. Further, we have not finalized the development of our G4 Integrated Solution or manufactured our G4 Integrated Solution in commercial quantities, conducted sales and marketing activities at scale or managed customer support at the commercial level. Consequently, predictions about our future success or viability are highly uncertain and hard to predict as a result of our limited operating history, the development stage of our products and our lack of any history commercializing our technologies or products. Our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by companies in their early stages of operations.

Further, we will eventually need to transition from a company with a focus on research and development to a company capable of supporting both research and development and robust manufacturing and commercial activities, and we may not be successful in such a transition. We have encountered in the past, and will encounter in the future, risks and uncertainties, delays and scientific setbacks frequently experienced by development stage companies with limited operating histories in competitive and rapidly changing industries, such as the genomics industry. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, manufacturing and commercialization activities, are incorrect or change, or if we do not address these risks, delays or uncertainties successfully, our results of operations could differ materially from our expectations, and our business, financial condition and results of operations could be adversely affected.

The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer.

We face significant competition in the life sciences technology market. More specifically, the NGS market is characterized by rapid technological changes, frequent new product introductions, established and emerging competition, extensive intellectual property disputes and litigation, price competition, aggressive marketing practices, evolving industry standards and changing customer preferences. Our primary competitors are large publicly-traded companies, or are divisions of large publicly-traded companies, including 10x Genomics Inc.,

Becton, Dickinson and Company, Bio-Rad Laboratories, Inc., Illumina Inc., MissionBio Inc., and Nanostring Technologies, Inc., Oxford Nanopore Technologies Inc., Pacific Biosciences Inc., and Thermo Fisher Scientific Inc. There are other companies, both established and early-stage, that have indicated that they are designing and plan to manufacture and offer NGS technologies and products to our target customers. We also face competition from companies and research institutes developing their own products or applications for omics research. This is particularly true for the largest research centers and laboratories who are continually testing and trying new technologies, whether from a third-party vendor or developed internally.

Our current competitors, including those who are large publicly-traded companies, or are divisions of large publicly-traded companies, enjoy a number of competitive advantages over us, including:

- greater name and brand recognition;
- greater financial and human resources;
- established and trusted commercial relationships with our target customers;
- broader product lines;
- greater pricing flexibility, including the ability to offer significant discounts and to bundle products and services;
- larger sales and customer service forces and more established distributor networks;
- substantial intellectual property portfolios;
- exclusive and/or long-term supply agreements with our target customers;
- approvals with the U.S. Food and Drug Administration (the FDA) that allow our competitors to market their products for additional uses;
- numerous scientific papers and publications supporting their technologies and product claims; and
- better established, larger scale and lower cost manufacturing capabilities.

We cannot assure investors that we can successfully compete with these competitors or that our G4 Integrated Solution, our planned PX Integrated Solution or any other technologies and products we develop can compete favorably with the offerings from such competitors. We also cannot assure investors that we can successfully defend our technologies and products from lawsuits filed by our competitors without significant expenses, the requirement to complete additional product and technology development, potential commercialization delays, or at all. Further, we cannot assure investors that we will be successful in the face of increasing competition from products and technologies introduced by our existing or future competitors, or developed by our customers internally. In addition, we cannot assure investors that our competitors do not have or will not develop products or technologies that currently or in the future will enable them to offer products with greater capabilities or at lower costs than ours or that are able to run comparable experiments at a lower total experiment costs. Many of our competitors have also been able to enter into long-term, exclusive agreements with major potential customers, often by offering favorable pricing and other terms. Until these agreements expire, our ability to place our integrated solutions with these customers will be limited. Even after exclusive agreements expire, we may not be able to compete with the terms offered by our competitors in their efforts to extend exclusive relationships with these major potential customers. Any failure to compete effectively could materially and adversely affect our business, financial condition and operating results.

If our products fail to achieve early customer and scientific acceptance, we may not be able to achieve broader market acceptance for our products, and our revenue and prospects may be harmed.

We cannot guarantee that customer experiences or reviews of our G4 Integrated Solution from our early access program will be favorable. The customers in these programs may not use our G4 Integrated Solution as we

intend, interpret results incorrectly or may experience breakdowns, manufacturing defects, errors or bugs common with beta and early access product introductions, which could negatively impact their perception of our G4 Integrated Solution regardless of its actual capabilities. Initial negative perception of our G4 Integrated Solution by customers in our early access program could irreparably damage our reputation and ability to later successfully commercialize our G4 Integrated Solution, our planned PX Integrated Solution or any of our other future products. Further, the life sciences scientific community is comprised of a small number of early adopters and key opinion leaders (KOLs) who significantly influence the rest of the community and the marketplace in general. The success of life sciences products is due, in large part, to acceptance by the scientific community and their adoption of certain products as best practice in the applicable field of research. The current system of academic and scientific research views publishing in a peer-reviewed journal as a measure of success. In such journal publications, the researchers will describe not only their discoveries, but also the methods and typically the products used to fuel such discoveries. Mentions in peer-reviewed journal publications are a good barometer for the general acceptance of our products as best practices. Ensuring that early adopters and KOLs publish research involving the use of our products is critical to ensuring our products gain widespread acceptance and market growth. Continuing to maintain good relationships with such KOLs is vital to growing the acceptance of our products in the marketplace. If early adopters and KOLs do not favorably describe the use of our products, do not compare our products favorably to existing products and technologies, or negatively describe the use and operation of our products in publications, it may drive potential customers away from our products and prevent broader market acceptance of our products, which could harm our business, financial condition and results of operations.

We expect to be highly dependent upon revenue generated from the sale of our G4 Integrated Solution, and any delay or failure by us to finalize the development and to begin to commercialize our G4 Integrated Solution will have a substantial adverse effect on our business and results of operations.

We have completed our beta pilot program for our G4 Integrated Solution and anticipate initiating an early access program followed by a commercial launch of our G4 Integrated Solution and its first associated products by the end of 2021, with intentions for units to ship in the first half of 2022. Our second planned product, the PX Integrated Solution, is still under development, and we do not anticipate the commercial launch of our PX Integrated Solution and its first associated products until 2023. As a result, we expect to generate substantially all of our revenue in the near term from the sale of our G4 Integrated Solution. There can be no assurance that we will finalize the development of our G4 Integrated Solution on a timely basis, that our G4 Integrated Solution will meet our targeted performance metrics, that the G4 Integrated Solution will meet the expectations of our customers or otherwise gain market acceptance, that we can manufacture our G4 Integrated Solution in commercial quantities, that we will be able to successfully commercialize our G4 Integrated Solution or that we will be able to service and maintain our G4 Integrated Solutions that we have sold. Further, there is no assurance that we will be able to successfully complete the development of, or commercialize, our planned PX Integrated Solution, or any other future products or product enhancements we elect to pursue. To date, we have no experience simultaneously designing, testing, manufacturing and selling products and there can be no assurances we will be successful in doing so. In addition, as technologies change in the life sciences research tools marketplace in general, and in the omics technologies marketplace specifically, we will be expected to upgrade or adapt our products in order to keep up with the latest technology. Further, our competitors may offer or develop products or technologies that cause our G4 Integrated Solution or our planned PX Integrated Solution to not be commercially attractive to our customers

Our future financial performance will be dependent upon our ability to increase penetration and utilization in our existing markets.

Our financial performance will be driven by, and a key factor to our future success will be, the rate of commercial adoption of our G4 Integrated Solution and planned PX Integrated Solution. In addition, our financial performance will be dependent on our ability to increase customer utilization of our integrated solutions, and thereby, increase sales of our consumables and any other associated products and services we

offer. There is no assurance that we will be successful in demonstrating our product performance claims and value proposition to potential customers. There also is no assurance that our direct sales and marketing organization in the United States or our direct or distributor sales and marketing efforts in markets outside the United States will drive broad customer adoption of our integrated solutions. Further, we may not be successful in increasing our customers' usage of our integrated solutions, or their associated purchase of our consumables and other products and services. Any failure to establish a broad installed base of our G4 Integrated Solution and our planned PX Integrated Solution solutions among our target customers, or failure to increase the usage of our integrated solutions and the associated sales of our consumables and other products and services, will limit our revenue growth and harm our results of operations and financial performance.

Our business will depend significantly on research and development spending by academic institutions and other research institutions, and any reduction in spending could limit demand for our products and adversely affect our business, results of operations, financial condition and prospects.

We plan to initially target customers who are already familiar with genomic analysis, including academic institutions, genomic research centers/core labs and government laboratories, as well as pharmaceutical, clinical research organizations (CROs), biotechnology, consumer genomics, commercial molecular diagnostic laboratories, and agrigenomics companies. However, we believe that a substantial amount of our sales revenue in the near term will be generated from sales to academic and other research institutions. Therefore, we expect much of these customers' funding will be, in turn, provided by various state, federal and international governmental agencies. As a result, the demand for our G4 Integrated Solution, our planned PX Integrated Solution and any other product or product enhancements we elect to develop in the future may depend in part upon the research and development budgets of these customers, which are impacted by factors beyond our control, such as:

- decreases in government funding of research and development;
- changes to programs that provide funding to research laboratories and institutions, including changes in the amount of funds allocated to different areas of research or changes that have the effect of increasing the length of the funding process;
- macroeconomic conditions and the political climate;
- scientists' and customers' opinions of the utility of new products or services;
- researchers' opinions of the utility of our G4 Integrated Solution, our planned PX Integrated Solution or any other product or product enhancements we elect to develop in the future;
- citation of our G4 Integrated Solution and planned PX Integrated Solution in published research;
- potential changes in the regulatory environment;
- differences in budgetary cycles, especially government- or grant-funded customers, whose cycles often coincide with government fiscal year ends;
- competitor product offerings or pricing;
- market acceptance of new technologies; and
- market driven pressures to consolidate operations and reduce costs.

In addition, various state, federal and international agencies that provide grants and other funding may be subject to stringent budgetary constraints that could result in spending reductions, reduced grant making, reduced allocations or budget cutbacks, which could jeopardize the ability of these customers, or the customers to whom they provide funding, to purchase our products. For example, congressional appropriations to the National Institutes of Health (the NIH) have generally increased year-over-year for the last 20 years, but the NIH also experiences occasional year-over-year decreases in appropriations, including as recently as 2013. There is no

guarantee that NIH appropriations will not decrease in the future. A decrease in the amount of, or delay in the approval of, appropriations to NIH or other similar United States or international organizations, such as the Medical Research Council in the United Kingdom, could result in fewer grants benefiting life sciences research. These reductions or delays could also result in a decrease in the aggregate amount of grants awarded for life sciences research or the redirection of existing funding to other projects or priorities, any of which in turn could cause our customers and potential customers to reduce or delay purchases of our products. Our operating results may fluctuate substantially due to any such reductions and delays. Any decrease in our customers' budgets or expenditures, or in the size, scope or frequency of their capital or operating expenditures, could materially and adversely affect our business, results of operations, financial condition and prospects.

Our operating results may fluctuate significantly in the future, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.

We have very limited operating history in manufacturing, commercializing and providing customer support for our first product, the G4 Integrated Solution. As a result, our quarterly and annual operating results may fluctuate significantly as we finalize the development of G4 Integrated Solution and begin these new manufacturing, commercialization and customer support activities, which makes it difficult for us to predict our future operating results. These fluctuations may occur due to a variety of factors, many of which are outside of our control, including but not limited to:

- our ability to finalize the development and successfully manufacture and commercialize our products and technologies, including our G4 Integrated Solution and our planned PX Integrated Solution, on our anticipated timelines and costs;
- the timing and cost of, and level of investment in, research and development, manufacturing and commercialization activities relating to our products and technologies, which may change from time to time;
- the level of demand for any products or product enhancements we are able to commercialize, particularly our G4 Integrated Solution and our planned PX Integrated Solution, which may vary significantly from period to period;
- market acceptance of our products, especially by early adopters and KOLs;
- our ability to drive adoption of our products and technologies, including our G4 Integrated Solution and our planned PX Integrated Solution, in our target markets and our ability to expand into any future target markets;
- the prices at which we will be able to sell our products and technologies;
- our ability to lower the cost of manufacturing our products and product enhancements;
- the availability and cost of components and raw materials;
- actions taken by our competitors, including new product introductions, pricing changes, product bundling and aggressive marketing practices;
- intellectual property disputes and litigation;
- the outcomes of and related rulings in litigation and administrative proceedings in which we may in the future become involved in;
- the operating performance and financial results of our competitors;
- the volume and mix of our sales between our G4 Integrated Solution and our planned PX Integrated Solution and other products and technologies, or changes in the manufacturing or sales costs related to our products;

- the utilization of our instruments and the volume and mix of the sales of our consumables;
- the length of time of the sales cycle for purchases of our products and technologies, including our G4 Integrated Solution and our planned PX Integrated Solution;
- the timing and amount of expenditures that we may incur to develop, commercialize or acquire additional products and technologies or for other purposes, such as the expansion of our facilities;
- changes in governmental funding of life sciences research and development or changes that impact budgets or budget cycles;
- the timing of when we recognize any revenue;
- future accounting pronouncements or changes in our accounting policies;
- the outcome of any future governmental investigations involving us, our industry or both;
- higher than anticipated service, replacement and warranty costs;
- the impact of the COVID-19 pandemic on the economy, our business and operations, investment in life sciences and research industries, and resources and operations of our customers, suppliers, and distributors;
- general industry, economic and market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors; and
- the other factors described in this "Risk Factors" section.

The cumulative effects of the factors discussed above could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If we are unable to commercialize products or generate revenue, or if our operating results fall below the expectations of analysts or investors or below any guidance we may provide, or if the guidance we provide is below the expectations of analysts or investors, it could cause the market price of our common stock to decline.

We expect to continue to incur substantial operating expenses in the future, which will negatively impact our ability to achieve or maintain profitability.

We have experienced net losses and negative cash flows from operations since our formation in 2016. As of March 31, 2021, we had an accumulated deficit of $77.0 million. Over the next several years, we expect to continue to incur significant expenses as we continue our research and development activities, finalize the development of our integrated solutions, continue to build our sales and marketing organization and increase our manufacturing and commercialization capabilities. These efforts may prove to be more costly, or take longer, than we currently anticipate. In addition, as a public company, we will incur significant legal, accounting, administrative, insurance and other expenses that we did not incur as a private company. We have not generated any product revenue, and we may never generate revenue sufficient to offset our expenses, or at all. If our revenue does not eventually grow to a level that exceeds our expenses, we will not be able to achieve or maintain profitability. Additionally, we may encounter unexpected development delays, unforeseen expenses, operating delays, declines in revenue or other unknown factors that may result in losses in future periods. If we are unable to achieve and maintain sustained profitability, our business, results of operations, financial condition and prospects will be materially harmed.

The COVID-19 pandemic and efforts to reduce its spread have adversely impacted, and are expected to continue to materially and adversely impact, our business and operations.

The COVID-19 pandemic has spread worldwide, has caused many governments to implement measures to slow the spread of the outbreak through quarantines, travel restrictions, heightened border scrutiny and other

measures. In addition, in response to the COVID-19 pandemic, many state, local and foreign governments have put in place quarantines, executive orders, shelter-in-place orders and similar government orders and restrictions in order to control the spread of the disease. Such orders or restrictions, and the perception that such orders or restrictions could continue or, after being lifted, be reinstated for a period of time, have resulted in business closures, work stoppages, slowdowns and delays, work-from-home policies, travel restrictions and cancellation of events, among other effects that have impacted, and we expect them to continue to impact, our business, personnel and personnel at third-party manufacturing facilities in the United States and other countries, and the availability or cost of materials, which would disrupt or delay our receipt of instruments, components and supplies from the third parties we rely on to, among other things, produce our products.

For instance, there have been standing "stay-at-home" orders in California, and specifically in San Diego County, where our headquarters is located. We have continued to operate within the rules applicable to our business; however, an extended implementation of these governmental mandates or reinstitution of additional more stringer mandates could further impact our ability to operate effectively and conduct ongoing research and development or other activities. Additionally, we have experienced longer lead times from our suppliers of components used in our product development and manufacturing operations. Pandemic precautions and preventative measures may also impact our commercialization plans due to restrictions on our customers' ability to access laboratories, causing delays in the delivery and installation of our products, training such customers on our products, and their ability to conduct research. The ongoing build-out of our new headquarters and manufacturing facilities may also be delayed by COVID-19 related restrictions. The COVID-19 pandemic has also had an adverse effect on our ability to attract, recruit, interview and hire at the pace we would typically expect to support our rapidly expanding operations. To the extent that any governmental authority imposes additional regulatory requirements or changes existing laws, regulations, and policies that apply to our business and operations, such as additional workplace safety measures, our product development plans may be delayed, and we may incur further costs in bringing our business and operations into compliance with changing or new laws, regulations, and policies.

In the near term, we expect that a substantial amount of our revenue will be derived from sales of our G4 Integrated Solution to academic and research institutions. Our ability to drive the adoption of our products will depend upon our ability to visit customer sites, the ability of our customers to access laboratories, install and train on our G4 Integrated Solution and conduct research in light of the COVID-19 pandemic. Additionally, the research and development budgets of these customers, the ability of such customers to receive funding for research, and the ability of such customers to receive instrument installations and visitors to their facilities and to travel to our facilities, other laboratories and industry events, will become increasingly important to the adoption of our G4 Integrated Solution. All of these activities are impacted by the COVID-19 pandemic in multiple ways, such as:

- reductions in capacity or shutdowns of laboratories and other institutions as well as other impacts stemming from the COVID-19 pandemic, such as reduced or delayed spending on instruments or consumables as a result of such shutdowns and delays before re-opened laboratories and institutions resume previous levels of research activities that require new purchases of our instruments or consumables;
- re-allocation of resources by potential customers towards COVID-19 research, testing or treatment;
- delays in obtaining supplies and materials used to produce our products;
- decreases in government funding of research and development; and
- changes to programs that provide funding to research laboratories and institutions, including changes in the amount of funds allocated to different areas of research, changes that have the effect of increasing the length of the funding process or the impact of the COVID-19 pandemic on our customers and potential customers and their funding sources.

The ultimate impact of the COVID-19 pandemic is highly uncertain and subject to sudden change. This impact could have a material, adverse impact on our liquidity, capital resources, operations and business and those of the third parties on which we rely, and could worsen over time. The extent to which the COVID-19 pandemic impacts our results will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of COVID-19 and the actions to contain COVID-19 or treat its impact, among others. While we do not yet know the full extent of the potential future impacts on our business, any of these occurrences could significantly harm our business, results of operations and financial condition.

Further, the COVID-19 pandemic has resulted in, and may continue to result in, extreme volatility and disruptions in the capital and credit markets, reducing our ability to raise additional capital through equity, equity-linked or debt financings, which could negatively impact our short-term and long-term liquidity and our ability to operate in accordance with our operating plan, or at all. Additionally, our results of operations could be adversely affected by general conditions in the global economy and financial markets. A severe or prolonged economic downturn could result in a variety of risks to our business, including weakened demand for our products and technologies and our ability to raise additional capital when needed on favorable terms, if at all. A weak or declining economy could strain our customers' budgets or cause delays in their payments to us. Any of the foregoing could harm our business, and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our ability to raise capital, business, results of operations and financial condition.

Risks Related to the Development and Commercialization of Our Products

We have not commercially launched any products, and our efforts to finalize the development and commercially launch our G4 Integrated Solution or our planned PX Integrated Solution may not be successful.

We have not commercially launched any product. With respect to our G4 Integrated Solution, we have completed our beta pilot program and anticipate initiating an early access program followed by a commercial launch of the G4 Integrated Solution and its first associated products by the end of 2021, with intentions for units to ship in the first half of 2022. With respect to our planned PX Integrated Solution, we are currently in an advanced prototype development stage for the initial products and expect to begin an early access program in 2022 and full commercial launch in 2023. Our product development and commercial launch plans may not progress as planned or may not be successful due to:

- potential delays in finalizing development and internal validation of our products, including the failure to meet targeted performance metrics;
- our inability to commercialize our G4 Integrated Solution and/or planned PX Integrated Solution without first being required to change the specifications, design and performance of such products, including the associated reagents and consumables;
- our inability to establish the capabilities and value proposition of our G4 Integrated Solution or our planned PX Integrated Solution with KOLs and early adopters in a timely fashion, including through information included in scientific publications and presentations;
- our inability to establish broad scientific acceptance of our G4 Integrated Solution or planned PX Integrated Solution;
- potential litigation brought by our competitors against our products, technology or intellectual property;
- our inability to overcome the long-term relationships, including exclusive agreements, that our competitors have established with our target customers;
- actions taken by our competitors, including new product introductions and the ability to offer significant discounts and to bundle products and services to our target customers;

- our customers' willingness and ability to adopt new products and workflows, including in light of commercial pressures applied by our competitors and pre-existing long-term contracts with our competitors;
- our ability to demonstrate that our G4 Integrated Solution and our planned PX Integrated Solution provide meaningful advantages over competing products and technologies;
- the prices we charge for our G4 Integrated Solution and planned PX Integrated Solution and other products and technologies;
- our ability to develop new products and workflows and solutions for customers, and the impact of our investments in product innovation and commercial growth;
- our ability to provide service and maintain the products we have sold; and
- changing industry or market conditions, customer expectations or requirements;
- delays in building out our sales, customer support and marketing organization as needed for our commercial launch plan;
- delays in ramping up manufacturing, including obtaining required materials and components from third-party suppliers, to meet expected or actual demand for our products; and
- the continued effect and lasting impact of the COVID-19 pandemic.

We cannot assure you that we will be successful in addressing each of the risks and uncertainties that might affect the development and market acceptance of any products we commercialize, particularly our G4 Integrated Solution. For example, we cannot guarantee that we will finalize the development of our G4 Integrated Solution on a timely basis, meet our targeted performance metrics for the G4 Integrated Solution or that customer experiences or reviews of our G4 Integrated Solution from our early access program will be favorable. The customers in the program may not use our G4 Integrated Solution as we intend or interpret results incorrectly, or may experience breakdowns, manufacturing defects, errors or bugs common with beta and early access product introductions, which could negatively impact their perception of our G4 Integrated Solution regardless of its actual capabilities. Initial negative perception of our G4 Integrated Solution by customers in our early access program could irreparably damage our reputation and ability to later successfully commercialize our G4 Integrated Solution or our planned PX Integrated Solution or future systems or products. In addition, as we begin to commercialize our G4 Integrated Solution we will also need to make corresponding improvements to other operational functions, such as our customer support, service and billing systems, compliance programs and our internal quality assurance programs. We cannot assure you that any increases in scale, required manufacturing improvements and quality assurance will be successfully implemented or that appropriate personnel will be available. To the extent any of our commercial launch plans and related activities are delayed, unsuccessful or more expensive than we currently anticipate, our financial results will be adversely impacted and we may never generate sufficient revenue to achieve and maintain profitability.

If we are unable to establish sales and marketing capabilities, we may not be successful in commercializing our G4 Integrated Solution or our planned PX Integrated Solution.

We have no experience commercializing our products, and our ability to achieve profitability depends on being able to successfully commercialize our G4 Integrated Solution and our planned PX Integrated Solution. Although members of our management team have considerable industry experience, we are in the process of expanding our sales, marketing, distribution and customer service and support capabilities with the appropriate technical expertise prior to the broad commercial launch of our first product, the G4 Integrated Solution. To perform sales, marketing, distribution, and customer service and support successfully, we will face a number of risks, including:

- our ability to attract, train, retain and manage the sales, marketing and customer service and support force necessary to commercialize and gain market acceptance for our products and train and support our customers in the use of our systems;

- our ability to develop marketing materials;
- our ability to adopt successful marketing and pricing strategies;
- the time and cost of establishing a specialized sales, marketing and customer service and support force; and
- our sales, marketing and customer service and support force may be unable to initiate and execute successful commercialization activities.

We may seek to enlist one or more third parties to assist with sales, distribution and customer service and support globally or in certain regions of the world. There is no guarantee, if we do seek to enter into such arrangements, that we will be successful in attracting desirable sales and distribution partners or that we will be able to enter into such arrangements on favorable terms. If our sales and marketing efforts, or those of any third-party sales and distribution partners, are not successful, our G4 Integrated Solution or our planned PX Integrated Solution, may not gain market acceptance, which could materially impact our business and results of operations.

Our Sequencing Engine and Integrated Solutions could fail to achieve key performance metrics we are targeting and our prospects could be harmed.

We believe our Sequencing Engine can impart commercially marketable capabilities to our products, including high accuracy, speed, flexibility and scale. To successfully commercialize our Integrated Solutions, we are targeting certain performance metrics, including cycle times for each base, accuracy for base reads, quality scores and the number of independent flow cells that can run concurrently. While we have preliminarily achieved certain of our targeted metrics for our G4 Integrated Solution in early testing, we have not yet achieved certain targeted metrics and, as a result, we will need to continue our product development efforts and enhance the performance of our G4 Integrated Solution prior to our planned commercial launch. If our Sequencing Engine or Integrated Solutions are unable to meet and to consistently achieve these key performance metrics, including once commercially deployed, or, if the data supporting our preliminary achievement of certain key performance metrics are incorrect or not viewed favorably by KOLs or potential customers, demand for our G4 Integrated Solution and planned PX Integrated Solution may not develop as anticipated, which could adversely affect our revenue and our results of operations.

If we fail to finalize the development of our G4 Integrated Solution and complete the development of our PX Integrated Solution our revenue and our prospects could be harmed.

Our G4 Integrated Solution has completed the beta pilot program of our commercialization plan. While we believe the development of our G4 Integrated Solution is nearly final, our collaborators in our beta pilot or early access programs may request certain design or other modifications that could cause us to modify or attempt to further improve our G4 Integrated Solution, which could delay or prevent its commercial launch. Further, we are working to develop and enhance the performance of our G4 Integrated Solution to meet targeted performance metrics that we believe are necessary to support its broad commercial adoption. Any delay or failure by us to successfully develop, release, enhance, commercialize and support our G4 Integrated Solution will have a substantial adverse effect on our business and results of operations.

Our planned PX Integrated Solution is in the development phase, and is subject to all the risks and uncertainties associated with product development of highly complex and novel life sciences instruments. We have not met a number of technical and performance metrics that we believe will be necessary to achieve prior to commercialization. If we do not achieve the required technical specifications and performance metrics for our planned PX Integrated Solution or if development work is not performed according to our planned schedule, then we may not be successful in finalizing our planned PX Integrated Solution and its commercial launch may be adversely affected, delayed or not occur at all. Additionally, our planned PX Integrated Solution could be subject to redesign or further improvements, and result in delays in finalizing development and commencing

commercialization, after feedback from beta collaborators and KOLs. Any delay or failure by us to successfully develop, release, commercialize and maintain our PX Integrated Solution will have a substantial adverse effect on our business and results of operations.

If we fail to continue to improve our planned products or, introduce compelling new products, product enhancements or product configurations, our revenue and our prospects could be harmed.

Even if we are able to commercially launch our G4 Integrated Solution, and successfully develop and commercialize our planned PX Integrated Solution, our ability to attract new customers and increase revenue from existing customers will depend in large part on our ability to continue to enhance and improve our products and to introduce compelling new products and product capabilities. The success of any enhancements to our G4 Integrated Solution or our planned PX Integrated Solution, or the introduction of any new products and product capabilities depends on several factors, including timely completion and delivery of such enhancements and products, competitive pricing, adequate quality testing, integration with existing products and technologies, appropriately timed and staged introduction, overall market acceptance and our ability to properly service and maintain these products. Any new products or enhancements that we develop may not be introduced in a timely or cost effective manner, may contain defects, errors, vulnerabilities or bugs, or may not achieve the market acceptance necessary to increase our revenue and improve our operating results. Further, if we are unable to successfully develop any new products, enhance the capabilities of our existing products to meet evolving customer requirements and demands, compete with alternative products and technologies, or otherwise gain and maintain market acceptance, our business, results of operations and financial condition could be harmed.

The sizes of the markets for our products and technologies may be smaller or grow slower than we estimate, and new markets may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our products.

The market for NGS, single cell, spatial and proteomics products and technologies is evolving, making it difficult to predict with any accuracy the market opportunity for our current and future products and technologies. Our estimates of the total addressable market for our current and future products and technologies are based on a number of internal and third-party estimates and assumptions. In particular, while we believe that our target markets may be underserved by existing genomics products and technologies and that our target customers will recognize the value proposition offered by our products, we cannot be certain that our target customers will recognize enough value from our products to purchase our products in place of, or in addition to, tools and technologies they already use. Further, we cannot be certain that our target customers will view our products as competitive alternatives to existing tools and technologies in our target markets, especially given that our competitors have long relationships, including exclusive arrangements, with our target customers and may be able to offer significant discounts and/or buddle products or offerings to our target customers.

While we believe our assumptions and the data underlying our estimates of the total annual addressable market for our products and technologies are reasonable, these assumptions and estimates may not be correct and the conditions supporting our assumptions or estimates, or those underlying the third-party data we have used, may change at any time, thereby reducing the accuracy of our estimates. As a result, our estimates of the annual total addressable market for our products and technologies may be incorrect. Further, the future growth of the market for our current and future products depends on many factors beyond our control, and if the markets for our current and future products are smaller than estimated or do not develop as we expect, our growth may be limited and our business, financial condition and operational results of operations could be adversely affected.

We expect to commercialize our G4 Integrated Solution and our planned PX Integrated Solution outside of the United States, which could expose us to business, regulatory, political, operational, financial and economic risks associated with doing business outside of the United States.

Engaging in international business inherently involves a number of difficulties and risks, including:

- required compliance with existing and changing foreign regulatory requirements and laws that are or may be applicable to our business in the future, such as the European Union's General Data Protection Regulation (GDPR) and other data privacy requirements, labor and employment regulations, anti-competition regulations, the U.K. Bribery Act of 2010 and other anti-corruption laws, regulations relating to the use of certain hazardous substances or chemicals in commercial products, and require the collection, reuse, and recycling of waste from products we manufacture;
- required compliance with U.S. laws such as the Foreign Corrupt Practices Act, and other U.S. federal laws and regulations established by the office of Foreign Asset Control;
- export requirements and import or trade restrictions;
- laws and business practices favoring local companies;
- foreign currency exchange, longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- changes in social, economic, and political conditions or in laws, regulations and policies governing foreign trade, manufacturing, research and development, and investment both domestically as well as in the other countries and jurisdictions in which we operate and into which we may sell our products including as a result of the separation of the United Kingdom from the European Union (Brexit);
- potentially adverse tax consequences, tariffs, customs charges, bureaucratic requirements, and other trade barriers;
- difficulties and costs of staffing and managing foreign operations; and
- difficulties protecting, maintaining, enforcing or procuring intellectual property rights.

If one or more of these risks occurs, it could require us to dedicate significant resources to remedy such occurrence, and if we are unsuccessful in finding a solution, our financial results will suffer.

Risks Related to Our Financial Position and Need for Additional Capital

We may require substantial additional funding, which may not be available to us on acceptable terms, or at all, and, if not available, may require us to delay, scale back, or cease our product development or commercialization activities.

Based on our current plans, we believe that our current cash and cash equivalents, short-term investments and anticipated cash flow from operations, if any, will be sufficient to (i) meet our anticipated cash requirements for at least 12 months from the date of this prospectus and, (ii) with the additional funds from the net proceeds of this offering, to finalize the development and to commence commercializing our G4 Integrated Solution and to complete the development of our planned PX Integrated Solution. If our available cash resources, net proceeds from this offering and anticipated cash flows from operations, if any, are insufficient to satisfy our liquidity requirements, we may be required to raise significant additional capital to support our continued operations and the implementation of our business plans. Our future funding requirements will depend on many factors, including but not limited to:

- our rate of progress in finalizing development, launching, commercializing and scaling the manufacturing of our G4 Integrated Solution;
- the costs of the sales and marketing activities associated with establishing adoption of our G4 Integrated Solution;

- the effect of competing technological and market developments, including our requirement to provide discounts for G4 Integrated Solution in light of competitive pressures;
- litigation expenses we incur to defend against claims that we infringe the intellectual property of others or judgments we must pay to satisfy such claims;
- our rate of progress in developing, launching and commercializing our planned PX Integrated Solution, and any new products or product enhancements we elect to pursue;
- our ability to control our manufacturing and operating costs;
- our ability to satisfy our outstanding debt obligations; and
- the costs of responding to the other risks and uncertainties described in this prospectus.

We will also be required to raise additional capital in the future to expand our business and operations, to pursue strategic investments, or for other reasons, including but not limited to:

- increasing our sales and marketing and other commercialization efforts to drive market adoption of our G4 Integrated Solution;
- commercializing our planned PX Integrated Solution;
- scaling up our manufacturing and customer support capabilities;
- funding development and marketing efforts of our other future products and product enhancements;
- expanding our technologies into additional markets;
- acquiring, licensing or investing in technologies and other intellectual property rights;
- acquiring or investing in complementary businesses or assets; and
- financing capital expenditures and general and administrative expenses.

We may seek required funding through issuances of equity or convertible debt securities, entering into additional loan facilities or drawing down additional funds under our current loan agreement with Silicon Valley Bank (the Loan Agreement). Each of the various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, dilution to our stockholders would result. If we raise funds by issuing additional debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our common stock. Our Loan Agreement restricts our ability to pursue certain transactions that we may believe to be in our best interest, including incurring additional indebtedness without the prior written consent of the lender under the Loan Agreement. If we raise funds through collaborations or licensing arrangements, we might be required to relinquish significant rights to our technologies or products or grant licenses on terms that are not favorable to us.

If we are unable to obtain adequate financing or financing on terms satisfactory to us, if we require it, our ability to continue to pursue our business objectives and to respond to business opportunities, challenges, or unforeseen circumstances could be significantly limited, and could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our results of operations could be materially harmed if we are unable to accurately forecast customer demand for our G4 Integrated Solution, our planned PX Integrated Solution, if and once developed and commercialized, and any other future products and product enhancements we elect to pursue.

To ensure adequate inventory supply of our G4 Integrated Solution, including our G4 Instrument and the associated consumables, we must forecast our inventory needs and appropriately scale-up our manufacturing operations and personnel to build a sufficient supply of our G4 Integrated Solution prior to commercial launch.

We must also place orders with our third-party suppliers based on such forecasts. Our ability to accurately forecast demand for our G4 Integrated Solution could be negatively affected by many factors, including delays in finishing the development of our G4 Integrated Solution, the results of our beta pilot program and early access program, our ability to timely scale our manufacturing operations and capabilities, the success of our sales and marketing activities and customer acceptance of our G4 Integrated Solution as well as adverse impacts as a result of COVID-19. These same risks and uncertainties will also apply to our planned PX Integrated Solution and any other future products and product enhancements we elect to pursue.

Inventory levels in excess of customer demand may result in inventory write-downs or write-offs, which would cause our gross margin to be adversely affected and could impair the strength of our brand. Similarly, a portion of our inventory could become obsolete or expire, which could have a material and adverse effect on our earnings and cash flows due to the resulting costs associated with inventory impairment charges and costs required to replace obsolete inventory. Any of these occurrences could negatively impact our financial performance.

Conversely, if we underestimate customer demand for our G4 Integrated Solution, our planned PX Integrated Solution or any other future products and product enhancements we elect to pursue, we may not be able to deliver sufficient products to meet our customer requirements, which could result in damage to our reputation and customer relationships. In addition, if we experience a significant increase in demand, we may not be able to increase our manufacturing capacity on a timely basis. Further, we may not be able to obtain the components for our products when required on terms that are acceptable to us, or at all, which could have an adverse effect on our ability to meet customer demand and harm our business and results of operations.

Our existing indebtedness may limit our flexibility in financing and operating our business and adversely affect our business, financial condition and results of operations.

As of March 31, 2021, there was $10.0 million of principal owed under our Loan Agreement with Silicon Valley Bank. In addition to this outstanding amount, we may borrow substantial funds in the future to provide a portion of the capital needed in our business and may secure the repayment of such borrowings by placing additional liens or other encumbrances on our assets. Our Loan Agreement contains customary conditions to borrowing, events of default and affirmative and negative covenants, including covenants that restrict our ability (and the ability of certain of our subsidiaries) to incur additional indebtedness, grant liens, make certain fundamental changes and asset sales, pay dividends or make other distributions to holders of our stock, make investments or engage in transactions with our affiliates. Such restrictions could limit our ability to take certain actions could reduce our flexibility to run and manage our business which could have an adverse effect on our results of operations. The obligations under the Loan Agreement are also secured by liens on substantially all of our assets, excluding our intellectual property on which there is a negative pledge, subject to customary exceptions. If we were unable to repay amounts due under the Loan Agreement, Silicon Valley Bank could proceed against such assets. Any declaration by Silicon Valley Bank of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline.

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

We have incurred substantial losses during our history, which we expect to continue for the foreseeable future, and we may never achieve profitability. As of December 31, 2020, we had federal and California tax loss carryforwards of approximately $48.7 million and $47.1 million, respectively. As of December 31, 2020, we had federal and state tax credit carry forwards of approximately $1.6 million and $2.2 million, respectively. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, if a corporation undergoes an “ownership change,” generally defined as a greater than 50 percentage point change (by value) in its equity ownership by certain stockholders over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards, or NOLs, and other pre-change tax attributes (such as research tax credits) to offset its post-change income or taxes may be limited. We have not yet completed an ownership change analysis. If a

requisite ownership change occurs, the amount of remaining tax attribute carryforwards available to offset taxable income and reduce income tax expense in future years may be restricted or eliminated. Similar provisions of state tax law may also apply to limit our use of accumulated state tax attributes. In addition, at the state level, there may be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. As a result, even if we attain profitability, we may be unable to use a material portion of our NOLs and other tax attributes based on restrictions in the Code, which could adversely affect our future cash flows and results of operations.

U.S. federal income tax reform and the implementation of such reforms could adversely affect us.

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act (the TCJA) that significantly reformed the Code. The TCJA, among other things, contained significant changes to corporate taxation, including a reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, the limitation of the tax deduction for net interest expense to 30% of adjusted earnings (except for certain small businesses), the limitation of the deduction for NOLs arising in taxable years beginning after December 31, 2017 to 80% of current year taxable income and elimination of NOL carrybacks for losses arising in taxable years ending after December 31, 2017 (though any such NOLs may be carried forward indefinitely), the imposition of a one-time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, the elimination of U.S. tax on foreign earnings (subject to certain important exceptions), the allowance of immediate deductions for certain new investments instead of deductions for depreciation expense over time, and the modification or repeal of many business deductions and credits. The financial statements contained herein reflect the effects of the TCJA based on current guidance. However, there remain uncertainties and ambiguities in the application of certain provisions of the TCJA, and, as a result, we made certain judgments and assumptions in the interpretation thereof.

As part of Congress's response to the COVID-19 pandemic, the Families First Coronavirus Response Act, or the FFCR Act, was enacted on March 18, 2020, and the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, was enacted on March 27, 2020. Both contain numerous tax provisions. In particular, the CARES Act retroactively and temporarily (for taxable years beginning before January 1, 2021) suspends application of the 80%-of-income limitation on the use of NOLs, which was enacted as part of the TCJA. It also provides that NOLs arising in any taxable year beginning after December 31, 2017 and before January 1, 2021 are generally eligible to be carried back up to five years. The CARES Act also temporarily (for taxable years beginning in 2019 or 2020) relaxes the limitation of the tax deductibility for net interest expense by increasing the limitation from 30% to 50% of adjusted taxable income.

Risks Related to Manufacturing Our Products

We may be unable to manufacture our G4 Integrated Solution to meet our commercialization plans on a timely or cost effective basis.

We must successfully increase our manufacturing output to meet our commercialization plans and to support our planned commercial launch of our G4 Integrated Solution by the end of 2021, with units planned to be shipped during the first half of 2022. We currently manufacture our G4 Instrument in our facilities in La Jolla, California. We have leased and are currently building out a new manufacturing facility at a new location in La Jolla, California to support our growth and commercialization plans. In order to manufacture sufficient G4 Instruments, and the associated consumables, to meet our commercialization plans, we will need to hire and train a sufficient number of manufacturing, engineering and quality personnel. Manufacturing our G4 Instruments, and the associated consumables, requires complex processes, and depends on the skill and experience of our manufacturing personnel. The manufacturing process for our G4 Instrument, and the associated consumables, also includes sourcing components from various third-party suppliers and then assembling and testing the final product offerings. We must manufacture our G4 Integrated Solution in compliance with our demanding specifications and at an acceptable cost in order to achieve and maintain profitability. We have only a limited

history of manufacturing and assembling our G4 Instrument, and the associated consumables, and, as a result, we may have difficulty manufacturing and assembling sufficient quantities of such products in a timely manner, and in a cost effective manner. To manage our manufacturing operations and the supply of components from our third-party suppliers, we will need to forecast anticipated demand to predict our inventory needs from six months to a year in advance and enter into purchase orders on the basis of these requirements. Our limited manufacturing history may not provide us with enough data to allow us to accurately and effectively predict our manufacturing capacity requirements or our need for components from our third-party suppliers, including appropriately anticipating fluctuations in the availability and pricing of required components. We may in the future experience delays in obtaining components required for our G4 Instrument or the associated consumables, or not have sufficient manufacturing capabilities and personal for such products, which could impede our ability to manufacture and assemble these products on our expected timeline. As a result of this or any other delays, we may encounter difficulties in production of our G4 Instrument, and the associated consumables, including problems with quality control and assurance, component supply shortages or surpluses, increased costs, shortages of qualified personnel and difficulties associated with compliance with local, state, federal and foreign regulatory requirements.

We are dependent on single source suppliers for some components to our consumables and the loss of any of these suppliers could harm our business.

We do not have long-term contracts with third-party suppliers from whom we obtain some components to manufacture the consumables associated with our G4 Instrument. We are, therefore, subject to the risk that these third-party suppliers will not continue to provide us with components that meet our specifications, quality standards and delivery schedules. Factors that could impact our suppliers' willingness and ability to continue to provide us with the required components include disruption at or affecting our suppliers' facilities, such as work stoppages or natural disasters, demand for and availability of raw materials and subcomponents, adverse weather or other conditions that affect their supply, the financial condition of our suppliers and deterioration in our relationships with these suppliers. In addition, we cannot be sure that we will be able to obtain these components on satisfactory terms. Any increase in component costs could reduce any potential future sales and harm our gross margins.

While we have qualified second sources for several of our critical components, including flow cells, optics and oligonucleotides, we do not have qualified secondary sources for all components that we source through a single supplier and we cannot assure investors that the qualification of a secondary supplier will prevent future supply issues. Disruption in the supply of materials or components would impair our ability to sell our products and meet customer demand, and also could delay the launch of new products, any of which could harm our business and results of operations. If we were to have to change suppliers, the new supplier may not be able to provide us components in a timely manner and in adequate quantities that are consistent with our quality standards and on satisfactory pricing terms. In addition, alternative sources of supply may not be available for components for which there are a limited number of suppliers which could result in a requirement to redesign certain aspects of our products.

We have limited experience manufacturing G4 Integrated Solution, and we may be unable to consistently manufacture or supply our G4 Integrated Solution to the necessary specifications or in quantities necessary to meet demand on a timely basis and at acceptable performance and cost levels.

Our G4 Integrated Solution is a complex product with many different components that must work together to obtain the desired results. As such, a quality defect in a single component can compromise the performance of the entire product. In order to successfully generate revenue from our G4 Integrated Solution, we need to supply our customers with products that meet their expectations for quality and functionality in accordance with established specifications on a timely basis. Given the complexity of our G4 Integrated Solution, individual G4 Instruments may occasionally require additional installation and service time prior to becoming available for customer use and we may be required to replace lots of reagents or consumables.

We intend to manufacture our G4 Integrated Solution at our existing facilities and our new headquarters located in La Jolla, California. We procure certain components of our G4 Instrument, and our associated consumables, from third-party suppliers, which include both commonly-available raw materials and custom components. Many of these manufacturing processes are complex. As we move to towards commercial scale manufacturing, if we are not able to repeatedly produce our G4 Integrated Solution at commercial scale and source required components from third-party suppliers, our business will be adversely impacted. In particular, we will need to obtain certain approvals and certifications to build our new facility that can be capable of manufacturing our integrated solutions. We do not have experience in constructing manufacturing facilities and if we are unable or delayed in obtaining required approvals and certifications our commercialization efforts could be adversely affected.

As we continue to scale commercially in anticipation of the launch of our G4 Integrated Solution and finalize the development of our planned PX Integrated Solution and any new products or product enhancements, and as our products incorporate increasingly sophisticated technology, it will be increasingly difficult to ensure our products are produced in the necessary quantities without sacrificing quality. We have limited manufacturing experience and no experience manufacturing our products at commercial scale and there is no assurance that we will be able to manufacture our products so that they repeatedly provide accurate results consistent with product specifications. Further, our consumables have a limited shelf life, after which their performance is not ensured. Shipment of consumables that effectively expire early or shipment of defective instruments or consumables to customers may result in recalls and warranty replacements, which would increase our costs, and depending upon our inventory levels and the availability and lead time for additional inventory, could lead to availability issues. As we 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. Any future design issues, unforeseen manufacturing problems, equipment malfunctions, aging components, quality issues with components and materials sourced from third-party suppliers, or failures to strictly follow procedures or meet specifications, may have a material adverse effect on our brand, business, results of operations and financial condition.

Our G4 Integrated Solution could have defects or errors, which may give rise to claims against us, adversely affect market adoption and adversely affect our business, financial condition, and results of operations.

Our G4 Integrated Solution utilizes novel and complex technologies and may develop or contain undetected defects or errors. We cannot assure you that material performance problems, defects, or errors will not arise, and as we commercialize our products, these risks may increase. We expect to provide warranties that our products will meet performance expectations and will be free from defects. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins.

In manufacturing our G4 Integrated Solution, we depend upon third parties for the supply of various components, many of which require a significant degree of technical expertise to produce. If our suppliers fail to produce our components to specification or provide defective products to us and our quality control tests and procedures fail to detect such errors or defects, or if we or our suppliers use defective materials or workmanship in the manufacturing process, the reliability and performance of our products will be compromised.

If our G4 Integrated Solution contains defects, we may experience:

- a failure to achieve market acceptance for our products or increased sales;
- loss of customer orders or delays in order fulfillment;
- damage to our brand reputation;
- increased warranty and customer service and support costs due to product repair or replacement;
- product recalls or replacements;
- inability to attract new customers or gain market acceptance;

- diversion of resources from our manufacturing and research and development departments into our service department; and
- legal claims against us, including product liability claims, which could be costly and time consuming to defend and result in substantial damages.

In addition, we expect that our G4 Integrated Solution will be used with our potential customers' own lab equipment and third-party products, and the performance of this equipment and products is outside of our control. If our customers' equipment or the third-party products they utilize are not produced to specification, are produced in accordance with modified specifications, or are defective, they may not be compatible with or perform as intended with our G4 Integrated Solution. In such case, the reliability, results and performance of our G4 Integrated Solution may be compromised. The occurrence of any one or more of the foregoing could negatively affect our business, financial condition, and results of operations. Additionally, we expect that we will need to train our customers on properly using our G4 Integrated Solution. If we are unable to adequately train our customers to use our G4 Integrated Solution or they fail to follow our training and protocols we have established, the performance of our G4 Integrated Solution may be compromised.

Our ability to achieve profitability will depend, in part, on our ability to reduce the per unit manufacturing costs of our G4 Integrated Solution.

To achieve our operating and strategic goals, we will need to, among other things, reduce the per unit manufacturing cost of our G4 Instrument and the associated consumables. Manufacturing our G4 Instrument and our associated consumables involve complex processes, and depend on the skills and experience of our manufacturing personnel. We may experience low manufacturing yields for our G4 Instrument and our consumables. In addition, we will need to continually focus on reducing the per unit manufacturing cost of our G4 Instrument and associated consumables, which cannot be achieved without increasing the volume of components that we purchase in order to take advantage of volume-based pricing discounts, improving our manufacturing efficiency or increasing our volumes to leverage manufacturing overhead costs. If we are unable to improve our manufacturing efficiency and reduce our manufacturing overhead costs per unit, our ability to achieve profitability will be severely constrained. Any increase in manufacturing volumes is dependent upon a corresponding increase in sales. The occurrence of one or more factors that negatively impact the manufacturing or sales of our G4 Integrated Solution or reduce our manufacturing efficiency may prevent us from achieving our desired reduction in manufacturing costs, which would negatively affect our operating results and may prevent us from attaining profitability.

If our facilities or our third-party suppliers' facilities become unavailable or inoperable, our research and development program and commercialization launch plan could be adversely impacted and manufacturing of our G4 Integrated Solution could be interrupted.

Our existing and planned facilities in La Jolla, California house our corporate, research and development, manufacturing, sales and marketing, customer support and quality assurance teams. Our facilities and those of our third-party suppliers are vulnerable to natural disasters, public health crises, including the impact of the COVID-19 pandemic, and catastrophic events. For example, our La Jolla facilities are located near earthquake fault zones and are vulnerable to damage from earthquakes as well as other types of disasters, including fires, floods, power loss, communications failures and similar events. If any disaster, any new or continuing public health crisis or catastrophic event were to occur, our ability to operate our business would be seriously, or potentially completely, impaired. If our facilities or our third-party suppliers' facilities become unavailable for any reason, we cannot provide assurances that we will be able to secure alternative facilities with the necessary capabilities and equipment or alternative suppliers on acceptable terms, if at all. We may encounter particular difficulties in replacing our La Jolla facilities given the specialized equipment housed within it. The inability to manufacture our G4 Instrument and associated consumables, combined with our limited inventory of such manufactured products, may result in the loss of future customers or harm our reputation, and we may be unable to re-establish relationships with those customers in the future. Because our consumables are perishable and must

be kept in temperature controlled storage, the loss of power to our facilities, mechanical or other issues with our storage facilities or other events that impact our temperature controlled storage could result in the loss of some or all of such products, and we may not be able to replace them without disruption to our customers or at all.

If our business operations are disrupted by a disaster or catastrophe, the launch of our G4 Integrated Solution and our planned PX Integrated Solution, and the timing of improvements to such products could be significantly delayed and could adversely impact our ability to compete with other available products and solutions. If our or our third-party suppliers' capabilities are impaired, we may not be able to manufacture and ship our products in a timely manner, which would adversely impact our business. Although we possess insurance for damage to our property 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.

The costs to maintain and provide customer support for our G4 Integrated Solution, and any future products or product enhancements that we commercialize, may exceed our expectations.

We have not begun to commercialize our G4 Integrated Solution or to manufacture our G4 Integrated Solution in commercial quantities. As we start to commercialize our G4 Integrated Solution, we will need to build a commercial organization and infrastructure to support the following activities:

- installing our G4 Integrated Solution in customer locations;
- training customers on the use of our G4 Integrated Solution;
- providing customer support services; and
- providing maintenance, repair and warranty services.

We may not be successful in developing the organization or commercial infrastructure necessary to provide these customer support activities in a timely manner, and on a cost effective basis. Any failure to provide our customers with a superior customer experience, to timely respond to their requests and questions and to provide maintenance and warranty services, may adversely affect our brand and our results of operations.

Risks Related to Our Planned Growth

If we do not successfully manage our current and anticipated growth, our business and prospects will be harmed.

From March 31, 2020 to March 31, 2021, the number of our full-time employees increased from 88 to 138. Since that time, we have continued to increase our employee headcount and expand our operations and expect to continue to do so as we approach commercialization. Our recent growth has placed significant strains on our management, financial systems and internal controls. We expect that the anticipated growth associated with the commercial launch of our G4 Integrated Solution and the development and commercial launch of our planned PX Integrated Solution, will also strain our operational and manufacturing systems and processes, sales and marketing team, financial systems and internal controls and other aspects of our business. Developing and commercializing our G4 Integrated Solution, and continuing to develop our planned PX Integrated Solution, will require us to hire and retain scientific, sales and marketing, software, manufacturing, customer service, and quality assurance personnel. In addition, 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. Once public, our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements and effectively manage these growth activities. We have faced challenges integrating, developing and motivating our rapidly growing employee base, especially during the COVID-19 pandemic, and may continue to face related challenges as we continue to grow. To effectively manage our growth, we must continue to improve our operational and manufacturing systems and processes, our financial systems and internal controls and other aspects of our business and continue to effectively expand, train and manage our personnel in a virtual environment during the pendency of the COVID 19 pandemic and related governmental work from home mandates. Our ability to successfully manage our

expected growth is uncertain given the fact that we have been in operation only since 2016. As our organization continues to grow, we will be required to implement more complex organizational management structures, and may find it increasingly difficult to maintain the benefits of our corporate culture, including our ability to quickly develop and launch new and innovative products and technologies. If we do not successfully manage our anticipated growth, our business, results of operations, financial condition and prospects will be harmed.

We depend on our senior management team and the loss of one or more key employees or an inability to attract and retain highly skilled employees will negatively affect our business, financial condition and results of operations.

Our future success depends upon our ability to recruit, train, retain and motivate our senior management team and our other highly qualified personnel. Our senior management team, including Andrew Spaventa, our founder, Chief Executive Officer and Chairperson of the Board, Eli Glezer, our founder and Chief Scientific Officer, and David Daly, our President and Chief Operating Officer, is critical to our vision, strategic direction, product development and commercialization efforts. The departure of one or more of these individuals or any of our other executive officers, senior management team members, or other key employees could be disruptive to our business until we are able to hire qualified successors. We do not have long-term employment contracts or maintain “key man” life insurance on our senior management team.

Our continued growth and ability to successfully transition from a company primarily focused on research and development to commercialization depends, in part, on attracting, retaining and motivating qualified personnel, including highly-trained sales and marketing personnel with the necessary scientific background and ability to understand our products at a technical level to effectively identify, market and sell to potential new customers. New hires will require significant training and, in most cases, take significant time before they achieve full productivity. Our failure to successfully integrate these key personnel into our business could adversely affect our business. In addition, competition for qualified personnel in the life sciences space is intense, particularly in the San Diego metropolitan area. We compete for qualified scientific and information technology personnel with other life science and information technology companies as well as academic institutions and research institutions. Some of our scientific personnel are qualified foreign nationals whose ability to live and work in the United States is contingent upon the continued availability of appropriate visas. Due to the competition for qualified personnel in the San Diego metropolitan area, we expect to continue to utilize foreign nationals to fill part of our recruiting needs. As a result, changes to United States immigration policies could restrain the flow of technical and professional talent into the United States and may inhibit our ability to hire qualified personnel.

We do not maintain fixed term employment contracts with any of our employees, including the members of our senior management team. As a result, our executives and other key employees could leave our company with little or no prior notice and would be free to work for a competitor. Due to the complex and technical nature of our products and technology and the dynamic market in which we compete, any failure to attract, train, retain and motivate qualified personnel could materially harm our business, results of operations, financial condition and prospects.

We may acquire or invest in other companies or technologies, which could divert our management’s attention, result in additional dilution to our stockholders and otherwise disrupt our operations and harm our operating results.

We may in the future seek to acquire or invest in businesses, applications or technologies that we believe could complement or expand our G4 Integrated Solution, our planned PX Integrated Solution or any other future products and product enhancements we elect to pursue. We may also pursue acquisitions or investments to expand our technical capabilities or otherwise offer growth opportunities. The pursuit of potential acquisitions or investments may divert the attention of management and cause us to incur various costs and expenses in identifying, investigating and pursuing suitable acquisitions or investments, whether or not they are

consummated. We may not be able to identify desirable acquisition targets or be successful in entering into an agreement with any particular target or obtain the expected benefits of any acquisition or investment.

To date, the growth of our operations has been organic, and we have limited experience in acquiring or investing in other businesses or technologies. We may not be able to successfully integrate acquired personnel, operations and technologies, or effectively manage the combined business following an acquisition. Acquisitions could also result in dilutive issuances of equity securities, the use of our available cash, or the incurrence of debt, which could harm our operating results. In addition, if an acquired business fails to meet our expectations, our operating results, business and financial condition may suffer. Also, our Loan Agreement may restrict our ability to pursue certain mergers, acquisitions, amalgamations or consolidations without obtaining the prior consent of Silicon Valley Bank or repaying our outstanding loan amounts. Additionally, future acquisitions or investments could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities or amortization expenses or write-offs of goodwill, any of which could harm our financial condition.

If we experience a disruption in our information technology systems or breaches of data security, our business could be adversely affected.

We rely on information technology systems to keep financial records, facilitate our research and development initiatives, manage our manufacturing operations, maintain quality control, fulfill customer orders, maintain corporate records, communicate with staff and external parties and operate other critical functions. Our information technology systems and those of our vendors and partners are potentially vulnerable to disruption due to breakdown, malicious intrusion and computer viruses or other disruptive events, including, but not limited to, natural disasters and catastrophes. Cyberattacks and other malicious internet-based activity continue to increase and cloud-based platform providers of services have been and are expected to continue to be targeted. Methods of attacks on information technology systems and data security breaches change frequently, are increasingly complex and sophisticated, including social engineering and phishing scams, and can originate from a wide variety of sources. In addition to traditional computer “hackers,” malicious code, such as viruses and worms, stolen or fraudulently obtained log-in credentials, employee errors, actions, inaction, theft, or misuse, and denial-of-service attacks, there are sophisticated nation-state and nation-state supported actors that now engage in attacks, including advanced persistent threat intrusions. Our information technology and data security procedures continue to evolve and therefore, our information technology systems may be more susceptible to cybersecurity attacks. Despite any of our current or future efforts to protect against cybersecurity attacks and data security breaches, there is no guarantee that our efforts are adequate to safeguard against all such attacks and breaches. Moreover, it is possible that we may not be able to anticipate, detect, appropriately react and respond to, or implement effective preventative measures against, all cybersecurity incidents.

If our security measures, or those of our vendors and partners, are compromised due to any cybersecurity attacks or data security breaches, our business and reputation may be harmed, we could become subject to litigation and we could incur significant liability. If we were to experience a prolonged system disruption in our information technology systems or those of certain of our vendors and partners, it could negatively impact our ability to serve our customers, which could adversely impact our business, financial condition, results of operations and prospects. If operations at our facilities were disrupted, it may cause a material disruption in our business if we are not capable of restoring functionality in an acceptable timeframe. In addition, our information technology systems, and those of our vendors and partners, are potentially vulnerable to data security breaches and supply chain attacks, whether by internal bad actors, such as employees or other third parties with legitimate access to our or our third-party providers’ systems, or external bad actors, which could lead to the exposure of personal data, sensitive data and confidential information to unauthorized persons. Any such data security breaches could lead to the loss of trade secrets or other intellectual property, or could lead to the exposure of personal information, including sensitive personal information, of our employees, customers and others, any of which could have a material adverse effect on our business, reputation, financial condition and results of operations.

In addition, any such access, disclosure or other loss or unauthorized use of information or data could result in legal claims or proceedings, regulatory investigations or actions, and other types of liability under laws that protect the privacy and security of personal information, including federal, state and foreign data protection and privacy regulations, violations of which could result in significant penalties and fines. Furthermore, defending a suit, regardless of its merit, could be costly, divert management's attention and harm our reputation. In addition, although we seek to detect and investigate all data security incidents, security breaches and other incidents of unauthorized access to our information technology systems and data can be difficult to detect and any delay in identifying such breaches or incidents may lead to increased harm and legal exposure of the type described above. Moreover, there could be public announcements regarding any cybersecurity incidents and any steps we take to respond to or remediate such incidents, and if securities analysts or investors perceive these announcements to be negative, it could, among other things, have a material adverse effect on the price of our common stock.

The cost of protecting against, investigating, mitigating and responding to potential breaches of our information technology systems and data security breaches and complying with applicable breach notification obligations to individuals, regulators, partners and others can be significant. As cybersecurity incidents continue to evolve, we may be required to expend significant additional resources to continue to modify or enhance our protective measures or to investigate and remediate any information security vulnerabilities. The inability to implement, maintain and upgrade adequate safeguards could have a material adverse effect on our business, financial condition, results of operations and prospects. While we currently maintain cybersecurity insurance, our insurance policies may not be adequate to compensate us for the potential costs and other losses arising from such disruptions, failures or security breaches. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all, or that any insurer will not deny coverage as to any future claim. The successful assertion of one or more large claims against us that exceed available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business, financial condition, results of operations and prospects.

The implementation of a new enterprise resource planning system could cause disruption to our business and operations.

We are in the process of implementing a new enterprise resource planning system, or ERP system. This system will integrate our operations, including supply-chain, order entry, manufacturing, inventory and financial reporting, among others. ERP system implementations are complex projects that require significant investment of capital and human resources, the reengineering of many business processes and the attention of many employees who would otherwise be focused on other aspects of our business. Any disruptions, delays or deficiencies in the design and implementation of the improvements to our ERP system may result in potentially much higher costs than anticipated and may adversely affect our ability to develop and manufacture our products, commercialize our products, fulfill contractual obligations, file reports with the Securities and Exchange Commission, or the SEC, in a timely manner or otherwise operate our business and our controls environment. Moreover, despite our security measures, our information technology systems, including the ERP system, are vulnerable to damage or interruption from fires, floods and other natural disasters, terrorist attacks, computer viruses or hackers, power losses and computer system or data network failures, which could result in significant data losses or theft of sensitive or proprietary information. Any of these consequences may harm our business.

Risks Related to our Intellectual Property

If we are sued for infringing, misappropriating or otherwise violating intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our product candidates.

Our commercial success depends on our ability to develop, manufacture, market and sell our products and use our products and technologies without infringing, misappropriating or otherwise violating the intellectual

property rights of third parties. We operate in a crowded technology area in which there are numerous issued patents and patent applications and in which there has been substantial litigation regarding patent and other intellectual property rights. There also is a substantial number of administrative proceedings for challenging patents, including interference, derivation, *inter partes* review, post grant review, and reexamination proceedings before the USPTO, or oppositions and other comparable proceedings in foreign jurisdictions. We expect to be exposed to, or threatened with, future litigation by third parties, including our primary competitors, who have patent and other intellectual property rights and may allege that our research and development activities, products, manufacturing methods, software and/or technologies infringe, misappropriate or otherwise violate their intellectual property rights. Our competitors have numerous issued patents and pending patent applications in the fields covered by our products and in which we are developing our products and technologies. It is not always clear to industry participants, including us, the claim scope that may issue from pending patent applications owned by third parties or which patents cover various types of products, technologies or their methods of use or manufacture. In addition, many patent applications are unpublished for up to 18 months from their first filing date and are not accessible to us. We expect that our competitors will, in connection with our launch of our G4 Integrated Solution and our planned PX Integrated Solution and later stage product offerings, assert that we are infringing, or have in the past infringed as part of our research and development activities, their patent and other intellectual property rights and that we are employing their proprietary technology without authorization.

If third parties, including our competitors, believe that our products or technologies infringe, misappropriate or otherwise violate their intellectual property, such third parties may seek to enforce their intellectual property, including patents, against us by filing an intellectual property-related lawsuit, including a patent infringement lawsuit, against us. There is no assurance that a court would find in our favor on questions of infringement, validity, enforceability, or priority. If any of our competitors, or any other third parties, were to assert their patents against us and we are unable to successfully defend against any such assertion, we may be required, including by court order, to cease the development and commercialization of the infringing products or technology and we may be required to redesign such products and technologies so they do not infringe such patents, which may not be possible or may require substantial monetary expenditures and time. We could also be required to pay damages, which could be significant, including treble damages and attorneys' fees if we are found to have willfully infringed such patents. We could also be required to obtain a license to such patents in order to continue the development and commercialization of the infringing product or technology, which may not be on commercially reasonable terms or may not be obtainable at all. Even if such license were available, it may require substantial payments or cross-licenses under our intellectual property rights, and it may only be available on a nonexclusive basis, in which case third parties, including our competitors, could use the same licensed intellectual property to compete with us. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operation or prospects.

We may choose to challenge the patentability, validity or enforceability of any third-party patent that we believe may have applicability in our field, and any other third-party patent that may be asserted against us. Such challenges may be brought either in court or by requesting that the USPTO, or other foreign patent offices review the patent claims. However, there can be no assurance that any such challenge will be successful and if not successful, we may be estopped from asserting in a district court any grounds already raised or that could have been raised in certain proceedings, such as *inter partes* review (IPR) at the USPTO. Even if such proceedings are successful, these proceedings are expensive and may consume our time or other resources, distract our management and technical personnel.

Third parties, including our existing and future competitors, may be infringing, misappropriating or otherwise violating our owned and in-licensed intellectual property rights. Monitoring unauthorized use of our intellectual property will be difficult and costly. We may not be able to detect unauthorized use of, or take appropriate steps to enforce, our intellectual property rights. From time to time, we seek to analyze our competitors' products and services, and may in the future seek to enforce our rights against potential infringement, misappropriation or violation of our intellectual property. However, the steps we have taken to

protect our intellectual property rights may not be adequate to enforce our rights. Any inability to meaningfully enforce our intellectual property rights could harm our ability to compete and reduce demand for our products and technologies.

Litigation proceedings may be necessary for us to enforce our patent and other intellectual property rights. We may not be successful in such proceedings. Further, in such proceedings, the defendant could counterclaim that our intellectual property is invalid or unenforceable and the court may agree, in which case we could lose valuable intellectual property rights. The outcome in any such proceedings are unpredictable. Third parties may also bring challenges to our patents in the USPTO or foreign patent offices seeking to invalidate them.

Regardless of whether we are defending against or asserting any intellectual property-related proceeding, any such intellectual property-related proceeding that may be necessary in the future, regardless of outcome, could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition, results of operations and prospects. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of such ongoing litigation, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Some of our competitors and other third parties 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. We may not have sufficient financial or other resources to adequately conduct these types of litigation or proceedings. Any of the foregoing, or any uncertainties resulting from the initiation, continuation and results of any litigation, could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, financial condition, results of operations and prospects. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar adverse effect on our business, financial condition, results of operations and prospects.

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

We rely on patent, trademark, copyright, trade secret and other intellectual property rights and contractual restrictions to protect our proprietary products and technologies, all of which provide limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We currently have three issued patents covering our proprietary next generation sequencing technology. If we fail to obtain additional patent protection for our products and technology and maintain and protect our intellectual property rights, third parties may be able to compete more effectively against us. In addition, we may incur substantial litigation costs in our attempts to recover or restrict use of our intellectual property. Further, if we are unable to obtain and maintain sufficient intellectual property protection for our products and technology, or if the scope of the intellectual property protection obtained is not sufficiently broad, our ability to successfully commercialize our products may be impaired.

We have and intend to continue to apply for patents covering our products and technologies and uses thereof, as we deem appropriate. However, obtaining and enforcing patents is costly, time-consuming and complex, and we may fail to apply for patents on important products and technologies in a timely fashion or at all, or we may fail to apply for patents in potentially relevant jurisdictions. We may not be able to file and prosecute all necessary or desirable patent applications, or maintain, enforce and license any patents that may issue from such patent applications, at a reasonable cost or in a timely manner or in all jurisdictions. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, we may not develop additional proprietary products, methods and

technologies that are patentable. We may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the rights to patents licensed from or to third parties. Therefore, these patents and applications may not be prosecuted and enforced by such third parties in a manner consistent with the best interests of our business.

In addition, the patent position of life sciences technology companies such as ours is generally is highly uncertain, involves complex legal and factual questions, and our industry has been to widespread and intense litigation in recent years. Changes in either the patent laws or in interpretations of patent laws in the United States or other countries or regions may diminish the value of our intellectual property. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. It is possible that none of our pending patent applications will result in issued patents in a timely fashion or at all, and even if patents are granted, they may not provide a basis for intellectual property protection of commercially viable products or technologies, may not provide us with any competitive advantages, or may be challenged, narrowed and invalidated by third parties. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. It is possible that third parties will design around our current or future patents such that we cannot prevent such third parties from using similar technologies and commercializing similar products to compete with us. Some of our owned or licensed patents or patent applications may be challenged at a future point in time and we may not be successful in defending any such challenges made against our patents or patent applications. Any successful third-party challenge to our patents could result in the narrowing, unenforceability or invalidity of such patents and increased competition to our business. The outcome of patent litigation or other proceeding can be uncertain, and any attempt by us to enforce our patent rights against others or to challenge the patent rights of others may not be successful, or, regardless of success, may take substantial time and result in substantial cost, and may divert our efforts and attention from other aspects of our business. Any of the foregoing events could have a material adverse effect on our business, financial condition and results of operations.

We cannot ensure that patent rights relating to inventions described and claimed in our pending patent applications will issue and will provide sufficient protection for our products and technologies. We also cannot ensure that our patents or patents based on our patent applications will not be challenged and rendered invalid and/or unenforceable.

Our success depends in large part on our ability to obtain and maintain intellectual property protection, particularly patents, for our products and technologies in the both the United States and other foreign countries. Patents are of national or regional effect, and filing, prosecuting and defending patents on all of our products and technologies throughout the world would be prohibitively expensive, and the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. As such, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Further, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. As such, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Furthermore, certain foreign and developing countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third-party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to 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.

We have pending U.S. and foreign patent applications in our portfolio, however, we cannot predict:

- if and when patents may issue based on our patent applications;
- the scope of protection of any patent issuing based on our patent applications;
- whether the claims of any patent issuing based on our patent applications will provide protection against competitors;
- whether or not third parties will find ways to invalidate or circumvent our patent rights;
- whether or not others will obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether we will need to initiate litigation or administrative proceedings to enforce and/or defend our patent rights which will be costly whether we win or lose; and/or
- whether the patent applications that we own or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries.

We cannot be certain that the claims in our pending patent applications directed to our product candidates and/or technologies will be considered patentable by the United States Patent and Trademark Office (the USPTO) or by patent offices in foreign countries. One aspect of the determination of patentability of our inventions depends on the scope and content of the "prior art," information that was or is deemed available to a person of skill in the relevant art prior to the priority date of the claimed invention. There may be prior art of which we are not aware that may affect the patentability of our patent claims or, if issued, affect the validity or enforceability of a patent claim. Even if the patents do issue based on our patent applications, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, patents in our portfolio may not adequately exclude third parties from practicing relevant technology or prevent others from designing around our claims. If the breadth or strength of our intellectual property position with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop and threaten our ability to commercialize our product candidates. In the event of litigation or administrative proceedings, we cannot be certain that the claims in any of our issued patents will be considered valid by courts in the United States or foreign countries.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have employed and expect to employ individuals who were previously employed at universities, research institutions or other companies, including our competitors or potential competitors. Although we seek to protect our ownership of intellectual property rights by ensuring that our agreements with our employees, collaborators, and other third parties with whom we do business include provisions requiring such parties to not disclose the confidential information of their previous employers or other third parties, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of our employees' former employers or other third parties. We or our licensors may also be subject to claims that former employers or other third parties have an ownership interest in our patents. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and if we or our licensors fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Even if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees.

If we are unable to protect the confidentiality of our trade secrets, the value of our technology could be materially adversely affected and our business could be harmed.

We rely heavily on trade secrets and confidentiality agreements to protect our unpatented know-how, technology and other proprietary information, including the design and features of our G4 Integrated Solution and our planned PX Integrated Solution, and to maintain our competitive position. However, trade secrets and know-how can be difficult to protect. In particular, we anticipate that with respect to our technologies, these trade secrets and know how will 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.

In addition to pursuing patents on our technology, we take steps to protect our intellectual property and proprietary technology by entering into agreements, including confidentiality agreements, non-disclosure agreements and intellectual property assignment agreements, with our employees, consultants, academic institutions, corporate partners and, when needed, our advisers. However, we cannot be certain that such agreements have been entered into with all relevant parties, and we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors or other third parties will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. For example, 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. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure, which could adversely impact our ability to establish or maintain a competitive advantage in the market, business, financial condition, results of operations and prospects.

Monitoring unauthorized disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to enforce a claim that a third-party had wrongfully obtained and was using our trade secrets, it would be expensive and time-consuming, it could distract our personnel, and the outcome would be unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets.

We also seek to preserve the integrity and confidentiality of our confidential proprietary information by maintaining physical security of our premises and physical and electronic security of our information technology systems, but it is possible that these security measures could be breached. If any of our confidential proprietary information were to be lawfully obtained or independently developed by a competitor or other third-party, absent patent protection, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. Competitors or third parties could purchase our products and attempt to replicate some or all of the competitive advantages we derive from our development efforts, design around our protected technology, develop their own competitive technologies that fall outside the scope of our intellectual property rights or independently develop our technologies without reference to our trade secrets. If any of our trade secrets were to be disclosed to or independently discovered by a competitor or other third-party, it could materially and adversely affect our business, financial condition, results of operations and prospects.

We in-licensed certain patents and other intellectual property rights from The Trustees of Columbia University in the City of New York (Columbia). If we fail to comply with the terms of our agreement with Columbia or have a disagreement with Columbia regarding our obligations thereunder, we may be subject to breach of contract claims or other actions by Columbia, which could harm our business, results of operations and financial condition.

In August 2016, we entered into an Exclusive License Agreement with Columbia, which was subsequently amended in September 2016, November 2016 and June 2017 (the License Agreement). Under the License

Agreement, we received (i) an exclusive, sublicensable, worldwide license under certain patents owned by Columbia to discover, develop, make and sell products or services covered by the claims of such licensed patents (the Patent Products), and (ii) an exclusive, sublicensable, worldwide license under certain materials and technical information provided by Columbia to discover, develop, make and sell products or services that directly use or incorporate such materials or information (the Other Products). Under the License Agreement, we are required to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products and to achieve certain fundraising and development milestone events. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single digit royalty rates on net sales of Other Products. We are also required to make milestone payments to Columbia upon our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement.

We do not believe that our G4 or PX Instruments or the associated consumables, as we presently intend to commercialize them, fit within the definitions of Patent Products or Other Products as defined in the License Agreement. As a result, we do not believe that we will be required to make milestone payments or pay royalties on sales of these products or any associated consumables or services based on our current commercialization plans. However, in the future, we may decide to incorporate features covered by one or more licensed patent(s) or directly use or incorporate materials and/or technical information provided by Columbia, such that we would incur milestone and royalty obligations under the License Agreement.

The License Agreement includes a number of diligence obligations that require us to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products by certain dates. To the extent that we do not commercialize a Patent Product or Other Product, Columbia may contend that we have not complied with our diligence obligations under the License Agreement. In such case, Columbia could take the position that the License Agreement should convert to a non-exclusive license or pursue actions to terminate the License Agreement alleging that we have not satisfied our diligence obligations. Columbia could also file additional claims to the pending patent applications they licensed to us to attempt to cause our products to become Patent Products. Columbia could also disagree with our interpretation of our milestone and royalty obligations under the License Agreement and contend that a failure to make milestone payments or pay royalties constitutes a breach of the License Agreement. We are currently engaged in discussions with Columbia regarding the application of the License Agreement to our products and our efforts to satisfy the diligence obligations under the License Agreement. There is no assurance that Columbia will agree with our interpretation of the License Agreement or our payment obligations thereunder or agree that we have complied with our diligence obligations.

Columbia has a right to pursue a termination of the License Agreement in the event we become insolvent or otherwise cease operations, in the event we materially breach our obligations under the License Agreement, or in the event we assert any claim challenging the validity or enforceability of any patent licensed to us by Columbia under the License Agreement. For example, Columbia may assert that we have breached the License Agreement if it disagrees with our determination that our G4 and PX Instruments and the associated consumables do not fit within the definitions of Patent Products or Other Products. In addition, to the extent that we do not commercialize a Patent or Other Product, Columbia may take the position that we have not complied with our diligence obligations under the License Agreement. There is no assurance that we can satisfy our obligations under the License Agreement, or that we and Columbia will agree on whether or not we have satisfied our obligations under the License Agreement, including whether any royalty or milestones, or the amount thereof, are payable under the terms of the License Agreement or whether we have satisfied our diligence obligations. If we fail to comply with our obligations, or if we and Columbia do not agree on whether we have satisfied our obligations under the License Agreement, Columbia could exercise its right to assert a breach of contract, convert the License Agreement to a non-exclusive license and/or pursue actions to terminate the License Agreement. Further, Columbia could seek to file additional claims to the pending patent applications they licensed to us to attempt to cause our products to become Patent Products. If we are required to defend against breach of contract or other claims and actions asserted by Columbia or if Columbia is successful in terminating the License

Agreement or converting the License Agreement to a non-exclusive license, our business may be adversely affected. Further, if we are required to make additional milestone payments or pay Columbia royalties on our G4 and PX Instruments, and the consumables we have developed to date, our resulting operations and financial condition may be adversely affected.

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 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. While extensions may be available, the life of a patent, and the protection it affords, is limited. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over a commonly owned patent or a patent naming a common inventor and having an earlier expiration date. Even if patents covering our products are obtained, once the patent life has expired, we may be open to competition from competitive products. If one of our products requires extended development, testing and/or regulatory review, patents protecting such products might expire before or shortly after such products are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours, which could have a material adverse effect on our business, financial condition and results of operations.

We may not be able to protect and enforce our trademarks and trade names, or build name recognition in our markets of interest thereby harming our competitive position.

The registered or unregistered trademarks or trade names that we own may be challenged, infringed, circumvented, declared generic, lapsed or determined to be infringing on or dilutive of other marks. We may not be able to protect our rights in these trademarks and trade names, which we need in order to build name recognition. In addition, third parties have filed, and may in the future file, for registration of trademarks similar or identical to our trademarks, thereby impeding our ability to build brand identity and possibly leading to market confusion. 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. Further, we may in the future enter into agreements with owners of such third-party trade names or trademarks to avoid potential trademark litigation which may limit our ability to use our trade names or trademarks in certain fields of business. 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, financial condition, results of operations and prospects may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources. Any of the foregoing events could have a material adverse effect on our business, financial condition and results of operations.

The U.S. law relating to the patentability of certain inventions in the life sciences technology industry is uncertain and rapidly changing, which may adversely impact our existing patents or our ability to obtain patents in the future.

Changes in either the patent laws or interpretation of the patent laws in the United States or in other jurisdictions could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. For instance, under the Leahy-Smith America Invents Act, or the America Invents Act, enacted in September 2011, the United States transitioned to a first inventor to file system in which, assuming that other requirements for patentability are met, the first inventor to file a patent application is entitled to the patent on an invention regardless of whether a third-party was the first to invent the claimed invention. These changes include allowing third-party submission of prior art to the USPTO during patent

prosecution and additional procedures to challenge the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. The America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Various courts, including the U.S. Supreme Court, have rendered decisions that impact the scope of patentability of certain inventions or discoveries relating to the life sciences technology. Specifically, these decisions stand for the proposition that patent claims that recite laws of nature are not themselves patentable unless those patent claims have sufficient additional features that provide practical assurance that the processes are genuine inventive applications of those laws rather than patent drafting efforts designed to monopolize the law of nature itself. What constitutes a "sufficient" additional feature is uncertain. Furthermore, in view of these decisions, since December 2014, the USPTO has published and continues to publish revised guidelines for patent examiners to apply when examining process claims for patent eligibility.

In addition, U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events may create uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that may have a material adverse effect on our ability to obtain new patents and to defend and enforce our existing patents and patents that we might obtain in the future.

We cannot be certain that our patent portfolio will not be negatively impacted by the current uncertain state of the law, new court rulings or changes in guidance or procedures issued by the USPTO or other similar patent offices around the world. From time to time, the U.S. Supreme Court, other federal courts, the U.S. Congress or the USPTO may change the standards of patentability, scope and validity of patents within the life sciences technology and any such changes, or any similar adverse changes in the patent laws of other jurisdictions, could have a negative impact on our business, financial condition, prospects and results of operations.

If we cannot license rights to use technologies on reasonable terms, we may not be able to commercialize new products in the future.

We may identify third-party technology that we may need to license or acquire in order to develop or commercialize our products or technologies. However, we may be unable to secure such licenses or acquisitions. The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us.

We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. In return for the use of a third-party's technology, we may agree to pay the licensor royalties based on sales of our products or services. Royalties are a component of cost of products or technologies and affect the margins on our products. We may also need to negotiate licenses to patents or patent applications before or after introducing a commercial product. We may not be able to obtain necessary licenses to patents or patent applications, the commercial release of our products could delayed and our business may suffer if we are unable to enter into the necessary licenses on acceptable terms or at all, if any necessary licenses are subsequently terminated, if the licensor fails to abide by the terms of the license or fails to prevent infringement by third parties, or if the licensed intellectual property rights are found to be invalid or unenforceable.

Certain of our future owned and in-licensed patents may be, subject to a reservation of rights by one or more third parties, including government march-in rights, which may limit our ability to exclude third parties from commercializing products similar or identical to ours.

Our future in-licensed patents may be subject to a reservation of rights by one or more third parties. For example, when new technologies are developed with government funding, in order to secure ownership of such patent rights, the recipient of such funding is required to comply with certain government regulations, including timely disclosing the inventions claimed in such patent rights to the U.S. government and timely electing title to such inventions. Any failure to timely elect title to such inventions may provide the U.S. government to, at any time, take title such inventions. Additionally, the U.S. government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention or to have others use the invention on its behalf. If the government decides to exercise these rights, it is not required to engage us as its contractor in connection with doing so. These rights may permit the U.S. government to disclose our confidential information to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The U.S. government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States. Any exercise by the government of any of the foregoing rights could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our use of open source software may pose particular risks to our proprietary software and systems.

We use open source software in our products and anticipate that we will continue to use open source software in the future. The licenses applicable to our use of open source software may require that source code that is developed using open source software be made available to the public and that any modifications or derivative works to certain open source software continue to be licensed under open source licenses. From time to time, we may face claims from third parties claiming infringement of their intellectual property rights, or demanding the release or license of the open source software or derivative works that we developed using such software (which could include our proprietary source code) or otherwise seeking to enforce the terms of the applicable open source license. These claims could result in litigation and could require us to purchase a costly license, publicly release the affected portions of our source code, be limited in or cease using the implicated software unless and until we can re-engineer such software to avoid infringement or change the use of, or remove, the implicated open source software. Our use of open source software may also present additional security risks because the source code for open source software is publicly available. Any of these risks could be difficult to eliminate or manage, and, if not addressed, could have a material adverse effect on our business, results of operations, financial condition, and prospects.

Risks Related to Regulatory and Legal Compliance Matters

If we elect to label and promote any of our products as clinical diagnostics tests or medical devices, we would be required to obtain prior approval or clearance by the FDA, which would take significant time and expense and could fail to result in FDA clearance or approval for the intended uses we believe are commercially attractive.

We intend to market and sell our G4 Integrated Solution and our planned PX Integrated Solution primarily to academic and research institutions and research companies, government laboratories, hospitals, and biotechnology, consumer genomics and proteomics, commercial molecular diagnostic laboratories, and agrigenomics companies as research use only (RUO) products. Our products are not currently designed, or intended to be used, for clinical diagnostic tests or as medical devices. If we elect to label and market our products for use as, or in the performance of, clinical diagnostics in the United States, thereby subjecting them to U.S. Food and Drug Administration (FDA) regulation as medical devices, we would be required to obtain premarket 510(k) clearance or premarket approval from the FDA, unless an exception applies.

We may in the future register with the FDA as a medical device manufacturer and list some of our products with the FDA pursuant to an FDA Class I listing for general purpose laboratory equipment. While this regulatory classification is exempt from certain FDA requirements, such as the need to submit a premarket notification commonly known as a 510(k), and some of the requirements of the FDA's Quality System Regulations (QSRs), we would be subject to ongoing FDA "general controls," which include compliance with FDA regulations for labeling, inspections by the FDA, complaint evaluation, corrections and removals reporting, promotional restrictions, reporting adverse events or malfunctions for our products, and general prohibitions against misbranding and adulteration.

In addition, we may in the future submit 510(k) premarket notifications to the FDA to obtain FDA clearance of certain of our products on a selective basis. It is possible, in the event we elect to submit 510(k) applications for certain of our products, that the FDA would take the position that a more burdensome premarket application, such as a premarket approval application (PMA) or a de novo application is required for some of our products. If such applications were required, greater time and investment would be required to obtain FDA approval. Even if the FDA agreed that a 510(k) was appropriate, FDA clearance can be expensive and time consuming. It generally takes a significant amount of time to prepare a 510(k), including conducting appropriate testing on our products, and several months to years for the FDA to review a submission. Notwithstanding the effort and expense, FDA clearance or approval could be denied for some or all of our products for which we choose to market as a medical device or a clinical diagnostic device. Even if we were to seek and obtain regulatory approval or clearance, it may not be for the intended uses we request or that we believe are important or commercially attractive. There can be no assurance that future products for which we may seek premarket 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 such 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 premarket clearance or approval process, as well as the unpredictability of the results of any required clinical studies, may result in our failing to obtain regulatory clearance or approval to market such products, which would significantly harm our business, results of operations, reputation, and prospects.

If we sought and received regulatory clearance or approval for certain of our products, we would be subject to ongoing FDA obligations and continued regulatory oversight and review, including the general controls listed above and the FDA's QSRs for our development and manufacturing operations. In addition, we would be required to obtain a new 510(k) clearance before we could introduce subsequent modifications or improvements to such products. We could also be subject to additional FDA post-marketing obligations for such products, any or all of which would increase our costs and divert resources away from other projects. If we sought and received regulatory clearance or approval and are not able to maintain regulatory compliance with applicable laws, we could be prohibited from marketing our products for use as, or in the performance of, clinical diagnostics and/or could be subject to enforcement actions, including warning letters and adverse publicity, fines, injunctions and civil penalties, recall or seizure of products, operating restrictions and criminal prosecution.

In addition, we could decide to seek regulatory clearance or approval for certain of our products in countries outside of the United States. Sales of such products outside the United States will likely be subject to foreign regulatory requirements, which can vary greatly from country to country. As a result, the time required to obtain clearances or approvals outside the United States may differ from that required to obtain FDA clearance or approval and we may not be able to obtain foreign regulatory approvals on a timely basis or at all. For example, in Europe we would need to comply with the new Medical Device Regulation 2017/745 and In Vitro Diagnostic Regulation 2017/746, which became effective May 26, 2017, with application dates of May 26, 2021 (postponed from 2020) and May 26, 2022 respectively. This will increase the difficulty of regulatory approvals in Europe in the future. In addition, the FDA regulates exports of medical devices. Failure to comply with these regulatory requirements or obtain and maintain required approvals, clearances and certifications could impair our ability to commercialize our products for diagnostic use outside of the United States.

Our products could become subject to government regulation as medical devices by the FDA and other regulatory agencies even if we do not elect to seek regulatory clearance or approval to market our products for diagnostic purposes, which would adversely impact our ability to market and sell our products and harm our business. If our products become subject to FDA regulation, the regulatory clearance or approval and the maintenance of continued and post-market regulatory compliance for such products will be expensive, time-consuming, and uncertain both in timing and in outcome.

We do not currently expect either our G4 Integrated Solution or our planned PX Integrated Solution to be subject to the clearance or approval of the FDA, as they are not intended to be used for the diagnosis, treatment or prevention of disease. However, as we expand our product line and the applications and uses of our products into new fields, certain of our future products could become subject to regulation by the FDA, or comparable international agencies, including requirements for regulatory clearance or approval of such products before they can be marketed. Also, even if our products are labeled, promoted, and intended as RUO, the FDA or comparable agencies of other countries could disagree with our conclusion that our products are intended for RUO or deem our sales, marketing and promotional efforts as being inconsistent with RUO products. For example, our customers may independently elect to use our RUO labeled products in their own laboratory developed tests (LDTs) for clinical diagnostic use, which could subject our products to government regulation, and the regulatory clearance or approval and maintenance process for such products may be uncertain, expensive and time-consuming. Regulatory requirements related to marketing, selling and distribution of RUO products could change or be uncertain, even if clinical uses of our RUO products by our customers were done without our consent. If the FDA or other regulatory authorities assert that any of our RUO products are subject to regulatory clearance or approval, our business, financial condition, or results of operations could be adversely affected.

The FDA has historically exercised enforcement discretion in not enforcing the medical device regulations against laboratories offering LDTs. However, on October 3, 2014, the FDA issued two draft guidance documents that set forth the FDA's proposed risk-based framework for regulating LDTs, which are designed, manufactured, and used within a single laboratory. The draft guidance documents provide the anticipated details through which the FDA would propose to establish an LDT oversight framework, including premarket review for higher-risk LDTs, such as those that have the same intended use as FDA-approved or cleared companion diagnostic tests currently on the market. In January 2017, the FDA announced that it would not issue final guidance on the oversight of LDTs and manufacturers of products used for LDTs, but would seek further public discussion on an appropriate oversight approach, and give Congress an opportunity to develop a legislative solution. More recently, the FDA has issued warning letters to certain genomics labs for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal "carve-out" for LDTs and retains discretion to take action when appropriate, such as when certain genomic tests raise significant public health concerns.

As manufacturers develop more complex diagnostic tests and diagnostic software, the FDA may increase its regulation of LDTs. Any future legislative or administrative rule making or oversight of LDTs, if and when finalized, may impact the sales of our products and how customers use our products, and may require us to change our business model in order to maintain compliance with these laws. We cannot predict how these various efforts will be resolved, how Congress or the FDA will regulate LDTs in the future, or how that regulatory system will impact our business. Changes to the current regulatory framework, including the imposition of additional or new regulations, including regulation of our products, could arise at any time during the development or marketing of our products, which may negatively affect our ability to obtain or maintain FDA or comparable regulatory approval of our products, if required. Further, sales of devices for diagnostic purposes may subject us to additional healthcare regulation and enforcement by the applicable government agencies. Such laws include, without limitation, state and federal anti-kickback or anti-referral laws, healthcare fraud and abuse laws, false claims laws, privacy and security laws, Physician Payments Sunshine Act and related transparency and manufacturer reporting laws, and other laws and regulations applicable to medical device manufacturers. Our operations may subject us to certain of these health care laws through our customers who use our platform for the development or sale of diagnostic tests. Failure to comply with such laws and regulations, as applicable, may result in substantial penalties.

Additionally, on November 25, 2013, the FDA issued Final Guidance "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only." The guidance emphasizes that the FDA will review the totality of the circumstances when it comes to evaluating whether equipment and testing components are properly labeled as RUO. The final guidance states that merely including a labeling statement that the product is for RUO will not necessarily render the device exempt from the FDA's clearance, approval, and other regulatory requirements if the circumstances surrounding the distribution, marketing and promotional practices indicate that the manufacturer knows its products are, or intends for its products to be, used for clinical diagnostic purposes. These circumstances may include written or verbal sales and marketing claims or links to articles regarding a product's performance in clinical applications and a manufacturer's provision of technical support for clinical applications.

As part of the previous Administration's efforts to combat COVID-19 and consistent with the President Trump's direction in Executive Orders 13771 and 13924, the Department of Health and Human Services (HHS) announced rescission of guidance and other informal issuances of the FDA regarding premarket review of LDT absent notice-and-comment rulemaking, stating that, absent notice-and-comment rulemaking, those seeking approval or clearance of, or an emergency use authorization, for an LDT may nonetheless voluntarily submit a premarket approval application, premarket notification or an Emergency Use Authorization request, respectively, but are not required to do so. However, laboratories opting to use LDTs without FDA premarket review or authorization would not be eligible for liability protection under the Public Readiness and Emergency Preparedness Act. While this action by HHS is expected to reduce the regulatory burden on clinical laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 that develop LDTs, it is unclear how this action as well as future legislation by federal and state governments and the FDA will impact the industry, including our business and that of our customers. Such HHS measure may compel the FDA to formalize earlier enforcement discretionary policies and informal guidance through notice-and-comment rulemaking and/or impose further restrictions on LDTs. HHS' rescission policy may change over time and we cannot be certain if the new administration will withdraw Executive Orders 13771 and 13924. Congress could also enact legislation restricting LDTs. Any restrictions on LDTs by the FDA, HHS, Congress, or state regulatory authorities may decrease the demand for our products. The adoption of new restrictions on RUO products, whether by the FDA or Congress, could adversely affect demand for our specialized reagents and instruments. Further, we could be required to obtain premarket clearance or approval before we can sell our products to certain customers.

Additionally, in the United States and some foreign jurisdictions there have been, and continue to be, several legislative and regulatory changes and proposed reforms of the healthcare system in an effort to contain costs, improve quality, and expand access to care. Further, third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for medications and other health care products and services. Our ability to commercialize any of our products successfully, and our customers' ability to commercialize their products successfully, will depend in part on the extent to which coverage and adequate reimbursement for these products and will be available from third-party payors. As such, cost containment reform efforts may result in an adverse effect on our operations.

We are currently subject to, and may in the future become subject to additional, U.S. federal and state laws and regulations imposing obligations on how we collect, store and process personal information. Our actual or perceived failure to comply with such obligations could harm our business. Ensuring compliance with such laws could also impair our efforts to maintain and expand our future customer base, and thereby decrease our revenue.

In the ordinary course of our business, we currently, and in the future will, collect, store, transfer, use or process sensitive data, including personally identifiable information of employees, and intellectual property and proprietary business information owned or controlled by ourselves and other parties. The secure processing, storage, maintenance, and transmission of this critical information is vital to our operations and business strategy. We are, and may increasingly become, subject to various laws and regulations, as well as contractual obligations, relating to data privacy and security in the jurisdictions in which we operate. The regulatory environment related to data privacy and security is increasingly rigorous, with new and constantly changing requirements applicable

to our business, and enforcement practices are likely to remain uncertain for the foreseeable future. These laws and regulations may be interpreted and applied differently and inconsistently over time and from jurisdiction to jurisdiction, and it is possible that they will be interpreted and applied in ways that may have a material adverse effect on our business, financial condition, results of operations and prospects.

In the United States, various federal and state regulators, including governmental agencies like the Consumer Financial Protection Bureau and the Federal Trade Commission, have adopted, or are considering adopting, laws and regulations concerning personal information and data security. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to personal information than federal, international or other state laws, and such laws may differ from each other, all of which may complicate compliance efforts. For example, the California Consumer Privacy Act (CCPA), which increases privacy rights for California residents and imposes obligations on companies that process their personal information, came into effect on January 1, 2020. Among other things, the CCPA requires covered companies to provide new disclosures to California consumers and provide such consumers new data protection and privacy rights, including the ability to opt-out of certain sales of personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches that result in the loss of personal information. This private right of action may increase the likelihood of, and risks associated with, data breach litigation. In addition, laws in all 50 U.S. states require businesses to provide notice to consumers whose personal information has been disclosed as a result of a data breach. State laws are changing rapidly and there is discussion in the U.S. Congress of a new comprehensive federal data privacy law to which we would become subject if it is enacted. Additionally, California voters approved a new privacy law, the California Privacy Rights Act (CPRA), in the November 3, 2020 election. Effective starting on January 1, 2023, the CPRA will significantly modify the CCPA, including by expanding consumers' rights with respect to certain sensitive personal information. The CPRA also creates a new state agency that will be vested with authority to implement and enforce the CCPA and the CPRA. New legislation proposed or enacted in various other states will continue to shape the data privacy environment nationally. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to confidential, sensitive and personal information than federal, international or other state laws, and such laws may differ from each other, which may complicate compliance efforts.

Furthermore, regulations promulgated pursuant to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), establish privacy and security standards that limit the use and disclosure of individually identifiable health information (known as "protected health information" or PHI) and require the implementation of administrative, physical and technological safeguards to protect the privacy of PHI and ensure the confidentiality, integrity and availability of electronic PHI. Determining whether protected health information has been handled in compliance with applicable privacy standards and our contractual obligations can require complex factual and statistical analyses and may be subject to changing interpretation. Although we take measures to protect sensitive data from unauthorized access, use or disclosure, our information technology and infrastructure may be vulnerable to attacks by hackers or viruses or breached due to employee error, malfeasance or other malicious or inadvertent disruptions. Any such breach or interruption could compromise our networks and the information stored there could be accessed by unauthorized parties, manipulated, publicly disclosed, lost or stolen. Any such access, breach or other loss of information could result in legal claims or proceedings, liability under federal or state laws that protect the privacy of personal information (such as the HIPAA and the Health Information Technology for Economic and Clinical Health Act (HITECH)), and regulatory penalties. Notice of breaches must be made to affected individuals, the Secretary of the Department of Health and Human Services, and for extensive breaches, notice may need to be made to the media or State Attorneys General. Such a notice could harm our reputation and our ability to compete.

In Europe, the collection, use, storage, disclosure, transfer, or other processing of personal data regarding individuals in the European Economic Area (EEA), including personal health data, is subject to the General Data Protection Regulation (GDPR), which became effective on May 25, 2018. The GDPR is wide-ranging in scope and imposes numerous requirements on companies that process personal data, including requirements relating to

processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates, providing information to individuals regarding data processing activities, implementing safeguards to protect the security and confidentiality of personal data, providing notification of data breaches and taking certain measures when engaging third-party processors. The GDPR also imposes strict rules on the transfer of personal data to countries outside the EEA, including the United States, and permits data protection authorities to impose large penalties for violations of the GDPR, including potential fines of up to €20 million or 4% of annual global revenues, whichever is greater. The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies and obtain compensation for damages resulting from violations of the GDPR. In addition, the GDPR includes restrictions on cross-border data transfers. The GDPR may increase our responsibility and liability in relation to personal data that we process where such processing is subject to the GDPR, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, including as implemented by individual countries. Compliance with the GDPR will be a rigorous and time- intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation and reputational harm in connection with our European activities.

The exit of the United Kingdom (UK) from the EU, often referred to as Brexit, also has created uncertainty with regard to data protection regulation in the UK. Specifically, the UK exited the EU on January 1, 2020, subject to a transition period that ended December 31, 2020. Under the post-Brexit Trade and Cooperation Agreement between the EU and the UK, the UK and EU have agreed that transfers of personal data to the UK from EEA member states will not be treated as 'restricted transfers' to a non-EEA country for a period of up to four months from January 1, 2021, plus a potential further two months extension (the "Extended Adequacy Assessment Period"). Although the current maximum duration of the Extended Adequacy Assessment Period is six months, it may end sooner, for example, in the event that the European Commission adopts an adequacy decision in respect of the UK, or the UK amends the UK GDPR and/or makes certain changes regarding data transfers under the UK GDPR/Data Protection Act 2018 without the consent of the EU (unless those amendments or decisions are made simply to keep relevant UK laws aligned with the EU's data protection regime). If the European Commission does not adopt an 'adequacy decision' in respect of the UK prior to the expiry of the Extended Adequacy Assessment Period, from that point onwards the UK will be an 'inadequate third country' under the GDPR and transfers of personal data from the EEA to the UK will require a 'transfer mechanism' such as the Standard Contractual Clauses.

Further, the European Court of Justice (ECJ) invalidated the EU-U.S. Privacy Shield, which had enabled the transfer of personal data from the EU to the U.S. for companies that had self-certified to the Privacy Shield in July 2020. The ECJ decision also raised questions about the continued validity of one of the primary alternatives to the EU-U.S. Privacy Shield, namely the European Commission's Standard Contractual Clauses, and EU regulators have issued additional guidance regarding considerations and requirements that we and other companies must consider and undertake when using the Standard Contractual Clauses. Although the EU has presented a new draft set of contractual clauses, at present, there are few, if any, viable alternatives to the EU-U.S. Privacy Shield and the Standard Contractual Clauses. To the extent that we were to rely on the EU-U.S. or Swiss-U.S. Privacy Shield programs, we will not be able to do so in the future, and the ECJ's decision and other regulatory guidance or developments otherwise may impose additional obligations with respect to the transfer of personal data from the EU and Switzerland to the U.S., each of which could restrict our activities in those jurisdictions, limit our ability to provide our products and services in those jurisdictions, or increase our costs and obligations and impose limitations upon our ability to efficiently transfer personal data from the EU and Switzerland to the U.S.

We are in the process of evaluating compliance needs, and are still finalizing formal policies and procedures related to the storage, collection and processing of information, and still need to conduct internal or external data privacy audits, to ensure our compliance with all applicable data protection laws and regulations. Additionally, we still need to assess our third-party vendors' compliance with applicable data protection laws and regulations. All of these evolving compliance and operational requirements impose significant costs, such as costs related to

organizational changes, implementing additional protection technologies, training employees and engaging consultants, which are likely to increase over time. In addition, such requirements may require us to modify our data processing practices and policies, distract management or divert resources from other initiatives and projects, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Any failure or perceived failure by us or our third-party vendors, collaborators, contractors and consultants to comply with any applicable federal, state or similar foreign laws and regulations relating to data privacy and security, or could result in damage to our reputation, as well as proceedings or litigation by governmental agencies or other third parties, including class action privacy litigation in certain jurisdictions, which could subject us to significant fines, sanctions, awards, penalties or judgments, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we 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 are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our research and development and manufacturing operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risks of contamination or injury from these materials. We could be held liable for any resulting damages in the event of contamination or injury resulting from the use of hazardous materials by us, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain general liability insurance as well as 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 maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research and development. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Further, with respect to the operations of our any future third-party contract manufacturers, it is possible that if they fail to operate in compliance with applicable environmental, health and safety laws and regulations or properly dispose of wastes associated with our products, we could be held liable for any resulting damages, suffer reputational harm or experience a disruption in the manufacture and supply of our product candidates or products. In addition, our supply chain may be adversely impacted if any of our third-party contract manufacturers become subject to injunctions or other sanctions as a result of their non-compliance with environmental, health and safety laws and regulations.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the U.S. Foreign Corrupt Practices Act of 1977, as amended, (FCPA), the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the

USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We may engage third parties to sell our products outside the United States, to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Risks Related to this Offering and Ownership of our Common Stock

There has been no prior public market for our common stock, the stock price of our common stock may be volatile or may decline regardless of our operating performance and you may not be able to resell your shares at or above the initial public offering price.

There has been no public market for our common stock prior to this offering. The initial public offering price for our common stock will be determined through negotiations between the underwriters and us and may vary from the market price of our common stock following this offering. If you purchase shares of our common stock in this offering, you may not be able to resell those shares at or above the initial public offering price. An active or liquid market in our common stock may not develop upon the completion of this offering or, if it does develop, it may not be sustainable. The market price of our common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- the timing of our launch and commercialization of our products and degree to which such launch and commercialization meets the expectations of securities analysts and investors;
- actual or anticipated fluctuations in our operating results, including fluctuations in our quarterly and annual results;
- operating and research and development expenses exceed our plans and expectations;
- the failure or discontinuation of any of our product development and research programs;
- changes in the structure or funding of research at academic and research laboratories and institutions, including changes that would affect their ability to purchase our instruments or consumables;
- variations in the financial results of competitive companies;
- the introduction and success of existing or new competitive businesses or technologies;
- announcements about new research programs or products by us or our competitors;
- announcements of new pricing or product bundling terms offered by our competitors;
- intellectual property litigation or developments in disputes concerning infringement of patents or other proprietary rights;
- the recruitment or departure of key personnel;
- litigation and governmental investigations involving us, our industry or both;
- regulatory or legal developments in the United States and other countries;
- volatility and variations in market conditions in the life sciences technology sector generally, or the genomics and proteomics sectors specifically;

- investor perceptions of us or our industry;
- the level of expenses related to any of our research and development programs or future products or product enhancements;
- actual or anticipated changes in our estimates as to our financial results or development timelines;
- changes in estimates or recommendations by securities analysts, if any, that cover our common stock or companies that are perceived to be similar to us;
- whether our financial results meet the expectations of securities analysts or investors;
- the announcement or expectation of additional financing efforts;
- sales of our common stock by us or sales of our common stock or common stock by our insiders or other stockholders;
- the expiration of market standoff or lock-up agreements;
- the COVID-19 pandemic, natural disasters or major catastrophic events; and
- general economic, industry and market conditions.

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

We cannot specify with any certainty the particular uses of the net proceeds that we will receive from this offering, but we currently expect to use the net proceeds to finalize the development and commercialization of our G4 Integrated Solution through our ongoing sales and marketing activities, to fund the product development and commercialization of our PX Integrated Solution, for other development work associated with advancing the integration of our core sequencing engine into other platforms and kits, working capital and other general corporate purposes. We will have broad discretion in the application of the net proceeds from this offering, including working capital and other general corporate purposes, and you and other stockholders may disagree with how we spend or invest these proceeds. The failure by our management to apply these funds effectively could adversely affect our business and financial condition. Pending their use, we may invest the net proceeds from our initial public offering in a manner that does not produce income or that loses value. These investments may not yield a favorable return to our investors.

If you purchase shares of our common stock in this offering, you will experience substantial and immediate dilution.

If you purchase shares of our common stock in this offering, you will experience substantial and immediate dilution in the pro forma net tangible book value per share of $ per share as of March 31, 2021, based on an assumed initial public offering price of our common stock of $ per share, the midpoint of the price range on the cover page of this prospectus, because the price that you pay will be substantially greater than the pro forma net tangible book value per share of the common stock that you acquire. This dilution is due in large part to the fact that our earlier investors paid substantially less than the initial public offering price when they purchased their shares of our capital stock. You will experience additional dilution upon exercise of options to purchase common stock under our equity incentive plans, upon vesting of options to purchase common stock under our equity incentive plans, if we issue restricted stock to our employees under our equity incentive plans or if we otherwise issue additional shares of our common stock.

Substantial amounts of our outstanding shares may be sold into the market when lock-up periods end. If there are substantial sales of shares of our common stock, the price of our common stock could decline.

The price of our common stock could decline if there are substantial sales of our common stock, particularly sales by our directors, executive officers and significant stockholders, or if there is a large number of shares of our

common stock available for sale and the market perceives that sales will occur. After this offering, we will have outstanding shares of our common stock, based on the number of shares outstanding as of March 31, 2021, and assuming the automatic conversion of our 2021 Notes into shares of our common stock, 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. All of the shares of common stock sold in this offering will be available for sale in the public market, unless purchased by our affiliates or existing stockholders. Substantially all of our outstanding shares of common stock are currently restricted from resale as a result of market-standoff agreements and lock-up" agreements, which may be waived by J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC with or without notice as more fully described in the section titled "Underwriting." These shares will become available to be sold 181 days after the date of this prospectus. Shares held by directors, executive officers and other affiliates will be subject to volume limitations under Rule 144 under the Securities Act of 1933, as amended, or the Securities Act, and various vesting agreements.

After this offering, certain of our stockholders will have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or our stockholders, subject to lockup agreements. We also intend to register shares of common stock that we have issued and may issue under our employee equity incentive plans. Once we register these shares, they will be able to be sold freely in the public market upon issuance, subject to existing market standoff or lock-up agreements.

The market price of the shares of our common stock could decline as a result of the sale of a substantial number of our shares of common stock in the public market or the perception in the market that the holders of a large number of shares intend to sell their shares.

The concentration of our stock ownership will likely limit your ability to influence corporate matters, including the ability to influence the outcome of director elections and other matters requiring stockholder approval.

Based upon the shares of common stock outstanding as of 2021, after giving effect to the conversion of all outstanding shares of convertible preferred stock as of that date, into an aggregate of shares of our common stock, including convertible note shares, prior to this offering, our executive officers, directors and the holders of more than 5% of our outstanding common stock, in the aggregate, beneficially owned approximately % of our common stock, and upon the completion of this offering, that same group, in the aggregate, will beneficially own approximately % of our common stock, assuming no purchases of shares in this offering or the directed share program by any members of this group, no exercise by the underwriters of their option to purchase additional shares, no exercise of outstanding options or warrants and after giving effect to the issuance of shares in this offering. As a result, these stockholders, acting together, will have significant influence over all matters that require approval by our stockholders, including the election of directors and approval of significant corporate transactions. Corporate actions might be taken even if other stockholders, including those who purchase shares in this offering, oppose them. This concentration of ownership might also have the effect of delaying or preventing a change of control of our company that other stockholders may view as beneficial.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our results of operation could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in our financial statements and accompanying notes. We base our estimates on historical experience and estimates and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the

carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. For example, in connection with the implementation of the new revenue accounting standard if and when we have product sales, management makes judgments and assumptions based on our interpretation of the new standard. The new revenue standard is principle-based and interpretation of those principles may vary from company to company based on their unique circumstances. It is possible that interpretation, industry practice and guidance may evolve as we apply the new standard. If our assumptions underlying our estimates and judgements relating to our critical accounting policies change or if actual circumstances differ from our assumptions, estimates or judgements, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

We are an "emerging growth company," and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the JOBS Act and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

- the option to present only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes Oxley Act;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation; and
- not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes."

The JOBS Act permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. We have elected to avail ourselves of this exemption and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for private companies.

We cannot predict if investors will find our common stock less attractive because we will 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. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period. Even after we no longer qualify as an emerging growth company, we may continue to qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements including reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements, if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million.

We do not intend to pay dividends for the foreseeable future.

We have never declared nor paid cash dividends on our capital stock. We currently intend to retain any future earnings to finance the operation and expansion of our business, and we do not expect to declare or pay any dividends in the foreseeable future. The Loan Agreement also contains a negative covenant which prohibits us from paying dividends subject to limited exceptions. Consequently, stockholders must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the completion of this offering could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Following the completion of this offering, our status as a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. In addition, our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the completion of this offering will contain provisions that may make the acquisition of our company more difficult, including the following:

- a classified board of directors with three-year staggered terms, which could delay the ability of stockholders to change the membership of a majority of our board of directors;
- the ability of our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by a majority vote of our entire board of directors, the chair of our board of directors or our chief executive officer, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement for the affirmative vote of holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of the voting stock, voting together as a single class, to amend the provisions of our amended and restated certificate of incorporation or our amended and restated bylaws, which may inhibit the ability of an acquirer to effect such amendments to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for you to realize value in a corporate transaction.

For information regarding these and other provisions, see the section titled “Description of Capital Stock.”

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware and the U.S. federal district courts are the exclusive forums 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 the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our certificate of incorporation will further provide that the U.S. federal district courts will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, including all causes of action asserted against any defendant named in such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

This choice of forum provision may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees and may discourage these types of lawsuits. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

General Risk Factors

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports published by securities or industry analysts about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no or only very few securities analysts commence coverage of us, or if industry analysts cease coverage of us, the trading price for our common stock would be negatively affected. If

one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, our common stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause our common stock price and trading volume to decline.

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 life science technology 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 management's attention and resources, which could harm our business.

Requirements associated with being a public company will increase our costs significantly, as well as divert significant company resources and management attention.

After the completion of this offering, we will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or the other rules and regulations of the Securities and Exchange Commission, or the SEC, or any securities exchange relating to public companies. Compliance with the various reporting and other requirements applicable to public companies requires considerable time and attention of management and we will incur significant legal, accounting and other expenses that we did not incur as a private company. We cannot assure you that we will satisfy our obligations as a public company on a timely basis.

In addition, as a public company, it may be more difficult or more costly for us to obtain certain types of insurance, including directors' and officers' liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified personnel to serve on our board of directors, our board committees or as executive officers.

If we fail to maintain proper and effective internal controls, our ability to produce accurate and timely financial statements could be impaired, which could result in sanctions or other penalties that would harm our business.

After the completion of this offering, we will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act and the rules and regulations of the Nasdaq Global Market. The Sarbanes Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Commencing with our fiscal year ending the year after this offering is completed, we must perform system and process design evaluation and testing of the effectiveness of our internal controls over financial reporting to allow management to report on the effectiveness of our internal controls over financial reporting in our Form 10-K filing for that year, as required by Section 404 of the Sarbanes-Oxley Act. To achieve compliance with 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, including through hiring additional financial and accounting personnel, potentially engage outside consultants and 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. This will require that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts. Prior to this offering, we have never been required to test our internal controls within a specified period and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner.

We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial

reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls over financial reporting, we may not be able to produce timely and accurate financial statements. If that were to happen, our investors could lose confidence in our reported financial information, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities including equivalent foreign authorities.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, future revenue, business strategy, prospects, products, research and development costs, timing and likelihood of success, as well as plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that are in some cases beyond our control and may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

The words “anticipate,” “believe,” contemplate,” “continue” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “potential” “predict,” “project,” “should,” “target,” “will” or “would” or the negative of these terms or other similar expressions are intended to identify forward looking statements. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- estimates of our addressable market, market growth, future revenue, expenses, capital requirements and our needs for additional financing;
- our ability to successfully implement our commercialization plan for our G4 Integrated Solution and planned PX Integrated Solution;
- the implementation of our business model and strategic plans for our G4 Integrated Solution and planned PX Integrated Solution;
- our expectations regarding the rate and degree of market acceptance of our G4 Integrated Solution and planned PX Integrated Solution;
- our ability to compete with competitive companies and technologies in our industry;
- our ability to manage and grow our business and commercialize our G4 Integrated Solution and planned PX Integrated Solution;
- our ability to develop and commercialize new products and development product enhancements;
- our ability to establish and maintain intellectual property protection for our products or avoid or defend claims of infringement;
- the performance of third-party manufacturers and suppliers;
- our ability to effectively manufacture our products
- the potential effects of government regulation;
- our ability to hire and retain key personnel and to manage our future growth effectively;
- our ability to obtain additional financing in this or future offerings;
- the volatility of the trading price of our common stock;
- our expectations regarding use of proceeds from this offering;
- the impact of local, regional, and national and international economic conditions and events;
- the impact of COVID-19 on our business;
- our expectations about market trends; and
- our expectations regarding the period during which we will qualify as an emerging growth company under the JOBS Act

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the section titled “Risk Factors” elsewhere in this prospectus. Moreover, we operate in a very

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 to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, advancements, discoveries, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. Except to the extent required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

MARKET, INDUSTRY AND OTHER DATA

This prospectus contains estimates, projections and other information concerning our industry, including market size and growth rates of the markets in which we participate, that are based on our management's estimates and research, as well as industry and general publications and research, surveys and studies conducted by third parties. In some cases, we do not expressly refer to the sources from which this data is derived. In addition, industry publications, studies and surveys generally state that they have been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. The third-party industry publications, studies and surveys contained in this prospectus are provided below:

- DeciBio LLC. "Next Generation Sequencing (NGS) Market Size, Growth and Trends (2017-2023)" (December 2020).
- Allied Market Research. "Next Generation Sequencing Market – Global Opportunity Analysis and Industry Forecast, 2019-2026" (June 2019).
- DeciBio LLC. "NGS and Spatial Omics and Landscape and Trends" (February 2020).
- Allied Market Research. "Global Proteomics Market – Opportunity Analysis and Industry Forecast, 2018-2025" (March 2019).

Management's estimates are derived from publicly available information, their knowledge of our industry and their assumptions based on such information and knowledge, which we believe to be reasonable. This data involves a number of assumptions and limitations which are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section titled "Risk Factors." These and other factors could cause our future performance to differ materially from our assumptions and estimates.

Certain monetary amounts, percentages, and other figures included elsewhere in this prospectus have been subject to rounding adjustments. Accordingly, figures shown as totals in certain tables or charts may not be the arithmetic aggregation of the figures that precede them, and figures expressed as percentages in the text may not total 100% or, as applicable, when aggregated may not be the arithmetic aggregation of the percentages that precede them.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately $ million (or $ million if the underwriters exercise their option to purchase additional shares in full) after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, 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.

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 net proceeds to us from this offering by $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, an increase or decrease, as applicable, of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase or decrease, as applicable, our net proceeds from this offering by approximately $ million, assuming no change in the assumed initial public offering price per share and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. The principal purposes of this offering are to increase our financial flexibility and create a public market for our common stock.

We currently intend to use the net proceeds from this offering, together with our existing cash and cash equivalents and short-term investments, as follows:

- approximately $ million to finalize the development and commercialization of our G4 Integrated Solution; and
- approximately $ million to fund the product development and commercialization of our PX Integrated Solution; and
- the remainder, if any, for other development work associated with advancing the integration of our core sequencing engine into other platforms and kits, working capital and other general corporate purposes.

We may also use a portion of the net proceeds from this offering to acquire, in-license or invest in products, technologies or businesses that complement our business. However, we do not have binding agreements or commitments for any acquisitions or investments outside the ordinary course of business at this time.

Based on our current business plans, we believe that the net proceeds of this offering, together with our existing cash and cash equivalents and short-term investments will enable us to fund our operating expenses and capital expenditure requirements through at least the next months from the date of this prospectus.

This expected use of the net proceeds from this offering represents our intentions based upon our current 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 amount and timing of our actual expenditures will depend on numerous factors, including the results of our research and development and commercialization efforts, cash flows from operations, the anticipated growth of our business and any unforeseen cash needs. As a result, our management will have broad discretion over the use of the proceeds from this offering.

Pending our use of the net proceeds from this offering, we plan to invest the net proceeds in a variety of capital preservation investments, including short-term interest-bearing investment-grade securities, certificates of deposit or government securities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock and we do not currently intend to pay any cash dividends on our capital stock for the foreseeable future. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. Any future determination to declare and pay dividends will be made at the discretion of our board of directors subject to applicable laws and will depend upon, among other factors, our results of operations, financial condition, business prospects, contractual restrictions, capital requirements and other factors our board of directors may deem relevant. Additionally, our Loan Agreement contains customary covenants, including restrictions on our ability to pay cash dividends.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and short-term investments and total capitalization as of March 31, 2021, as follows:

- on an actual basis;
- on a pro forma basis to reflect: (i) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 38,826,388 shares of common stock; (ii) the automatic conversion of the outstanding SVB warrant to purchase convertible preferred stock into a warrant to purchase 129,156 shares of our common stock; (iii) the conversion of the 2021 Notes into shares of our common stock and a charge to accumulated deficit of $ million related to the conversion of the 2021 Notes, 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, in connection with the closing of this offering (which is reflected in pro forma cash and cash equivalents and short-term investments and additional paid in capital); and (iv) the filing and effectiveness of our amended and restated certificate of incorporation, each of which will occur immediately prior to the completion of this offering; and
- on a pro forma as adjusted basis to give effect to (i) the pro forma adjustments set forth above and (ii) the sale and issuance of shares of our common stock by us in this offering, based upon the receipt by us of the estimated net proceeds from this offering at 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, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

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

	As of March 31, 2021		
	Actual	Pro Forma	Pro Forma As Adjusted(1)
	(in thousands, except share and per share data) (unaudited)		
Cash and cash equivalents	$ 45,526	$	$
Short-term investments	104,595		
Convertible Promissory Notes	$ 130,500	$	$
Long-term debt, net of debt discount	9,473		
Series Seed convertible preferred stock, $0.0001 par value per share; 6,520,790 shares authorized and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	4,486		
Series A convertible preferred stock, $0.0001 par value per share; 12,932,429 shares authorized and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	19,908		
Series B convertible preferred stock, $0.0001 par value; 19,373,169 shares authorized and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	44,790		

	As of March 31, 2021		
	Actual	Pro Forma	Pro Forma As Adjusted(1)
		(in thousands, except share and per share data) (unaudited)	
Stockholders' (deficit) equity:			
Common stock, $0.0001 par value per share; 60,272,685 shares authorized, 12,824,184 shares outstanding, which excludes 3,202,996 shares subject to repurchase, actual; shares authorized, shares outstanding, which excludes 3,202,996 shares subject to repurchase, pro forma; shares authorized, shares issued and shares outstanding, pro forma as adjusted	1		
Additional paid-in capital	3,735		
Accumulated other comprehensive income (loss)	(32)		
Accumulated deficit	(77,046)		
Total stockholders' (deficit) equity	(73,342)		
Total capitalization	$ 135,815	$	$

(1) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the offering price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our pro forma as adjusted amount of each of cash and cash equivalents, short-term investments, additional paid-in capital, total stockholders' (deficit) equity and total capitalization by approximately $ million, 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 the estimated underwriting discounts. Similarly, each increase or decrease of 1.0 million shares in the number of shares of common stock offered by us would increase or decrease, as applicable, our pro forma as adjusted amount of each of cash and cash equivalents, short-term investments, additional paid-in capital, total stockholders' (deficit) equity and total capitalization by approximately $ million, assuming the assumed initial public offering price of $ per share remains the same, and after deducting the estimated underwriting discounts and commissions. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering determined at pricing.

If the underwriters exercise their option to purchase additional shares of our common stock in full, our pro forma as adjusted cash and cash equivalents, short-term investments, additional paid-in capital, total stockholders' (deficit) equity, total capitalization, and shares of common stock outstanding as of March 31, 2021 would be $ million, $ million, $ million, $ million, and shares, respectively.

The number of shares of our common stock to be outstanding after this offering on a pro forma and pro forma as adjusted basis is based on shares of our common stock outstanding as of March 31, 2021 (after giving effect to the Note Conversion), and excludes the following:

- 4,475,799 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2021, with a weighted-average exercise price of $3.05 per share;
- shares of common stock issuable upon the exercise of stock options granted after March 31, 2021, with a weighted-average exercise price of $ per share;
- 3,202,996 shares of common stock issued as of March 31, 2021 upon the early exercise of certain stock options, but not deemed outstanding as they are subject to a right of repurchase;
- 129,156 shares of our common stock issuable upon the exercise of the SVB warrant to purchase shares of our Series B convertible preferred stock (which will convert into a warrant to purchase 129,156 shares of our common stock immediately prior to the completion of this offering) with an exercise price of $2.32 per share;
- 934,124 shares of common stock reserved for future issuance under our 2016 Plan, as of March 31, 2021, which shares will be added to the shares to be reserved under our 2021 Plan upon its effectiveness;
- shares of common stock reserved for future issuance under our 2021 Plan, which will become effective on the business day immediately prior to the date of effectiveness of the registration

statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan; and

- shares of common stock reserved for issuance under our 2021 ESPP, which will become effective on the business day immediately prior to the date of effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan.

2021 Convertible Notes

Immediately prior to the completion of this offering, each of the 2021 Notes will automatically convert into shares of our common stock at a conversion price equal to the lower of (i) 80% of the initial public offering price per share set forth on the cover page of this prospectus and (ii) the price per share obtained by dividing $1.5 billion by the fully-diluted capitalization of the Company prior to this offering.

The table below shows the effect the conversion of the 2021 Notes at assumed initial public offering prices of $, $, and $ per share, which represent the low, mid, and high point, respectively, of the price range set forth on the cover page of this prospectus. However, the actual initial public offering price may be lower or higher than the midpoint of this range, which would increase or decrease, respectively, the number of shares of common stock to be issued upon the conversion of our 2021 Notes, as described in more detail below. As a result, the total number of shares of common stock to be issued upon the conversion of the 2021 Notes will not be known until the determination of the actual initial public offering price per share following the effectiveness of the registration statement of which this prospectus forms a part. The initial public offering prices shown in the table below are hypothetical and illustrative.

Illustrative Initial Public Offering Price Per Share	Number of Shares of Common Stock to be Issued upon Conversion of 2021 Notes
$	
$	
$	

DILUTION

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

Historical net tangible book value (deficit) per share represents our total tangible assets less our liabilities and convertible preferred stock that is not included in equity divided by the total number of shares of common stock outstanding. As of March 31, 2021, our historical net tangible book value (deficit) was approximately $, or $ per share. Our pro forma net tangible book value as of March 31, 2021, was approximately $ million, or $ per share, after giving effect to (i) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 38,826,388 shares of common stock immediately prior to the completion of this offering and (ii) the conversion of the 2021 Notes into shares of our common stock, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, in connection with the closing of this offering. Pro forma net tangible book value per share represents our pro forma net tangible book value divided by the number of shares of our common stock outstanding as of March 31, 2021, after giving effect to the pro forma adjustments described above.

After giving effect to (i) the pro forma adjustments set forth above and (ii) our sale in this offering of shares of common stock at an assumed initial public offering price of $ per share, 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, our pro forma as adjusted net tangible book value as of March 31, 2021 would have been approximately $ million, or $ per share of our common stock. This represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ per share to investors purchasing common stock in this offering.

The following table illustrates this dilution to new investors on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of March 31, 2021	$	
Pro forma increase in net tangible book value per share as of March 31, 2021, attributable to the pro forma transactions described above		
Pro forma net tangible book value (deficit) per share as of March 31, 2021		
Increase in pro forma net tangible book value per share attributable to new investors in this offering		
Pro forma as adjusted net tangible book value per share immediately after this offering		
Dilution per share to new investors purchasing shares in this offering		$

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the pro forma as adjusted net tangible book value, by $ per share and the dilution per share to new investors by $ per share, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase or decrease of 1.0 million shares in the number of shares we are offering would increase or decrease, as applicable, our pro forma as adjusted net tangible book value by approximately $ million, or $ per share, and the pro forma dilution per share to investors in this offering by $ per share, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma information discussed above is illustrative only and will change based on the actual initial public offering price, number of shares and other terms of this offering determined at pricing.

If the underwriters' option to purchase additional shares in this offering is exercised in full, the pro forma as adjusted net tangible book value would be $ per share, the increase in the pro forma net tangible book value per share for existing stockholders would be $ per share and the dilution to new investors participating in this offering would be $ per share.

The table below summarizes, as of March 31, 2021, on a pro forma as adjusted basis, the number of shares of our common stock, the total consideration, and the weighted-average price per share (i) paid to us by our existing stockholders and (ii) to be paid by new investors participating in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares Purchased		Total Consideration		Weighted-Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders(1)		%	$	%	$
New investors					$
Total		100.0 %	$	100.0%	

(1) The presentation in this table regarding ownership by existing stockholders does not give effect to any purchases that existing stockholders may make through our directed share program or otherwise purchase in this offering.

In addition, if the underwriters' option to purchase additional shares is exercised in full, the number of shares held by existing stockholders will be reduced to % of the total number of shares of common stock to be outstanding upon completion of this offering, and the number of shares of common stock held by new investors participating in this offering will be further increased to % of the total number of shares of common stock to be outstanding upon completion of the offering.

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share would increase or decrease, as applicable, the total consideration paid by new investors by $ and increase or decrease, as applicable, the percent of total consideration paid by new investors by %, assuming the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same, after deducting the estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Similarly, each increase or decrease of 1.0 million in the number of shares offered by us would increase or decrease, as applicable, the total consideration paid by new investors by $, assuming that the assumed initial price to the public remains the same, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses.

The foregoing tables and calculations (other than historical net tangible book value) are based on shares of common stock outstanding as of March 31, 2021, after giving effect to the Note Conversion and excludes the following:

- 4,475,799 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2021, with a weighted-average exercise price of $3.05 per share;
- shares of common stock issuable upon the exercise of stock options granted after March 31, 2021, with a weighted-average exercise price of $ per share;
- 3,202,996 shares of common stock issued as of March 31, 2021 upon the early exercise of certain stock options, but not deemed outstanding as they are subject to a right of repurchase;
- 129,156 shares of our common stock issuable upon the exercise of the SVB warrant to purchase shares of our Series B convertible preferred stock (which will convert into a warrant to purchase 129,156 shares of our common stock immediately prior to the completion of this offering) with an exercise price of $2.32 per share;

- 934,124 shares of common stock reserved for future issuance under our 2016 Plan, as of March 31, 2021, which shares will be added to the shares to be reserved under our 2021 Plan upon its effectiveness;
- shares of common stock reserved for future issuance under our 2021 Plan, which will become effective on the business day immediately prior to the date of effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan; and
- shares of common stock reserved for issuance under our 2021 ESPP, which will become effective on the business day immediately prior to the date of effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan.

To the extent that any outstanding options or warrants are exercised or new awards are granted under our equity compensation plans, new investors will experience further dilution.

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 financial statements and the related notes to those statements included elsewhere in this prospectus. In addition to historical financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and timing of selected events may differ materially from those anticipated in these forward-looking statements as a result of many factors, including, but not limited to, those discussed under the section titled "Risk Factors" and elsewhere in this prospectus. See also the section titled "Special Note Regarding Forward-Looking Statements."

Overview

We are a life science technology company that is leveraging NGS and multiomics technologies to build products that empower researchers and clinicians. We developed a unique and proprietary NGS technology, which we refer to as our Sequencing Engine. This Sequencing Engine is the foundational platform technology that forms the basis of our products in development and our core product tenets: accuracy, speed, flexibility and scale. We are currently developing two integrated solutions that are purpose built to target specific applications in which these core product tenets matter most. Our first integrated solution is targeted at the NGS market and comprises the G4 Instrument and an associated menu of consumable kits, which we refer to collectively as our G4 Integrated Solution. The G4 Instrument is a benchtop next generation sequencer designed to produce fast and accurate genetic sequencing results. The integrated purpose built kits that run on the G4 Instrument address specific applications in fast growing markets including oncology and immune profiling. We have completed our beta pilot program and anticipate initiating an early access program followed by a commercial launch of the G4 Integrated Solution by the end of 2021, with intentions for units to ship in the first half of 2022. Our second integrated solution in development comprises the PX Instrument and an associated menu of consumable kits, which we refer to collectively as our PX Integrated Solution. Leveraging sequencing as a universal readout, the PX Integrated Solution combines single cell analysis, spatial analysis, genomics and proteomics in one integrated instrument providing a versatile multiomics solution. We anticipate commercial launch of the PX Integrated Solution in 2023.

The core of our Sequencing Engine is comprised of unique and proprietary chemistry, including novel chemical compounds, polymers and enzymes. This chemistry is designed to produce high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS. To take full advantage of the proprietary chemistry, we are developing purpose built instrumentation consisting of high speed, high resolution imaging and innovative fluidic design. We believe that our Sequencing Engine, together with our proprietary innovations in molecular biology techniques, will enable differentiated applications in fast growing markets. These innovations are supported by our intellectual property portfolio.

Each of our two integrated solutions in development consists of an instrument that incorporates our Sequencing Engine and associated consumables that are used exclusively on each instrument. The G4 Integrated Solution is designed to target the NGS market in particular applications that require accuracy, speed, flexibility and scale. We are focused on oncology where there is an increasing need for higher sensitivity technology such as rare variant detection in liquid biopsy. Another area of focus is immunology where there is a need to better understand and harness the immune system in infectious disease, autoimmune disorders, and cancer immunotherapy. We aim to execute a three step commercialization plan for our G4 Integrated Solution consisting of: (i) collaborating with select partners to conduct beta pilot tests, which we have completed, (ii) expanding collaborations with additional potential customers in an early access program and (iii) offering our G4 Integrated Solution broadly to the market, with commercial launch by the end of 2021 and shipping units in the first half of 2022.

The PX Integrated Solution is our second product in development and is a multiomics platform designed to target the markets for single cell, spatial analysis and proteomics. The PX Integrated Solution will leverage our

Sequencing Engine as a readout mechanism to provide a high-resolution view of biology at the single cell and tissue level. We believe the PX Integrated Solution, when launched, will be a high-throughput, versatile platform capable of measuring levels of RNA transcription, protein expression, and sequence specific information directly in cells and tissues. We believe the PX Integrated Solution will have broad application across many areas of biology. We are initially focused on applications in oncology and immunology, with future expansion into other applications such as neurology. We are currently in an advanced prototype development stage for the PX Integrated Solution, and expect to begin an early access program in 2022 and full commercial launch in 2023. We believe that our G4 and PX Integrated Solutions can unleash the full power of sequencing as a universal reader of biology, and open new frontiers in research and medicine.

Our research and development teams have designed and developed our proprietary products using an interdisciplinary approach that combines expertise across a broad range of scientific disciplines including chemistry, molecular biology, hardware, software and engineering. Our research and development groups work together to build products that enable researchers and clinicians to accelerate discoveries across the fastest growing markets in basic research, clinical applications, single cell analysis and spatial genomics and proteomics. Our research and development teams are located in our headquarters in La Jolla, California. The overarching goal of our research and development programs is to accelerate genomics for the advancement of science and medicine. To this end, we focus our research and development efforts on the following areas: improving the performance of our core Sequencing Engine; developing new applications for our G4 Integrated Solution; developing our PX Integrated Solution; and enabling future instruments.

As of March 31, 2021, we had 106 employees in research and development. Looking forward, we will continue to invest in efforts to support the ongoing development of our instruments and consumables, as well as enhance the overall performance of our solutions.

Our business model focuses on first driving customer adoption of our G4 Integrated Solution followed by our PX Integrated Solution. We believe customer adoption will then form a base of users who in turn drive an on going revenue stream by purchasing our consumables. We plan to focus our commercial efforts on (i) expanding the installed base of our G4 Integrated Solution and PX Integrated Solution across a wide array of customer segments and (ii) driving applications, scale of experimentation and discoveries that lead to increasing utilization of our integrated platforms by our customers. Similar to our strategy of developing purpose built products based on feedback from potential customers, we also plan to develop a service and support organization that will focus on creating an unparalleled customer experience. We believe in the value of creating new customers while expanding utilization of existing customers through the sale of purpose built products and the establishment of customer loyalty.

We are in the process of building out our commercial organization and we expect to have direct commercial staff in sales, customer success, technical support, field service and market development functions. Throughout our commercial rollout, we will need to scale each function within our commercial organization in anticipation of demand and with the intent to deliver exceptional customer experience. We believe that coupling customer experience with a transformative integrated solution will allow us to deliver substantial value to our customers, build long-term customer loyalty and enhance our competitive differentiation.

We expect to initially target customers in North America through direct sales and customer support organizations. We also plan to expand outside North America to sell and support our products in the European Union, United Kingdom, Asia Pacific and Japan, and expect to expand access to our products in other geographies through well established distribution networks.

The majority of our consumable products and instruments are manufactured in-house at our facilities in La Jolla, California. These manufacturing operations include: flow cell surface synthesis and flow cell assembly, reagent formulation and cartridge filling, kit assembly and packaging as well as analytical and functional quality control testing. We obtain some components of our consumables from third-party suppliers. While some of these

components are sourced from a single supplier, we have qualified second sources for several of our critical components including reagents, flow cells, optics and oligonucleotides. We believe that having dual sources for our components helps reduce the risk of a production delay caused by a disruption in the supply of a critical component.

Since we were incorporated in 2016, we have devoted substantially all of our resources to research and product development activities, initiating our commercialization plans, establishing and maintaining our intellectual property portfolio, hiring personnel, raising capital, building our commercial infrastructure and providing general and administrative support for these activities. Since our incorporation, we have incurred significant losses and negative cash flows from operations. During the year ended December 31, 2020, we incurred a net loss of $27.9 million and used $24.9 million of cash in operations. During the three months ended March 31, 2021, we incurred a net loss of $23.9 million and used $9.2 million of cash in our operations. As of March 31, 2021, we had an accumulated deficit of $77.0 million. We expect to continue to incur significant and increasing losses and do not expect positive cash flows from operations for the foreseeable future, and our net losses may fluctuate significantly from period to period, depending on the timing of and expenditures on our planned commercialization and research and development activities.

From the date of our incorporation through March 31, 2021, we have financed our operations primarily through private placements of convertible preferred stock and convertible promissory notes. We have raised aggregate net proceeds of approximately $199.7 million, net of issuance costs, including the $130.5 million we raised through the issuance of convertible promissory notes in February 2021 (the 2021 Notes). As of March 31, 2021, we had cash and cash equivalents and short-term investments totaling $150.1 million.

We expect our expenses to increase significantly in connection with our ongoing activities, as we:

- continue to develop and then commercialize our G4 Integrated Solution and planned PX Integrated Solution;
- attract, hire and retain qualified personnel;
- expand our sales, marketing, service, support and distribution infrastructure to support our commercialization plans and engage in commercialization activities;
- build-out and expand our in-house manufacturing capabilities and engage in larger scale manufacturing activities;
- continue to engage in research and development of other products and enhancements;
- implement operational, financial and management information systems;
- obtain, maintain, expand, and protect our intellectual property portfolio; and
- operate as a public company.

COVID-19 Pandemic

As a result of the COVID-19 pandemic, we have, and could continue to, experience disruptions that could severely impact our business. For instance, there have been standing “stay-at-home” orders in California, and specifically San Diego County where our headquarters is located. We have continued to operate within the rules applicable to our business; however, an extended implementation of these governmental mandates or reinstitution of additional more stringer mandates could further impact our ability to operate effectively and conduct ongoing research and development or other activities. The COVID-19 pandemic has also adversely affected the broader economy and created volatility in the financial markets which could curtail the research and development budgets of our customers, our ability to hire additional personnel and our financing prospects.

We are continuing to assess the impact of the COVID-19 pandemic on our current and future business and operations, as well as on our industry and the healthcare system. Any of the foregoing could harm our operations

and we cannot anticipate all the ways in which it could be adversely impacted by health epidemics such as COVID-19. For additional information, see the section titled “Risk Factors—Risks Related to Our Business and Industry—The COVID-19 pandemic and efforts to reduce its spread have adversely impacted, and are expected to continue to materially and adversely impact, our business and operations.”

Key Factors Affecting Our Performance

We believe that our financial performance will be driven primarily by the factors below. While each of these factors presents significant opportunities for our business, they also pose important challenges that we must successfully address in order to grow our business and improve our results of operations. Our ability to successfully address the factors below is subject to various risks and uncertainties, including those described under the section titled “Risk Factors”.

Commercial adoption of our G4 Integrated Solution and planned PX Integrated Solution

Our financial performance will be driven by, and a key factor to our future success will be, the rate of commercial adoption of our G4 Integrated Solution and planned PX Integrated Solution. We plan to drive customer adoption, beginning with our beta pilot program and early access program, to generate clear use-cases and peer-reviewed publications that illustrate our product performance claims and value proposition. Following our beta pilot and early access programs, we plan to commercially launch through a direct sales and marketing organization in the United States and to sell and support our products in the European Union, United Kingdom, Asia Pacific and Japan, either through direct sales or through established distribution networks. Throughout our commercial rollout, we aim to grow our sales and marketing team to foster deep customer relationships initially with customers running our G4 Integrated Solution and to establish and grow distribution networks capable of deploying our G4 Integrated Solution in select areas of the World. We also plan to offer different access options, including capital sale and lease options for the G4 Integrated Solution to meet each customer’s unique needs. As a result of this effort, we will aim to increase our installed base of G4 Integrated Solution and planned PX Integrated Solution.

Utilization by our customers of our G4 Integrated Solution and planned PX Integrated Solution

The utilization of our integrated solutions and the corresponding purchases of consumables and other products and services will represent a source of potential recurring revenue from our customers. We plan to drive utilization of our G4 Integrated Solution and planned PX Integrated Solutions by engaging with customers to help them advance through the adoption cycle from early stage validation to integration of our integrated solutions with existing NGS workflows with plug and play interoperability. As our integrated solutions advance towards becoming fully integrated within customer workflows, we believe customers will utilize more of our consumables and other products and services, thus driving recurring revenue.

Expansion of our G4 Integrated Solution and PX Integrated Solution beyond initial applications

The rate of growth of our revenue will rely on part in our ability to expand our market opportunity. We aim to continually innovate and develop new products, applications, workflows and analysis tools that may potentially lead to new end markets, applications and business models. We believe that the capabilities offered by our integrated solutions and future products may potentially lead to additional or complementary addressable markets, and may expand our market opportunity.

Revenue mix between our instruments and consumables, and gross margin

Any revenue we generate will be derived from sales of our instruments, consumables and services. As our customers begin adopting our G4 Integrated Solution, we expect our revenue will be derived principally from sales of such instruments. As we drive utilization of our G4 Integrated Solution, and customers begin utilizing

more of our consumables, we estimate that the portion of our revenue from sales of our consumables will grow over time. We expect the revenue contribution from our consumables to vary on a quarterly basis due to several factors, including the timing and number of publications of scientific papers demonstrating the value of our consumables, the availability of grants to fund research, budgetary timing and our introduction of new product features and new consumables offerings. Additionally, we expect the mix and variance of sales between our instruments and consumables to cause our gross margin to vary on a quarterly basis.

Rate of investment in our growth

As we commercially launch and grow sales of our G4 Integrated Solution and, once developed and commercially launched, our PX Integrated Solution, we expect to continue investing in our manufacturing capabilities and commercial infrastructure. Additionally, we plan to further invest in research and development as we hire employees with the necessary scientific and technical backgrounds to enhance and expand our existing products and help us bring new products to market, and expect to incur additional research and development expenses as a result. We also plan to invest in sales and marketing activities and expect to incur additional general and administrative expenses as we support our growth and our operations as a publicly traded company.

Expansion of our geographic presence

We are initially building our commercial infrastructure to sell and support our products directly in the United States and Canada. We also have plans in place to sell and support our products in the European Union, United Kingdom, Asia Pacific and Japan, either through direct sales or through well established distribution networks and expect to expand access to our products in other geographies through distributors. We expect to incur expenses as we expand our geographic presence and generate revenue either through direct sales or through distribution networks. Our expenses and revenue will fluctuate depending on the extent to which we pursue direct sales or distribution arrangements outside the United States and Canada.

Columbia License Agreement and Sponsored Research Agreement

In August 2016, we entered into an Exclusive License Agreement (the License Agreement) with the Trustees of Columbia University in the City of New York (Columbia). The License Agreement includes a number of diligence obligations that require us to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products (as defined in the License Agreement) by certain dates. Under the License Agreement, we pay an annual license fee that increases each year, until it reaches a low six digit fee for the fifth year, and for each subsequent year, for so long as the License Agreement remains in force. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single digit royalty rates on net sales of Other Products. We can credit our yearly annual license fee against any yearly royalty fees payable to Columbia. Additionally, if we receive any income in connection with any sublicenses, we must pay Columbia a high single digit percentage of that income. Finally, the License Agreement provides for payments to Columbia based upon our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement. As of March 31, 2021, we have paid an aggregate of $0.1 million to Columbia pursuant to the terms of the License Agreement.

We do not believe that our G4 or PX Instruments or the associated consumables, as we presently intend to commercialize them, fit within the definitions of Patent Products or Other Products as defined in the License Agreement. As a result, we do not believe that we will be required to make milestone payments or pay royalties on sales of these products. However, in the future, we may decide to incorporate features covered by one or more licensed patent(s) or directly use or incorporate materials and/or technical information provided by Columbia, such that we would incur milestone and royalty obligations under the License Agreement.

We are currently in discussions with Columbia related to the application of the License Agreement to our G4 and PX Integrated Solutions and our efforts to satisfy the diligence obligations under the License Agreement.

There is no assurance that Columbia will agree with our interpretation of the License Agreement or our payment obligations thereunder or agree that we have complied with our other obligations under the License Agreement.

In addition to the License Agreement, the Company entered into a sponsored research agreement (the Research Agreement) to fund a research program with Columbia. The program ended in 2019. The Company recorded $0.1 million of expense in connection with the Research Agreement for the year ended December 2019.

Components of Results of Operations

Revenue

We have not generated any revenue from product sales to date and may not do so in the near future. If our development and commercialization efforts are successful for our G4 Integrated Solution and planned PX Integrated Solution, we expect to generate revenue in the future from sales of our G4 Instrument and planned PX Instrument and the associated consumables and services. We cannot predict if, when, or to what extent we will generate revenue from the commercialization and sale of our integrated solutions.

Operating Expenses

Research and Development

Research and development expenses consist primarily of:

- salaries, payroll taxes, employee benefits and stock-based compensation for personnel engaged in research and development activities;
- fees paid to consultants;
- license fees paid to third parties for use of their intellectual property, laboratory supplies and development compound materials;
- allocated overhead costs; and
- facilities and depreciation costs.

All research and development costs are charged to expense as incurred.

We plan to continue to increase our investment in our research and development efforts related to our product development pipeline and our proprietary technology, including our G4 Integrated Solution and planned PX Integrated Solution. Therefore, we expect our research and development expenses will increase in absolute dollars in future periods as we incur expenses associated with hiring additional personnel, purchasing supplies and materials, and the allocation of facility expense associated with the ongoing build-out of our expansion facilities to support our research and development efforts.

General and Administrative

General and administrative expenses consist primarily of salaries, payroll taxes, employee benefits and stock-based compensation for personnel in our executive management, finance, administration and human resources functions, professional service fees, including for legal, accounting, patent, and auditing and other services, allocated overhead costs, facilities and depreciation costs, and other costs to support our operations.

We plan to continue to increase our investment in our personnel as we grow. We also expect to incur additional costs as a result of operating as a public company, including costs of accounting, audit, legal, regulatory and tax compliance services, director and officer insurance costs, and investor and public relations costs. As a result, we expect our general and administrative expenses will increase in absolute dollars in future periods.

Interest and Other Income

Interest income consists of interest earned on cash and cash equivalents and on our short-term investments in corporate notes and government agency notes.

Interest Expense

Interest expense consists of interest related to our Loan Agreement with Silicon Valley Bank, including amortization of the debt issuance cost.

Change in Fair Value of Warrant Liability

We account for the warrant for preferred stock in accordance with the provisions of Accounting Standards Codification 480, *Distinguishing Liabilities from Equity*, which requires that warrants for the purchase of shares in contingently redeemable instruments be accounted for as liabilities. We adjust the carrying value of such warrant liability to its estimated fair value at the end of each reporting period, with increases or decreases in fair value recorded as other income or expense in the statements of operations.

Change in Fair Value of 2021 Notes

We account for the 2021 Notes in accordance with the provisions of Accounting Standards Codification (ASU) 480, Distinguishing Liabilities from Equity and ASU 2020-06, Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40). We adjust the carrying value of such notes liability to its estimated fair value at the end of each reporting period, with increases or decreases in fair value recorded as other income or expense in the statements of operations.

Results of Operations

Comparison of the Three Months Ended March 31, 2020 and 2021

The following table summarizes our results of operations for the periods indicated:

	Three Months Ended March 31,			
	2020	2021 (unaudited) (in thousands)	$ Change	% Change
Operating expenses:				
Research and development	$ 4,026	$ 6,608	$ 2,582	64.1%
General and administrative	1,377	3,654	2,277	165.4%
Loss from operations	$ (5,403)	$ (10,262)	$ (4,859)	89.9%
Interest and other income	216	131	(85)	(39.4)%
Interest expense	(66)	(188)	(122)	184.8%
Change in fair value of convertible promissory notes	—	(11,400)	(11,400)	100.0%
Change in fair value of warrant liability	—	(2,202)	(2,202)	100.0%
Net loss	$ (5,253)	$ (23,921)	$ (18,668)	355.4%

Research and Development Expenses

The following table summarizes our research and development expenses for the periods indicated:

	Three Months Ended March 31,			
	2020	2021 (unaudited) (in thousands)	$ Change	% Change
Research and development expenses	$4,026	$ 6,608	$ 2,582	64.1%

Research and development expenses increased by $2.6 million, or 64.1%, from the three months ended March 31, 2020 to the three months ended March 31, 2021. The increase was primarily due to an increase in product development efforts related to our G4 Integrated Solution, including $1.3 million in employee compensation costs, stock-based compensation and other related costs as a result of an increase in research and development personnel, $0.9 million in laboratory materials, supplies and reagents used for in-house research, $0.2 million related to the expansion of facilities and maintenance and $0.1 million in professional and consulting fees.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the periods indicated:

	Three Months Ended March 31,			
	2020	2021	$ Change	% Change
		(unaudited) (in thousands)		
General and administrative expenses	$1,377	$ 3,654	$ 2,277	165.4%

General and administrative expenses increased by $2.3 million, or 165.4%, from the three months ended March 31, 2020 to the three months ended March 31, 2021. The increase was primarily due to a $1.6 million increase in employee compensation costs, stock-based compensation and other related costs, as a result of both converting consultants to full-time employees and an increase in personnel. Other increases include $0.6 million in professional and consulting fees related to accounting and audit services and corporate legal matters.

Other Income (Expense)

	Three Months Ended March 31,			
	2020	2021	$ Change (unaudited)	% Change
		(in thousands)		
Interest and other income	$ 216	$ 131	$ (85)	(39.4)%
Interest expense	(66)	(88)	(122)	184.8%
Change in fair value of convertible promissory notes	—	(11,400)	(11,400)	100.0%
Change in fair value of warrant liability	—	(2,202)	(2,202)	100.0%

Other expense increased by $13.8 million for the three months ended March 31, 2021 compared to the three months ended March 31, 2020, primarily due to increase in fair value of warrant liabilities by $2.2 million and increase in the fair value of our convertible promissory notes by $11.4 million.

Comparison of the Years Ended December 31, 2019 and 2020

The following table summarizes our results of operations for the periods indicated:

	Year Ended December 31,			
	2019	2020	$ Change	% Change
		(in thousands)		
Operating expenses:				
Research and development	$ 10,484	$ 21,247	$ 10,763	102.7%
General and administrative	2,286	6,287	4,001	175.0%
Loss from operations	(12,770)	(27,534)	(14,764)	115.6%
Interest and other income	463	505	42	9.1%
Interest expense	(17)	(718)	(701)	4123.5%
Change in fair value of warrant liability	—	(198)	(198)	100.0%
Net loss	$(12,324)	$ (27,945)	$(15,621)	126.8%

Research and Development Expenses

The following table summarizes our research and development expenses for the periods indicated:

	Year Ended December 31,			
	2019	2020	$ Change	% Change
		(in thousands)		
Research and development expenses	$10,484	$ 21,247	$10,763	102.7%

Research and development expenses increased by $10.8 million, or 102.7%, from the year ended December 31, 2019 to the year ended December 31, 2020. The increase was primarily due to an increase in product development efforts related to our G4 Integrated Solution, including $5.6 million in employee compensation costs, stock-based compensation and other related costs as a result of an increase in research and development personnel, $3.3 million in laboratory materials, supplies and reagents used for in-house research, $0.8 million related to the expansion of facilities and maintenance, and $0.8 million in professional and consulting fees.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the periods indicated:

	Year Ended December 31,			
	2019	2020	$ Change	% Change
		(in thousands)		
General and administrative expenses	$2,286	$ 6,287	$ 4,001	175.0%

General and administrative expenses increased by $4.0 million, or 175.0%, from the year ended December 31, 2019 to the year ended December 31, 2020. The increase was primarily due to a $3.0 million increase in employee compensation costs, stock-based compensation and other related costs, as a result of both converting consultants to full-time employees and an increase in personnel. Other increases include $0.5 million in professional and consulting fees related to accounting and audit services and corporate legal matters.

Liquidity and Capital Resources

Since we were incorporated in 2016, we have devoted substantially all of our resources to research and product development activities, initiating our commercialization plans, establishing and maintaining our intellectual property portfolio, hiring personnel, raising capital, building our commercial infrastructure and providing general and administrative support for these activities. Since our incorporation, we have not generated any revenues from product sales and have incurred significant operating losses and negative cash flows from operations. Our operations have been funded primarily through the sale and issuance of convertible preferred stock and convertible promissory notes since inception. We expect to continue to incur significant and increasing losses and do not expect positive cash flows from operations for the foreseeable future, and our net losses may fluctuate significantly from period to period, depending on the timing of and expenditures on our planned commercialization and research and development activities. In particular, we expect to incur increasing costs in the near term in connection with the commercial launch of our G4 Integrated Solution, which will include, among others, increasing our sales and marketing and other commercialization efforts to drive market adoption of our G4 Integrated Solution and scaling up our manufacturing and customer support capabilities. During the year ended December 31, 2020, we incurred a net loss of $27.9 million and used $24.9 million of cash in operations. During the three months ended March 31, 2021, we incurred a net loss of $23.9 million and used $9.2 million of cash operations. As of March 31, 2021, we had an accumulated deficit of $77.0 million. As of March 31, 2021, we had cash and cash equivalents and short-term investments totaling, in aggregate, $150.1 million.

Based upon our current operating plan, we believe our existing cash, cash equivalents and investments will enable us to fund our operating expenses and capital expenditure requirements through at least the next twelve

months from the date of this prospectus. We have based our estimate of capital requirements on assumptions that may prove to be incorrect and as we continue to face challenges and uncertainties, our available capital resources may be consumed more rapidly than currently expected due to a variety of factors, including: (i) delays in execution of or a significant expansion of our commercialization plans; (ii) changes we may make to the business that affect ongoing operating expenses; (iii) changes we may make in our business or commercialization strategy; (iv) changes we may make in our research and development spending plans; (v) actions taken by our competitors; (vi) the impact of the COVID-19 pandemic; and (vii) other items affecting our forecasted level of expenditures and use of cash resources including potential acquisitions. See the section titled "Risk Factors."

We may need to seek additional financing in the future to support our operations, research and development activities and commercialization plans. If we are not able to generate sufficient revenue to finance our cash requirements or raise additional capital or enter into financing agreements or arrangements when required on favorable terms, or at all, we may have to delay, reduce the scope of, or discontinue one or more development programs, delay potential commercialization or reduce the scope of sales or marketing activities, and pursue other cost cutting measures, including the reduction of headcount, scope of operations, and planned capital expenditures, which may have a material adverse effect on our business, results of operations, financial condition and/or ability to fund our scheduled obligations on a timely basis, or continue as a going concern. We cannot assure you that we will ever be profitable or generate positive cash flow from operating activities or that, if we achieve profitability, we will be able to sustain it.

Cash Flows

The following table presents a summary of our cash flows for the periods indicated:

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
	(in thousands)		(unaudited) (in thousands)	
Net cash provided by (used in)				
Operating activities	$(11,399)	$(24,873)	$(4,709)	$ (9,185)
Investing activities	(31,500)	24,005	2,396	(90,461)
Financing activities	47,304	7,515	7,510	133,484
Net increase in cash and cash equivalents	$ 4,405	$ 6,647	$ 5,197	$ 33,838

Operating Activities

During the year ended December 31, 2020, cash used in operating activities was $24.9 million, attributable to a net loss of $27.9 million, partially offset by non-cash charges of $2.2 million and by a net change in our net operating assets and liabilities of $0.9 million. Non-cash charges primarily consisted of $1.1 million in stock-based compensation and $0.6 million of depreciation. The change in our net operating assets and liabilities was primarily due to increased accrued liabilities related to corporate bonuses of $1.3 million, partially offset by deposits related to a lease agreement of $0.3 million.

During the year ended December 31, 2019, cash used in operating activities was $11.4 million, attributable to a net loss of $12.3 million, partially offset by non-cash charges of $0.5 million and by a net change in our net operating assets and liabilities of $0.4 million. Non-cash charges primarily consisted of $0.4 million of depreciation and $0.2 million in stock-based compensation. The change in our net operating assets and liabilities was primarily due to increased accounts payable and accrued liabilities related to professional services and consulting costs of $0.5 million, partially offset by interest receivable related to short-term investments of $0.1 million.

During the three months ended March 31, 2021, cash used in operating activities was $9.2 million, attributable to a net loss of $23.9 million, offset by non-cash charges of $15.1 million and by a net change in our net operating assets and liabilities of $0.3 million. Non-cash charges primarily consisted of $11.4 million change in fair value of the 2021 Notes and $2.2 million change in fair value of warrants and stock-based compensation expense of $1.1 million.

During the three months ended March 31, 2020, cash used in operating activities was $4.7 million, attributable to a net loss of $5.3 million, offset by non-cash charges of $0.4 million. Non-cash charges primarily consisted of stock-based compensation expense of $0.2 million and $0.1 million of depreciation.

Investing Activities

During the year ended December 31, 2020, cash provided by investing activities was $24.0 million, which related to maturities of available-for-sale securities of $31.5 million, net of purchases of $6.1 million, in addition to $1.4 million in payments for purchases of property and equipment.

During the year ended December 31, 2019, cash used in investing activities was $31.5 million, which related to purchases of available-for-sale securities of $42.7 million, net of proceeds from maturities of $12.0 million, in addition to $0.8 million in payments related to purchases of property and equipment.

During the three months ended March 31, 2021, cash used in investing activities was $90.5 million, which related to purchases of available-for-sale securities of $101.6 million, net of proceeds from maturities of $11.6 million, in addition to $0.5 million in payments related to purchases of property and equipment.

During the three months ended March 31, 2020, cash provided by investing activities was $2.4 million, which related to maturities of available-for-sale securities of $4.7 million, net of purchases of $2.1 million, in addition to $0.3 million in payments related to purchases of property and equipment.

Financing Activities

During the year ended December 31, 2020, cash provided by financing activities was $7.5 million, which was primarily related to proceeds from long-term debt.

During the year ended December 31, 2019, cash provided by financing activities was $47.3 million which primarily related to net proceeds of $44.8 million from the issuance and sale of shares of our Series B convertible preferred stock. Additionally, we received $2.5 million in gross proceeds from issuance of long-term debt.

During the three months ended March 31, 2021, cash provided by financing activities was $133.5 million, which was primarily related to proceeds from the 2021 Notes of $130.5 million and $3.0 million related to issuance of common stock.

During the three months ended March 31, 2020, cash provided by financing activities was $7.5 million, which was primarily related to proceeds from long-term debt.

Indebtedness

In November 2019, we entered into the Loan Agreement with Silicon Valley Bank (SVB) pursuant to which Silicon Valley Bank agreed to lend us up to $15 million in a series of term loans (the Loan). Contemporaneously, we borrowed $2.5 million in the first of three draw-downs available through September 30, 2021. The additional draws are at our discretion, but we are subject to penalties and fees if not fully drawn down. Simultaneously with the first draw-down, Silicon Valley Bank entered into the SVB warrant with us to purchase 32,289 shares of our Series B convertible preferred stock at an exercise price of $2.3228 per share. Pursuant to the terms of the Loan Agreement, the SVB warrant will be adjusted to increase the number of shares of our Series B convertible preferred stock exercisable pursuant to the SVB warrant if we elect to draw down additional funds under the Loan.

In March 2020, we borrowed an additional $7.5 million as a second draw down related to the Loan and we adjusted the SVB warrant to increase the number of shares of our Series B convertible preferred stock exercisable pursuant to the SVB warrant by 96,867 shares at an exercise price of $2.3228 per share.

The outstanding balance of the Loan is due on the scheduled maturity date of September 1, 2023 (the Maturity Date). Payment on the Loan will be interest only through September 30, 2021, followed by 24 equal monthly payments of principal plus accrued interest commencing on October 1, 2021. The per annum interest rate for any outstanding Loan balance is the greater of (i) 0.65% above the Prime Rate or (ii) 5.90%. The interest rate as of December 31, 2019 and 2020 and March 31, 2021 was 5.90%. In addition, a final payment (Final Payment) equal to the original principal amount of each advance multiplied by 5.50% will be due on the Maturity Date.

We may prepay the borrowed amounts, provided that we will be obligated to pay a prepayment fee equal to (i) 3% of the outstanding principal balance of all draw-downs if the draw-downs are repaid prior to the first anniversary of the draw-down date, (ii) 2% of the outstanding principal balance of all draw-downs if the draw-downs are repaid on or after the first anniversary of the draw-down date but prior to the second anniversary of the draw-down date, and (iii) 1% of the outstanding principal balance of all draw-downs if the draw-downs are repaid on or after the second anniversary of the draw-down date but before the Maturity Date. Further, we are subject to a 1% unused line fee payable to Silicon Valley Bank related to the undrawn portion of the borrowing capacity on September 30, 2021 or, if applicable, upon prepayment.

Subject to certain limited exceptions, the covenants under the Loan Agreement limit our ability to or prohibit us to permit any of our subsidiaries to, as applicable, among other things: pay cash dividends, make other distributions or make certain other changes with respect to our shares of capital stock, effect certain changes in our business, management, ownership or business locations; enter into certain mergers and acquisitions with other companies; create, incur, assume, or be liable for any additional indebtedness, or create, incur, allow, or permit to exist any additional liens; make certain investments; and enter into transactions with our affiliates.

While we have not previously breached and are currently in compliance with the covenants contained in the Loan Agreement, we may breach these covenants in the future. Our ability to comply with these covenants may be affected by events and factors beyond our control. In the event that we breach one or more covenants, Silicon Valley Bank may choose to declare an event of default and require that we immediately repay all amounts outstanding under the applicable loan agreement, terminate any commitment to extend further credit and foreclose on the collateral. The occurrence of any of these events could have a material adverse effect on our business, financial condition and results of operations. An event of default includes, but is not limited to, the following: if we fail to make any payment under the Loan Agreement when due, if we fail or neglect to perform certain obligations under the Loan Agreement, if we violate certain covenants under the Loan Agreement, if certain material adverse changes occur, if we are unable to pay our debts as they become due or otherwise become insolvent, or if we begin an insolvency proceeding.

In February 2021, we issued the 2021 Notes to various investors, in the aggregate principal amount of $130.5 million. The 2021 Notes bear interest at 6% per annum and have a maturity date in February 2023, or earlier upon certain events of default. We cannot prepay the 2021 Notes, without the consent of the holders of a majority in interest of the outstanding 2021 Notes (the Majority Noteholders). The 2021 Notes shall automatically convert, upon the first of the following transactions to occur, into: (i) shares of our common stock upon a qualified initial public offering (IPO) or a qualified transaction with a Special Purpose Acquisition Company (SPAC); or (ii) shares of our convertible preferred stock in the event of a qualified equity financing in which we issue shares of convertible preferred stock. The 2021 Notes are also convertible into shares of our convertible preferred stock issued in a non-qualifying financing transaction upon the election of the Majority Noteholders. In each case, the 2021 Notes are convertible at a conversion price equal to the lessor of (i) a per share price equal to 80% of the per share price paid by the new investors in such financing, IPO or SPAC transaction or (ii) a per share price equal to the price per share obtained by dividing $1.5 billion by the fully-

diluted capitalization of our Company (the Valuation Cap). In the event of a change of control, each note holder can elect to either receive an amount equal to two times the outstanding principal and interest on such holder's 2021 Note or convert the 2021 Note into shares of our common stock at the Valuation Cap.

Off-Balance Sheet Arrangements

During the periods presented we did not have, nor do we currently have, any off-balance sheet arrangements as defined under SEC rules.

JOBS Act

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual gross revenue; (ii) the date we qualify as a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, with at least $700 million of equity securities held by non-affiliates; (iii) the issuance, in any three-year period, by us of more than $1.0 billion in non-convertible debt securities; or (iv) the last day of the fiscal year ending after the fifth anniversary of our initial public offering. As a result of this status, we have taken advantage of certain exemptions from various reporting requirements in this prospectus that are applicable to other publicly-traded entities that are not emerging growth companies and may elect to take advantage of other exemptions from reporting requirements in our future filings with the SEC. In particular, in this prospectus, these exemptions include:

- the option to present only two years of audited financial statements and only two years of Management's Discussion and Analysis of Financial Condition and Results of Operations;
- not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes Oxley Act;
- not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes;" and
- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation.

As a result, we do not know if some investors will find our common stock less attractive. The result may be a less active trading market for our common stock, and the price of our common stock may become more volatile.

In addition, Section 107 of 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, delaying the adoption of these accounting standards until they would apply to private companies. We have elected to avail ourselves of this exemption and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for private companies. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock.

Critical Accounting Policies and Estimates

The discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with United States generally accepted accounting principles. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as revenue and 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. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

While our significant accounting policies are described in Note 2 to our financial statements included elsewhere in this prospectus, we believe that the following critical accounting policies are most important to understanding and evaluating our reported financial results.

Stock-Based Compensation

We account for stock-based compensation by measuring and recognizing compensation expense for all share-based awards made to employees and non-employees based on estimated grant-date fair values. We use the straight-line method to allocate compensation cost to reporting periods over the requisite service period, which is generally the vesting period. We recognize actual forfeitures by reducing the stock-based compensation in the same period as the forfeitures occur. We estimate the fair value of share-based awards to employees and non-employees using the Black-Scholes option pricing model. The Black-Scholes option pricing model requires the input of subjective assumptions, including fair value of common stock, expected term, expected volatility, risk-free interest rate and expected dividend yield, which are described in greater detail below.

Estimating the fair value of equity-settled awards as of the grant date using the Black-Scholes option pricing model is affected by assumptions regarding a number of complex variables. Changes in the assumptions can materially affect the fair value and ultimately how much stock-based compensation is recognized. These inputs are subjective and generally require significant analysis and judgment to develop. These inputs are as follows:

- *Fair value of common stock*: There has been no public market for our common stock to date. The exercise prices of our grants were determined by our board of directors based in part on valuations of our common stock prepared by a third-party valuation specialist. In connection with the preparation of our financial statements for the year ended December 31, 2020 and the three months ended March 31, 2021, we performed a retrospective review of the fair value of our common stock related to the current events available. Based on this review, we recorded stock compensation as reflected in our financial statements.
- *Expected term*: The expected term represents the average period that our options granted are expected to be outstanding and is determined using the simplified method (based on the mid-point between the weighted-average vesting date and the end of the contractual term). We have very limited historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for our stock option grants.
- *Expected volatility*: Since we have been a privately-held company and have not had any trading history for our common stock, the expected volatility was estimated based on the historical average volatility for comparable publicly traded life sciences technology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, life cycle stage, or area of specialty. We will continue to apply this process until enough historical information regarding the volatility of our own stock price becomes available.
- *Risk-free interest rate*: The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of the options.
- *Expected dividend yield*: We have never paid dividends on our common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

For options granted to non-employee consultants, the fair value of these options is also measured using the Black-Scholes option pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected term which is assumed to be the remaining contractual life of the option.

We will continue to use judgment in evaluating the expected volatility, expected terms, and interest rates utilized for our stock-based compensation calculations on a prospective basis. Assumptions we used in applying

the Black-Scholes option pricing model to determine the estimated fair value of our stock options granted 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.

See Note 11 to our financial statements included elsewhere in this prospectus for more information concerning certain of the specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options.

We recorded stock-based compensation expense of $0.2 million and $1.1 million for the years ended December 31, 2019 and 2020, respectively. We recorded stock-based compensation expense of $0.2 million and $1.1 million for the three months ended March 31, 2020 and 2021, respectively. As of March 31, 2021, there was $28.1 million of total unrecognized stock-based compensation expense related to unvested stock options, which we expect to recognize over a remaining weighted-average period of 1.76 years. We expect to continue to grant stock options and other equity-based awards in the future, and to the extent that we do, our stock-based compensation expense recognized in future periods will likely increase. The intrinsic value of all outstanding options as of March 31, 2021 was $71.5 million.

Fair Value of Common stock

Historically, for all periods prior to our initial public offering, the fair values of the shares of our Common stock underlying our share-based awards were determined by our board of directors with input from management and the assistance of an independent third-party valuation specialist. Given the previous absence of a public trading market of our common stock and in accordance with the American Institute of Certified Public Accountants Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* (the Practice Aid), in addition to the third-party valuations referenced above, our board of directors exercised reasonable judgment and considered numerous objective and subjective factors to determine the best estimate of the fair value of our Common stock, including:

- our stage of development and material risks related to our business;
- our operating results and financial performance, including our levels of available capital resources;
- the progress of our research and development efforts and business strategy;
- the rights, preferences and privileges of our convertible preferred stock relative to those of our common stock;
- the prices at which we sold shares of our convertible preferred stock to outside investors in arms-length transactions;
- the lack of marketability of our common stock as a private company;
- external market conditions affecting the life sciences technology industry and trends within the industry;
- equity market conditions affecting comparable public companies; and
- general U.S. market conditions.

In valuing our common stock, the fair value of our business, or enterprise value, was determined using various valuation methods, including combinations of income, market and asset approaches with input from management. The income approach determines value by using one or more methods that convert anticipated economic benefits into a present single amount. The application of the income approach establishes value by methods that discount or capitalize earnings or cash flow, by a discount or capitalization rate that reflects investors' rate of return expectations, market conditions and the relative risk of the subject investment. The market approach involves identifying and evaluating comparable public companies and acquisition targets that operate in the same industry or which have similar operating characteristics as the subject company. From the

comparable companies, publicly available information is used to extrapolate market-based valuation multiples that are applied to historical or prospective financial information in order to derive an indication of value. The asset approach determines the value of the underlying assets and liabilities of a business as a means of determining the value of the business in aggregate. This approach can include the value of both tangible and intangible assets.

The Practice Aid identifies various available methods for allocating enterprise value across classes and series of capital stock to determine the estimated fair value of common stock at each valuation date. In accordance with the Practice Aid, we considered the following methods:

- *Option Pricing Method (OPM).* Under the OPM, shares are valued by creating a series of call options with exercise prices based on the liquidation preferences and conversion terms of each equity class. The estimated fair values of the convertible preferred stock and common stock are inferred by analyzing these options. This method is appropriate to use when the range of possible future outcomes is difficult to predict and thus creates highly speculative forecasts.
- *Probability-Weighted Expected Return Method (PWERM).* The PWERM is a scenario-based analysis that estimates value per share based on the probability-weighted present value of expected future investment returns, considering each of the possible outcomes available to us, as well as the economic and control rights of each share class. This method is generally most appropriate to use when the time to a liquidity event is short, making the range of possible future outcomes relatively easy to predict.

Based on our early stage of development and other relevant factors, we determined that an OPM was the most appropriate method for allocating our enterprise value to determine the estimated fair value of our common stock for valuations during 2019 and most of 2020.

Starting in December 2020 and through March 31, 2021, we used a hybrid method to determine the estimated fair value of our common stock, which included both the OPM and PWERM models.

Application of these approaches involves the use of estimates, judgment, and assumptions that are highly complex and subjective, such as those regarding our expected future revenue, expenses, and cash flows, discount rates, market multiples, the selection of comparable companies, and the probability of future events. Changes in any or all of these estimates and assumptions, or the relationships between those assumptions, impact our valuations as of each valuation date and may have a material impact on the valuation of common stock. The assumptions underlying these valuations represent our management's best estimate, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation could be materially different.

Following the closing of this offering, our board of directors will determine the fair market value of our common stock based on its closing price as reported on the date of grant on the primary stock exchange on which our common stock is traded.

2021 Notes

We elected to account for the 2021 Notes at fair value, as of the issuance date. Management believes that the fair value option better reflects the underlying economics of the 2021 Notes, which contain multiple embedded derivatives. Under the fair value election, changes in fair value are reported as "Change in fair value of convertible promissory notes" in the statements of operations in each reporting period subsequent to the issuance. We measured the fair value of the 2021 Notes using the probability weighted "as converted" plus black scholes model based on the inputs such as probability of IPO scenario vs. Non-IPO scenario, the estimated fair value of common stock price, discount yield, risk free rate, equity volatility, years expected term, number of converted shares and price negotiation adjustment for the calibration. We believe the fair value of the 2021 Notes is derived using assumptions that are consistent with the assumptions used to value our common stock and the warrant liability. In the future, depending on the valuation approaches used and the expected timing and weighting of

each, the inputs described above, or other inputs, may have a greater or lesser impact on our estimates of fair value. For the three months ended March 31, 2021, we recognized $11.4 million of other expense in the statements of operations and comprehensive loss related to increases in the fair value of the 2021 Notes.

Recent Accounting Pronouncements

A description of recent accounting pronouncements that may potentially impact our financial position, results of operations or cash flows is disclosed in Note 2 to our financial statements included elsewhere in this prospectus.

Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate risk, foreign currency exchange rate risk and inflation risk as follows:

Interest Rate Risk

We had cash, cash equivalents and short-term investments of $26.9 million and $150.1 million as of December 31, 2020 and March 31, 2021, respectively, which came from private placements of our preferred stock and debt financing arrangements. The goals of our investment policy are liquidity and capital preservation and we do not enter into investments for trading or speculative purposes. We believe that we do not have any material exposure to changes in the fair value of these assets as a result of changes in interest rates due to the short-term nature of our cash, cash equivalents and short-term investments. Additionally, the interest rate for borrowings under the Loan Agreement is variable. We believe a hypothetical 10% increase or decrease in interest rates during any of the periods presented would not have had a material impact on our financial statements included elsewhere in this prospectus.

Foreign Currency Exchange Risk

All of our employees and our operations are currently located in the United States and our expenses and payment obligations are denominated in and have been satisfied with U.S. dollars. There was no material foreign currency risk for the years ended December 31, 2019 and 2020 and the three months ended March 31, 2021. In the future, our sales may be denominated in foreign currencies and to the extent they are, we will be subject to foreign currency transaction gains or losses. To date, we have had no foreign currency transaction gains and losses, and we have not had a formal hedging program with respect to foreign currency. We believe a hypothetical 10% increase or decrease in exchange rates during any of the periods presented would not have a material effect on our financial statements included elsewhere in this prospectus.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and research, manufacturing and development costs. We believe that inflation has not had a material effect on our financial statements included elsewhere in this prospectus.

BUSINESS

Our Mission

Our mission is to accelerate genomics for the advancement of science and medicine. The genomic tools and technologies developed over the last two decades since the first sequencing of the human genome have greatly improved our understanding of biology, empowered the development of novel therapies, and advanced clinical diagnostics. And yet the transformative potential of genomics is just starting to be realized. For example, in oncology, we are just at the beginning of an era in which cancer can be detected early, analyzed at the molecular level, treated with targeted therapies, and monitored through blood tests able to detect and profile minimal residual disease. Today's sequencing technologies and products have made a significant impact, but real limitations remain to incorporate these tools into routine clinical practice: long analysis times, labor intensive protocols, sample batching requirements and high cost. We are developing fast, powerful, efficient, flexible sequencing platforms, along with novel applications and sample-to-result workflows to solve these challenges.

We believe the next generation of biological discovery and translational medicine will be powered by even more advanced molecular technologies. These technologies can enable a high resolution view of DNA, RNA and proteins in individual cells, along with their spatial arrangement. This multiomics view will enable greater insight into the function of both cells and tissues. We are building these new technologies by leveraging our core DNA sequencing engine as a universal detection method of biological information. We take advantage of the vast combinatorial range of DNA bases as a nature inspired barcode and combine it with powerful molecular biology techniques and the latest advances in high speed, high resolution imaging. Our goal is to unleash the full power of sequencing as a universal reader of biology, which we believe will ultimately open new frontiers in research and medicine.

Overview

We are a life science technology company that is leveraging novel NGS and multiomics technologies to build products that empower researchers and clinicians. We developed a unique and proprietary NGS technology, which we refer to as our Sequencing Engine. This Sequencing Engine is the foundational platform technology that forms the basis of our products in development and our core product tenets: accuracy, speed, flexibility and scale. We are currently developing two integrated solutions that are purpose built to target specific applications in which these core product tenets matter most. Our first integrated solution is targeted at the NGS market and comprises the G4 Instrument and an associated menu of consumable kits, which we refer to collectively as our G4 Integrated Solution. The G4 Instrument is a benchtop next generation sequencer designed to produce fast and accurate genetic sequencing results. The integrated purpose built kits that run on the G4 Instrument address specific applications in fast growing markets including oncology and immune profiling. We have completed our beta pilot program and anticipate initiating an early access program followed by a commercial launch of the G4 Integrated Solution by the end of 2021, with intentions for units to ship in the first half of 2022. Our second integrated solution in development comprises the PX Instrument and an associated menu of consumable kits, which we refer to collectively our PX Integrated Solution. Leveraging sequencing as a universal readout, the PX Integrated Solution combines single cell analysis, spatial analysis, genomics and proteomics in one integrated instrument providing a versatile multiomics solution. We anticipate commercial launch of the PX Integrated Solution in 2023.

The core of our Sequencing Engine is comprised of unique and proprietary chemistry, including novel chemical compounds, polymers and enzymes. This chemistry is designed to produce high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS. To take full advantage of the proprietary chemistry, we are developing purpose built instrumentation consisting of high speed, high resolution imaging and innovative fluidic design. We believe that our Sequencing Engine, together with our proprietary innovations in molecular biology techniques, will enable differentiated applications in fast growing markets. These innovations are supported by our intellectual property portfolio.

Each of our two integrated solutions in development consists of an instrument that incorporates our Sequencing Engine and associated consumables that are used exclusively on each instrument. The G4 Integrated Solution is designed to target the NGS market, in particular, applications that require accuracy, speed, flexibility and scale. We are focused on oncology where there is an increasing need for higher sensitivity technology such as rare variant detection in liquid biopsy. Another area of focus is immunology where there is a need to better understand and harness the immune system in infectious disease, autoimmune disorders and cancer immunotherapy. We aim to execute a three step commercialization plan for our G4 Integrated Solution consisting of: (1) collaborating with select partners to conduct beta pilot tests, which we have completed, (2) expanding collaborations with additional potential customers in an early access program and (3) offering our G4 Integrated Solution broadly to the market, with commercial launch by the end of 2021 and shipping units in the first half of 2022.

The PX Integrated Solution is our second product in development and is a multiomics platform designed to target the markets for single cell, spatial analysis and proteomics. The PX Integrated Solution will leverage our Sequencing Engine as a readout mechanism to provide a high-resolution view of biology at the single cell and tissue level. We believe the PX Integrated Solution, when launched, will be a high-throughput, versatile platform capable of measuring levels of RNA transcription, protein expression and sequence specific information directly in cells and tissues. We believe the PX Integrated Solution will have broad application across many areas of biology. We are initially focused on applications in oncology and immunology, with future expansion into other applications such as neurology. We are currently in an advanced prototype development stage for the PX Integrated Solution and expect to begin an early access program in 2022 and full commercial launch in 2023. We believe that our G4 and PX Integrated Solutions can unleash the full power of sequencing as a universal reader of biology, and open new frontiers in research and medicine.

Background

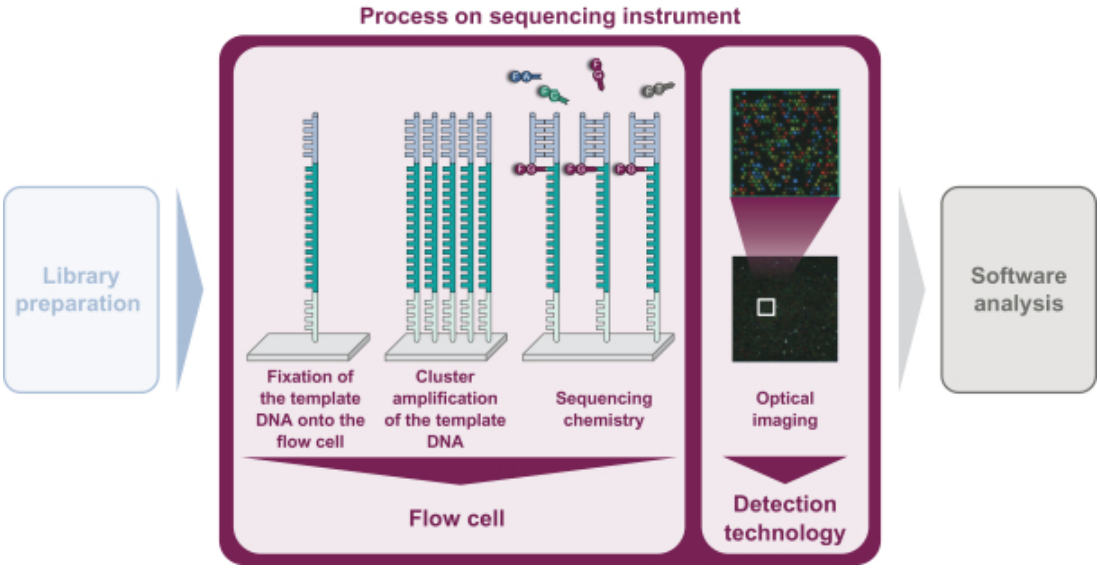
Nature has evolved an elegant solution where four nucleotides – adenine (A), cytosine (C), guanine (G), thymine (T) – form the primary code upon which all of life and biologic diversity is built. NGS directly reads the four nucleotides (or DNA bases) and thus can read out a limitless number of possible sequences. This is in contrast to alternative genetic detection technologies that require *a priori* knowledge of the DNA sequence of interest, such as DNA microarrays, targeted probe hybridization and polymerase chain reaction (PCR). These technologies require prior knowledge of the sequence of a DNA target, and in many cases are also limited by detection with a small number of fluorescent dyes. The capability of NGS to read the vast combinatorial repertoire of DNA, even without prior knowledge of the DNA target, makes it a uniquely powerful platform technology and universal detection method to read and interrogate biology. Beyond reading genomic DNA and RNA, the combination of NGS and designed DNA probes attached to antibodies introduce a wide range of multiomics applications, including imaging and measuring gene transcription and protein expression in individual cells and tissue pathology samples.

NGS has been a transformational technology for the life sciences industry and has been critical to ushering in the genomics age and accelerating our understanding of biology. Since its introduction in the mid-2000s, NGS technology has advanced greatly, which has increased the power of the technology and enabled its broad adoption by the life sciences community. The first NGS platform in the mid-2000s enabled a 50,000-fold drop in cost of sequencing the human genome as compared to the initial first genome sequenced as part of the Human Genome Project at a cost of $300 million. By 2015, the cost of sequencing a human genome reached $1,000 (at ~30X coverage, to achieve sufficient accuracy). Over the last six years, there have been additional improvements in technology and further reduction in cost. Additionally, the range of applications for sequencing has been greatly expanded by the genomics community. This has catalyzed the creation of large markets across both research and clinical applications and a flourishing genomics ecosystem that leverages NGS technology.

We believe that NGS can serve as an extremely versatile molecular tool in biology, extending well beyond its current applications. Today, NGS is used to sequence DNA and RNA to identify inherited and acquired mutations, measure gene expression by counting RNA transcripts, detect and identify pathogens, and when combined with certain sample preparation techniques, determine the epigenetic state of the DNA.

While modern NGS instruments are complex, the most widely adopted NGS technologies today consist of the following steps or elements:

- *Library preparation:* Before loading the sample into a sequencer, the user must prepare a sequencing library. This involves preparing a sample of the target DNA or RNA for sequencing by using a few common molecular biology steps to ensure that the genetic input material can be converted into a form that is compatible with the sequencing instrument.
- *Flow cell:* Following sample preparation, the resulting sample library is loaded onto a sequencer. From there, the libraries are automatically loaded onto a flow cell. The flow cell incorporates microfluidic channels and nanoscale patterned wells. The template DNA is immobilized and fixed onto the flow cell. Afterwards, the next two steps of the sequencing process occur on the flow cell, which include *cluster amplification* and the *sequencing chemistry.* The flow cell enables fluid reagents to be exchanged and flushed away to catalyze the cluster formation and the sequencing chemistry. Flow cells are designed to provide specific levels of throughput or number of reads. The flow cell is disposable and discarded following each run.
- *Cluster amplification:* In order for the small amounts of starting genetic material to be detected by a NGS instrument, or sequencer, it must be amplified (copied). This process is called cluster amplification and it involves replication of each DNA strand on the flow cell. This creates a population of clonal DNA molecules (clusters) that are copies of the original template strands and are more easily read by the sequencer.
- *Sequencing chemistry*: At their core, modern next generation sequencers rely on chemical processes to enable the target genetic material to be read by a sequencer. The most widely used NGS chemistry methodology today is sequencing-by-synthesis (SBS). This method involves a chemical process by which a DNA polymerase copies the target strand of DNA by adding a single nucleotide base one-by-one. These nucleotides can be modified with a marker that creates a signal when the nucleotide is incorporated along the strand. This marker can be a fluorophore, for example, which emits a color, or it can be a change in ionic concentration that can identify the incorporation of a nucleotide into the elongating strand. This signal can then be read by a detector within the sequencer. Throughout this process, chemically modified nucleotides are used to ensure that only one base at a time can be incorporated by the DNA polymerase during each sequencing cycle. Then once the identity of the new incorporated base has been read, the process of nucleotide addition is restarted and the next subsequent base is incorporated and read and so forth until the desired read length has been completed.
- *Paired end reads:* This capability allows the instrument to sequence from both ends of the DNA fragment and can double the number of reads of a sequencing run for the same amount of genetic input material. This technology can (1) enable longer reads, which allows for more efficient mapping and detection of gene rearrangements for better genome assembly; (2) overlap reads for higher quality data; (3) support single cell genomics and other barcode enabled applications; and (4) enable the ability to detect indels, and inversions. Many NGS instruments today cannot address certain markets because of their lack of paired end capability.
- *Detection technology*: The detection technology is responsible for reading the output of the sequencing chemistry process to detect the four individual bases of the DNA. The most commonly used detection technology today is optical imaging of fluorescence. This technology detects the colors emitted by different fluorophores associated with each of the bases as they are incorporated into the extended DNA strand.
- *Software analysis*: The resulting data comes out of the sequencer in a standardized format and is then collected, organized and analyzed through software. There are a wide variety of commercially available software analytics platforms available from third parties as well as tailored solutions developed by NGS customers themselves.



Despite the advances that NGS has enabled in the genomics space, we believe the power of sequencing has not been fully realized and that innovation across the core elements of a sequencer can drive further improvement in the technology. For example, optimizing and speeding up the chemistry process or using faster imaging technology could lead to more accurate and faster results. Combined with innovations in molecular biology that span library prep through sequencing, we believe there is a need to offer purpose built genomics solutions targeting unmet needs in fast growing markets.

Furthermore, we believe that sequencing can be extended beyond genomics and leveraged as a multiomics reader of biology. Our envisioned applications include genomics, epigenetics, transcriptomics, and proteomics within millions of individual cells as well as in the spatial context of tissue, and associating cellular phenotype with genotype.

Our Foundational Technology

We have developed a novel and proprietary Sequencing Engine that is a foundational technology for our products in development. The core of our Sequencing Engine is a unique and proprietary chemistry that enables high sequencing accuracy and rapid cycle times that we believe can drive improvements in NGS technology and enable performance of highly accurate and massively parallel sequencing at speed. Our aim is to develop products that employ this engine and that both improve NGS technology, and deploy it into new applications beyond where it is being used today. We are leveraging our Sequencing Engine for the development of our first two integrated solutions, the G4 Integrated Solution and the PX Integrated Solution. We aim to deploy our foundational technology as a universal reader of biology, which can ultimately open new frontiers in research and medicine.

We built our Sequencing Engine from the ground up, and it incorporates the following innovations:

- *Cluster amplification*: We have developed an optimized cluster amplification method that is designed to ensure generation of high quality and high density clusters with minimal sequence bias and high signal-to-background ratios. This enables high accuracy sequencing regardless of the type of genetic input material.
- *Paired end reads*: We are developing a novel method to achieve an accurate paired end equivalent. We believe our method will be fast and efficient with reagent usage, while still providing the critical value of efficient mapping and detection of gene rearrangements, higher quality data or single cell genomics.

- *Sequencing chemistry*: We have recognized that chemistry has historically been a particularly challenging area to improve in the sequencing process. Therefore, we developed a new and proprietary sequencing chemistry. This chemistry includes novel enzymes and nucleotides. We have also designed and synthesized our own dyes to optimize performance. This new and proprietary chemistry enables fast sequencing cycle times.
- *Detection technology*: We have developed a proprietary high speed and high resolution imaging system. The imaging system has been designed to optimize throughput, cycle time, accuracy and efficiency.

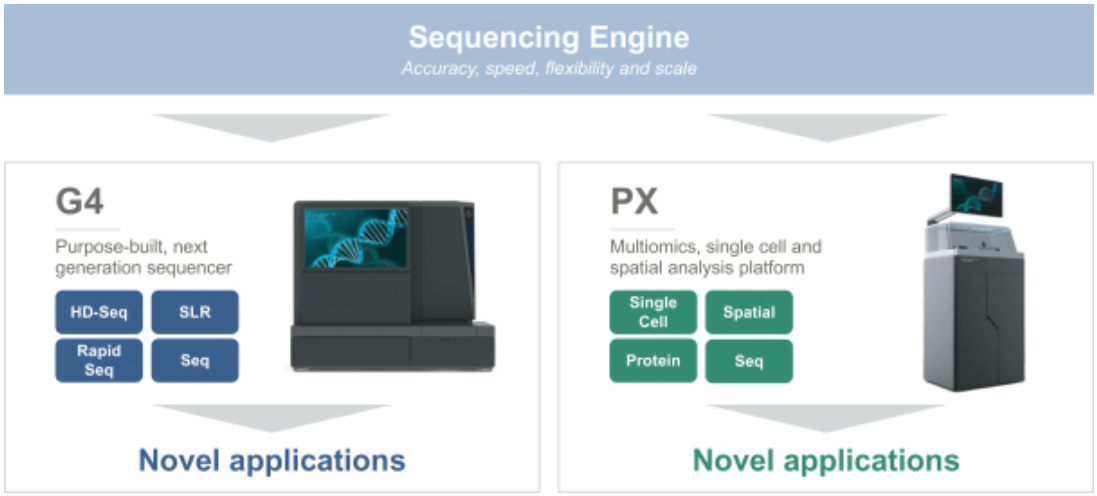
While the above comprises the technology used in our Sequencing Engine, we also incorporate additional technologies into our G4 Instrument and PX Instrument. For example, our G4 Instrument includes a unique flow cell design to improve workflow flexibility for the user and our PX Instrument includes a well-plate format intended to push the boundaries of throughput for both single cell and spatial analysis applications.

We believe our Sequencing Engine imparts the following unique capabilities to our products, which are the core tenets for each of our products in development:

- *High accuracy*: Our Sequencing Engine is designed to provide high accuracy for each base detected during sequencing for reliable data generation. Currently, we can demonstrate accuracy of 99.7% on 150 base reads. This corresponds to Q30 quality scores on greater than 70% of base calls. As we continue to optimize our technology, we are targeting Q30 for greater than 80% of base calls for 150 base reads.
- *Speed*: We are targeting a 2.5 minute cycle time for each base sequenced, supporting fast sequencing runs. We expect that this will give us a sequencing time of approximately 16 hours to complete a 2x150 base run. For other run modes such as RNA-Seq, we are targeting run times of approximately 5 hours. In our two beta pilot tests, our third-party external partners demonstrated a 4.0 minute cycle time. In our experiments, we have previously demonstrated high quality sequencing with a 2.7 minute cycle time on our previous prototype. We are optimizing to achieve a 2.5 minute cycle time. We anticipate that future versions of our chemistry will allow us to continue to reduce the cycle time even further. This is a key element that enables our technology to deliver results quickly. Speed also gives our instruments the capacity for higher throughput by enabling multiple runs in a day.
- *Flexibility*: Our Sequencing Engine is designed to be flexible and deployed into different integrated solutions across a variety of markets. In the context of our G4 Integrated Solution, flexibility includes the ability to run 1 to 4 independent flow cells concurrently. In addition, each flow cell has 4 individually addressable lanes that allow for samples to be run independently.
- *Scale*: Our Sequencing Engine is built to provide the throughput needed for widely run research and clinical applications. The G4 Integrated Solution is designed to address a wide range of sequencing applications requiring scalable throughput including targeted cancer gene panels, deep sequencing for rare variant detection in liquid biopsy, high depth exome and high resolution whole genome. The PX Instrument is designed to provide scale at three levels: (1) number of samples, (2) number of cells per sample and (3) depth of multiomics information.

Our Integrated Solutions

Our product development pipeline comprises two initial integrated solutions, each designed to leverage our Sequencing Engine and purpose built to address different applications. Our G4 Integrated Solution is designed to target the NGS market. Our PX Integrated Solution is designed to target the single cell, spatial analysis and proteomics markets. Each integrated solution consists of an instrument that incorporates our Sequencing Engine and associated consumables that are used exclusively on each instrument.



G4 Integrated Solution

We surveyed numerous labs and KOLs while developing our G4 Integrated Solution to listen to their needs and to identify the limitations of current solutions. In parallel, we engineered an instrument around our Sequencing Engine to address those real-world needs. Our G4 Integrated Solution is designed to seamlessly fit into existing workflows, including library preparation and bioinformatics. It is also designed to provide flexibility in terms of sample batching and number of flow cells in a sequencing run. We believe this design will enable customers to better manage a wide range of daily sample volume demands without sacrificing turnaround times or incurring extra expenses from inefficient reagent kit use. We are targeting applications for which we believe accuracy, speed, flexibility and scale matter, and where our novel molecular biology methods offer unique advantages. We have nearly completed development of our G4 Integrated Solution and are pursuing a three-step commercialization plan consisting of: (1) collaborating with select partners to conduct beta pilot tests, which we have completed, (2) expanding collaborations with additional potential customers in an early access program and (3) offering our G4 Integrated Solution broadly to the market with commercial launch. We expect commercial launch by the end of 2021 with intentions for shipping units in the first half of 2022.

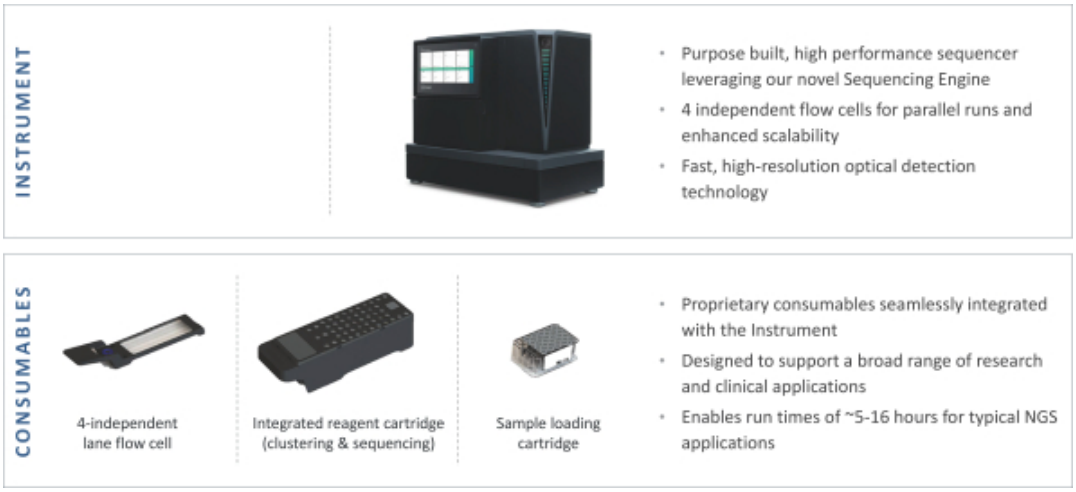
The G4 Instrument

Our G4 Instrument incorporates our Sequencing Engine and its underlying chemistry and optical detection technology. We engineered the G4 Instrument to allow using multiple flow cells to enable customers to scale their daily output needs by running between one to four flow cells in parallel on one instrument. Our flow cells are designed to allow further flexibility with four independent lanes on each flow cell. This allows users to keep samples physically separated and avoid potential carry-over or misinterpretation among samples. In research settings, such as core labs, different projects can be run in different lanes on the flow cell, avoiding potential incompatibilities in barcodes or library preparation. By reducing the need to batch samples or combine projects, the design should minimize errors and inefficiencies in process and costs. We anticipate that these improvements coupled with fast sequencing cycle times can lead to single-day turnaround times and high daily max data output, which we believe will have a significant impact on delivery of timely results in clinically relevant applications.

Consumables supporting our G4 Instrument

We plan to commercialize our G4 Instrument with proprietary associated consumables that will support our broad range of research and clinical applications. Our G4 Integrated Solution is designed to support library prep, target enrichment, cluster amplification and sequencing. For example, one of our sequencing kits will be a Rapid

Seq kit where the sequencing time will be approximately 5 hours for a 50-75 base run for short read applications such as RNA-Seq. We also intend to offer commercially available library preparation kits through third-party partners to allow customers to perform important applications within NGS including, among others: (1) whole genome sequencing, (2) whole exome sequencing, (3) targeted panels, (4) epigenetics and (5) methylation studies. Our G4 Instrument is designed to return standardized data formats and to be compatible with a wide variety of commercially available and customer developed bioinformatics platforms.



Capabilities of the G4 Integrated Solution

We believe there are several key criteria that have determined the commercial success of sequencers, including accuracy, speed, flexibility and scale. In addition, read length and the ability to sequence DNA from both ends of the fragment, commonly referred to as paired end sequencing, are important factors. We designed the G4 Integrated Solution to have the following characteristics to address these key criteria:

- *High Accuracy*: Sequencing accuracy is critical to correctly determining the order of bases present in DNA. Errors can be introduced in the sequencing process itself, or in the upstream steps involved in sample processing and library preparation. In some cases, inaccuracies can be overcome by multiple coverage of the DNA of interest and determining the consensus sequence. For example, human genomes are typically sequenced at a coverage depth of at least 30-fold, to obtain a sufficiently accurate consensus sequence for the approximately 3 billion bases in the genome. Accuracy can be particularly important in applications that analyze acquired mutations (somatic mutations) where the DNA sequence deviates from the germline genome. If the frequency of the mutation is in the same range or lower than the frequency of the error rate, it will be difficult or even impossible to identify the target amongst the errors, or noise. Lower accuracy can cause challenges for identifying rare DNA mutations. In cancer and immunology, the presence of a rare mutation or rare clone may be clinically relevant and impact the diagnosis and treatment decision. Accuracy is also particularly important for liquid biopsy applications, for which the presence of a target is typically very limited amongst the other genetic material present in blood. Widely adopted approaches to deal with accuracy limitations involve labeling target DNA with unique molecular identifiers (UMI's) and making multiple copies of these labeled molecules. This approach requires sequencing greater number of reads and/or sequencing a smaller number of unique genomic regions. This is a brute force approach and can be costly and inefficient, so there is a strong motivation for using sequencing platforms that provide inherent high accuracy. Base calling accuracy, measured by the Q score, is the most common metric used to assess the accuracy of a sequencing platform. It indicates the probability that a given base is called correctly by the sequencer. We believe that a sequencer must have at least Q30 accuracy (i.e., 1 in 1000

probability of calling a base incorrectly) to be commercially successful. In internal testing, we have demonstrated Q30 accuracy on greater than 70% of base calls. This gives a demonstrated accuracy of 99.7% on 150 base reads. In our two beta pilot tests, our third-party external partners demonstrated Q30 or higher accuracy of greater than 70% of base calls. One third-party external partner conducted standard RNA sequencing, and the other conducted testing with single-cell RNA sequencing using paired-end reads consistent with the methods it currently uses. In both cases, the gene expression levels measured by these third-parties in their tests utilizing our G4 Integrated Solution correlated strongly to the independent reference data these third-parties generated with their current commercially available sequencing methods. For our commercial G4 Instrument, we are targeting Q30 for greater than 80% of base calls for 150 base reads, which we believe we can achieve through continually optimizing multiple parameters in clustering, sequencing, imaging and signal processing. Additionally, we have demonstrated uniform G/C coverage over the range of 20-70% G/C content. We believe this high accuracy is competitive with what customers are accustomed to with current sequencing solutions.

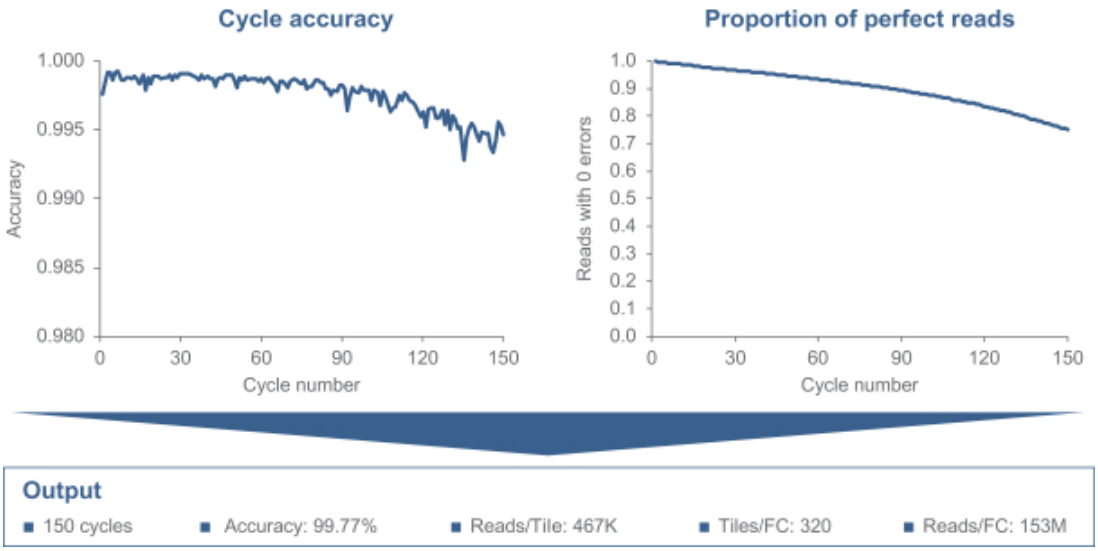
- *Speed of Sequencing*: Dramatically decreasing the chemistry time needed for each base to be detected means that the overall sequencing time can be significantly faster, resulting in more samples being run in a day on a given platform. This translates to researchers being able to perform more science in a given period. We also believe speed is critical in clinical settings where turnaround time is important to drive patient treatment programs. The speed of sequencing can be measured in multiple ways. Cycle time is the measurement of time needed to add one nucleotide, image and prepare the elongating strand for the next nucleotide and the start of the next sequencing cycle. We are targeting a 2.5 minute cycle time for each base sequenced, which we believe we can achieve through ongoing upgrades to the G4 Instrument's optical system, which will allow for faster imaging. We expect that this will give us a sequencing time of approximately 16 hours to complete a 2x150 base run. For other run modes such as RNA-Seq, we are targeting run times of approximately 5 hours. Currently, we are running a 4.0 minute cycle time, with previous demonstration of high quality sequencing with a 2.7 minute cycle time on our previous prototype. In our two beta pilot tests, our third-party external partners demonstrated a 4.0 minute cycle time. We anticipate that future versions of our chemistry will allow us to reduce the cycle time even further. Speed also gives our G4 Instrument the capacity for higher throughput as our fast runtime will facilitate the possibility of processing multiple runs in a day.

- *High, independent, flexible throughput*: Every sequencing run requires reagents and disposable parts, including flow cells. To save costs, widely adopted approaches involve maximizing the number of samples, or sample libraries run in the experiment, which is a technique called batching or pooling. The requirement to batch, or pool experiments together in order to take advantage of the lowest sequencing cost introduces performance and timing issues and inconveniences in the sequencing process. First, batching can result in lower sequencing performance due to incorporating different types of samples or libraries that do not cluster or sequence well together. Examples of challenges introduced with batching include barcode hopping, uneven sequencing coverage requirements for each sample and losing data from multiple projects with a sequencing failure. Batching also results in longer turnaround times as labs are forced to wait for the arrival of an appropriate number of experiments to run together in a sequencing run. Our G4 Integrated Solution has flow cells with independent lanes, enabling libraries to be kept separate in each lane while still retaining high throughput capacity. We believe this allows for easier and more convenient processing of samples, thus enabling the G4 Integrated Solution to cover a wide range of throughput requirements. Alternative sequencing technologies that do not have this flexibility in throughput may require customers with different volume requirements across different experiments to have multiple instruments in their lab or encounter a slow turnaround time with a backlog of projects. In internal testing, we have demonstrated the capability to produce 150 million reads per flow cell. In our two beta pilot tests, our third-party external partners demonstrated average throughput of greater than 150 million reads per flow cell for single-end reads, and an average throughput of greater than 100 million reads for paired-end reads. If all four flow cells are utilized in a sequencing run and with a full

read length of 150 bases, our G4 Integrated Solution can generate 600 million reads per sequencing run. We are targeting 330 million reads per flow cell at commercial launch for a total of 1,320 million reads if all four flow cells were utilized in a sequencing run, which we believe we can achieve through ongoing upgrades to the G4 Instrument's optical system, which will allow for higher resolution imaging and cluster density.

- *Paired end equivalent sequencing*: In some applications, users value the ability to perform paired end reads and tune the system to different read lengths. Paired end sequencing is a technique involving reading from both ends of DNA fragments. This technology can (1) enable longer reads, which allows for more efficient mapping and detection of gene rearrangements for better genome assembly; (2) overlap reads for higher quality data; (3) support single cell genomics and other barcode enabled applications; and (4) enable the ability to detect indels and inversions. We are developing and plan to offer a novel way to achieve paired end equivalent sequencing such as 2x150. We believe that this is just the starting point of our capabilities for paired end equivalent sequencing and that we will be able to improve this metric further as our technology develops.
- *Read lengths*: We are developing kits with read lengths of 50 bases to 150 bases. We also plan to extend read length beyond 150 bases in our G4 Integrated Solution with SLR kits.
- *Workflow*: We have designed our G4 Integrated Solution for customers to efficiently switch to our products and platform as the upstream workflow and downstream analysis will be compatible with current NGS processes.

Our reported sequencing performance was measured in multiple internal experiments, run on our G4 Instrument. Sequencing libraries were prepared from human DNA, as well as bacterial DNA, following standard protocols and using our custom DNA adapters. The libraries were sequenced on the G4 Instrument, using our custom sequencing kits. The results were analyzed using standard bioinformatics analysis, where the sequenced reads are aligned and compared to the reference genome to determine accuracy. Q-scores represent the prospective confidence in the base calls, and are derived based on empirical accuracy data developed in training runs.



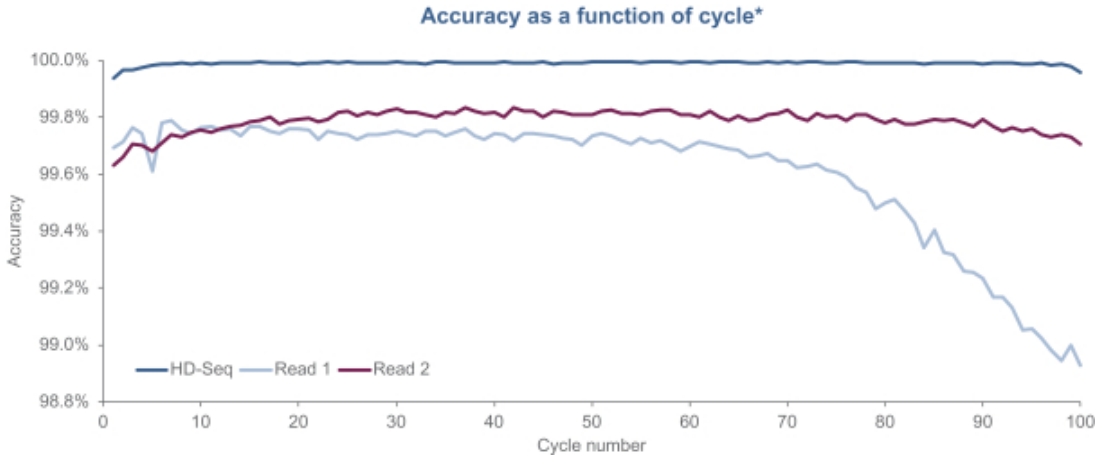
This figure displays the current sequencing performance of our core Sequencing Engine with a demonstrated accuracy of 99.7% on 150 base reads (Q30 on greater than 70% of base calls) with a throughput of 153M reads per flow cell. We are targeting sequencing performance of Q30 on greater than 80% of base calls for 150 base reads and 330M reads per flow cell.

Applications for the G4 Integrated Solution

We believe that our G4 Integrated Solution has broad potential application across research and clinical markets. While we believe that the G4 Integrated Solution will be able to run a wide variety of available sequencing applications that are currently available on the market today, we specifically designed our G4 Integrated Solution to excel with applications that benefit from accuracy, speed, flexibility and scale. Our initial targeted applications for our G4 Integrated Solution include rare variant detection with HD-Seq and SLR. These applications target large markets across oncology, including liquid biopsy detection of cfDNA and immunology.

Rare variant detection with HD-Seq

We designed our G4 Integrated Solution to support HD-Seq, a unique library prep kit and sequencing method for double-stranded DNA, which we are designing to provide higher accuracy than standard single-strand NGS sequencing methods (including ours), and is expected to enable rare variant detection with higher efficiency and lower costs. HD-Seq is intended to achieve accuracy levels of Q50, which can help differentiate a real mutation from random errors. In NGS, errors are often generated in the sample DNA during the amplification step that occurs during both library prep and the sequencing process. These technical errors become a concern when the expected frequency of the mutation is at the same or lower frequency as the error rate. This can make it very difficult to correctly identify whether the called mutation is a technical error or a real mutation. Today, this challenge is typically addressed by a brute force approach, using unique molecular identifiers (UMIs) or duplex sequencing, a method that employs tagging each double-stranded DNA with a UMI (for a total of two UMIs for each DNA fragment) to detect mutations with higher accuracy and lower error rates. These single- and duplex UMI-based sequencing methods require deep sequencing to read multiple copies of DNA associated with each UMI, and form a more accurate consensus sequence. Furthermore, duplex sequencing (with two UMIs) requires additional sequencing to find the matched pair in order to achieve the highest accuracy with consensus of both the matched strands in addition to the UMI groupings. Today, the typical way to get higher level of accuracy with NGS data is through these costly and highly inefficient methods. Our HD-Seq library prep workflow is designed to carry the cfDNA or DNA from tissue through the entire process of DNA capture and amplification, and is integrated into how we sequence on the surface of the flow cell while maintaining the integrity of the duplex DNA. In internal testing, we have demonstrated 99.99% accuracy for 100 base reads with our current methodology, and we anticipate that we will be able to reach 99.999% accuracy for greater than 100 base reads. Our internal testing involved using commercial reference materials for cfDNA. The average fragment size of the starting material was 177bp. We prepared sequencing libraries using our HD-Seq methodology, including adapter ligation, amplification by Polymerase Chain Reaction (PCR) and targeted capture using a commercially available panel. We then clustered and sequenced the double-stranded DNA library, with bi-directional readout of 100 bases in one direction (Read 1), and 150 bases in the other direction (Read 2). To assess the improvement in accuracy, we examined the overlapped region of 100 bases. For HD-Seq, the base call was only made if there was agreement in the corresponding base calls between the complementary strands (i.e., Reads 1 and 2). Relative to reference, the consensus accuracy of the HD-Seq base calls (Read 1 + Read 2) was 99.99%. Compared to the uncorrected accuracy of the single-strand Reads 1 and 2 (99.6% average), the HD-Seq method results in approximately a 40X reduction in error rate. A low error rate is required for detection of rare single-nucleotide polymorphisms, and has particular relevance to tissue biopsy and liquid biopsy in cancer.



*Source: cfDNA library, 100 + 150 paired-end reads. Read 1 and Read 2 refer to the two sequencing reads that together comprise the HD-Seq readout of the two complementary strands of the DNA molecule.

We believe this capability for significantly enhanced accuracy will be particularly important in applications where there is a rare variant among a background of normal, such as oncology.

Oncology: Accuracy is especially important in oncology for the detection of somatic mutations. It is also critical in liquid biopsy where the frequency of mutations in a sample is extremely low. Today, researchers handle the NGS accuracy limitations by deep sequencing a small number of targets which is both very costly and highly inefficient. As the field continues to move towards liquid biopsy especially for early cancer screening, for which the frequency of mutations is very low, we believe there will be an even greater need for higher sensitivity technologies. With the accuracy that our HD-Seq could provide, we anticipate that customers will be able to achieve higher accuracy in a cost-effective manner relative to other commercially available technologies.

Synthetic long reads (SLR)

We also plan to offer proprietary specialized library prep kits for targeted SLR, which we expect to facilitate reads of up to 2,000 to 3,000 base pairs using our G4 Integrated Solution. We have currently demonstrated approximately 450 base reads with B cells for VDJ sequencing. We expect this to be a key capability for applications requiring long sequencing reads, such as immunology.

Immunology: A better understanding of how the immune system functions can improve treatment of infectious diseases, autoimmune diseases, allergic reactions as well as cancer. We believe that our G4 Integrated Solution will be able to deliver the throughput, accuracy and read lengths required to support comprehensive analysis of the immune system, especially the adaptive immune response which consists of B and T cells. The B and T cells of the adaptive immune system enable us to fight off infections. While most cells in the human body carry the same genome, B and T cells have a wide genetic diversity that results in a repertoire of millions of unique antibodies and T cell receptors. The genes that carry this diversity correspond to the heavy and light chains of antibodies, and the alpha and beta chains of T cell receptors. Longer reads can be helpful in decoding the full sequences. For example, the heavy chain is encoded by approximately 450 bases in the VDJ region, which requires longer reads than offered by typical NGS methods. For therapeutic development of antibodies, the heavy and light chains are often fused together in phage display libraries. These require even longer reads of greater than 800 bases to fully characterize. We believe that a high throughput, high accuracy, cost effective solution for reading these longer gene sequences can advance the understanding of the immune system and ultimately improve the diagnosis and monitoring of blood cancers, provide new

insights into immunotherapy for cancer, facilitate therapeutic antibody and T cell discovery, and accelerate the development of vaccines for infectious disease.

Expansion of the G4 Integrated Solution

We anticipate that there will be customers who have high volumes who will still need the flexibility to batch less while still maintaining high throughput. Examples of these types of customers would include:

- Laboratories that do not want to batch together hundreds or thousands of samples onto one sequencing flow cell because of the risk that one failure might ruin data from all samples in the run; or
- Laboratories with high sample volumes of diverse sample types and/or run modes which would make it difficult to combine those samples together on one sequencing flow cell.

For these specific types of customers, which include commercial laboratories and academic laboratories, we plan to offer an expansion of our G4 Instrument in a configuration that we have named the G4x4. This special four instrument configuration will be designed to address a different part of the NGS market for those needing high sequencing output while maintaining speed and flexibility of the G4 Integrated Solution.

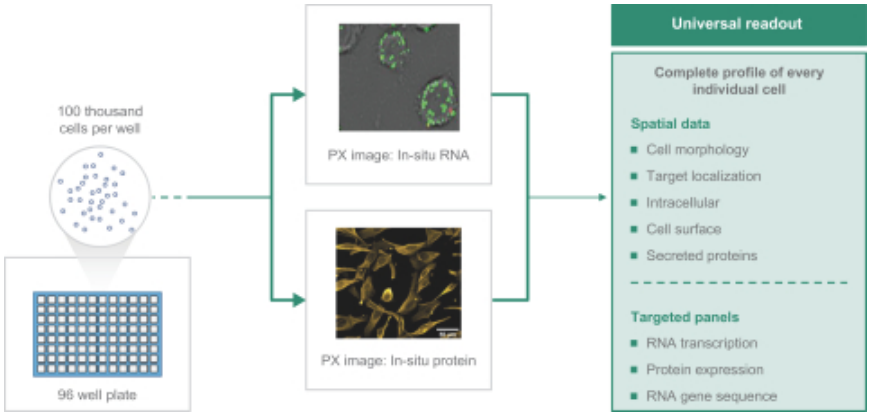
PX Integrated Solution

Our PX Integrated Solution is focused on the single cell and spatial analysis markets and consists of our PX Instrument and associated consumables. The PX Instrument leverages our Sequencing Engine to enable multiomics analysis of single cells and tissues as both a universal detection method and in situ sequencing. Importantly, the PX Instrument is designed to provide high throughput analysis of nucleic acids and proteins, while also generating high resolution images of cellular morphology to enable computer-vision based analysis of cellular phenotype. This design reflects an appreciation of the tremendous potential for machine learning based image analysis to serve as a rich source of biomarker information for cancer and autoimmune disease translational research. We believe our PX Integrated Solution will eliminate the need for customers to employ multiple systems over several day workflows, which is required by existing commercial methods. Ultimately, we believe this will enable researchers to perform large scale experiments that may fundamentally advance our understanding of biology, and, in turn, advance human health. We are currently in an advanced prototype development stage and expect to begin an early access program in 2022, with full commercial launch in 2023 through a targeted and phased commercial strategy similar to the strategy for launching our G4 Integrated Solution. We anticipate being able to cross-market our PX Integrated Solution to customers of our G4 Integrated Solution.

The PX Instrument

Our PX Instrument is an integrated multiomics platform that combines novel methods for single cell and spatial analysis, with high resolution imaging, genomics and proteomics detection capability. The PX Instrument leverages our core Sequencing Engine for both a universal detection method and in situ sequencing and is designed to bring scale and high throughput to single cell and spatial analysis applications.

We expect to target our PX Instrument for applications that require (1) high resolution imaging of cellular morphology including subcellular localization of targets and (2) multiplex interrogation of molecular data types (nucleic acid and/or protein) of millions of cells in a single run. The PX Instrument is designed to image the cells in a specialized well-plate (96-well or 384-well) enabling analysis of 10,000 to 100,000 cells per well, with a total throughput of 1 million to 10 million cells in a 96-well plate. The cells are imaged with our proprietary optical system and molecular biomarkers are detected through our Sequencing Engine by either a universal detection method or in situ sequencing. For tissue samples, our PX Instrument is designed to retain the context of the cells within their cellular environment and to enable spatial analysis by returning both phenotypic data (cellular morphology, localization of different cell types and expression of different proteins within the context of the tissue) and molecular data at subcellular resolution and high throughput. We are designing the PX Instrument to utilize fresh, fresh frozen and FFPE samples.



Consumables supporting our PX Instrument

We aim to provide reagent kits to support analysis of single cells and tissue sections on the PX Instrument. We are designing these kits to enable multiomics analysis, including RNA transcription, protein expression and targeted gene sequencing. Our kits will include specialized well-plates, and reagents for sample preparation and sequencing readout. For protein detection, we plan to offer DNA-conjugated antibodies.

Current challenges in single cell and spatial analysis

In recent years, systems have been developed for targeted gene sequencing in single cells, and for measuring levels of gene transcription in individual cells by sequencing readout. These tools have yielded new information that is not available from bulk sequencing measurements. However, current commercial methods have significant limitations. One limitation is that cells are broke open and tagged with DNA barcodes in droplets, then pooled together into a sequencing run, thus losing information about cell morphology. Another limitation is the number of cells and samples that can be processed in an experiment. Finally, current methods struggle to achieve multiomics readout, with only limited ability to measure proteins along with DNA or RNA, while maintaining cellular morphology.

For spatial analysis of tissue, the capabilities of current genomic technologies are even more limited. Most genomic analysis of tissue is done on a bulk basis, with no spatial resolution. Recently, several spatial analysis platforms have been developed and introduced commercially. However, we believe that these technologies currently have several limitations. First, we believe most of these platforms currently have limited resolution, unable to provide detailed information at the level of individual single cells, including subcellular localization, and information about how the cells are organized in space within the tissue. Second, we believe current commercial platforms are unable to provide high throughput. Experiments are limited to less than 20 samples per run, and in some cases just one sample per run, which limits the ability of users to conduct large scale experiments.

Although the single cell and spatial analysis fields are still in their infancy, we anticipate that the following elements will be critical for determining success in the future.

- *Cell capacity*: Historically, instruments that have been able to analyze the highest number of single cells have shown the most success. We believe this will continue to be an important success factor.
- *Resolution*: We believe that the ability to provide genomic and proteomics data at the single cell level, and even resolve subcellular features, will be informative to researchers.
- *Throughput*: Similar to NGS, we believe that researchers will continue to push the boundaries of research to understand biology and instruments will need to handle more samples to stay relevant.

- *Multiomics capabilities*: We believe that having the ability to measure multiple types of analytes (e.g. RNA transcripts and cellular proteins) from the same cell will be invaluable in piecing together how different genes and proteins interact within a spatial context. We believe that machine learning based image analysis will serve as an increasingly critical component of multiomics based discovery.
- *Tissue sample type*: 80% of translational research studies that involve tissue analysis utilize FFPE preserved tissue. Thus, it will be critical for an instrument to be compatible with this sample type.
- *Cost*: We believe researchers want to continue to push towards larger scale single cell studies requiring millions of cells. Without integration of the cell preparation and the sequencing into one platform, we believe that the cost will become too high using current methods.

Capabilities of the PX Integrated Solution

We are designing the PX Integrated Solution to have the following characteristics, which we believe are important differentiating characteristics of single cell and spatial analysis approaches:

- *Multiomics detection*: We are developing the PX Integrated Solution to identify specific RNA and proteins (through the use of oligo-conjugated antibodies) using our core Sequencing Engine either as a universal detection method or for in situ sequencing along with cellular morphology and tissue organization. We believe this provides significantly more information than is available today with current commercial single cell technologies. The addition of the cellular morphology along with spatial organization of biomolecules within the tissue microenvironment can provide a data rich solution across many research applications to better understand cell development, maturation and pathogenesis. We believe that the combination of these useful datasets from individual cells will provide a more complete cellular picture as it will combine both phenotypic data along with detailed molecular characterization.
- *High throughput and large scale*: We are designing the PX Integrated Solution to be high throughput in order to enable researchers to perform large scale studies that are currently inaccessible but are needed for a more complete characterization and understanding of cells, and therefore biology. Current commercially available single cell technologies detect 10,000 to 100,000 cells in an experiment. Our PX Instrument will use a well-plate approach (either with a 96 or 384-well consumable plate) designed to process 10,000 to 100,000 cells per well at a throughput of 1 million to 10 million cells in a 96 well plate. We believe that this will meet the growing need in this market for millions of cells and the large scale that is currently unattainable today. Current commercially available spatial analysis instruments can run an experiment involving only 4 to 20 tissue samples. With our PX Integrated Solution, we expect to run up to 96 tissue samples per run.
- *High resolution*: The PX Integrated Solution will be designed to resolve molecules at the single cell level including subcellular localization of targets. We anticipate that this will enable researchers to differentiate between single cells to truly understand cellular characterization.
- *Targeted panels*: We believe that current discovery efforts with bulk sequencing will lead to translational panels that are targeted on the key genes of interest. Our PX Integrated Solution will be designed for larger scale studies that will process a higher number of samples with these focused panels.

Performance metrics of the PX Integrated Solution

Integrated detection	Direct in-situ analysis of cells and tissue
Cell capture efficiency	Direct readout in cells
Gene transcription assays	Targeted panels
Protein expression	10–100 of proteins
# of cells/sample	10–100 thousand cells per well
Throughput	96 samples at a time
Total cells per run	1–10 million cells
Cell visualization	Visual data on cell morphology, cell surface and intracellular markers on each cell
Cost	Significantly lower cost per cell including NGS

Applications for the PX Integrated Solution

We are developing our PX Integrated Solution to have a broad set of applications in single cell and tissue analysis. Examples of applications for our PX Integrated Solution may include but are not limited to the following:

- *Single cell RNA counting for differential gene expression*: Targeted gene panels (with customization available) for specific research areas and diagnostic applications to measure the gene expression within each cell. It is anticipated that the imaging readout will also provide cell morphology information.
- *Single cell proteomics*: Targeted protein panels for specific research areas and diagnostic applications to measure intracellular and surface proteins.
- *Single cell RNA sequencing for variant detection*: In situ sequencing of selected gene targets directly within each cell while also simultaneously providing phenotype data for each cell, such as binding of antigens to B cells.
- *Spatial RNA and proteomics applications for tissue in development*: Targeted panels (with customization available) for specific basic and translational research applications to measure gene transcription and protein expression within tissue and then link this information to additional phenotypic data to help provide biological context.

Key disease areas for the PX Integrated Solution

We are designing our PX Integrated Solution to have broad applicability across multiple large disease areas. Although our initial applications will focus on indications across oncology and immunology, we are designing our PX Integrated Solution to possess the foundational technology and capabilities to address additional areas, including neurology and developmental biology. We believe that key existing biological challenges can be addressed through improved multiomics information, higher resolution and enhanced spatial context, which we are designing our PX Integrated Solution to provide. The following large disease areas are examples of where we are designing our PX Integrated Solution to address significant challenges.

Oncology

We believe that by maintaining the spatial and cellular component and providing molecular characterization, researchers with a PX Instrument will be able to gain more contextual data than is currently possible today at scale. Today, two samples could be molecularly indistinguishable from each other despite the fact that one might be showing a response to treatment while the other may not. With the addition of visual data from the same sample layered in, it would be possible to identify that the difference between the two samples is in the spatial relationship of whether the immune cells have infiltrated the tumor cells. We believe that this is one potential application of our PX Instrument to help researchers further decipher and understand the tumor microenvironment.

We believe the PX Instrument will be ideally suited to study blood cancers initially. We are designing the PX Instrument to enable the mapping of the progression of blood cancers as they develop, pre and post treatment, to fully characterize them across multiple molecular markers. The cellular phenotype, including morphology, could be valuable in helping to further characterize these cancer cells along with the molecular data of gene expression. We anticipate that the coupling of molecular data with the cellular phenotype and morphology can help to drive further understanding and identification of different types of cancer as well as provide the ability to interpret biological function.

Immunology

We believe that differential gene expression in combination with the cellular morphology as well as protein information will bring a powerful perspective to understanding the function and role of immune cells and their biological properties that have currently been unattainable. The genotype, morphology and protein associations that will be provided by our PX Instrument will help researchers dissect relationships between the functions of different cell types with more direct data on cellular structure. Additionally, we believe that the scale and throughput of our instrument will help to standardize the phenotypic assessment of cell morphology to the same level as researchers are accustomed to with genomic data.

We also anticipate that our single cell sequencing will be valuable for identifying the paired receptor data (light and heavy chains in B cell or alpha and beta chains in T cell) that is currently lacking at scale today. By having a high throughput method that will sequence and retain the linkage of the two chains of the immune receptors, researchers will be able to study in more depth the immune repertoire while also correlating each cell with its cellular phenotype. Additionally, we believe that we will be able to use a DNA-conjugated antibody that recognizes the antigen to confirm the immune cell is binding to a specific antigen. We believe this combination of data can provide powerful information to interpret biological function as well as to further characterize immune cell types.

Markets

We believe our product pipeline, which is designed to analyze biology comprehensively, targets multiple markets across life sciences. We believe that our G4 and the PX Integrated Solutions, which have capabilities spanning NGS, single cell, spatial analysis and proteomics, address a substantially large and growing market opportunity, based on our estimates that these markets are underserved by existing products and technologies and our target customers will recognize the value proposition offered by our products.

NGS market

According to Allied Market Research, the global NGS market is expected to grow to approximately $18.6 billion in 2026 at a CAGR of approximately 19.2% between 2020 and 2026. According to DeciBio, the NGS market in 2020 consisted of 58% basic research and translational medicine and 42% clinical applications, and in 2021, the basic research and translational medicine market was estimated to be approximately $4 billion and the clinical applications market was estimated to be approximately $3 billion, which we believe we can

access based on the capabilities of our G4 Integrated Solution and assuming that target customers will view our G4 Integrated Solution as a competitive alternative to existing tools and technologies. The current landscape of NGS instruments available in the market today are comprised of lower and medium throughput benchtop platforms, and production scale high throughput platforms. The lower throughput instruments are typically less expensive and cost around $100,000 or less, but these platforms generally have a higher cost per gigabase of data generated relative to other available instruments, which results in a cost per sample that is often too high for routine clinical applications. The medium throughput platforms typically range from $200,000 up to $500,000 and have a lower cost per gigabase relative to lower throughput platforms. The higher throughput production scale instruments have price points approaching $1,000,000, but typically have a much lower cost per gigabase than the other platforms. We believe that the majority of instruments currently in the market are medium throughput instruments and that these platforms generally have a larger number of applications for which the cost of ownership makes more sense to customers. For example, we believe these platforms are well suited for clinical applications particularly in more decentralized settings where the volume demands may not be high enough to justify a high throughput system. We purposely designed our G4 Integrated Solution to target specific applications and to be capable of competing with other instruments across a range of throughput levels, particularly in the medium throughput segment. Based on the current designs and capabilities we have demonstrated in our G4 Integrated Solution, we also believe the G4 Integrated Solution can capture market share from both the lower throughput applications but also some of the higher throughput applications given its speed and anticipated operating costs.

NGS basic research and clinical markets

Within the basic research market, we believe that our G4 Integrated Solution will address challenges that are currently seen in market segments within oncology, immunology and other disease areas. These market segments struggle with the current time needed for sequencing, the batching requirements and the cost of sequencing. We are developing our G4 Integrated Solution to address these concerns. Further, we are developing applications to provide new and currently inaccessible data with novel products for longer sequencing reads and higher accuracy.

While we initially plan to sell and market our G4 Integrated Solution for RUO, we believe that the capabilities (especially the speed and accuracy) of our G4 Integrated Solution may enable our customers to use our platforms in clinical applications. While we currently do not intend to pursue clinical diagnostics applications, we may in the future seek premarket approval or clearance for our platforms in order to allow our customers to use our platforms in other product offerings.

Single cell, spatial analysis and proteomics markets

We are building our PX Integrated Solution to address the single cell and spatial analysis markets, which we estimate to be approximately $17 billion in 2021 based on available market data. We believe that the single cell capabilities of our G4 and PX Integrated Solutions will address an estimated global market opportunity of approximately $15 billion. Our G4 Integrated Solution addresses this market through single cell sequencing, while our PX Integrated Solution has complete single cell capabilities. According to DeciBio, the spatial analysis market, which will be addressed by our PX Integrated Solution, has a total addressable market of more than $2 billion, of which less than 10% has been penetrated as of 2020. According to Allied Market Research, the life sciences research portion of the global proteomics market, which will be addressed by our PX Integrated Solution, was estimated at approximately $20 billion in 2020. Given the performance of our PX Integrated Solution, we believe that our platform will address the current limitations of scale and throughput for this market. We believe we can access these markets based on the capabilities we have designed for our PX Integrated Solution and assuming that target customers will view our PX Integrated Solution as a competitive alternative to existing tools and technologies. We are designing the PX Integrated Solution to allow researchers to undertake the scale of studies that we believe are needed to further understand the complexity of cellular and tissue organization.

New markets

Both of our integrated solutions can be used in many different and diverse market segments, including basic biology, oncology, immunology, genetic disease, neurological disease, infectious disease, the human microbiome and many others. We believe that the multiomics study of cells in their cellular and tissue environment will create a more complete, data rich understanding of biology that will advance a broad and growing range of industries including broader segments of the healthcare industry and beyond. Therefore, we believe that the capabilities offered by our integrated solutions and future products may potentially lead to new end markets, applications and business models that complement our current addressable markets, and will expand our market opportunity.

These markets are characterized by rapid technological changes, frequent new product introductions, established and emerging competition, extensive intellectual property disputes and litigation, price competition, aggressive marketing practices, evolving industry standards and changing customer preferences. Accordingly, our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by new companies operating in rapidly changing and competitive markets.

We plan to sell and market our products for RUO to academic institutions, life sciences and research laboratories that conduct research, and to biopharmaceutical and biotechnology companies for non-diagnostic and non-clinical purposes. Additionally, CLIA-certified laboratories have the ability to develop LDTs using RUO products, and we believe that the capabilities of our products will enable our customers to use them in clinical applications as LDTs. In fact, today a significant majority of NGS-based diagnostic tests are performed as LDTs on DNA sequencers that are labeled for RUO. Over the near term, references throughout this prospectus to clinicians, clinical markets and clinical practice all refer to the potential use of our RUO labeled products for LDTs. While our initial products are intended for RUO, our longer-term plans include seeking FDA clearance for IVD products, and corresponding clearances in other countries.

Competitive Strengths

To address the challenges of sequencing, single cell, spatial and proteomics we aim to bring together the following unique capabilities:

- **We are developing innovative purpose built products to address underserved applications**: We have designed our G4 Integrated Solution and are designing our PX Integrated Solution to address challenges and bottlenecks within specific NGS, single cell and spatial analysis applications that we believe are not well-addressed today. We believe this will provide a differentiated product offering in the market and facilitate adoption with our customers.
- **Our Sequencing Engine is a foundational platform technology that optimizes key performance characteristics for our products**: Our Sequencing Engine is designed to provide a fast, accurate and high throughput detection system to sequence the fundamental unit that encodes all biological information, DNA. This engine provides the advantages of accuracy, speed, flexibility and scale to our G4 Integrated Solution and our planned PX Integrated Solution as both a universal detection method and for in situ sequencing.
- **Our integrated solutions are designed around customer needs and intended to offer advantages in key performance metrics**: Our experience shows that KPIs include accuracy, read length, turnaround time, throughput and efficient operational workflows. Our G4 Integrated Solution and planned PX Integrated Solution each consist of consumables and an instrument, which offer KPIs that we believe customers value. We believe that focusing our development and commercialization processes around our customers' needs, we will optimize our ability to achieve broad commercial adoption at launch.
- **Our innovative assays in development are designed to support novel applications in oncology and immunology**: Building on the Sequencing Engine foundation of accuracy, speed and flexibility, we are developing applications that can extend SLR and increase accuracy in rare variant detection with HD-Seq.

- **Our complementary product portfolio can serve multiple customer needs**: We believe that our G4 Integrated Solution and PX Integrated Solution, while they are designed to address different biological questions, will have significant overlap in terms of the potential customer base. Academic and research labs often consist of different departments which are focused on sequencing on the one hand and would find the G4 Integrated Solution most convenient, and, on the other hand, separate departments which would find utility in the single cell and spatial capabilities of the PX Integrated Solution. Therefore, we believe once our G4 Integrated Solution is commercialized and our PX Integrated Solution is developed and commercialized we will be uniquely positioned to cross sell both products to our customers, as once customers use one integrated solution, they often find utility in also purchasing the other to address additional research and development needs.

Our Growth Strategy

Our goal is to establish our Sequencing Engine as the standard for genomics and proteomics detection and to drive adoption of our platforms. Our growth strategy includes the following key elements:

- **Drive commercial adoption and utilization of the G4 Integrated Solution**: We aim to execute a three step commercialization plan for our G4 Integrated Solution consisting of: (1) collaborating with select partners to conduct beta pilot tests, which we have completed, (2) expanding collaborations with additional potential customers in an early access program and (3) offering our G4 Integrated Solution broadly to the market, with commercial launch by the end of 2021 and shipping units in the first half of 2022. Throughout our commercial rollout, we aim to grow our sales and marketing team to foster deep customer relationships initially with customers running our target G4 Integrated Solutions. We intend to focus on driving expansion of the installed base of our instruments and facilitating utilization of our consumables. We also plan to offer different access options, including capital sale and lease options for the G4 Integrated Solution to meet each customer's unique needs. As we grow we aim to build other commercial capabilities and manufacturing infrastructure to the scale needed to facilitate broad commercial adoption.
- **Complete development and drive commercial adoption of our PX Integrated Solution**: We aim to complete development of our PX Integrated Solution which targets the single cell and spatial markets. We are currently in an advanced prototype development stage and expect to begin an early access program in 2022 and full commercial launch in 2023 through a targeted and phased commercial strategy similar to the strategy we are employing for the G4 Integrated Solution.
- **Create an ecosystem of customers, partners and collaborators whose expertise and offerings complement and enhance the capabilities and utility of our integrated solutions**: Recognizing the strength of the current NGS ecosystem, we have designed our G4 Integrated Solution to seamlessly integrate into existing NGS workflows with plug and play interoperability both upstream and downstream. Additionally, we aim to partner with leading kit manufacturers to develop a wide range of library prep kits that will be accessible for our G4 Integrated Solution for numerous applications. For our PX Integrated Solution, we intend to work with external collaborators to foster and create an ecosystem around single cell and spatial analysis technology. We expect that this will facilitate adoption and market creation for our PX Integrated Solution to be readily available for our customers. Through activities such as collaborations with KOLs, generation of peer-reviewed publications, sponsorship of targeted projects, joint publications and seminars and industry partnerships, we aim to establish the value of our sequencing detection method as well as the utility of multiomics cellular and tissue data at large scale.
- **Expand the G4 and PX Integrated Solutions beyond initial applications**: We aim to continually innovate and develop new products, applications, workflows and analysis tools. Our aim is to simplify and accelerate researchers and clinicians' ability to generate multiomics data that will drive novel biological insights and drive more powerful and efficient workflows beyond sequencing, single cell, spatial analysis and other initial applications of our integrated solutions. We believe that the

capabilities offered by our integrated solution and future products may potentially lead to new end markets, applications and business models that complement our current addressable markets, and will expand our market opportunity.

- **Expand our commercial geographic presence**: We are initially building our commercial infrastructure to sell and support our products directly in the United States and Canada. We also have plans in place to sell and support our products in the European Union, United Kingdom, Asia Pacific and Japan, and expect to expand access to our products in other geographies through distributors. We are also building our manufacturing capabilities in our facility in La Jolla, California, and plan to continually evaluate and optimize our manufacturing and supply chain footprint to meet the scale needed for worldwide expansion.

Commercialization Strategy

Commercial strategy overview

Our business model focuses on first driving customer adoption of our G4 Integrated Solution followed by our PX Integrated Solution. We believe customer adoption will then form a base of users who in turn drive an on going revenue stream by purchasing our consumables. We plan to focus our commercial efforts on (1) expanding the installed base of our G4 Integrated Solution and PX Integrated Solution across a wide array of customer segments and (2) driving applications, scale of experimentation and discoveries that lead to increasing utilization of our integrated platforms by our customers. Similar to our strategy of developing purpose built products based on feedback from potential customers, we also plan to develop a service and support organization that will focus on creating an unparalleled customer experience. We believe in the value of creating new customers while expanding utilization of existing customers through the sale of purpose built products and the establishment of customer loyalty.

We plan to initially target customers who are already familiar with genomic analysis, including academic institutions, genomic research centers/core labs, government laboratories, hospitals/integrated delivery networks, as well as pharmaceutical, CROs, biotechnology, consumer genomics, commercial molecular diagnostic laboratories and agrigenomics companies. Our direct sales, support and marketing efforts will be focused on the principal investigators, researchers, department heads, research laboratory directors, core facility directors, medical directors and scientific/technology officers who control the buying decisions. We expect these customers to purchase our integrated solutions in line with typical purchasing of other life sciences tools, and we anticipate pricing both of our integrated solutions on a competitive basis to other similar sequencing instruments currently available.

The general publication and scientific presentation of our system performance are a core pillar of our market awareness strategy and are important for establishing validity and utility of new products in the life sciences community. We plan to work closely with our customers, including KOLs and our select centers in our beta pilot and early access programs, to generate clear use-cases as well as peer-reviewed publications that illustrate our product performance claims and value proposition. Furthermore, we intend on generating our own authored publications detailing our novel applications to create awareness and validate the available applications unique to our integrated solutions. In addition, we plan to drive awareness by developing and deploying online and in-person training and education tools that explain our sequencing technology and key applications in easy-to-access, easy-to-understand, and scientifically rigorous and credible ways.

To service our customers, we expect to provide multiple levels of technical support for our G4 Integrated Solution and planned PX Integrated Solution. We recognize that excellent customer support can be a critical part of a customer’s experience, and we plan to invest accordingly in our technical, application and service support functions. Given the diversity of our target customers, both immediate phone support and on-site support will be required. Likewise, we intend to leverage these assets to develop general and specialized educational programs that will be delivered to our customers in a manner that will help them optimize instrument and consumables utilization.

G4 Integrated Solution commercial launch plan

We intend to follow a three-phase launch plan to commercialize our G4 Integrated Solution, which will include (1) collaborating with select partners to conduct beta pilot programs, which we have completed, (2) expanding collaborations with additional selected partners in an early access program and (3) offering our G4 Integrated Solution broadly to the market via commercial launch by the end of 2021 with intentions for shipping units in the first half of 2022. This three-phase approach has been successfully deployed to introduce transformative technologies in numerous life science sectors over many years, including previous genomics products and services, single cell technologies and proteomics platforms. We believe that this phased approach will allow us to introduce our products in a measured way, demonstrate clear customer use-cases and help ensure we are scaling and expanding efficiently to deliver a positive and differentiated customer experience. We believe this approach will also build a prospective customer pipeline and demonstrate visibility to future demand.

Validate core sequencing engine KPIs

We have established an applications lab, which began service in early 2020 as a way to create data that validated our platform's performance (the Applications Lab). We expect to continue to leverage our Applications Lab capabilities to demonstrate integrated system performance. We are targeting KOLs who are highly skilled at evaluating sequencing data and whose feedback could help solidify the attributes of our G4 Integrated Solution while simultaneously creating external validation to other interested target customers. Additionally, we believe these KOLs are highly influential in the genomics community. We intend to work with these collaborators to establish early models of impactful research and discovery that will highlight the unique capabilities and value proposition of our G4 Integrated Solution. These initial external partners have also been instrumental in validating our core Sequencing Engine, our differentiated applications and beginning to raise awareness in the scientific community.

Phase 1 beta pilots

We targeted a limited number of collaborators for our beta pilot program who are familiar with our G4 Integrated Solution. We plan to leverage these collaborators as our first externally installed integrated solutions to demonstrate how our products will be shipped, installed, validated and utilized in a field-based setting. We recently completed our beta pilot testing. We plan to work with these collaborators to establish early models of impactful research and discovery to highlight the unique attributes, capabilities and value proposition of our G4 Integrated Solution. Additionally, these sites have provided key feedback to us on the usability and functionality of our G4 Integrated Solutions from an end-user perspective. Additionally, we received validation on the performance, installation procedures, instrument validation processes and end user training.

Phase 2 early access program

For our early access program we plan to expand to six to ten additional collaborators across our target market segments who represent institutions across a broad spectrum of research centers and commercial companies pushing the frontiers of their science efforts. We intend to primarily focus on collaborators who can scale quickly and demonstrate the power and utility of our G4 Integrated Solution across a number of applications, such as immunology, oncology and biomedical research. During this phase, we expect to broaden our commercial footprint to access and support an increasing number of customers and to set the foundation for the final phase of our commercial roll out. We expect this early access program to provide a path for customers to adopt our G4 Integrated Solution.

Broad commercial availability

We intend to build on the momentum we expect to have created through our Applications Lab, beta pilot program and our early access program to provide for broad commercial availability in the first half of 2022. We

plan to launch our G4 Integrated Solution at the end of 2021 to targeted customers at our proposed list price, with certain volume discounts for consumables consistent with industry standards. We also intend to consider different sales strategies that have previously been used in the industry to drive demand and adoption of our instruments including among others, trade-in programs, reagent rentals, instrument leasing programs. As we grow our installed base, we plan to simultaneously optimize our customers' use and adoption of our corresponding consumables. We plan to further expand our penetration of our accessible markets by continuing to develop differentiated products, applications, workflows and analysis tools that simplify workflows, provide a complete solution and expand beyond sequencing, single cell, spatial analysis and other initial applications of our G4 Integrated Solution.

Commercial organization

We are in the process of building out our commercial organization and we expect to have direct commercial staff in sales, customer success, technical support, field service and market development functions. Throughout our commercial rollout, we will need to scale each function within our commercial organization in anticipation of demand and with the intent to deliver exceptional customer experience. We believe that coupling customer experience with a transformative integrated solution will allow us to deliver substantial value to our customers, build long-term customer loyalty and enhance our competitive differentiation.

We expect to initially target customers in North America through direct sales and customer support organizations. We also plan to expand outside North America to sell and support our products in the European Union, United Kingdom, Asia Pacific and Japan, and expect to expand access to our products in other geographies through well established distribution networks.

Our People, Culture and Human Capital Resources

As of March 31, 2021 we had 138 full-time employees, 106 of whom were engaged in research and development activities, and many of which are based at our global headquarters in La Jolla, California. Innovating in this field requires being able to attract, develop, engage and retain top scientific experts in a wide variety of scientific disciplines. Out of the full-time employees, 76 hold advanced degrees in their field of expertise, including 40 who hold medical or doctoral degrees. None of our employees are subject to a collective bargaining agreement and we have not experienced any work stoppages. We believe relations with our employees are generally good.

We invest significant resources to attract, develop, engage and retain the talent needed to achieve our mission of accelerating genomics for the advancement of science and medicine. By investing significant resources in our people, we are better able to make discoveries across the fastest growing markets in basic research, clinical applications, single cell analysis and spatial genomics and proteomics and grow our business. We offer competitive total rewards, including salary, bonuses, benefits and equity compensation for our employees. Further, we offer unique perks to delight our employees so that they will in turn delight our customers. We strive to maintain and promote a culture that fosters the values, behaviors and attributes necessary to advance our business and execute our strategy.

Our mission and core values are incorporated into everything we do. We reinforce our mission and core values at multiple touchpoints with our employees and intend to reinforce this messaging with our customers. The following core values guide the decisions that we make and permeate into all of our decisions and into our product and service offerings:

- Embrace the Challenge.
- Collaborate & Be Humble.
- Be an Ambassador.

- Think at Scale.
- Care Deeply & Be Accountable.
- Be Authentic and Thoughtful.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and additional employees. The principal purposes of our equity incentive plans are to attract, retain and motivate selected employees, consultants and directors through the granting of stock-based compensation awards and cash-based performance bonus awards.

Research and Development

Our research and development teams have designed and developed our proprietary products using an interdisciplinary approach that combines expertise across a broad range of scientific disciplines including chemistry, molecular biology, hardware, software and engineering. They work together to build products that enable researchers and clinicians to accelerate discoveries across the fastest growing markets in basic research, clinical applications, single cell analysis and spatial genomics and proteomics. Our research and development teams are currently located at our headquarters in La Jolla, California.

The overarching goal of our research and development programs is to accelerate genomics for the advancement of science and medicine. To this end, we focus our research and development efforts on the following areas:

- *Improve the performance of our core Sequencing Engine*: We plan to improve our existing core Sequencing Engine. These improvements may provide higher density on our flow cells, faster cycle time and larger amounts of biological information that can be obtained from each sequencing run.
- *Develop new applications for our G4 Integrated Solution*: We plan to expand the range of applications that are available on our G4 Integrated Solution to allow researchers access to new types of biological information. For example, we are planning to develop new methods that will allow for longer reads on the G4 Instrument.
- *Develop our PX Integrated Solution*: We plan to introduce a product that offers high spatial resolution and high sensitivity. We are working to develop our PX Integrated Solution to ensure high throughput, high spatial resolution and multiomics capabilities.
- *Enable Future Instruments*: We intend to continue to leverage our core Sequencing Engine to develop future instruments across fast growing market segments.

As of March 31, 2021, we had 106 employees in research and development. Looking forward, we will continue to invest in efforts to support the ongoing development of our instruments and consumables, as well as enhance the overall performance of our solutions.

Competition

The life sciences market is highly competitive. There are other companies, both established and early-stage, that have indicated that they are designing, manufacturing and marketing products for, among other things, genomics analysis, single cell analysis and spatial analysis. These companies include 10x Genomics Inc., Becton, Dickinson and Company, Bio-Rad Laboratories, Inc., Illumina Inc., MissionBio Inc., and Nanostring Technologies, Inc., Oxford Nanopore Technologies Inc., Pacific Biosciences Inc. and Thermo Fisher Scientific Inc., each of which has products that compete to varying degrees with some but not all of our product solutions, as well as a number of other emerging and established companies. Some of these companies may have substantially greater financial and other resources than us, including larger research and development staff or more established marketing and sales forces. Other competitors are in the process of developing novel technologies for the life sciences market which may lead to products that rival or replace our products.

However, we believe we are substantially differentiated from our competitors for many reasons, including our proprietary ultra-fast core Sequencing Engine and our unique G4 Integrated Solution and planned PX Integrated Solution, scalable infrastructure and multidisciplinary teams. We believe our customers will favor our products and company because of these differentiators.

For further discussion of the risks we face relating to competition, see the section titled “Risk Factors—Risks related to our business and industry — The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer”.

Intellectual Property

Developing and maintaining a strong intellectual property position is an important element of our business. Our success depends in part on our ability to obtain and maintain intellectual property protection for our products, technologies and our brand. We utilize a variety of intellectual property protection strategies, including patents, trademarks, trade secrets and other methods of protecting proprietary information.

As of January 25, 2021, we own or exclusively license three (3) issued U.S. patents, fifteen (15) pending U.S. Utility patent applications, three (3) pending European patent applications, nine (9) pending Patent Cooperation Treaty (PCT) patent applications and twenty (20) pending U.S. Provisional patent applications. The pending European patent applications were filed in the European Patent Organization (EPO), designating all thirty-eight (38) member countries. Our owned patents and patent applications, if issued, are expected to expire between 2038 and 2041, in each case without taking into account any possible patent term adjustments or extensions and assuming payment of all appropriate maintenance, renewal, annuity, or other governmental fees.

Our patent strategy seeks broad patent protection on new developments in sequencing technology in addition to new implementations and applications of our technology. The intellectual property portfolio includes patents and pending patent applications that generally relate to the following areas: chemistry (e.g., nucleotides, dyes and polymers); enzymes; nucleic acid sequencing and amplification methodologies; systems, devices and software; spatial analysis; and applications of our technology.

The device components, reagents, and methods used in the G4 Integrated Solution are protected in, for example, at least two (2) issued U.S. patents, ten (10) pending U.S. Utility patent applications, two (2) pending European patent applications, six (6) pending PCT patent applications, and fourteen (14) pending U.S. Provisional patent applications of our intellectual property portfolio. The device components, reagents, and methods used in the PX Integrated Solution are protected in, for example, at least 2 issued U.S. patents, eight (8) pending U.S. Utility patent applications, two (2) pending European patent applications, six (6) pending PCT patent applications and twelve (12) pending U.S. Provisional patent applications of our intellectual property portfolio.

Additional specific protection for SLR is provided in, for example, at least one (1) pending PCT patent application and one (1) U.S. Utility pending patent application of our intellectual property portfolio. Additional protection for HD-Seq is provided in, for example, at least one (1) pending PCT patent application and one (1) U.S. Utility pending patent application of our intellectual property portfolio.

We exclusively license from The Trustees of Columbia University in the City of New York (Columbia), two (2) pending U.S. Utility patent applications, and one (1) pending European patent application, as of January 25, 2021 and certain materials and technical information provided by Columbia. The pending European patent application was filed in the EPO, designating all thirty-eight (38) member countries. These patent applications are directed to compositions and methods for sequencing utilizing nucleotides containing disulfide linkers. Our in-licensed patent applications, if issued, are expected to expire in 2036 and 2037, in each case without taking into account any possible patent term adjustments or extensions and assuming payment of all appropriate maintenance, renewal, annuity, or other governmental fees.

In addition to our reliance on patent protection for our inventions, products and technologies, we also rely on trade secrets, know-how, confidentiality agreements and continuing technological innovation and licensing opportunities to develop and maintain our competitive position. For example, some elements of manufacturing processes such as our nucleotide synthesis and flow cell assembly, analytic techniques and assays, imaging and optics implementations, as well as computational algorithms, and related processes and software, are based on unpatented trade secrets and know-how that are not publicly disclosed. Our success will depend in part on our ability to obtain patent protection for our products and technologies, to preserve our trade secrets, to operate without infringing the proprietary rights of third parties and to acquire licenses related to enabling technology or products.

We use Singular Genomics, G4 and PX as trademarks in the United States. This disclosure contains references to our trademark and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this disclosure, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

Columbia University License Agreement

In August 2016, we entered into an Exclusive License Agreement with Columbia (the License Agreement). Under the License Agreement, we received (i) an exclusive, sublicensable, worldwide license under certain patents owned by Columbia to discover, develop, make and sell products or services covered by the claims of such licensed patents (the Patent Products), and (ii) an exclusive, sublicensable, worldwide license under certain materials and technical information provided by Columbia to discover, develop, make and sell products or services that directly use or incorporate such materials or information (the Other Products).

The License Agreement requires us to use commercially reasonable efforts to research, discover, develop and market Patent Products and/or Other Products as follows:

- achieve successful sequencing of 150 base read length on a Company proprietary system that is or uses a Patent Product by August 12, 2021;
- complete the first commercial sale of a Patent Product by August 12, 2022;
- complete the first commercial sale of a Patent Product developed from a nucleotide derivative covered under a valid claim of a licensed patent by August 12, 2022;
- commence and be engaged in active, bona fide development of a Patent Product from a nucleotide derivative covered under a valid claim of a licensed patent by August 12, 2019; and
- conduct good faith due diligence on opportunities to develop and commercialize Patent Products or Other Products that (i) use or incorporate any information, data, or subject matter disclosed in a specific construct disclosed by Columbia or (ii) are developed from a nucleotide derivative covered under a valid claim of a licensed patent, including assessing the market opportunity and technical feasibility, and share these results with Columbia by June 20, 2022.

Under the License Agreement, we are required to pay an annual license fee that increases each year, until it reaches a low six digit fee for the fifth year, and for each subsequent year, for so long as the License Agreement remains in force. For any products within the scope of the License Agreement that we commercialize, we are required to pay royalties ranging from low to mid-single digits on net sales of Patent Products and low single digit royalty rates on net sales of Other Products. We can credit our yearly annual license fee against any yearly royalty fees payable to Columbia. Additionally, if we receive any income in connection with any sublicenses, we must pay Columbia a high single digit percentage of that income. Finally, the License Agreement provides for

payments to Columbia based upon our achievement of certain development and commercialization milestones, which could total up to $3.9 million over the life of the License Agreement. As of March 31, 2021, we have paid an aggregate of $0.1 million to Columbia pursuant to the terms of the License Agreement.

The License Agreement, and any associated royalty payment obligations, continue in effect on a country-by-country, product-by-product basis until the later of (i) the expiration of the last to expire of the licensed patents covering a Patent Product or (ii) 12 years from the first commercial sale of an Other Product in the applicable country, or the termination of the Agreement. Each party has customary rights to terminate the License Agreement due to the other party's material breach, if such breach remains uncured. Columbia also has a right to terminate the License Agreement in the event we become insolvent or otherwise cease operations or in the event we assert any claim challenging the validity or enforceability of any patent licensed to us by Columbia under the License Agreement.

We do not believe that our G4 or PX Instruments or the associated consumables, as we presently intend to commercialize them, fit within the definitions of Patent Products or Other Products as defined in the License Agreement. As a result, we do not believe that we will be required to make milestone payments or pay royalties on sales of these products or any associated consumables or services based on our current commercialization plans. However, in the future, we may decide to incorporate features covered by one or more licensed patent(s) or directly use or incorporate materials and/or technical information provided by Columbia, such that we would incur milestone and royalty obligations under the License Agreement.

To the extent that we do not commercialize a Patent Product or Other Product, Columbia may contend that we have not complied with our diligence obligations under the License Agreement. In such case, Columbia could take the position that the License Agreement should convert to a non-exclusive license or pursue actions to terminate the License Agreement alleging that we have not satisfied our diligence obligations. Columbia could also file additional claims to the pending patent applications they licensed to us to attempt to cause our products to become Patent Products. Columbia could also disagree with our interpretation of our milestone and royalty obligations under the License Agreement and contend that a failure to make milestone payments or pay royalties constitutes a breach of the License Agreement. We are currently engaged in discussions with Columbia regarding the application of the License Agreement to our products and our efforts to satisfy the diligence obligations under the License Agreement. There is no assurance that Columbia will agree with our interpretation of the License Agreement or our payment obligations thereunder or agree that we have complied with our diligence obligations under the License Agreement.

Suppliers and Manufacturing

Consumables

The majority of our consumable products are manufactured in-house at our facilities in La Jolla, California. These manufacturing operations include: flow cell surface synthesis and flow cell assembly, reagent formulation and cartridge filling, kit assembly and packaging as well as analytical and functional quality control testing. We are expecting to achieve ISO 9001:2015 certification in the next few years, which covers design, development, manufacturing, distribution, service and sales.

We obtain some components of our consumables from third-party suppliers. While some of these components are sourced from a single supplier, we have qualified second sources for several of our critical reagents, including flow cells, optics and oligonucleotides. We believe that having dual sources for our components helps reduce the risk of a production delay caused by a disruption in the supply of a critical component. For further discussion of the risks relating to our third-party suppliers, see the section titled "Risk factors—Risks related to our business and industry—We are dependent on single source suppliers for some components to our consumables and the loss of any of these suppliers could harm our business.".

Instruments

The manufacturing for our instruments are conducted in-house at our facilities in La Jolla, California. We expect these operations to obtain 9001 and ISO 13485 certification within the next few years.

Regulatory

Government regulation

The development, testing, manufacturing, marketing, post-market surveillance, distribution, advertising and labeling of certain of medical devices are subject to regulation in the United States by the Center for Devices and Radiological Health of the FDA under the Federal Food, Drug, and Cosmetic Act (FDC Act) and comparable state and international agencies. FDA defines a medical device as an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar or related article, including any component part or accessory, which is (i) 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, or (ii) intended to affect the structure or any function of the body of man or other animals and which does not achieve any of its primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of any of its primary intended purposes. Medical devices to be commercially distributed in the United States must receive from the FDA either clearance of a premarket notification, known as 510(k), premarket approval, or PMA, or authorization through a de-novo petition pursuant to the FDC Act prior to marketing, unless subject to an exemption.

We intend to label and sell our products for research purposes only (RUO) and expect to sell them to academic institutions, life sciences and research laboratories that conduct research, and biopharmaceutical and biotechnology companies for non-diagnostic and non-clinical purposes. Our products are not intended or promoted for use in clinical practice in the diagnosis of disease or other conditions, and they are labeled for research use only, not for use in diagnostic procedures. Accordingly, we believe our products, as we intend to market them, generally are not subject to regulation by FDA. Rather, while FDA regulations require that research use only products be labeled with – “For Research Use Only. Not for use in diagnostic procedures.” – the regulations do not subject such products to the FDA’s jurisdiction or the broader pre- and post-market controls for medical devices.

In November 2013, the FDA issued a final guidance on RUO labeled products, which, among other things, reaffirmed that a company may not make any clinical or diagnostic claims about an RUO product, stating that merely including a labeling statement that the product is for research purposes only will not necessarily render the device exempt from the FDA’s clearance, approval, or other regulatory requirements if the totality of circumstances surrounding the distribution of the product indicates that the manufacturer knows its product is being used by customers for diagnostic uses or the manufacturer intends such a use. These circumstances may include, among other things, written or verbal marketing claims regarding a product’s performance in clinical diagnostic applications and a manufacturer’s provision of technical support for such activities. If FDA were to determine, based on the totality of circumstances, that our products labeled and marketed for RUO are intended for diagnostic purposes, they would be considered medical devices that will require clearance or approval prior to commercialization. Further, sales of devices for diagnostic purposes may subject us to additional healthcare regulation. We continue to monitor the changing legal and regulatory landscape to ensure our compliance with any applicable rules, laws and regulations.

In the future, certain of our products or related applications could become subject to regulation as medical devices by the FDA. If we wish to label and expand product lines to address the diagnosis of disease, regulation by governmental authorities in the United States and other countries will become an increasingly significant factor in development, testing, production and marketing. Products that we may develop in the molecular diagnostic markets, depending on their intended use, may be regulated as medical devices or in vitro diagnostic products (IVDs) by the FDA and comparable agencies in other countries. In the U.S., if we market our products

for use in performing clinical diagnostics, such products would be subject to regulation by the FDA under pre-market and post-market control as medical devices, unless an exemption applies, we would be required to obtain either prior 510(k) clearance or prior premarket approval from the FDA before commercializing the product.

The FDA classifies medical devices into one of three classes. Devices deemed to pose lower risk to the patient are placed in either class I or II, which, unless an exemption applies, requires the manufacturer to submit a pre-market notification requesting FDA clearance for commercial distribution pursuant to Section 510(k) of the FDC Act. This process, known as 510(k) clearance, requires that the manufacturer demonstrate that the device is substantially equivalent to a previously cleared and legally marketed 510(k) device or a "pre-amendment" class III device for which PMAs have not been required by the FDA. This FDA review process typically takes from four to twelve months, although it can take longer. Most class I devices are exempted from this 510(k) premarket submission requirement. If no legally marketed predicate can be identified for a new device to enable the use of the 510(k) pathway, the device is automatically classified under the FDC Act as 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 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.

Devices deemed by the FDA to pose the greatest risk, such as life-sustaining, life-supporting, or implantable devices, or those deemed not substantially equivalent to a legally marketed predicate device, are placed in class III. Class III devices typically require PMA approval. To obtain PMA approval, an applicant must demonstrate the reasonable safety and effectiveness of the device based, in part, on data obtained in clinical studies. The PMA application must also contain a full description of the device and its components, a full description of the methods, facilities, and controls used for manufacturing, and proposed labeling. If the FDA accepts the application for review, it has 180 days to complete its review of a PMA application, although in practice, the FDA's review often takes significantly longer, and can take up to several years. An advisory panel of experts from outside the FDA may be convened to review and evaluate the application and provide recommendations to the FDA as to the approvability of the device. The FDA may or may not accept the panel's recommendation. In addition, the FDA will generally conduct a pre-approval inspection of the applicant or its third-party manufacturers' or suppliers' manufacturing facility or facilities to ensure compliance with the current good manufacturing practices. If we are required to submit our products for pre-market review by the FDA, we may be required to delay marketing and commercialization while we obtain premarket clearance or approval from the FDA. There would be no assurance that we could ever obtain such clearance or approval.

All clinical studies of investigational medical devices to determine safety and effectiveness must be conducted in accordance with FDA's investigational device exemption (IDE) regulations, including the requirement for the study sponsor to submit an IDE application to FDA, unless exempt, which must become effective prior to commencing human clinical studies. All clinical investigations of devices to determine safety and effectiveness must be conducted in accordance with the FDA's 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 the FDA, the FDA requires the device sponsor to submit an IDE application to the 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 the FDA unless the FDA notifies the company that the investigation may not begin. If the FDA determines that there are deficiencies

or other concerns with an IDE for which it requires modification, the 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 (IRB) for each clinical site. 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, the 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.

As noted above, although we intend to label and sell our products for research purposes only, the regulatory requirements related to marketing, selling and supporting such products could be uncertain and depend on the totality of circumstances. This uncertainty exists even if such use by our customers occurs without our consent. If the FDA or other regulatory authorities assert that any of our RUO products are subject to regulatory clearance or approval, our business, financial condition, or results of operations could be adversely affected.

For example, in some cases, our customers may use our RUO products in their own laboratory-developed tests (LDTs) or in other FDA-regulated products for clinical diagnostic use. The FDA has historically exercised enforcement discretion in not enforcing the medical device regulations against LDTs and LDT manufacturers. However, on October 3, 2014, the FDA issued two draft guidance documents that set forth the FDA's proposed risk-based framework for regulating LDTs, which are designed, manufactured and used within a single laboratory. In January 2017, the FDA announced that it would not issue final guidance on the oversight of LDTs and LDT manufacturers, but would seek further public discussion on an appropriate oversight approach and give Congress an opportunity to develop a legislative solution. More recently, the FDA has issued warning letters to genomics labs for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal "carve-out" for LDTs and retains discretion to take action when appropriate, such as when certain genomic tests raise significant public health concerns. Congress also has introduced legislation explicitly granting FDA jurisdiction to regulate LDTs, as well as create a regulatory framework for the regulation of LDTs based on risk. To date, no such legislation has been approved by Congress. Moreover, as part of the former Trump Administration's efforts to combat COVID-19 and consistent with Executive Orders 13771 (Executive Order on Reducing Regulation and Controlling Regulatory Costs) and 13924 (Executive Order on Regulatory Relief to Support Economic Recovery), HHS announced rescission of guidance and other informal issuances of the FDA regarding premarket review of LDT absent notice-and-comment rulemaking, stating that, absent notice-and-comment rulemaking, those seeking approval or clearance of, or an emergency use authorization, for an LDT may nonetheless voluntarily submit a premarket approval application, premarket notification or an Emergency Use Authorization request, respectively, but are not required to do so. However, laboratories opting to use LDTs without FDA premarket review or authorization would not be eligible for liability protection under the Public Readiness and Emergency Preparedness Act. While this action by HHS is expected to reduce the regulatory burden on clinical laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 that develop LDTs, it is unclear how this action as well as future legislation by federal and state governments and the FDA will impact the industry, including our business and that of our customers. Such HHS measure may compel the FDA to formalize earlier enforcement discretionary policies and informal guidance through notice-and-comment rulemaking or impose further restrictions on LDTs. HHS' rescission policy may change over time. Congress could also enact legislation restricting LDTs. Any restrictions on LDTs by the FDA, HHS, Congress, or state regulatory authorities may decrease the demand for our products. The adoption of new restrictions on RUOs, whether by the FDA or Congress, could adversely affect demand for our specialized reagents and instruments.

As laboratories and manufacturers develop more complex genetic tests and diagnostic software, FDA may increase its regulation of LDTs. Any future legislative or administrative rule making or oversight of LDTs and

LDT manufacturers, if and when finalized, may impact the sales of our products and how customers use our products, and may require us to change our business model in order to maintain compliance with these laws. We would become subject to additional FDA requirements if our products are determined to be medical devices or if we elect to seek 510(k) clearance or premarket approval. If our products become subject to FDA regulation as medical devices, we would need to invest significant time and resources to ensure ongoing compliance with FDA quality system regulations and other post-market regulatory requirements.

International sales of medical devices are subject to foreign government regulations, which vary substantially from country to country. In the future, if we decide to distribute or market our diagnostic products as IVDs in Europe, such products will be subject to regulation under the European Union (EU) IVD Directive and/or the IVD Medical Device Regulation (IVDR) European Union (EU) 2017/746. The IVDR was published in 2017, will replace the IVD Directive, is significantly more extensive than the IVD Directive, including requirements on performance data and quality system, and will become fully enforceable in 2022. Outside of the EU, regulatory approval needs to be sought on a country-by-country basis in order to market medical devices. Although there is a trend towards harmonization of quality system, standards and regulations in each country may vary substantially which can affect timelines of introduction.

In the future, to the extent we develop any clinical diagnostic assays, we may pursue payment for such products through a diverse and broad range of channels and seek coverage and reimbursement by government health insurance programs and commercial third-party payors for such products. In the United States, there is no uniform coverage for clinical laboratory tests. The extent of coverage and rate of payment for covered services or items vary from payor to payor. Obtaining coverage and reimbursement for such products can be uncertain, time-consuming and expensive, and, even if favorable coverage and reimbursement status were attained for our tests, to the extent applicable, less favorable coverage policies and reimbursement rates may be implemented in the future. Changes in healthcare regulatory policies could also 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.

In the event that we develop clinical diagnostic assays for which third-party reimbursement becomes available, we would also become subject to various federal and state fraud and abuse and transparency laws. Among other things, these laws may impact our arrangements with customers, as well as our consulting and other arrangements with healthcare providers and others who purchase, recommend or order our clinical diagnostic products. The federal anti-kickback statute prohibits, among other things, persons and entities from knowingly and willfully offering, paying, soliciting, or receiving remuneration, directly or indirectly, overtly or covertly, in cash or in kind, in return for or to induce or reward the purchase, lease, order, arrangement for, or recommendation of, any item or service that is reimbursable, in whole or in part, under a federal healthcare program. In addition, the federal civil and criminal false claims laws (including the civil False Claims Act, for which claims can be brought by private citizens on behalf of the government through *qui tam* actions), impose liability for, among other things, knowingly presenting, or causing to be presented, false or fraudulent claims for payment of federal funds, and knowingly making, or causing to be made, a false record or statement material to a false or fraudulent claim. Further, the Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics, and medical supplies for which reimbursement is available under certain federal health care programs to collect and report annually certain information on payments and other transfers of value to U.S.-licensed physicians (defined to include doctors, dentists, optometrists, podiatrists, and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Beginning in 2022, applicable manufacturers also will be required to report such information regarding its payments and other transfers of value to physician assistants, nurse practitioners, clinical nurse specialists, anesthesiologist assistants, certified registered nurse anesthetists and certified nurse midwives during the previous year and various other providers. Analogous state laws addressing these topics may also affect our arrangements. Violations of these laws can result in significant penalties, including civil, criminal and administrative penalties, disgorgement, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, imprisonment, and integrity oversight and reporting obligations.

For further discussion of the risks we face relating to regulation, see the section titled "Risk factors—Risks related to our business and industry—Our products could become subject to government regulation as medical devices by the FDA and other regulatory agencies even if we do not elect to seek regulatory clearance or approval to market our products for diagnostic purposes, which would adversely impact our ability to market and sell our products and harm our business. If our products become subject to FDA regulation, the regulatory clearance or approval and the maintenance of continued and post-market regulatory compliance for such products will be expensive, time-consuming, and uncertain both in timing and in outcome."

HIPAA, as amended by HITECH, and their implementing regulations, impose obligations, including mandatory contractual terms, with respect to safeguarding the transmission, security and privacy of protected health information by covered entities subject to HIPAA, such as health plans, healthcare clearinghouses and certain healthcare providers and their respective business associates and covered subcontractors that access protected health information. HITECH also created new tiers of civil monetary penalties and made civil and criminal penalties directly applicable to business associates in some cases, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions.

In addition, in the U.S., numerous federal and state laws and regulations, including state data breach notification laws, state health information privacy laws state genetic privacy laws, federal and state research laws and federal and state consumer protection laws, govern the collection, use, disclosure and protection of health-related and other personal information. For example, in June 2018, the State of California enacted the CCPA, which came into effect on January 1, 2020 and provides new data privacy rights for consumers and new operational requirements for companies. While we do not believe we are currently subject to the CCPA, we may in the future be required to comply with the CCPA, which may increase our compliance costs and potential liability. In addition, in November 2020, California voters approved the California Privacy Rights Act (CPRA) ballot initiative which introduced significant amendments to the CCPA and established and funded a dedicated California privacy regulator, the California Privacy Protection Agency (CPPA). The amendments introduced by the CPRA go into effect on January 1, 2023, and new implementing regulations are expected to be introduced by the CPPA. This could mark the beginning of a trend toward more stringent state privacy legislation in the U.S., which could increase our potential liability and adversely affect our business.

Furthermore, the collection, use, storage, disclosure, transfer, or other processing of personal data regarding individuals in the European Economic Area (EEA), including personal health data, is subject to the GDPR, which became effective on May 25, 2018. The GDPR is wide-ranging in scope and imposes numerous requirements on companies that process personal data, including requirements relating to processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates, providing information to individuals regarding data processing activities, implementing safeguards to protect the security and confidentiality of personal data, providing notification of data breaches and taking certain measures when engaging third-party processors. The GDPR also imposes strict rules on the transfer of personal data to countries outside the EEA, including the United States, and permits data protection authorities to impose large penalties for violations of the GDPR, including potential fines of up to €20 million or 4% of annual global revenues, whichever is greater. The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies and obtain compensation for damages resulting from violations of the GDPR. In addition, the GDPR includes restrictions on cross-border data transfers. The GDPR may increase our responsibility and liability in relation to personal data that we process where such processing is subject to the GDPR, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, including as implemented by individual countries. Compliance with the GDPR will be a rigorous and time-intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation and reputational harm in connection with our European activities. Further, the United Kingdom's decision to leave the EU, often referred to as Brexit, has created uncertainty with regard to data protection regulation in the United Kingdom.

For further discussion of the risks we face relating to regulation, see the section titled “Risk factors—Risks related to our business and industry—We are currently subject to, and may in the future become subject to additional, U.S., state and foreign laws and regulations imposing obligations on how we collect, store and process personal information. Our actual or perceived failure to comply with such obligations could harm our business. Ensuring compliance with such laws could also impair our efforts to maintain and expand our future customer base, and thereby decrease our revenue compliance with such laws could also impair our efforts to maintain and expand our future customer base, and thereby decrease our revenue.

In addition, in the United States and certain foreign jurisdictions, there have been and continue to be a number of healthcare-related legislative initiatives that have significantly affected the healthcare industry. These reform initiatives may, among other things, result in modifications to the aforementioned laws and/or the implementation of new laws affecting the healthcare industry.

Facilities

We currently lease 86,698 square feet of office, laboratory, and manufacturing space in San Diego, California under various leases that expire in 2022, 2024, 2025 and 2026. Additionally, we have executed a lease for our new headquarters and laboratory space consisting of 76,778 square feet with a target lease commencement date of April 2022 and will replace our current headquarters and a portion of our laboratory space. We believe that the facilities under our current leases are sufficient to meet our needs for the foreseeable future and that any additional space we may require will be available on commercially reasonable terms.

Environmental Matters

Our operations require the use of hazardous materials (including biological materials) which subject us to a variety of federal, state and local environmental and safety laws and regulations. Some of the regulations under the current regulatory structure provide for strict liability, holding a party potentially liable without regard to fault or negligence. We could be held liable for damages and fines as a result of our, or others’, business operations should contamination of the environment or individual exposure to hazardous substances occur. We cannot predict how changes in laws or development of new regulations will affect our business operations or the cost of compliance.

Legal Proceedings

We are not currently a party to any material legal proceedings. We endeavor to avoid being involved in legal proceedings or investigations, which could have an adverse impact on our reputation, business and financial condition. We are not aware of any issued patents that belong to third parties that would preclude the sale or use of our products. From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. Regardless of outcome, litigation can have an adverse impact on us due to defense and settlement costs, diversion of management resources, negative publicity, reputational harm and other factors.

MANAGEMENT

Executive Officers and Directors

The following table sets forth the names, ages and positions of our executive officers and directors as of May 1, 2021:

Name	Age	Position
Executive Officers:		
Andrew Spaventa	36	Chief Executive Officer and Chairperson of the Board
Eli Glezer, Ph.D.	52	Chief Scientific Officer
David Daly	59	President and Chief Operating Officer
Jorge Velarde	54	Senior Vice President, Corporate Development and Strategy
Daralyn Durie	53	General Counsel
Dalen Meeter	43	Vice President, Finance
Vincent Brancaccio	38	Vice President, Human Resources
Non-Employee Directors:		
David Barker, Ph.D.(1)(3)	79	Director
Andrew ElBardissi, M.D.*	39	Director
Kim Kamdar, Ph.D.(2)(3)	53	Director
Michael Pellini, M.D.(1)(2)	55	Lead Independent Director
Jason Ryan(1)(2)	47	Director

(1) Member of the audit committee
(2) Member of the compensation committee
(3) Member of the nominating and corporate governance committee
* Dr. ElBardissi intends to submit a resignation letter to resign from the Board effective immediately prior the effectiveness of the registration statement of which this prospectus forms a part

Executive Officers

Andrew Spaventa. Mr. Spaventa is a founder, has served as our Chief Executive Officer and has served on our Board since the Company was created in 2016. Mr. Spaventa has also served as managing partner at Axon Ventures since March 2014. Mr. Spaventa is also a founder of Truvian Sciences, a company created in 2015. He also serves as a member of the board of directors of Aspen Neuroscience. He is a member of the board of the non-profit San Diego Venture Group. Previously, from 2009 to 2013, Mr. Spaventa was a co-founder of ecoATM, which was acquired by Outerwall (Coinstar) in 2012. From 2013 to 2016, Mr. Spaventa was a consultant for Edico Genome, which was acquired by Illumina in 2018. Mr. Spaventa received a B.A. in political science and international relations from the University of California, San Diego and attended law school at the University of San Diego for one year. Mr. Spaventa also holds an M.B.A. from University of California, San Diego – Rady School of Management. We believe Mr. Spaventa's service as our Chief Executive Officer, his experience as a venture capital investor, his professional experience in the life science and genomics space, and his extensive understanding of our business, operations, and strategy qualify him to serve on our board of directors.

Eli Glezer, Ph.D. Dr. Glezer is a founder and has been our Chief Scientific Officer since founding the Company in 2016. Prior to joining the Company, Dr. Glezer was the Chief Technology Officer for Meso Scale Diagnostics, where he led the design of design and development of multi-array electrochemiluminescence technology and multiplexed immunoassays from concept to multiple products, from 1997 to 2016. Dr. Glezer received a B.S. in Mechanical Engineering with highest honors from the University of California, Berkeley and a Ph.D. from Harvard University in Applied Physics. Dr. Glezer holds over 60 issued U.S. patents.

David Daly. Mr. Daly has served as our President and Chief Operating Officer since February 2021. Prior to joining the Company, Mr. Daly was the chief executive officer of Thrive Earlier Detection Corp., a cancer detection and diagnostic company, from August 2019 to January 2021. Mr. Daly previously was the senior vice president and general manager of commercial operations for the Americas region at Illumina, Inc. from November 2017 to August 2019. Prior to Illumina, Mr. Daly was general manager and chief commercial officer at Foundation Medicine from December 2014 to August 2017, where he was responsible for all commercial functions, including sales, marketing, client services, payer relations and medical affairs. Previously, he led the oncology business unit at Life Technologies, served as chief commercial officer at Clarient, Inc., and held roles at Roche Diagnostics and Abbott Laboratories. Mr. Daly holds a B.A. in economics from the University of California, Irvine and an M.A. in economics from the University of California, Santa Barbara.

Jorge Velarde. Mr. Velarde has served as our Senior Vice President of Corporate Development and Strategy since October 2018. Mr. Velarde also served as Chief Executive Officer and President of BaseHealth, Inc., a company focused on developing an integrated health management platform combining genomic data- with clinical and behavioral analysis, from January 2014 until January 2015. Earlier in his career, Mr. Velarde was Vice President of Business Development at Illumina, Inc, a business development lead at Gen-Probe, Inc. and the scientific co-founder of Chugai Biopharmaceuticals. Mr. Velarde holds a B.S. in Molecular Biology and minor in Chemistry from Loyola University New Orleans and an M.B.A. from the University of California Irvine – Paul Merage School of Business.

Daralyn Durie. Ms. Durie has served as our General Counsel since March 2021. Ms. Durie is a co-founding partner of Durie Tangri, a leading litigation law firm, commencing in 2009. Ms. Durie previously was a partner at Keker & Van Nest and was an associate at the firm before that. Ms. Durie commenced her career as a clerk for the Honorable Douglas Ginsburg on the United States Court of Appeals for the District of Columbia Circuit. Ms. Durie is a fellow in the American College of Trial Lawyers, a past President of the Board of Directors of the Northern California Association of Business Trial Lawyers, a former co-chair of the Lawyer Representatives to the Ninth Circuit Judicial Conference, and a court-appointed Early Neutral Evaluator for the Northern District of California. Ms. Durie holds an A.B. in Human Biology and Comparative Literature from Stanford University, an M.A. in Comparative Literature from the University of California, Berkeley and a J.D. from the University of California, Berkeley.

Dalen Meeter. Mr. Meeter has served as our Vice President of Finance since December 2019. Prior to joining the Company, Mr. Meeter served in various finance positions at Illumina, Inc., including Senior Director, Finance, from September 2010 to November 2019. Prior to Illumina, Mr. Meeter held a variety of finance and accounting leadership positions at Websense and EMC Captiva Software. Mr. Meeter started his career at KPMG LLP in the Audit and Advisory practice. He holds a B.A. in Business Economics from the University of California, Santa Barbara, an M.B.A. from the Marshall School of Business at the University of Southern California, and is a licensed CPA in the state of California.

Vincent Brancaccio. Mr. Brancaccio has served as our Vice President of Human Resources since September 2019. Prior to joining the Company, Mr. Brancaccio served as Director of Global Compensation at NuVasive from May 2014 until August 2019. Mr. Brancaccio also serves as a consultant to PeopleTech Partners, a venture capital firm focused on the human resources space. Mr. Brancaccio holds a B.A. in Business Management and Economics from University of California, Santa Cruz and an M.B.A. from the Rady School of Management at the University of California, San Diego.

Non-Employee Directors

David L. Barker, Ph.D. Dr. Barker has served as a member of our Board since September 2016. Dr. Barker has served as a member of the board of directors of AmideBio since August 2011, Bionano Genomics (Nasdaq: BNGO) since May 2010, and Aspen Neuroscience since October 2018. He is also a scientific advisor to Luna DNA. He served as Vice President and Chief Scientific Officer at Illumina, Inc., from 2000 to 2007, and on the

Illumina scientific advisory board until May 2016. He was previously on the boards of NextBio, which was acquired by Illumina in 2013, ProteinSimple, which was acquired by Bio-Techne in 2014, Zephyrus Biosciences, Inc., acquired by Bio-Techne in 2016, IntegenX, acquired by Thermo Fisher Scientific in 2018, and Integrated Diagnostics, acquired by Biodesix in 2018. In his academic career, Dr. Barker conducted interdisciplinary research in neurobiology as a postdoctoral fellow at Harvard Medical School, Assistant Professor at the University of Oregon and Associate Professor at Oregon State University. Dr. Barker holds a BS with honors in Chemistry from the California Institute of Technology and a PhD in Biochemistry from Brandeis University. We believe that Dr. Barker's extensive experience in managing and leading early stage and established companies within the clinical diagnostic and biotechnology industries qualifies him to serve as a member of our Board.

Andrew ElBardissi, M.D. Dr. ElBardissi has served as a member of our board of directors since June 2019. Dr. ElBardissi has been a Partner at Deerfield Management, a venture capital firm, since January 2017. Prior to his position at Deerfield, Dr. ElBardissi served as a Principal at Longitude Capital Management Co., LLC, a private investment firm that focuses on venture growth investments in drug development and medical technology, from January 2014 to January 2017. Prior to that, Dr. ElBardissi served as an Associate in J.P. Morgan's Healthcare Investment Banking practice from June 2011 to July 2013. Dr. ElBardissi has served on the board of Acutus Medical, Inc., (Nasdaq: AFIB) since July 2017. Dr. ElBardissi received a B.S. in biology, (Phi Beta Kappa) from the Schreyer Honors College at the Pennsylvania State University, an M.P.H. in quantitative methods from Harvard University, an M.B.A. from Harvard Business School and an M.D. from the Mayo Clinic College of Medicine. We believe Dr. ElBardissi is qualified to serve on our board of directors due to his background as a practicing physician, his extensive experience as an investor in medical technology and life science companies and as a member of the boards of directors of multiple private and public companies.

Kim Kamdar, Ph.D. Dr. Kamdar has served as a member of our Board since May 2017. She has been a Partner at Domain Associates, LLC since 2011. Dr. Kamdar is currently Chair of the Board of Directors of Seraphina Therapeutics and Truvian Sciences, Inc., and serves on the board of directors of EvoFem Biosciences, Inc. (Nasdaq: EVFM) and Obalon Therapeutics, Inc. (Nasdaq: OBLN). She served on the board of Syndax Pharmaceuticals (Nasdaq: SNDX) from September 2006 to May 2017. She also serves on the board of directors of several private companies including Epic Sciences, Sera Prognostics, Alume and Pleno. Formerly, Dr. Kamdar was a Kauffman Fellow with MPM Capital (MPM). Prior to joining MPM, Dr. Kamdar was a research director at Novartis, where she built and led a research team that focused on the biology, genetics and genomics of model organisms. Dr. Kamdar is the author of ten papers as well as the inventor on seven patents. Dr. Kamdar serves as an advisory board member of Dr. Eric Topol's NIH supported Clinical and Translational Science Award for Scripps Medicine and is also on the non-profit board for Access Youth Academy, an organization that is transforming the lives of underserved youth through academic enrichment, health and wellness, social responsibility and leadership through squash. Dr. Kamdar received her B.A. from Northwestern University and her Ph.D. in biochemistry and genetics from Emory University. We believe Dr. Kamdar is qualified to serve on our Board of Directors based on her extensive experience working and serving on the boards of directors of life sciences companies and her experience working in the venture capital industry.

Michael Pellini, M.D. Dr. Pellini has served as a member of our Board of Directors since April 2017. Dr. Pellini has been a Managing Partner at Section 32, LLC, a venture capital firm, since December 2017. Dr. Pellini previously served as chairman of the board of directors, chief executive officer and president at Foundation Medicine, Inc., a molecular information company, from April 2011 until 2018 when it was acquired by F. Hoffmann-La Roche Ltd. From 2008 to 2011, Dr. Pellini was the president and chief operating officer of Clarient, Inc., which was acquired by a General Electric Healthcare Company (NYSE:GE) in 2010. Dr. Pellini currently serves on the board of directors of Tango Therapeutics, Vineti, Cradle Genomics, Sema4, Octave Biosciences and Adaptive Biotechnologies Corporation (Nasdaq: ADPT). Dr. Pellini received a B.A. from Boston College, an M.B.A. from Drexel University and an M.D. from Jefferson Medical College, now the Sidney Kimmel Medical College of Thomas Jefferson University. Dr. Pellini's qualifications to sit on our Board of Directors include his extensive leadership, executive, managerial, business and diagnostic company experience, along with his years of industry experience in the development and commercialization of life

sciences products and services. We believe Dr. Pellini's background as a medical doctor, executive, extensive experience as a venture capital investor and as a member of the boards of directors of private and public companies qualify him to serve on our board of directors.

Jason Ryan. Mr. Ryan has served as a member of our Board of Directors since April 2021. Prior to joining the Board of Directors, Mr. Ryan served as Chief Operating and Financial Officer of Magenta Therapeutics, Inc. (Nasdaq: MGTA) from January 2019 to October 2020. Prior to joining Magenta Therapeutics, Inc., Mr. Ryan previously served as Chief Financial Officer of Foundation Medicine, Inc., which became a wholly-owned subsidiary of Roche Holdings, Inc., from March 2015 to November 2018. Prior to his position as Chief Financial Officer of Foundation Medicine, Inc., Mr. Ryan served in various other finance roles at Foundation Medicine. Prior to joining Foundation Medicine, Inc., Mr. Ryan led the finance and strategic planning functions of various other life science companies including, Taligen Therapeutics, Inc., Codon Devices Inc. and Genomics Collaborative, Inc. Mr. Ryan also served on the board of directors of ArcherDX, Inc. (which was acquired by Invitae Corporation (NYSE: NVTA)) from April 2020 to October 2020. He began his career at Deloitte & Touche. Mr. Ryan holds a B.S. in economics from Bates College and an M.B.A. from Babson College, and earned a C.P.A. in Massachusetts. We believe that Mr. Ryan is qualified to serve on our board of directors because of his extensive finance experience and his leadership experience in the life sciences industry.

Family Relationships

There are no family relationships among any of our executive officers or directors.

Board Composition

Our board of directors is currently authorized to have five members and currently consists of five members, who were elected pursuant to the amended and restated voting agreement that we entered into with certain holders of our common stock and certain holders of our convertible preferred stock and the related provisions of our amended and restated certificate of incorporation.

The provisions of this voting agreement will terminate upon the completion of this offering, after which there will be no further contractual obligations regarding the election of our directors. Our directors hold office until their successors have been elected and qualified or appointed, or the earlier of their death, resignation or removal.

In accordance with the terms of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- the Class I directors will be and , and their terms will expire at the annual meeting of stockholders to be held in 2022;
- the Class II directors will be and , and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the Class III directors will be and , and their terms will expire at the annual meeting of stockholders to be held in 2024.

Directors in a particular class will be elected for three-year terms at the annual meeting of stockholders in the year in which their terms expire. As a result, only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Each director's term continues until the election and qualification of his or her successor, or the earlier of his or her death, resignation or removal.

Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering provide that only our board of directors can fill vacant directorships, including newly-created seats. Any additional directorships resulting from an increase in the authorized number of directors would be distributed pro rata among the three classes so that, as nearly as possible, each class would consist of one-third of the authorized number of directors.

The classification of our board of directors may have the effect of delaying or preventing changes in our control or management. See the section titled “Description of Capital Stock — Anti-Takeover Provisions — Certificate of Incorporation and Bylaw Provisions” elsewhere in this prospectus.

Director Independence

Upon the completion of this offering, we anticipate that our common stock will be listed on the Nasdaq Global Market. Under the rules of Nasdaq, independent directors must comprise a majority of a listed company’s board of directors within one year of the completion of this offering. In addition, the rules of Nasdaq require that, subject to specified exceptions and phase-in periods, each member of a listed company’s audit, compensation and nominating and corporate governance committees be independent. Audit committee members and compensation committee members must also satisfy the independence criteria set forth in Rule 10A-3 and Rule 10C-1, respectively, under the Securities Exchange Act of 1934, as amended (the Exchange Act). Under the rules of Nasdaq, a director will only qualify as an “independent director” if, in the opinion of that company’s board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

To be considered to be independent for purposes of Rule 10A-3 and under the rules of Nasdaq, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors or any other board committee: (i) accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries or (ii) be an affiliated person of the listed company or any of its subsidiaries.

To be considered independent for purposes of Rule 10C-1 and under the rules of Nasdaq, the board of directors must affirmatively determine that each member of the compensation committee is independent, including a consideration of all factors specifically relevant to determining whether the director has a relationship to the company which is material to that director’s ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: (i) the source of compensation of such director, including any consulting, advisory or other compensatory fee paid by the company to such director and (ii) whether such director is affiliated with the company, a subsidiary of the company or an affiliate of a subsidiary of the company.

Our board of directors undertook a review of its composition, the composition of its committees and the independence of our directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based upon information requested from and provided by each director concerning his background, employment and affiliations, including family relationships, our board of directors has determined that Drs. Barker, ElBardissi, Kamdar, Pellini, and Ryan, representing five of our six directors, do not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is “independent” as that term is defined under the rules of Nasdaq, including in the case of all the members of our audit committee, the independence criteria set forth in Rule 10A-3 under the Exchange Act, and in the case of all the members of our compensation committee, the independence criteria set forth in Rule 10C-1 under the Exchange Act.

In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors

deemed relevant in determining his or her independence, including the beneficial ownership of our capital stock by each non-employee director, and the transactions involving them described in the section titled "Certain Relationships and Related Party Transactions" elsewhere in this prospectus. There are no family relationships among any of our directors or executive officers.

Board Leadership Structure

Our board of directors has combined the roles of Chairperson and Chief Executive Officer, who is Andrew Spaventa. Our Board has determined that we would be best served by having a Chairperson with deep operational and strategic knowledge of our business. Our Board has also appointed Dr. Pellini as our Lead Independent Director. Our Board has determined that we would be best served by also having a lead independent director to be responsible for conducting sessions with the independent directors as part of every Board meeting, calling special meetings of the independent directors and chairing all meetings of the independent directors.

Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure. Our executive officers are responsible for the day-to-day management of the material risks we face. Our board of directors administers its oversight function directly as a whole. Our board of directors will also administer its oversight through various standing committees, which will be constituted prior to the completion of this offering, that address risks inherent in their respective areas of oversight. For example, our audit committee will be responsible for overseeing the management of risks associated with our financial reporting, accounting and auditing matters; our compensation committee will oversee the management of risks associated with our compensation policies and programs; and our nominating and corporate governance committee will oversee the management of risks associated with director independence, conflicts of interest, composition and organization of our board of directors and director succession planning.

Board Committees

Our board of directors will establish an audit committee, a compensation committee and a nominating and corporate governance committee prior to the completion of this offering. Our board of directors may establish other committees to facilitate the management of our business. Our board of directors and its committees will set schedules for meeting throughout the year and can also hold special meetings and act by written consent from time to time, as appropriate. Our board of directors expects to delegate various responsibilities and authority to committees as generally described below. The committees will regularly report on their activities and actions to the full board of directors. Each member of each committee of our board of directors will qualify as an independent director in accordance with the listing standards of Nasdaq. Each committee of our board of directors will have a written charter approved by our board of directors. Upon the completion of this offering, copies of each charter will be posted on our website at www.singulargenomics.com under the Investor Relations section. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus. Members will serve on these committees until their resignation or until otherwise determined by our board of directors.

Audit Committee

The members of our audit committee are Mr. Ryan and Drs. Barker and Pellini, each of whom can read and understand fundamental financial statements. Each member of our audit committee is independent under the rules and regulations of the SEC and the listing standards of Nasdaq applicable to audit committee members. Mr. Ryan is the chair of the audit committee. Our board of directors has determined that Mr. Ryan qualifies as an audit committee financial expert within the meaning of SEC regulations and each member meets the financial sophistication requirements of Nasdaq.

Our audit committee will assist our board of directors with its oversight of the integrity of our financial statements; our compliance with legal and regulatory requirements; the qualifications, independence and performance of the independent registered public accounting firm; the design and implementation of our risk assessment and risk management. Among other things, our audit committee is responsible for reviewing and discussing with our management the adequacy and effectiveness of our disclosure controls and procedures. The audit committee also will discuss with our management and independent registered public accounting firm the annual audit plan and scope of audit activities, scope and timing of the annual audit of our financial statements, and the results of the audit, quarterly reviews of our financial statements and, as appropriate, initiates inquiries into certain aspects of our financial affairs. Our audit committee is responsible for establishing and overseeing procedures for the receipt, retention and treatment of any complaints regarding accounting, internal accounting controls or auditing matters, as well as for the confidential and anonymous submissions by our employees of concerns regarding questionable accounting or auditing matters. In addition, our audit committee has direct responsibility for the appointment, compensation, retention and oversight of the work of our independent registered public accounting firm. Our audit committee has sole authority to approve the hiring and discharging of our independent registered public accounting firm, all audit engagement terms and fees and all permissible non-audit engagements with the independent auditor. Our audit committee will review and oversee all related person transactions in accordance with our policies and procedures.

Our audit committee will operate under a written charter that satisfies the applicable rules of the SEC and the listing standards of Nasdaq. We believe that the composition of our audit committee meets the requirements for independence under current Nasdaq and SEC rules and regulations.

Compensation Committee

The members of our compensation committee are Drs. Pellini and Kamdar and Mr. Ryan. Dr. Pellini is the chair of the compensation committee. Each member of our compensation committee is independent under the rules and regulations of the SEC and the listing standards of Nasdaq applicable to compensation committee members. Our compensation committee will assist our board of directors with its oversight of the forms and amount of compensation for our executive officers (including officers reporting under Section 16 of the Exchange Act), the administration of our equity and non-equity incentive plans for employees and other service providers and certain other matters related to our compensation programs. Our compensation committee, among other responsibilities, evaluates the performance of our chief executive officer and, in consultation with him, evaluates the performance of our other executive officers (including officers reporting under Section 16 of the Exchange Act).

Our compensation committee will operate under a written charter that satisfies the applicable rules of the SEC and the listing standards of Nasdaq. We believe that the composition of our compensation committee meets the requirements for independence under current Nasdaq and SEC rules and regulations.

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are Drs. Kamdar and Barker. Each member of our nominating and governance committee is independent under the rules and regulations of the SEC and the listing standards of Nasdaq applicable to nominating and governance committee members. Dr. Kamdar is the chair of the nominating and corporate governance committee. Our nominating and corporate governance committee will assist our board of directors with its oversight of and identification of individuals qualified to become members of our board of directors, consistent with criteria approved by our board of directors, and selects, or recommends that our board of directors selects, director nominees; develops and recommends to our board of directors a set of corporate governance guidelines and oversees the evaluation of our board of directors.

Our nominating and corporate governance committee will operate under a written charter that satisfies the applicable rules of the SEC and the listing standards of Nasdaq. We believe that the composition of our

nominating and corporate governance committee meets the requirements for independence under current Nasdaq and SEC rules and regulations.

Under our corporate governance guidelines, which will become effective upon the closing of this offering, our nominating and corporate governance committee will consider various factors when evaluating the composition of our board of directors, including in no particular order of importance: (a) various and relevant career experience, (b) relevant skills, such as an understanding of the Company's business, (c) financial expertise, (d) diversity, including race, ethnicity, gender, national origin, and geography and (e) local and community ties.

Compensation Committee Interlocks and Insider Participation

None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) of any entity that has one or more executive officers serving on our board of directors or compensation committee.

Code of Conduct

Our board of directors will adopt a Code of Conduct, or the Code of Conduct, prior to the completion of this offering. The Code of Conduct will apply to all of our employees, officers, directors, contractors, consultants, suppliers and agents. Upon the completion of this offering, the full text of the Code of Conduct will be posted on our website at www.singulargenomics.com under the Investor Relations section. We intend to disclose future amendments to, or waivers of, the Code of Conduct, as and to the extent required by SEC regulations, at the same location on our website identified above or in public filings. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information contained on our website to be part of this prospectus or in deciding whether to purchase shares of our common stock.

Director Compensation

Prior to this offering, we have not implemented a formal policy with respect to compensation payable to our non-employee directors. Other than as set forth in the table and described more fully below, we did not pay any compensation, including equity awards, to any of our non-employee directors in 2020. We have granted stock options to all of our non-employee directors. We also reimburse our directors for expenses associated with attending meetings of our board of directors and its committees. Following the completion of this offering, we expect to implement an annual cash and equity compensation program for our non-employee directors.

The following table presents the total compensation that we paid to Dr. ElBardissi and Dr. Kamdar, our non-employee directors who received compensation during the year ended December 31, 2020.

Name	Fees Earned or Paid in Cash ($)	Option Awards ($)(1)	All Other Compensation ($)	Total ($)
Andrew ElBardissi	—	$28,200 (2)	—	$28,200 (2)
Kim Kamdar	—	28,200 (2)	—	28,200 (2)

(1) In accordance with SEC rules, this column reflects the aggregate grant date fair value of option awards, calculated in accordance with ASC Topic 718 for stock-based compensation transactions. As of December 31, 2020, our non-employee directors held outstanding options to purchase the following number of shares of our common stock: Dr. Barker – 60,000; Dr. ElBardissi – 30,000; Dr. Kamdar – 30,000; Dr. Pellini – 154,939.

(2) Dr. ElBardissi and Dr. Kamdar each received an option grant for 30,000 shares of our common stock on March 19, 2020, which vest in 12 equal monthly installments commencing on the date of grant, subject to their continued service with us through each such date.

Directors who are also our employees or officers receive no additional compensation for their service as directors. See the section titled "Executive Compensation" elsewhere in this prospectus for additional information about the compensation of our employee directors.

EXECUTIVE COMPENSATION

Summary Compensation Table

The following table shows information regarding the compensation of our named executive officers for the fiscal year ended December 31, 2020.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)	Option Awards ($)	Non-Equity Incentive Plan Compensation ($)	Nonqualified Deferred Compensation Earnings ($)	All Other Compensation ($)	Total ($)
Andrew Spaventa	2020	$365,750	$108,811	—	—	—	—	—	$474,561
Chief Executive Officer									
Eli Glezer	2020	313,500	67,119	—	—	—	—	—	380,119
Chief Scientific Officer									
Dalen Meeter	2020	269,167	45,900	—	—	—	—	—	315,067
Vice President, Finance									

Narrative Explanation of Compensation Arrangements with Our Named Executive Officers

Base Salaries and Annual Incentive Opportunities

The base salaries of all of our named executive officers are reviewed from time to time and adjusted when our board of directors or compensation committee determines an adjustment is appropriate. For our 2020 fiscal year, the base salaries for Mr. Spaventa, Dr. Glezer, and Mr. Meeter were $365,750, $313,500 and $270,000, respectively.

Each of our named executive officers is eligible to earn an incentive bonus for each of our fiscal years, with such bonus awarded based on individual performance goals, as well as corporate goals related to our product development and other goals established by our chief executive officer and approved by our board of directors. During our fiscal year ended December 31, 2020, our named executive officers were eligible to earn cash incentive bonuses based on a combination of corporate and individual goals. We require that participants continue to be employed through the payment date to receive a bonus. For our 2020 fiscal year, the target bonus rate (as a percentage of base salary) was 35%, 25%, and 20%, for Mr. Spaventa, Dr. Glezer, and Mr. Meeter, respectively.

Equity Compensation

We offer stock options to our employees, including our named executive officers, as the long-term incentive component of our compensation program. Our stock options allow our employees to purchase shares of our common stock at a price equal to the fair market value of our common stock on the date of grant. In the past, our board of directors or compensation committee has determined the fair market value of our common stock based on inputs including valuation reports prepared by third-party valuation firms. Generally, our stock options granted to new hires have vested as to 25% of the total number of option shares on the first anniversary of the award and in equal monthly installments over the following 36 months.

Employee Benefits and Perquisites

Our named executive officers are eligible to participate in our health and welfare plans to the same extent as are full-time employees generally. We generally do not provide our named executive officers with perquisites or other personal benefits.

Retirement Benefits

We have established a 401(k) tax-deferred savings plan through Trinet, which permits participants, including our named executive officers, to make contributions by salary deduction pursuant to Section 401(k) of

the Internal Revenue Code. We are responsible for administrative costs of the 401(k) plan. We may, at our discretion, make matching contributions to the 401(k) plan. Commencing in October 2020, the Company approved matching contributions of 2% of employee contribution.

Employment Arrangements with Named Executive Officers

We entered into offer letters with each of our named executive officers setting forth the initial terms of the officer's employment with us and providing that the officer's employment will be "at will" and may be terminated at any time. We also entered into amended employment letter agreements with each of Mr. Spaventa and Dr. Glezer in 2019, pursuant to which they are each eligible to receive certain severance and change in control benefits, as described in "Severance and Change in Control Benefits" below.

Outstanding Equity Awards at 2020 Fiscal Year-End

The following table sets forth information regarding each unexercised option held by each of our named executive officers as of December 31, 2020.

The vesting schedule applicable to each outstanding award is described in the footnotes to the table below.

In general, options granted to our named executive officers are immediately exercisable with respect to all of the option shares, subject to our repurchase right for the lower of the option exercise price or the fair market value of the shares in the event that the executive's service terminates before vesting in such shares.

Name	Number of Securities Underlying Unexercised Options Vested (#)	Number of Securities Underlying Unexercised Options Unvested (#)	Option Exercise Price ($)	Option Expiration Date
Andrew Spaventa	678,750(1)(2)	2,036,250(1)(2)	0.63	12/16/2029
Eli Glezer	302,500(3)	907,500(3)	0.63	12/16/2029
Dalen Meeter	40,000(4)	120,000(4)	0.63	12/16/2029

(1) The option vests in 48 substantially equal monthly installments beginning on December 17, 2019, provided Mr. Spaventa remains in continuous service through each such vesting date. Additionally, if Mr. Spaventa is involuntarily terminated more than three months prior to a change in control, the option will accelerate with respect to 12 months of vesting. Further, the option will become fully vested in the event of a change in control if Mr. Spaventa remains employed by us at the time of the change in control or is involuntarily terminated on or less than three months prior to the change in control.

(2) Pursuant to the option transfer agreement dated January 29, 2020, the option granted to Mr. Spaventa was transferred to the Andrew K. Spaventa Living Trust.

(3) The option vests in 48 substantially equal monthly installments beginning on December 17, 2019, provided Dr. Glezer remains in continuous service through each such vesting date. Additionally, if Dr. Glezer is involuntarily terminated more than three months prior to a change in control, the option will accelerate with respect to six months of vesting. Further, the option will become fully vested if Dr. Glezer is involuntarily terminated in connection with, within three months prior to, or within 18 months after, a change in control, subject to certain exceptions if Dr. Glezer is offered continued employment with the acquirer.

(4) 25% of the option vested on December 4, 2020, and the remaining 75% of the option vests in 36 substantially equal monthly installments beginning on January 4, 2021, provided Mr. Meeter remains in continuous service through each such vesting date.

Severance and Change in Control Benefits

The options to purchase shares of our common stock held by Mr. Spaventa and Dr. Glezer are eligible for vesting acceleration in connection with certain involuntary terminations of their employment and, in the case of Mr. Spaventa, full vesting acceleration in the event we are subject to a change in control prior to his termination of employment, as more fully described above in the "Outstanding Equity Awards at 2020 Fiscal Year-End" table.

Pursuant to their amended employment agreements, each of Mr. Spaventa and Dr. Glezer are eligible to receive severance benefits upon an involuntary termination of their employment with us, provided they execute a release of all claims against us. Mr. Spaventa is eligible to receive severance consisting of 12 months of his base salary, a prorated portion of his target bonus and 12 months of company-paid continued benefits coverage is he is subject to an involuntary termination. Dr. Glezer is eligible to receive severance consisting of six months of his base salary, a prorated portion of his target bonus and six months of company-paid continued benefits coverage

Equity Plans

2021 Equity Incentive Plan

Our board of directors intends to adopt our 2021 Plan prior to this offering, and it will be submitted to our stockholders for approval. We expect that our 2021 Plan will become effective immediately on adoption although no awards will be made under it until the effective date of the registration statement of which this prospectus is a part. Our 2021 Plan is intended to replace our 2016 Plan. However, awards outstanding under our 2016 Plan will continue to be governed by their existing terms. Although not yet adopted, we expect that our 2021 Plan will have the features described below.

Share Reserve. The number of shares of our common stock available for issuance under our 2021 Plan will equal the sum of shares plus up to shares remaining available for issuance under, or issued pursuant to or subject to awards granted under, our 2016 Plan. The number of shares reserved for issuance under our 2021 Plan will be increased automatically on the first business day of each of our fiscal years, commencing in 2022 and ending in 2031, by a number equal to the smallest of:

- shares;
- % of the shares of common stock outstanding on the last business day of the prior fiscal year; or
- the number of shares determined by our board of directors.

In general, to the extent that any awards under our 2021 Plan are forfeited, terminate, expire or lapse without the issuance of shares, or if we repurchase the shares subject to awards granted under our 2021 Plan, those shares will again become available for issuance under our 2021 Plan, as will shares applied to pay the exercise or purchase price of an award or to satisfy tax withholding obligations related to any award.

Administration. The compensation committee of our board of directors will administer our 2021 Plan. The compensation committee will have complete discretion to make all decisions relating to our 2021 Plan and outstanding awards, including repricing outstanding options and modifying outstanding awards in other ways.

Eligibility. Employees, non-employee directors, consultants and advisors will be eligible to participate in our 2021 Plan.

Under our 2021 Plan, the aggregate grant date fair value of awards granted to our non-employee directors may not exceed $ in any one fiscal year, except that the grant date fair value of awards granted to newly appointed non-employee directors may not exceed $ in the fiscal year in which such non-employee director is initially appointed to our board of directors.

Types of Awards. Our 2021 Plan will provide for the following types of awards:

- incentive and nonstatutory stock options;
- stock appreciation rights;
- restricted shares; and
- restricted stock units.

Options and Stock Appreciation Rights. The exercise price for options granted under our 2021 Plan may not be less than 100% of the fair market value of our common stock on the grant date. Optionees will be permitted to pay the exercise price in cash or, with the consent of the compensation committee:

- with shares of common stock that the optionee already owns;
- by an immediate sale of shares through a broker approved by us;
- by instructing us to withhold a number of shares having an aggregate fair market value that does not exceed the exercise price; or
- by other methods permitted by applicable law.

An optionee who exercises a stock appreciation right receives the increase in value of our common stock over the base price. The base price for stock appreciation rights may not be less than 100% of the fair market value of our common stock on the grant date. The settlement value of a stock appreciation right may be paid in cash, shares of our common stock or a combination.

Options and stock appreciation rights vest as determined by the compensation committee. In general, they will vest over a four-year period following the date of grant. Options and stock appreciation rights expire at the time determined by the compensation committee but in no event more than ten years after they are granted. These awards generally expire earlier if the participant's service terminates earlier.

Restricted Shares and Stock Units. Restricted shares and stock units may be awarded under our 2021 Plan in return for any lawful consideration, and participants who receive restricted shares or stock units generally are not required to pay cash for their awards. In general, these awards will be subject to vesting. Vesting may be based on length of service, the attainment of performance-based milestones or a combination of both, as determined by the compensation committee.

Corporate Transactions. In the event we are a party to a merger, consolidation or certain change in control transactions, outstanding awards granted under our 2021 Plan, and all shares acquired under our 2021 Plan, will be subject to the terms of the definitive transaction agreement (or, if there is no such agreement, as determined by our compensation committee). Unless an award agreement provides otherwise, such treatment may include any of the following with respect to each outstanding award:

- the continuation, assumption or substitution of an award by a surviving entity or its parent;
- the cancellation of an award without payment of any consideration;
- the cancellation of the vested portion of an award (and any portion that becomes vested as of the effective time of the transaction) in exchange for a payment equal to the excess, if any, of the value that the holder of each share of our common stock receives in the transaction over (if applicable) the exercise price otherwise payable in connection with the award; or
- the assignment of any reacquisition or repurchase rights held by us in respect of an award of restricted shares to the surviving entity or its parent (with proportionate adjustments made to the price per share to be paid upon exercise of such rights).

The compensation committee is not required to treat all awards, or portions thereof, in the same manner.

The vesting of an outstanding award may be accelerated by the administrator upon the occurrence of a change in control, whether or not the award is to be assumed or replaced in the transaction, or in connection with a termination of service following a change in control transaction.

A change in control includes:

- any person acquiring beneficial ownership of more than 50% of our total voting power;

- the sale or other disposition of all or substantially all of our assets; or
- our merger or consolidation after which our voting securities represent 50% or less of the total voting power of the surviving or acquiring entity.

Changes in Capitalization. In the event of certain changes in our capital structure without our receipt of consideration, such as a stock split, reverse stock split or dividend paid in common stock, proportionate adjustments will automatically be made to:

- the maximum number and kind of shares available for issuance under our 2021 Plan, including the maximum number and kind of shares that may be issued upon the exercise of incentive stock options;
- the maximum number and kind of shares covered by, and exercise price, base price or purchase price, if any, applicable to each outstanding stock award; and
- the maximum number and kind of shares by which the share reserve may increase automatically each year.

In the event that there is a declaration of an extraordinary dividend payable in a form other than our common stock in an amount that has a material effect on the price of our common stock, a recapitalization, a spin-off or a similar occurrence, the compensation committee may make such adjustments to any of the foregoing as it deems appropriate, in its sole discretion.

Amendments or Termination. Our board of directors may amend, suspend or terminate our 2021 Plan at any time. If our board of directors amends our 2021 Plan, it does not need stockholder approval of the amendment unless required by applicable law, regulation or rules. Our 2021 Plan will terminate automatically 10 years after the later of the date when our board of directors adopted our 2021 Plan or approved the latest share increase that was also approved by our stockholders.

2016 Stock Plan

Our board of directors adopted our 2016 Stock Plan in September, 2016, and it was approved by our stockholders on September 19, 2016. No further awards will be made under our 2016 Plan after this offering; however, awards outstanding under our 2016 Plan will continue to be governed by their existing terms.

Share Reserve. As of March 31, 2021, we have reserved 11,528,297 shares of our common stock for issuance under our 2016 Plan, all of which may be issued as incentive stock options. As of March 31, 2021, options to purchase 4,475,799 shares of our common stock, at exercise prices ranging from $0.10 to $8.95 per share, or a weighted-average exercise price of $3.05 per share were outstanding under our 2016 Plan, and 934,124 shares of our common stock remained available for future issuance. Unissued shares subject to awards that expire or are cancelled, shares reacquired by us and shares withheld in payment of the purchase price or exercise price of an award or in satisfaction of withholding taxes will again become available for issuance under our 2016 Plan or, following consummation of this offering, under our 2021 Plan.

Administration. Our board of directors has administered our 2016 Plan since its adoption; however, following this offering, the compensation committee of our board of directors will generally administer our 2016 Plan. The administrator has complete discretion to make all decisions relating to our 2016 Plan and outstanding awards.

Eligibility. Employees, non-employee members of our board of directors and consultants are eligible to participate in our 2016 Plan. However, only employees are eligible to receive incentive stock options.

Types of Awards. Our 2016 Plan provides for the following types of awards granted with respect to shares of our common stock:

- incentive and nonstatutory stock options to purchase shares of our common stock; and
- direct award or sale of shares of our common stock, including restricted shares.

Options. The exercise price for options granted under our 2016 Plan is determined by our board of directors, but may not be less than 100% of the fair market value of our common stock on the grant date. Optionees may pay the exercise price in cash or cash equivalents or by one, or any combination of, the following forms of payment, as permitted by the administrator in its sole discretion:

- surrender of shares of common stock that the optionee already owns;
- delivery of a full-recourse promissory note, with the option shares pledged as security against the principal and accrued interest on the note;
- an immediate sale of the option shares through a company-approved broker, if the shares of our common stock are publicly traded;
- surrendering a number of vested shares subject to the option having an aggregate fair market value no greater than the aggregate exercise price, or the sum of such exercise price plus all or a portion of the minimum amount required to be withheld under applicable law; or
- other methods permitted by the Delaware General Corporation Law, as amended.

Options vest as determined by the administrator. In general, we have granted options that vest over a four-year period. Options expire at the time determined by the administrator, but in no event more than ten years after they are granted, and generally expire earlier if the optionee's service terminates.

Restricted Shares. Restricted shares may be awarded or sold under our 2016 Plan in return for cash or cash equivalents or, as permitted by the administrator in its sole discretion, in exchange for services rendered to us, by delivery of a full-recourse promissory note or through any other means permitted by applicable law. Restricted shares vest as determined by the administrator.

Corporate Transactions. In the event that we are a party to a merger or consolidation or in the event of a sale of all or substantially all of our stock or assets, awards granted under our 2016 Plan will be subject to the agreement governing such transaction or, in the absence of such agreement, in the manner determined by the administrator. Such treatment may include, without limitation, one or more of the following with respect to outstanding awards:

- the continuation, assumption or substitution of an award by the surviving entity or its parent;
- cancellation of the vested portion of the award in exchange for a payment equal to the excess, if any, of the value of the shares subject to the award over any exercise price per share applicable to the award;
- cancellation of the award without payment of any consideration;
- suspension of the optionee's right to exercise the option during a limited period of time preceding the completion of the transaction; or
- termination of any right the optionee has to exercise the option prior to vesting in the shares subject to the option.

The administrator is not obligated to treat all awards in the same manner. The administrator has the discretion, at any time, to provide that an award under our 2016 Plan will vest on an accelerated basis in connection with a corporate transaction or to amend or modify an award so long as such amendment or modification is not inconsistent with the terms of the 2016 Plan or would not result in the impairment of a participant's rights without the participant's consent.

Changes in Capitalization. In the event of certain specified changes in the capital structure of our common stock, such as a combination or consolidation the outstanding stock into a lesser number of shares, the declaration of a stock dividend payable in shares, a reclassification or any other increase or decrease in the number of issued shares of stock effective without receipt of consideration by us, proportionate adjustments will

automatically be made in (i) each of the number and kind of shares available for future grants under our 2016 Plan, (ii) the number and kind of shares covered by each outstanding option and all restricted shares, (iii) the exercise price per share subject to each outstanding option and the purchase price applicable to each outstanding right to purchase shares, and (iv) any repurchase price applicable to shares granted under our 2016 Plan. In the event of an extraordinary cash divided that has a material effect on the fair market value of our common stock, a recapitalization, spin-off or other similar occurrence, the administrator at its sole discretion may make appropriate adjustments to one or more of the items described above.

Amendments or Termination. The administrator may at any time amend, suspend or terminate our 2016 Plan, subject to stockholder approval in the case of an amendment if the amendment increases the number of shares available for issuance or materially changes the class of persons eligible to receive incentive stock options. Our 2016 Plan will terminate automatically ten years after the later of the date when our board of directors adopted the plan or the date when our board of directors most recently approved an increase in the number of shares reserved thereunder which was also approved by our stockholders, provided, however, that in any event, it will terminate upon the completion of this offering, but as noted above, awards outstanding under our 2016 Plan will remain outstanding and will continue to be governed by their existing terms.

Employee Stock Purchase Plan

General. We expect that our board of directors will adopt a 2021 ESPP prior to this offering. If adopted, our 2021 ESPP will be subsequently approved by our stockholders. We expect that our 2021 ESPP will become effective as of the effective date of the registration statement of which this prospectus is a part. Our 2021 ESPP is intended to qualify under Section 423 of the Internal Revenue Code. Although not yet adopted, we expect that our 2021 ESPP will have the features described below.

Share Reserve. shares of our common stock will be reserved for issuance under our 2021 ESPP. The number of shares reserved for issuance under our 2021 ESPP will automatically be increased on the first business day of each of our fiscal years, commencing in 2022 and ending in 2041, by a number equal to the least of:

- shares;
- % of the shares of common stock outstanding on the last business day of the prior fiscal year; or
- the number of shares determined by our board of directors.

The number of shares reserved under our 2021 ESPP will automatically be adjusted in the event of a stock split, stock dividend or a reverse stock split (including an adjustment to the per-purchase period share limit).

Administration. The compensation committee of our board of directors will administer our 2021 ESPP.

Eligibility. All of our employees will be eligible to participate if we employ them for more than 20 hours per week and for five or more months per year. Eligible employees may begin participating in our 2021 ESPP at the start of any offering period.

Offering Periods. Each offering period will last a number of months determined by the compensation committee, not to exceed 27 months. A new offering period will begin periodically, as determined by the compensation committee. Offering periods may overlap or may be consecutive. Unless otherwise determined by the compensation committee, two offering periods of six months' duration will begin in each year on and . However, if so determined by the compensation committee, the first offering period may start on the effective date of the registration statement related to this offering and will end on , 2021, with the first purchase date occurring on , 2021.

Amount of Contributions. Our 2021 ESPP will permit each eligible employee to purchase common stock through payroll deductions. Each employee's payroll deductions may not exceed % of the employee's cash

compensation. Each participant may purchase up to the number of shares determined by our board of directors on any purchase date, not to exceed shares. The value of the shares purchased in any calendar year may not exceed $25,000. Participants may withdraw their contributions at any time before stock is purchased.

Purchase Price. The price of each share of common stock purchased under our 2021 ESPP will not be less than 85% of the lower of the fair market value per share of common stock on the first day of the applicable offering period (or, in the case of the first offering period, the price at which one share of common stock is offered to the public in this offering) or the fair market value per share of common stock on the purchase date.

Other Provisions. Employees may end their participation in our 2021 ESPP at any time. Participation ends automatically upon termination of employment with us. If we experience a change in control, our 2021 ESPP will end and shares will be purchased with the payroll deductions accumulated to date by participating employees. Our board of directors or our compensation committee may amend or terminate our 2021 ESPP at any time.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since January 1, 2018 to which we have been a party in which the amount involved exceeded $120,000 and in which any of our executive officers, directors or beneficial holders of more than 5% of our capital stock (or any immediate family member of, or person sharing the household with, any of these individuals or entities), which we collectively refer to as a related person, had or will have a direct or indirect material interest, other than compensation arrangements which are described in the section titled "Management—Director Compensation" and "Executive Compensation." We believe that all of these transactions were on terms as favorable as could have been obtained from unrelated third parties.

Sales of Securities

Convertible Notes Financing

In February 2021, we sold and issued approximately $130.5 million aggregate principal amount of 2021 Notes, which included $48.5 million sold and issued to certain related parties (prior investors, some affiliated with members of the Company's board of directors). The 2021 Notes accrue 6% interest per annum and will automatically convert into shares of our common stock in connection with the closing of this offering at a conversion price equal to the lower of (i) 80% of the initial public offering price per share set forth on the cover page of this prospectus and (ii) the price per share obtained by dividing $1.5 billion by the fully-diluted capitalization of the Company prior to this offering. In connection with 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 we anticipate the 2021 Notes will convert into an aggregate of shares of our common stock. For further information regarding the Note Conversion, see the section titled "Capitalization—2021 Convertible Notes". The table below sets forth the 2021 Notes sold to our directors, executive officers and holders of more than 5% of our capital stock:

Investor	Affiliated Director(s) or Officer(s)	Principal Amount of Convertible Notes
Entities affiliated with Deerfield Private Design Fund IV, L.P.(1)	Dr. ElBardissi	$ 20,000,000
Axon Ventures X, LLC(2)	Mr. Spaventa	$ 3,000,000
Entities affiliated with Section 32(3)	Dr. Pellini	$ 20,000,000
LC Healthcare Fund I, L.P.	—	$ 1,500,000
Revelation Alpine, LLC	—	$ 4,000,000

(1) Dr. ElBardissi, a member of our board of directors, is a partner of Deerfield Management, which is affiliated with Deerfield Private Design Fund IV, L.P.
(2) Mr. Spaventa is a managing partner of Axon Ventures X, LLC.
(3) Section 32 Fund 2, LP invested $10,000,000 and Section 32 Fund 3, LP invested an additional $10,000,000. Dr. Pellini is a managing partner of Section 32, LLC, which is affiliated with Section 32 Fund 2, LP. and Section 32 Fund 3, LP.

Series B Convertible Preferred Stock Financing

In June and August of 2019, we issued and sold an aggregate of 19,373,169 shares of our Series B convertible preferred stock at a cash purchase price of $2.3228 per share for an aggregate purchase price of approximately $45 million. These shares of Series B convertible preferred stock will convert into an aggregate of 19,373,169 shares of common stock upon the completion of this offering. The table below sets forth the number of shares of Series B convertible preferred stock sold to our directors, executive officers and holders of more than 5% of our capital stock:

Investor	Affiliated Director(s) or Officer(s)	Shares of Series B Convertible Preferred Stock	Total Purchase Price
Deerfield Private Design Fund IV, L.P.(1)	Dr. ElBardissi	6,457,723	$ 14,999,999
Domain Partners IX, L.P.(2)	Dr. Kamdar	435,609	$ 1,011,833
LC Healthcare Fund I, L.P.	—	435,539	$ 1,011,670

Investor	Affiliated Director(s) or Officer(s)	Shares of Series B Convertible Preferred Stock	Total Purchase Price
ARCH Venture Fund IX, L.P.	—	1,306,618	$ 3,035,012
Axon Ventures X, LLC(3)	Mr. Spaventa	152,463	$ 354,141

(1) Dr. ElBardissi, a member of our board of directors, is a partner of Deerfield Management, which is affiliated with Deerfield Private Design Fund IV, L.P.
(2) Dr. Kamdar is a managing member of One Palmer Square Associates IX, L.L.C., which is the General Partner of Domain Partners IX, L.P.
(3) Mr. Spaventa is a managing partner of Axon Ventures X, LLC.

Directed Share Program

At our request, the underwriters have reserved up to 5% of the shares offered by this prospectus for sale at the initial public offering price to certain individuals through a directed share program, including our . See the section titled "Underwriting" for additional information.

Investors' Rights Agreement

We are party to an amended and restated voting agreement with (i) certain holders of our capital stock, including Deerfield Private Design Fund IV, L.P., Domain Partners IX, L.P., LC Healthcare Fund I, L.P., and ARCH Venture Fund IX, L.P. and (ii) Mr. Spaventa and Drs. Glezer and Barker. Under our investors' rights agreement, certain holders of our capital stock have the right to demand that we file a registration statement or request that their shares of our capital stock be covered by a registration statement that we are otherwise filing. See the section titled "Description of Capital Stock—Registration Rights" elsewhere in this prospectus for additional information regarding these registration rights.

Right of First Refusal and Co-Sale Agreement

We are party to an amended and restated first refusal and co-sale agreement with (i) certain holders of our capital stock including Deerfield Private Design Fund IV, L.P., Domain Partners IX, L.P., LC Healthcare Fund I, L.P., and ARCH Venture Fund IX, L.P. and (ii) Mr. Spaventa and Drs. Glezer and Barker. Under our first refusal and co-sale agreement, certain holders of our capital stock have the right of first refusal and co-sale relating to the shares of our common stock held by the parties to the agreement. Upon the consummation of this offering our first refusal and co-sale agreement will terminate.

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with each of our directors and executive officers, in addition to the indemnification provided for in our restated certificate of incorporation and amended and restated bylaws. The indemnification agreements and our restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering require us to indemnify our directors, executive officers and certain controlling persons to the fullest extent permitted by Delaware law. See the section titled "Executive Compensation—Limitation of Liability and Indemnification" elsewhere in this prospectus for additional information.

Related Party Transaction Policy

Prior to the completion of this offering, we intend to adopt a formal written policy providing that we are not permitted to enter into any transaction that exceeds $120,000 and in which any related person has a direct or indirect material interest without the consent of our audit committee. Our audit committee will have the primary responsibility for reviewing and approving or disapproving such "related party transactions." The charter of our audit committee will provide that our audit committee shall review and approve in advance any related party

transaction. In approving or rejecting any such transaction, our audit committee is to consider the relevant facts and circumstances available and deemed relevant to our audit committee, including whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third-party under the same or similar circumstances and the extent of the related person's interest in the transaction.

All of the transactions described in this section were entered into prior to the adoption of this policy. Although we have not had a written policy for the review and approval of transactions with related persons, our board of directors has historically reviewed and approved any transaction where a director or officer had a financial interest, including the transactions described above. Prior to approving such a transaction, the material facts as to relationship or interest of the relevant director, officer or holder of 5% or more of any class of our voting securities in the agreement or transaction was disclosed to our board of directors. Our board of directors took this information into account when evaluating the transaction and in determining whether such transaction was fair to us and in the best interest of all our stockholders.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our common stock as of March 31, 2021 and as adjusted to reflect the sale of common stock offered by us in this offering, for:

- each of the named executive officers;
- each of our directors;
- all of our executive officers and directors as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated in the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership prior to the offering is based on 50,274,959 shares of common stock outstanding as of March 31, 2021, after giving effect to the conversion of all outstanding shares of convertible preferred stock as of that date into an aggregate of 38,826,388 shares of our common stock (but not reflecting the automatic conversion of the 2021 Notes into an aggregate of shares of our common stock). For purposes of computing percentage ownership after this offering, we have assumed (i) that shares of common stock will be issued by us in this offering; (ii) the automatic conversion of the 2021 Notes into an aggregate of shares of our common stock, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus in connection with the closing of this offering, (iii) the underwriters will not exercise their option to purchase up to additional shares and (iv) none of our executive officers, directors or stockholders who beneficially own more than five percent of our common stock will participate in this offering. In computing the number of shares of common stock beneficially owned by a person or entity and the percentage ownership of that person or entity, we deemed to be outstanding all shares of common stock subject to options held by that person or entity that are currently exercisable or that will become exercisable within 60 days of March 31, 2021. We did not deem these shares outstanding, however, such shares were included for the purpose of computing the percentage ownership of any other person or entity.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Singular Genomics Systems, Inc., 10931 N. Torrey Pines Road, Suite #100, La Jolla, CA 92037.

In addition, the table below excludes any purchases that may be made through our directed share program and any potential purchases in this offering by the beneficial owners identified in the table below.

	Shares Beneficially Owned Prior to this Offering		Shares Beneficially Owned After this Offering	
Name of Beneficial Owner	Shares	Percentage	Shares	Percentage
Named Executive Officers and Directors:				
Andrew Spaventa(1)	5,529,455	10.08%		
Eli Glezer(2)	4,135,000	7.54%		
Dalen Meeter(3)	161,041	*		
David Barker(4)	1,060,000	1.93%		
Kim Kamdar(5)	4,656,982	8.49%		
Andrew ElBardissi(6)	—	—		
Michael Pellini(7)	323,124	*		
Jason Ryan(8)	—	—		
All executive officers and directors as a group (12 persons)(9)	17,194,975	31.19%		
5% Stockholders:				
Deerfield Private Design Fund IV, L.P. and affiliated entities and persons(10)	6,457,723	11.77%		
Domain Partners IX, L.P.(11)	4,626,982	8.43%		
Revelation Alpine, LLC(12)	4,757,743	8.67%		
LC Healthcare Fund I, L.P.(13)	4,471,090	8.15%		
ARCH Venture Fund IX, L.P.(14)	4,048,926	7.38%		

* Represents beneficial ownership of less than one percent.

(1) Consists of (i) 4,813,571 shares of common stock held directly by The Andrew K. Spaventa Living Trust dated April 9, 2014, of which Mr. Spaventa is a trustee and has voting and investment control with respect to these shares, and (ii) 715,884 shares of common stock held by Axon Ventures X, LLC. The total does not reflect 1,286,429 shares of common stock issuable pursuant to options not vested within 60 days of March 31, 2021. Mr. Spaventa is a managing partner of Axon Ventures X, LLC and in his capacity as such, Mr. Spaventa may be deemed to have shared voting and investment power over shares held by Axon Ventures X, LLC. Mr. Spaventa disclaims beneficial ownership of the shares held by Axon Ventures X, LLC except to the extent of his pecuniary interest in such shares.

(2) Consists of 4,135,000 shares of common stock held directly by Dr. Glezer.

(3) Consists of (i) 160,000 shares of common stock held directly by Mr. Meeter and (ii) 1,041 shares of common stock issuable pursuant to options held directly by Mr. Meeter exercisable within 60 days of March 31, 2021. The total does not reflect 23,959 shares of common stock issuable pursuant to options not vested within 60 days of March 31, 2021.

(4) Consists of (i) 1,000,000 shares of common stock held directly by The Barker/Loring Trust Dated August 27, 2013 and (ii) 60,000 shares of common stock issuable pursuant to options held directly by Mr. Barker exercisable within 60 days of March 31, 2021. Mr. Barker is a co-trustee of The Barker/Loring Trust Dated August 27, 2013 and has shared voting and investment control with respect to these shares.

(5) Consists of (i) 4,626,982 shares held directly by Domain Partners IX, L.P. (Domain Partners), (ii) 15,000 shares of common stock held directly by Dr. Kamdar and (iii) 15,000 shares of common stock held directly by Domain Associates, LLC (Domain Associates). The General Partner of Domain Partners is One Palmer Square Associates IX, LLC (One Palmer Square), Dr. Kamdar is a managing member of One Palmer Square and a managing member of Domain Associates. Dr. Kamdar disclaims beneficial ownership of the shares held by Domain Partners and Domain Associates, except to the extent of her pecuniary interest therein.

(6) Dr. ElBardissi holds 30,000 shares of common stock issuable pursuant to options held directly by Dr. ElBardissi exercisable within 60 days of March 31, 2021. Dr. ElBardissi, a partner at Deerfield Management Company, L.P., serves as director of the Company. The options granted to Dr. ElBardissi are held for the benefit, and at the direction, of Deerfield Management Company, L.P.

(7) Consists of (i) 96,994 shares held directly by The Pellini Family Trust, of which Dr. Pellini is the trustee and has voting and investment control with respect to these shares, (ii) 72,455 shares held directly by Dr. Pellini and (iii) 153,675 shares of common stock issuable pursuant to options held directly by Dr. Pellini exercisable within 60 days of March 31, 2021. The total does not reflect 1,264 shares of common stock issuable pursuant to options not vested within 60 days of March 31, 2021.

(8) Mr. Ryan was appointed to the board of directors in April 2021.

(9) Consists of (i) 16,923,386 shares of common stock beneficially owned by our directors and executive officers and (iii) 271,589 shares of common stock issuable to our directors and executive officers upon exercise of outstanding stock options exercisable within 60 days of March 31, 2021. The total does not reflect 1,827,279 shares of common stock issuable pursuant to options not vested within 60 days of March 31, 2021.

(10) Consists of (i) 6,457,723 shares held by Deerfield Private Design Fund IV, L.P. and (ii) 30,000 shares of common stock issuable pursuant to options held directly by Andrew ElBardissi exercisable within 60 days of March 31, 2021. Deerfield Mgmt IV, L.P. is the general partner of Deerfield Private Design Fund IV, L.P. Deerfield Management Company, L.P. is the investment manager of Deerfield Private Design Fund IV L.P. James E. Flynn is the sole member of the general partner of each of Deerfield Mgmt IV, L.P. and Deerfield Management Company, L.P. Each of Deerfield Mgmt IV, L.P., Deerfield Management Company, L.P. and James E. Flynn may be deemed to beneficially own the securities held by Deerfield Private Design Fund IV, L.P. Dr. ElBardissi is a partner at Deerfield Management, and the common stock issuable pursuant to options held directly by Dr. ElBardissi is held for the benefit, and at the direction, of Deerfield Management. The address of Deerfield Private Design Fund IV, L.P. is c/o Deerfield Management Company, L.P., 345 Park Avenue South, 12th Floor, New York, NY 10010.

(11) Consists of 4,626,982 shares held by Domain Partners. The General Partner of Domain Partners is One Palmer Square. The managing members of One Palmer Square are Dr Kamdar, James C. Blair, Brian H. Dovey, Brian K. Halak and Nicole Vitullo, and share voting and investment control with respect to holdings of Domain Partners. Each of the managing members disclaim beneficial ownership of the shares, except, in each case, to the extent of such person's pecuniary interest therein. The address of Domain Partners is 202 Carnegie Center, Suite 104, Princeton, New Jersey 08540.

(12) Consists of 4,757,743 shares held by Revelation Alpine, LLC. Revelation Alpine GP, LLC is the manager of Revelation Alpine, LLC. Revelation Alpine GP, LLC, through three managing members, composed of Scott Halsted, Zachary Scott, and Michael Boggs, has voting and dispositive authority over the shares held. Revelation Alpine, LLC, Revelation Alpine GP, LLC and each of the managing members disclaim beneficial ownership of the shares, except, in each case, to the extent of such person or entity's pecuniary interest therein. The address for each of these entities is 255 California Street, 12th Floor, San Francisco, CA 94111.

(13) Consists of 4,471,090 shares held by LC Healthcare Fund I, L.P., which is ultimately controlled and managed by Legend Capital, a limited liability Chinese company. Legend Capital is ultimately controlled by a management team consisting of three key individuals, Linan Zhu, Hao Chen, and Nengguang Wang. In addition, Junfeng Wang and Quan Zhou are Managing Directors of Legend Capital. Each of these individual managers of Legend Capital shares voting and investment power over the shares held by LC Healthcare Fund I, L.P, and each disclaims beneficial ownership of such shares. The address of the principal place of business for LC Healthcare Fund I, L.P. is Legend Capital, 16/F, Tower B, Raycom Infotech Park, No. 2 Kexueyuan South Road, Zhongguancun, Haidian District, Beijing 100190, People's Republic of China.

(14) Consists of 4,048,926 shares held by ARCH Venture Fund IX, L.P. (ARCH IX). ARCH Venture Partners IX, L.P. (AVP IX LP) is the sole general partner of ARCH IX. ARCH Venture Partners IX, LLC (AVP IX LLC) is the sole general partner of AVP IX LP. Keith Crandell, Clinton Bybee, and Robert Nelsen are managing directors of AVP IX LLC (the AVP IX MDs). AVP IX LP may be deemed to beneficially own the shares held by ARCH IX, respectively, AVP IX LLC may be deemed to beneficially own the shares held by ARCH IX, and each of the AVP IX MDs may be deemed to share the power to direct the disposition and vote of the shares held by ARCH IX. AVP IX LP, AVP IX LLC, and the AVP IX MDs each disclaim beneficial ownership of the shares, except, in each case, to the extent of any pecuniary interest therein. The address of the principal place of business for ARCH IX is 8755 W. Higgins Road, Suite 1025, Chicago, IL 60631.

DESCRIPTION OF CAPITAL STOCK

The following descriptions 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 the amended and restated bylaws that will be in effect upon completion of this offering. A description of our capital stock and the material terms and provisions of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering and affecting the rights of holders of our capital stock is set forth below. The forms of our amended and restated certificate of incorporation and our amended and restated bylaws to be adopted in connection with this offering are filed as exhibits to the registration statement relating to this prospectus.

Upon the completion of this offering, our amended and restated certificate of incorporation will authorize shares of undesignated preferred stock, the rights, preferences and privileges of which may be designated from time to time by our board of directors.

Upon the completion of this offering, our authorized capital stock will consist of shares, all with a par value of $0.0001 per share, of which:

- shares will be designated common stock; and
- shares will be designated preferred stock.

As of March 31, 2021, after giving effect to (i) the conversion of all outstanding shares of convertible preferred stock into an aggregate of 38,826,388 shares of our common stock and (ii) the conversion of all outstanding 2021 Notes into an aggregate of shares of our common stock, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, there were outstanding:

- shares of our common stock held of record by stockholders;
- 4,475,799 shares of our common stock issuable upon exercise of outstanding stock options; and
- a warrant to purchase 129,156 shares of our common stock.

Common Stock

Dividend Rights

Subject to preferences that may apply to shares of preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and only then at the times and in the amounts that our board of directors may determine. See “Dividend Policy” for more information.

Voting Rights

The holders of our common stock are entitled to one vote per share. Stockholders do not have the ability to cumulate votes for the election of directors. Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering will provide for a classified board of directors consisting of three classes of approximately equal size, each serving staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms.

No Preemptive or Similar Rights

Our common stock is not entitled to preemptive rights and is not subject to conversion, redemption or sinking fund provisions.

Right to Receive Liquidation Distributions

Upon our dissolution, liquidation or winding-up, the assets legally available for distribution to our stockholders are distributable ratably among the holders of our common stock, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights and payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Preferred Stock

Upon the completion of this offering, no shares of preferred stock will be outstanding, but we will be authorized, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series and to fix the designation, powers, preferences and rights of the shares of each series and any associated qualifications, limitations or restrictions. Our board of directors also can increase or decrease the number of shares of any series, but not below the number of shares of that series then outstanding, without any further vote or action by our stockholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and may adversely affect the market price of our common stock and the voting and other rights of the holders of common stock. We have no current plan to issue any shares of preferred stock.

Options

As of March 31, 2021, there were options to purchase 4,475,799 shares of our common stock outstanding, with a weighted-average exercise price per share of $3.05 all of which were subject to options granted under our 2016 Stock Plan.

Warrant

As of March 31, 2021, we had the immediately exercisable SVB warrant to purchase 129,156 shares of our Series B convertible preferred stock, with an exercise price of $2.32 per share. The SVB warrant is subject to a cashless exercise mechanism. Upon the conversion of our convertible preferred stock in connection with this offering, the SVB warrant will convert into a warrant to purchase shares of our common stock.

Convertible Notes

In February 2021, we sold and issued approximately $130.5 million aggregate principal amount of 2021 Notes. The 2021 Notes accrue 6% interest per annum and will automatically convert into shares of our common stock in connection with the closing of this offering at a conversion price equal to the lower of (i) 80% of the initial public offering price per share set forth on the cover page of this prospectus and (ii) the price per share obtained by dividing $1.5 billion by the fully-diluted capitalization of the Company prior to this offering. In connection with this offering, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, we anticipate the 2021 Notes will convert into an aggregate of shares of our common stock. For further information regarding the Note Conversion, see the section titled “Capitalization—2021 Convertible Notes.”

Registration Rights

Following the completion of this offering, the holders of 38,826,388 shares of our common stock issued upon the conversion of our convertible preferred stock and 11,448,571 shares of our common stock will be entitled to contractual rights to require us to register those shares under the Securities Act. These registration rights are provided under the terms of our amended and restated investors’ rights agreement between us and the holders of these shares, which we entered into on June 27, 2019.

We will pay all expenses relating to any demand or piggyback registration described below, other than underwriting discounts and commissions. The registration rights terminate upon the earliest to occur of: (i) the fifth anniversary of the completion of this offering; (ii) a liquidation event (other than an asset sale); or (iii) with respect to the registration rights of an individual holder, such earlier time after this offering at which the holder (a) can sell all of its shares in compliance with Rule 144(b)(1)(i) or (b) holds one percent or less of our outstanding common stock and all shares held by the holder can be sold in any three-month period without registration in compliance with Rule 144.

Demand Registration Rights

The holders of the registrable securities will be entitled to certain demand registration rights. At any time beginning six months following the effectiveness of this offering, the holders of 35% or more of the registrable securities then outstanding may make a written request that we register some or all of their registrable securities, subject to certain specified conditions and exceptions. We are required to use commercially reasonable efforts to effect the registration and will pay all registration expenses, other than underwriting discounts and commissions, related to any demand registration. Such request for registration must cover securities with an aggregate offering price of at least $10 million. We are not obligated to effect more than two of these registrations.

Piggyback Registration Rights

In connection with this offering, holders of our registrable securities were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their registrable securities in this offering. If we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders in another offering, the holders of shares having registration rights will, subject to certain exceptions, be entitled to include their shares in our registration statement, provided that the underwriters of any such offering have the right to limit the number of shares included in the registration. These registration rights are subject to specified other conditions and limitations as set forth in our amended and restated investors' rights agreement.

Form S-3 Registration Rights

At any time after we are qualified to file a registration statement on Form S-3, and subject to limitations and conditions specified in the amended and restated investors' rights agreement, the holders of 20% or more of the registrable securities then outstanding may make a written request that we prepare and file a registration statement on Form S-3 under the Securities Act covering their shares, so long as the aggregate price to the public is at least $1 million. We are not obligated to effect more than two of these Form S-3 registrations in any 12-month period. Such holders will pay pro rata all expenses related to filing a registration statement on Form S-3.

Anti-Takeover Provisions

Delaware Law

Upon the completion of this offering, we will be governed by the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. This section prevents some Delaware corporations from engaging, under some circumstances, in a business combination, which includes a merger or sale of at least 10% of the corporation's assets with any interested stockholder, meaning a stockholder who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of the corporation's outstanding voting stock, unless:

- the transaction is approved by the board of directors prior to the time that the interested stockholder became an interested stockholder;
- upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- subsequent to such time that the stockholder became an interested stockholder the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders by at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may "opt out" of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or amended and restated bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Certificate of Incorporation and Bylaw Provisions

Upon the completion of this offering, our amended and restated certificate of incorporation and our amended and restated bylaws will include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control of our management team, including the following:

- ***Board of Directors Vacancies.*** Our amended and restated certificate of incorporation and amended and restated bylaws will authorize our board of directors to fill vacant directorships, including newly-created seats. In addition, the number of directors constituting our board of directors will be set only by resolution adopted by a majority vote of our entire board of directors. These provisions will prevent a stockholder from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.
- ***Classified Board.*** Our amended and restated certificate of incorporation and amended and restated bylaws will provide that our board of directors will be classified into three classes of directors, each of which will hold office for a three-year term. In addition, directors may only be removed from the board of directors for cause and only by the approval of 66 2/3% of our then-outstanding shares of our common stock. A third-party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.
- ***Stockholder Action; Special Meeting of Stockholders.*** Our amended and restated certificate of incorporation will provide that stockholders will not be able to take action by written consent, and will only be able to take action at annual or special meetings of our stockholders. Stockholders will not be permitted to cumulate their votes for the election of directors. Our amended and restated bylaws will further provide that special meetings of our stockholders may be called only by a majority vote of our entire board of directors, the chair of our board of directors or our chief executive officer.
- ***Advance Notice Requirements for Stockholder Proposals and Director Nominations.*** Our amended and restated bylaws will provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at any meeting of stockholders. Our amended and restated bylaws will also specify certain requirements regarding the form and content of a stockholder's notice. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our meetings of stockholders.
- ***Issuance of Undesignated Preferred Stock.*** Our board of directors will have, the authority, without further action by the holders of common stock, to issue up to shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by the board of directors. The existence of authorized but unissued shares of preferred stock will enable our board of directors to render more difficult or discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.

Choice of Forum

Upon the completion of this offering, 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 any derivative action or

proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine. Our amended and restated certificate of incorporation will also provide that the U.S. federal district courts will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, including all causes of action asserted against any defendant named in such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering. Some companies that adopted a similar federal district court forum selection provision were subject to a suit in the Chancery Court of Delaware by stockholders who asserted that the provision is not enforceable. While the Delaware Supreme Court held that such federal district court forum selection provision was in fact valid, there can be no assurance that federal courts or other state courts will follow the holding of the Delaware Supreme Court or determine that our federal district court forum selection provision should be enforced in a particular case.

These choice of forum provisions do not apply to actions brought to enforce a duty or liability created by the Exchange Act. We intend for the choice of forum provision regarding claims arising under the Securities Act to apply despite the fact that Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all actions brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. There is uncertainty as to whether a court would enforce such provision with respect to claims under the Securities Act, and our stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder.

These exclusive forum provisions may limit the ability of our stockholders to bring a claim in a judicial forum that such stockholders find favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers and employees. Alternatively, if a court were to find such provisions contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could materially adversely affect our business, financial condition and operating results.

Transfer Agent and Registrar

Upon the completion of this offering, the transfer agent and registrar for our common stock will be Continental Stock Transfer & Trust Company. The transfer agent's address is 1 State Street 30th Floor, New York, NY 10004, and its telephone number is (212) 509-4000.

Nasdaq Listing

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

SHARES ELIGIBLE FOR FUTURE SALE

Before this offering, there has not been a public market for shares of our common stock and a liquid trading market for common stock may not develop or be sustained after this offering. Future sales of substantial amounts of shares of our common stock, including shares issued upon the exercise of outstanding options, in the public market following this offering or the possibility of these sales occurring, could cause the prevailing market price for our common stock to fall or impair our ability to raise equity capital through sales of equity securities in the future.

Upon the closing of this offering, we will have outstanding shares of our common stock, based on the number of shares outstanding as of March 31, 2021. This includes (i) shares of common stock that we are selling in this offering, which shares may be resold in the public market immediately unless purchased by our affiliates, (ii) the conversion of all of our 38,826,388 outstanding shares of our convertible preferred stock into an aggregate of 38,826,388 shares of our common stock upon the closing of this offering and (iii) the conversion of all outstanding 2021 Notes into an aggregate of shares of common stock, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, in connection with the closing of this offering, and assumes no additional exercise of outstanding options other than as described elsewhere in this prospectus.

Of these shares, all shares sold in this offering will be freely tradable without restriction under the Securities Act, unless purchase by our "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining shares of common stock that are not sold in this offering will be "restricted securities," as that term is defined in Rule 144 under the Securities Act, and we expect that substantially all of these restricted securities will be subject to the 180-day lock-up period under the lock-up agreements as described below. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rule 144 or Rule 701 under the Securities Act, which are summarized below.

In addition, we, our executive officers and directors, and substantially all of our security holders have entered into market standoff agreements with us or lock-up agreements with the underwriters under which they have agreed, subject to specific exceptions, not to sell any of our capital stock until at least 180 days after the date of this prospectus, as described below. As a result of these agreements and the provisions of our investors' rights agreement disclosed in the section titled "Description of Capital Stock—Registration Rights," subject to the provisions of Rule 144 or Rule 701, based on an assumed offering date of , 2021, shares will be available for sale in the public market as follows:

- beginning on the date of this prospectus, the shares sold in this offering will be immediately available for sale in the public market, unless purchased by our affiliates;
- beginning 181 days after the date of this prospectus, additional shares will become eligible for sale in the public market, of which shares will be held by our current officers, directors and greater than 10% stockholders, assuming that our existing stockholders do not participate in this offering; and
- the remainder of the shares will be eligible for sale in the public market from time to time thereafter, subject in some cases to the volume and other restrictions of Rule 144, as described below.

We cannot estimate the number of shares of our common stock that our existing stockholders will elect to sell under Rule 144.

Rule 144

In general, under Rule 144 as currently in effect, a person who has beneficially owned shares of our restricted common stock for at least six months would be entitled to sell their securities provided that 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 we

are subject to the periodic reporting requirements of the Exchange Act, for at least 90 days before the sale. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the completion of this offering without regard to whether current public information about us is available. Persons who have beneficially owned shares of our restricted 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 capital stock then outstanding, which will equal shares immediately after the completion of this offering, assuming no exercise by the underwriters of their option to purchase additional shares; or
- the average weekly trading volume of our common stock on Nasdaq during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

provided, in each case, that we have been 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.

Rule 701

Any of our employees, directors, officers, consultants, advisors or service providers, other than a person who is deemed to have been one of our affiliates during the immediately preceding 90 days of the date of this prospectus, who purchased shares under a written compensatory plan or contract prior to this offering may be entitled to rely on the resale provisions of Rule 701. Rule 701, as currently in effect, permits resales of shares, in reliance upon Rule 144 but without compliance with certain restrictions, including the holding period requirement, of Rule 144. Rule 701 further provides that non-affiliates may sell such shares in reliance on Rule 144 without having to comply with the public information, volume limitation or notice provisions of Rule 144. All holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling such shares if such resale is pursuant to Rule 701. All Rule 701 shares are, however, subject to lock-up agreements and will only become eligible for sale upon the expiration of these lock-up agreements.

Lock-Up and Market Standoff Agreements

In connection with this offering, we and each of our directors and officers and the holders of substantially all of our outstanding stock and stock options have agreed with the underwriters, subject to certain exceptions, not to, among other things, 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, shares of our common stock or any securities convertible into or exchangeable for shares of our common stock or enter into any hedging, swap or other arrangement that transfers to another any of the economic consequences of ownership of our common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC. These agreements are subject to certain exceptions, as set forth in “Underwriting.”

In addition, substantially all other holders of our common stock, options and the SVB warrant have previously entered into market stand-off agreements with us not to sell or otherwise transfer any of their common stock or securities convertible into or exchangeable for shares of common stock for a period that extends through 180 days after the date of this prospectus.

Certain of our employees, including our executive officers, and directors may enter into written trading plans that are intended to comply with Rule 10b5-1 under the Exchange Act. Sales under these trading plans

would not be permitted until the expiration of the lock-up agreements relating to our initial public offering described above.

Registration Rights

Under our amended and restated investors' rights agreement, after the completion of this offering, the holders of up to 50,274,959 shares of our common stock will, subject to the lock-up agreements referred to above, be entitled to certain rights with respect to the registration of such shares under the Securities Act. The registration of these shares of our common stock under the Securities Act would result in these shares becoming eligible for sale in the public market without restriction under the Securities Act immediately upon the effectiveness of such registration, subject to the Rule 144 limitations applicable to affiliates. See the section titled "Description of Capital Stock—Registration Rights" for a description of these registration rights.

Equity Plans

As of March 31, 2021, we had outstanding options to purchase an aggregate of 4,475,799 shares of our common stock under the 2016 Plan. Following this offering, we intend to file a registration statement on Form S-8 under the Securities Act to register all of the shares of our common stock subject to options outstanding or reserved for issuance under the 2016 Plan, the 2021 Plan and the 2021 ESPP. We expect to file this registration statement as soon as practicable after the completion of this offering. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will thereupon be eligible for sale in the public markets, subject to vesting restrictions, the lock-up agreements described above and Rule 144 limitations applicable to affiliates. For a more complete discussion of our stock plans, see the section titled "Executive Compensation—Equity Plans."

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES FOR NON-U.S. HOLDERS OF OUR COMMON STOCK

The following is a general discussion of the material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering. For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock (other than an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes, any of the following:

- an individual citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is includable in gross income for U.S. federal income tax purposes regardless of its source; or
- a trust if (i) a court within the United States is able to exercise primary supervision over the administration of the trust and one or more "U.S. persons," as defined under the Code, have the authority to control all substantial decisions of the trust or (ii) such trust has made a valid election to be treated as a U.S. person for U.S. federal income tax purposes.

This discussion is based on current provisions of the Code, existing, temporary and proposed Treasury Regulations promulgated thereunder, judicial opinions, published positions of the Internal Revenue Service, or IRS, and other applicable authorities, all of which are subject to change or to differing interpretation, possibly with retroactive effect. This discussion assumes that a non-U.S. holder holds shares of our common stock as a capital asset (generally, property held for investment) for U.S. federal income tax purposes. This discussion does not address all aspects of U.S. federal income taxation that may be important to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any aspects of the unearned income Medicare contribution tax pursuant to the Health Care and Education Reconciliation Act of 2010, any U.S. gift taxes, any U.S. alternative minimum taxes or any state, local or non-U.S. taxes. This discussion may not apply, in whole or in part, to particular non-U.S. holders in light of their individual circumstances or to holders subject to special treatment under the U.S. federal income tax laws (such as insurance companies, tax-exempt organizations, financial institutions, brokers or dealers in securities, "controlled foreign corporations," "passive foreign investment companies," non-U.S. holders that hold our common stock as part of a straddle, hedge, conversion transaction or other integrated investment and certain U.S. expatriates).

If a partnership (or other entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds our common stock, the tax treatment of a partner therein will generally depend on the status of the partner and the activities of the partnership. Partners of a partnership holding our common stock should consult their tax advisor as to the particular U.S. federal income tax consequences applicable to them.

INVESTORS CONSIDERING THE PURCHASE OF OUR COMMON STOCK SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL INCOME AND ESTATE TAX LAWS TO THEIR PARTICULAR SITUATIONS AND THE CONSEQUENCES OF NON-U.S., STATE, OR LOCAL LAWS AND TAX TREATIES.

Dividends

We do not expect to declare or make any distributions on our common stock in the foreseeable future. If we do pay distributions on shares of our common stock, however, such 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. Distributions in excess of our current and accumulated

earnings and profits will constitute a return of capital that is applied against and reduces, but not below zero, a non-U.S. holder's adjusted tax basis in shares of our common stock. Any excess will be treated as capital gain and will be subject to the treatment described below in the subsection titled "—Gain on Sale or Other Disposition of Common Stock." Any distributions will also be subject to the discussions below in the subsections titled "—Backup Withholding and Information Reporting" and "—Foreign Account Tax Compliance Act."

Any dividend paid to a non-U.S. holder on our common stock that is not effectively connected with a non-U.S. holder's conduct of a trade or business in the United States will generally be subject to U.S. withholding tax at a 30% rate. The withholding tax might apply at a reduced rate, however, under the terms of an applicable income tax treaty between the United States and the non-U.S. holder's country of residence. You should consult your own tax advisors regarding your entitlement to benefits under a relevant income tax treaty. Generally, in order for us or our paying agent to withhold tax at a lower treaty rate, a non-U.S. holder must certify its entitlement to treaty benefits. A non-U.S. holder generally can meet this certification requirement by providing an IRS Form W-8BEN, W-8BEN-E or other appropriate form (or any successor or substitute form thereof) to us or our paying agent. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to the holder's agent. The holder's agent will then be required to provide certification to us or our paying agent, either directly or through other intermediaries. If you are eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty, you may obtain a refund or credit of any excess amounts withheld by filing an appropriate claim for a refund with the IRS in a timely manner.

Dividends received by a non-U.S. holder that are effectively connected with a U.S. trade or business conducted by the non-U.S. holder, and if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States, are not subject to U.S. withholding tax. To obtain this exemption, a non-U.S. holder must provide us or our paying agent with an IRS Form W-8ECI properly certifying such exemption. Such effectively connected dividends, although not subject to withholding tax, are taxed at the same rates applicable to U.S. persons, net of certain deductions and credits. In addition to being taxed at tax rates applicable to U.S. persons, dividends received by a corporate non-U.S. holder that are effectively connected with a U.S. trade or business of the corporate non-U.S. holder may also be subject to a branch profits tax at a rate of 30% or such lower rate as may be specified by an applicable tax treaty.

Gain on Sale or Other Disposition of Common Stock

Subject to the discussion below in the subsection titled "—Backup Withholding and Information Reporting" and "—Foreign Account Tax Compliance Act," non-U.S. holders will generally not be subject to U.S. federal income tax on any gains realized on the sale, exchange or other disposition of our common stock unless:

- the gain (i) is effectively connected with the conduct by the non-U.S. holder of a U.S. trade or business and (ii) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States (in which case the special rules described below apply);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of the sale, exchange or other disposition of our common stock, and certain other requirements are met (in which case the gain would be subject to a flat 30% tax, or such reduced rate as may be specified by an applicable income tax treaty, which may be offset by U.S. source capital losses, even though the individual is not considered a resident of the United States); or
- the rules of the Foreign Investment in Real Property Tax Act, or FIRPTA, treat the gain as effectively connected with a U.S. trade or business.

The FIRPTA rules may apply to a sale, exchange or other disposition of our common stock if we are, or were within the shorter of the five-year period preceding the disposition and the non-U.S. holder's holding

period, a "U.S. real property holding corporation," or USRPHC. In general, we would be a USRPHC if interests in U.S. real estate comprised at least half of the value of our business assets. We do not believe that we are a USRPHC and we do not anticipate becoming one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a non-U.S. holder will not be subject to U.S. federal income tax if our common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market, and such non-U.S. holder owned, actually and constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the non-U.S. holder's holding period.

If any gain from the sale, exchange or other disposition of our common stock, (i) is effectively connected with a U.S. trade or business conducted by a non-U.S. holder and (ii) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment maintained by such non-U.S. holder in the United States, then the gain generally will be subject to U.S. federal income tax at the same rates applicable to U.S. persons, net of certain deductions and credits. If the non-U.S. holder is a corporation, under certain circumstances, that portion of its earnings and profits that is effectively connected with its U.S. trade or business, subject to certain adjustments, generally would be subject also to a "branch profits tax" at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the amount of dividends paid to, and the tax withheld with respect to, each non-U.S. holder. These reporting requirements apply regardless of whether withholding was reduced or eliminated by an applicable tax treaty. Copies of this information reporting may also be made available under the provisions of a specific tax treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established.

A non-U.S. holder will generally be subject to backup withholding for dividends on our common stock paid to such holder unless such holder certifies under penalties of perjury that, among other things, it is a non-U.S. holder (and the payer does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

Information reporting and backup withholding generally are not required with respect to the amount of any proceeds from the sale or other disposition of our common stock by a non-U.S. holder outside the United States through a foreign office of a foreign broker that does not have certain specified connections to the United States. However, if a non-U.S. holder sells or otherwise disposes of its shares of common stock through a U.S. broker or the U.S. offices of a foreign broker, the broker will generally be required to report the amount of proceeds paid to the non-U.S. holder to the IRS and impose backup withholding on that amount unless such non-U.S. holder provides appropriate certification to the broker of its status as a non-U.S. holder (and the payer does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

Backup withholding is not an additional income tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder generally can be credited against the non-U.S. holder's U.S. federal income tax liability, if any, or refunded, provided that the required information is furnished to the IRS in a timely manner. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

Foreign Account Tax Compliance Act

Under the Foreign Account Tax Compliance Act, or FATCA, withholding tax of 30% applies to certain payments to foreign financial institutions, investment funds and certain other non-U.S. persons that fail to comply with certain information reporting and certification requirements pertaining to their direct and indirect

U.S. securityholders and/or U.S. accountholders and do not otherwise qualify for an exemption. Under applicable Treasury Regulations and IRS guidance, this withholding currently applies to payments of dividends, if any, on, and, subject to the proposed Treasury Regulations discussed below, gross proceeds from the sale or other disposition of, our common stock. An intergovernmental agreement between the United States and a foreign country may modify the requirements described in this paragraph.

While, beginning on January 1, 2019, withholding under FATCA would have applied also to payments of gross proceeds from the sale or other disposition of our common stock, proposed Treasury Regulations eliminate FATCA withholding on payments of gross proceeds entirely. Taxpayers generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

Federal Estate Tax

Common stock we have issued that is owned (or treated as owned) by an individual who is not a citizen or a resident of the United States (as defined for U.S. federal estate tax purposes) at the time of death will be included in the individual's gross estate for U.S. federal estate tax purposes unless an applicable estate or other tax treaty provides otherwise, and therefore may be subject to U.S. federal estate tax.

PROSPECTIVE INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE POTENTIAL APPLICATION OF WITHHOLDING UNDER FATCA TO THEIR INVESTMENT IN OUR COMMON STOCK. THE PRECEDING DISCUSSION OF U.S. FEDERAL TAX CONSIDERATIONS IS FOR GENERAL INFORMATION PURPOSES ONLY. IT IS NOT TAX ADVICE. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE PARTICULAR U.S. FEDERAL, GIFT, ESTATE, STATE, LOCAL, AND NON-U.S. TAX CONSEQUENCES OF PURCHASING, HOLDING, AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

UNDERWRITING

We are offering the shares of common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC, Goldman Sachs & Co. LLC, BofA Securities, Inc., and Cowen and Company, LLC are acting as joint book-running managers of the offering and as representatives of the underwriters. UBS Securities LLC is also acting as a book-running manager. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Name	Number of Shares
J.P. Morgan Securities LLC	
Goldman Sachs & Co. LLC	
BofA Securities, Inc.	
Cowen and Company, LLC	
UBS Securities LLC	
Total	

The underwriters are committed to purchase all the shares of common stock offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. After the initial offering of the shares to the public, if all of the shares of common stock are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. Sales of any shares made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to additional shares of common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares are purchased with this option to purchase additional shares, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without Option to Purchase Additional Shares Exercise	With Full Option to Purchase Additional Shares Exercise
Per Share	$	$
Total	$	$

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $. We have agreed to reimburse the underwriters for expenses relating to the clearance of this offering with the Financial Industry Regulatory Authority, Inc. in an amount up to $.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not, subject to certain exceptions, (i) 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, hedge, lend, or otherwise transfer or dispose of, directly or indirectly, or submit to, or file with, the Securities and Exchange Commission a registration statement under the Securities Act relating to, any shares of our common stock or any securities convertible into or exercisable or exchangeable for any shares of our common stock, or publicly disclose the intention to undertake any of the foregoing, or (ii) enter into any swap, hedging, or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of any shares of common stock or any such other securities, (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC for a period of 180 days after the date of this prospectus, other than the shares of our common stock to be sold in this offering.

The restrictions on our actions, as described above, do not apply to certain transactions, including (i) the issuance of shares of common stock or securities convertible into or exercisable for shares of our common stock pursuant to the conversion or exchange of convertible or exchangeable securities or the exercise of warrants or options (including net exercise) or the settlement of RSUs (including net settlement), in each case outstanding on the date of the underwriting agreement and described in this prospectus; (ii) grants of stock options, stock awards, restricted stock, RSUs, or other equity awards and the issuance of shares of common stock or securities convertible into or exercisable or exchangeable for shares of our common stock (whether upon the exercise of stock options or otherwise) to our employees, officers, directors, advisors, or consultants pursuant to the terms of an equity compensation plan in effect as of the closing date of this offering and described in this prospectus, provided that such recipients enter into a lock-up agreement with the underwriters; (iii) the issuance of up to 5% of the outstanding shares of common stock, or securities convertible into, exercisable for, or which are otherwise exchangeable for, common stock, immediately following the closing date of this offering, in acquisitions or other similar strategic transactions, provided that such recipients enter into a lock-up agreement with the underwriters; or (iv) the filing of any registration statement on Form S-8 relating to securities granted or to be granted pursuant to any plan in effect on the date of the underwriting agreement and described in this prospectus or any assumed benefit plan pursuant to an acquisition or similar strategic transaction.

Our directors and executive officers, and substantially all of our securityholders (such persons, the lock-up parties) have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each lock-up party, with limited exceptions, for a period of 180 days after the date of this prospectus (such period, the restricted period), may not and may not cause any of their direct or indirect affiliates to, without the prior written consent of J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC, (i) 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 our common stock or any securities convertible into or exercisable or exchangeable for our common stock (including without limitation, our common stock or such other securities which may be deemed to be beneficially owned by the lock-up party in accordance with the rules and regulations of the Securities and Exchange Commission and securities which may be issued upon exercise of a stock option or warrant) (collectively with the common stock, the lock-up securities), (ii) enter into any hedging, swap or other agreement or transaction that transfers, in whole or in part, any of the economic consequences of ownership of the lock-up securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of the lock-up securities, in cash or otherwise, (iii) make any demand for or exercise any right with respect to the registration of any the lock up securities, or (iv) publicly disclose the intention to do any of the foregoing.

Such persons or entities have further acknowledged that these undertakings preclude them from engaging from engaging in any hedging or other transactions or arrangements (including, without limitation, any short sale or the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) designed or intended, or which could reasonably be expected to lead to or result in, a sale or disposition or transfer (whether by the lock-up party or any other person) of any economic consequences of ownership, in whole or in part, directly or indirectly, of any lock-up securities, whether any such transaction or arrangement (or instrument provided for thereunder) would be settled by delivery of lock-up securities, in cash or otherwise. Such persons or entities further confirm that they have furnished the representatives with the details of any transaction such persons or entities, or any of their respective affiliates, is a party to as of the date hereof, which transaction would have been restricted by the lock-up agreements if it had been entered into by such persons or entities during the restricted period.

The restrictions described in the immediately preceding paragraph and contained in the lock-up agreements between the underwriters and the lock-up parties do not apply, subject in certain cases to various conditions, to certain transactions, including:

(i) transfers of lock-up securities:

(1) as bona fide gifts, or for bona fide estate planning purposes, provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(2) by will, other testamentary document or intestacy, provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(3) to any trust for the direct or indirect benefit of the lock-up party or the immediate family of the lock-up party, or if the lock-up party is a trust, to a trustor or beneficiary of the trust or to the estate of a beneficiary of such trust (for purposes of the lock-up agreement, “immediate family” shall mean any relationship by blood, current or former marriage, domestic partnership or adoption, not more remote than first cousin), provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(4) to a partnership, limited liability company or other entity of which the lock-up party and the immediate family of the lock-up party are the legal and beneficial owner of all of the outstanding equity securities or similar interests, provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(5) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (1) through (4), provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(6) if the lock-up party is a corporation, partnership, limited liability company, trust or other business entity, (A) to another corporation, partnership, limited liability company, trust or other business entity that is an affiliate (as defined in Rule 405 promulgated under the Securities Act, as amended) of the lock-up party, or to any investment fund or other entity controlling, controlled by, managing or managed by or under common control with the lock-up party or affiliates of the lock-up party (including, for the avoidance of doubt, where the lock-up party is a partnership, to its general partner or a successor partnership or fund, or any other funds managed by such partnership), or (B) as part of a distribution, transfer or disposition to partners, members, shareholders or other equity holders of the lock-up party, provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(7) by operation of law, such as pursuant to a qualified domestic order, divorce settlement, divorce decree or separation agreement, provided that, such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up agreements, provided further that no public filing, report or announcement shall be voluntarily made and if any filing under Section 16(a) of the Exchange Act, or other public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock in connection with such transfer or distribution shall be legally required during the restricted period, such filing, report or announcement shall clearly indicate in the footnotes thereto the nature and conditions of such transfer

(8) to us from an employee upon death, disability or termination of employment, in each case, of such employee, provided that no public filing, report or announcement shall be voluntarily made and if any filing under Section 16(a) of the Exchange Act, or other public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock in connection with such transfer or distribution shall be legally required during the restricted period, such filing, report or announcement shall clearly indicate in the footnotes thereto the nature and conditions of such transfer;

(9) as part of a sale of lock-up securities acquired in open market transactions after the closing date of this offering, provided that, no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the restricted period);

(10) to us in connection with the vesting, settlement, or exercise of restricted stock units, options, warrants or other rights to purchase shares of common stock (including, in each case, by way of “net” or “cashless” exercise), including for the payment of exercise price and tax and remittance payments due as a result of the vesting, settlement, or exercise of such restricted stock units,

options, warrants or rights, provided that any such shares of common stock received upon such exercise, vesting or settlement shall be subject to the terms of the lock-up agreement, and provided further that any such restricted stock units, options, warrants or rights are held by the lock-up party pursuant to an agreement or equity awards granted under a stock incentive plan or other equity award plan, each such agreement or plan which is described in this prospectus, provided no public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock shall be required or shall be voluntarily made during the restricted period within 60 days after the date of pricing, and after such 60th day, if the lock-up party is required to file a report reporting a reduction in beneficial ownership of shares of common stock during the restricted period, the lock-up party shall clearly indicate in the footnotes thereto that the filing relates to the circumstances described in this clause and that the shares of common stock received upon exercise of the stock option or warrant or restricted stock unit or other right or vesting event are subject to the lock-up agreement, and no public filing, report or announcement shall be voluntarily made, or

(11) pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction that is approved by our board of directors and made to all holders of our capital stock involving a change of control (as defined in the lock-up agreement) of us, provided that in the event that such tender offer, merger, consolidation or other similar transaction is not completed, the lock-up securities shall remain subject to the provisions of the lock-up agreement;

(ii) exercise outstanding options, settle restricted stock units or other equity awards or exercise warrants pursuant to plans described in this prospectus; provided that any lock-up securities received upon such exercise, vesting or settlement shall be subject to the terms of the lock-up agreement;

(iii) the conversion of outstanding preferred stock, warrants to acquire preferred stock or convertible securities into shares of common stock or warrants to acquire shares of common stock; provided that any such shares of common stock or warrants received upon such conversion shall be subject to the terms of the lock-up agreement; and

(iv) the establishment by lock-up parties of trading plans under Rule 10b5-1 under the Exchange Act for the transfer of the lock-up securities, provided that (1) such plan does not provide for the transfer of lock-up securities during the restricted period and (2) no filing by any party under the Exchange Act or other public announcement shall be required or made voluntarily in connection with such trading plan during the restricted period.

J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC, in their sole discretion, may release the securities subject to any of the lock-up agreements with the underwriters described above, in whole or in part at any time.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

We have applied to list our shares of common stock on the Nasdaq Global Market under the symbol “OMIC.”

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares referred to above, or may be “naked” shorts, which are short positions in excess of that amount.

The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. 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 that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on the Nasdaq, in the over-the-counter market or otherwise.

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 of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for shares of our common stock, or that the shares will trade in the public market at or above the initial public offering price.

Directed Share Program

At our request, the underwriters have reserved up to 5% of the common stock being offered by this prospectus for sale at the initial public offering price to our directors, officers, employees and other individuals associated with us and members of their families. The sales will be made by UBS Financial Services Inc., a selected dealer affiliated with UBS Securities LLC, an underwriter of this offering, through a directed share program. We do not know if these persons will choose to purchase all or any portion of these reserved shares, but any purchases they do make will reduce the number of shares available to the general public. Any reserved shares not so purchased will be offered by the underwriters to the general public on the same terms as the other shares of common stock. Participants in the directed share program who purchase more than $1 million of shares shall be subject to a 25-day lock-up with respect to any shares sold to them pursuant to that program. This lock-up will have similar restrictions and an identical extension provision to the lock-up agreements described below. Any shares sold in the directed share program to our directors or executive officers shall be subject to the lock-up agreements described below.

Other Relationships

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Affiliates of Goldman Sachs & Co. LLC purchased shares of our Series B convertible preferred stock in our June 2019 Series B convertible preferred stock financing. These shares of convertible preferred stock will automatically convert into shares of common stock immediately prior to and in connection with the completion of this offering.

Selling Restrictions

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Notice to Prospective Investors in the European Economic Area

In relation to each Member State of the European Economic Area (each a Relevant State), no shares have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that the shares may be offered to the public in that Relevant State at any time:

(i) to any legal entity which is a qualified investor as defined under Article 2 of the Prospectus Regulation;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the Prospectus Regulation), subject to obtaining the prior consent of the representatives for any such offer; or

(iii) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require us or any of the representatives to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an “offer to the public” in relation to shares in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression “Prospectus Regulation” means Regulation (EU) 2017/1129.

Notice to Prospective Investors in the United Kingdom

No shares have been offered or will be offered pursuant to the offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares which has been approved by the Financial Conduct Authority, except that the shares may be offered to the public in the United Kingdom at any time:

(i) to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of the representatives for any such offer; or

(iii) in any other circumstances falling within Section 86 of the FSMA,

provided that no such offer of the shares shall require the Issuer or any Manager to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation. For the purposes of this provision, the expression an "offer to the public" in relation to the shares in the United Kingdom means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

Notice to Prospective Investors in Canada

The shares 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 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 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.

Notice to Prospective Investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange (SIX) or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the shares have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA (FINMA), and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes (CISA). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to Prospective Investors in the Dubai International Financial Centre

This document relates to an Exempt Offer in accordance with the Markets Rules 2012 of the Dubai Financial Services Authority (DFSA). This document is intended for distribution only to persons of a type specified in the Markets Rules 2012 of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus supplement nor taken steps to verify the information set forth herein and has no responsibility for this document. The securities to which this document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of this document you should consult an authorized financial advisor.

In relation to its use in the DIFC, this document is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient, and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the DIFC.

Notice to Prospective Investors in the United Arab Emirates

The shares have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the Dubai International Financial Centre) other than in compliance with the laws of the United Arab Emirates (and the Dubai International Financial Centre) governing the issue, offering and sale of securities. Further, this prospectus does not constitute a public offer of securities in the United Arab Emirates (including the Dubai International Financial Centre) and is not intended to be a public offer. This prospectus has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority or the Dubai Financial Services Authority.

Notice to Prospective Investors in Australia

This prospectus:

- does not constitute a disclosure document or a prospectus under Chapter 6D.2 of the Corporations Act 2001 (Cth) (the Corporations Act);
- has not been, and will not be, lodged with the Australian Securities and Investments Commission (ASIC), as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document for the purposes of the Corporations Act; and
- may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors, available under section 708 of the Corporations Act (Exempt Investors).

The shares may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the shares may be issued, and no draft or definitive offering memorandum, advertisement or other offering material relating to any shares may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the shares, you represent and warrant to us that you are an Exempt Investor.

As any offer of shares under this document will be made without disclosure in Australia under Chapter 6D.2 of the Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in section 708 applies to that resale. By applying for the shares you undertake to us that you will not, for a period of 12 months from the date of issue of the shares, offer, transfer, assign or otherwise alienate those shares to investors in Australia except in circumstances where disclosure to investors is not required under Chapter 6D.2 of the Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Notice to Prospective Investors in Japan

The shares have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the shares nor any interest therein may be offered or sold, directly or indirectly, 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 resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

Notice to Prospective Investors in 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 (i) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong), or the SFO, of Hong Kong and any rules made thereunder; or (ii) 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 the CO, or which do not constitute an offer to the public within the meaning of the CO. 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 issue, 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 SFO and any rules made thereunder.

Notice to Prospective Investors in Singapore

Each representative has acknowledged that this prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each representative has represented and agreed that it has not offered or sold any shares or caused the shares to be made the subject of an invitation for subscription or purchase and will not offer or sell any shares or cause the shares to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this prospectus or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, whether directly or indirectly, to any person in Singapore other than:

(i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time, or the SFA) pursuant to Section 274 of the SFA;

(ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, 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 of the SFA by a relevant person which is:

(i) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) 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

(ii) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

(1) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(2) where no consideration is or will be given for the transfer;

(3) where the transfer is by operation of law;

(4) as specified in Section 276(7) of the SFA; or

(5) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification—In connection with Section 309B of the SFA and the CMP Regulations 2018, unless otherwise specified before an offer of the shares, the Company has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the shares are "prescribed capital markets products" (as defined in the CMP 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).

Notice to Prospective Investors in Bermuda

Shares may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Notice to Prospective Investors in Saudi Arabia

This document may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Offers of Securities Regulations as issued by the board of the Saudi Arabian Capital Market Authority, or CMA, pursuant to resolution number 2-11-2004 dated 4 October 2004 as amended by resolution number 1-28-2008, as amended. The CMA does not make any representation as to the accuracy or completeness of this document and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this document. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document, you should consult an authorized financial adviser.

Notice to Prospective Investors in the British Virgin Islands

The shares are not being, and may not be offered to the public or to any person in the British Virgin Islands for purchase or subscription by or on behalf of the Company. The shares may be offered to companies

incorporated under the BVI Business Companies Act, 2004 (British Virgin Islands), or BVI Companies, but only where the offer will be made to, and received by, the relevant BVI Company entirely outside of the British Virgin Islands.

Notice to Prospective Investors in China

This prospectus will not be circulated or distributed in the PRC and the shares will not be offered or sold, and will not be offered or sold to any person for re-offering or resale directly or indirectly to any residents of the PRC except pursuant to any applicable laws and regulations of the PRC. Neither this prospectus nor any advertisement or other offering material may be distributed or published in the PRC, except under circumstances that will result in compliance with applicable laws and regulations.

Notice to Prospective Investors in 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 any of the securities exchanges in the world including, without limitation, 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.

Notice to Prospective Investors in Malaysia

No prospectus or other offering material or document in connection with the offer and sale of the shares has been or will be registered with the Securities Commission of Malaysia, or Commission, for the Commission's approval pursuant to the Capital Markets and Services Act 2007. 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 Malaysia other than (i) a closed end fund approved by the Commission; (ii) a holder of a Capital Markets Services License; (iii) a person who acquires the shares, as principal, if the offer is on terms that the shares may only be acquired at a consideration of not less than RM250,000 (or its equivalent in foreign currencies) for each transaction; (iv) an individual whose total net personal assets or total net joint assets with his or her spouse exceeds RM3 million (or its equivalent in foreign currencies), excluding the value of the primary residence of the individual; (v) an individual who has a gross annual income exceeding RM300,000 (or its equivalent in foreign currencies) per annum in the preceding twelve months; (vi) an individual who, jointly with his or her spouse, has a gross annual income of RM400,000 (or its equivalent in foreign currencies), per annum in the preceding twelve months; (vii) a corporation with total net assets exceeding RM10 million (or its equivalent in a foreign currencies) based on the last audited accounts; (viii) a partnership with total net assets exceeding RM10 million (or its equivalent in foreign currencies); (ix) a bank licensee or insurance licensee as defined in the Labuan Financial Services and Securities Act 2010; (x) an Islamic bank licensee or takaful licensee as defined in the Labuan Financial Services and Securities Act 2010; and (xi) any other person as may be specified by the Commission; provided that, in the each of the preceding categories (i) to (xi), the distribution of the shares is made by a holder of a Capital Markets Services License who carries on the business of dealing in securities. The distribution in Malaysia of this prospectus is subject to Malaysian laws. This prospectus does not constitute and may not be used for the purpose of public offering or an issue, offer for subscription or purchase, invitation to subscribe for or purchase any securities requiring the registration of a prospectus with the Commission under the Capital Markets and Services Act 2007.

Notice to Prospective Investors in 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.

Notice to Prospective Investors in South Africa

Due to restrictions under the securities laws of South Africa, no "*offer to the public*" (as such term is defined in the South African Companies Act, No. 71 of 2008 (as amended or re-enacted), or the South African Companies Act) is being made in connection with the issue of the shares in South Africa. Accordingly, this document does not, nor is it intended to, constitute a "*registered prospectus*" (as that term is defined in the South African Companies Act) prepared and registered under the South African Companies Act and has not been approved by, and/or filed with, the South African Companies and Intellectual Property Commission or any other regulatory authority in South Africa. The shares are not offered, and the offer shall not be transferred, sold, renounced or delivered, in South Africa or to a person with an address in South Africa, unless one or other of the following exemptions stipulated in section 96 (1) applies:

Section 96 (1)(a)	the offer, transfer, sale, renunciation or delivery is to: (i) persons whose ordinary business, or part of whose ordinary business, is to deal in securities, as principal or agent; (ii) the South African Public Investment Corporation; (iii) persons or entities regulated by the Reserve Bank of South Africa; (iv) authorized financial service providers under South African law; (v) financial institutions recognized as such under South African law; (vi) a wholly-owned subsidiary of any person or entity contemplated in (c), (d) or (e), acting as agent in the capacity of an authorized portfolio manager for a pension fund, or as manager for a collective investment scheme (in each case duly registered as such under South African law); or (vii) any combination of the person in (i) to (vi); or
Section 96 (1) (b)	the total contemplated acquisition cost of the securities, for any single addressee acting as principal is equal to or greater than ZAR1,000,000 or such higher amount as may be promulgated by notice in the Government Gazette of South Africa pursuant to section 96(2)(a) of the South African Companies Act.

Information made available in this prospectus should not be considered as "advice" as defined in the South African Financial Advisory and Intermediary Services Act, 2002.

LEGAL MATTERS

The validity of the issuance of our common stock offered in this prospectus will be passed upon for us by Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, San Diego, California. Cooley LLP is representing the underwriters in this offering. Certain investment partnerships comprised of partners of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, own an interest representing less than 1% of the shares of our common stock.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements at December 31, 2019 and 2020, and for each of the two years then ended, as set forth in their report. We've included our financial statements in the prospectus and elsewhere in the registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act of 1933, as amended, with respect to the shares of common stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits, schedules and amendments to the registration statement. Please refer to the registration statement and to the exhibits and schedules for further information with respect to the common stock offered by this prospectus. Statements contained in this prospectus regarding the contents of any contract, agreement or other document are only summaries. With respect to any contract, agreement or document that is filed as an exhibit to the registration statement, you should refer to the exhibit for a copy of the contract, agreement or document, and each statement in this prospectus regarding that contract, agreement or document is qualified by reference to the exhibit. The SEC maintains an Internet website that contains the registration statement of which this prospectus forms a part, as well as the exhibits thereto. These documents, along with future reports, proxy statements and other information about us, are available at the SEC's website, www.sec.gov. The information on the SEC's web site is not part of this prospectus, and any references to this web site or any other web site are inactive textual references only.

Upon completion of this offering, we will become subject to the information and reporting requirements of the Exchange Act, and, in accordance with this law, will be required to file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available on the SEC's website referred to above. We also maintain a website at www.singulargenomics.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained on, or that can be accessed through, our website is not a part of this prospectus. Investors should not rely on any such information in deciding whether to purchase our common stock. We have included our website address in this prospectus solely as an inactive textual reference.

SINGULAR GENOMICS SYSTEMS, INC.

INDEX TO THE FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Singular Genomics Systems, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Singular Genomics Systems, Inc. (the Company) as of December 31, 2019 and 2020, the related statements of operations and comprehensive loss, changes in convertible preferred stock and stockholders' deficit, and cash flows for the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2020, and the results of its operations and its cash flows for the year then ended in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's 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 in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2018.

San Diego, California
March 19, 2021

SINGULAR GENOMICS SYSTEMS, INC.

BALANCE SHEETS
(in thousands, except share, liquidation preference, and par value amounts)

	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Assets			
Current assets:			
Cash and cash equivalents	$ 5,500	$ 11,688	$ 45,526
Short-term investments	40,696	15,231	104,595
Prepaid expenses and other assets	261	652	1,385
Total current assets	46,457	27,571	151,506
Property and equipment, net	1,613	2,368	2,750
Restricted cash	23	482	482
Other long-term assets	81	81	885
Total assets	$ 48,174	$ 30,502	$ 155,623
Liabilities, Convertible Preferred Stock and Stockholders' deficit			
Current liabilities:			
Accounts payable	$ 561	$ 427	$ 657
Accrued expenses	460	1,592	2,177
Current portion of long-term debt, net of issuance costs	—	926	2,183
Warrant liability	64	451	2,653
Other short-term liabilities	27	294	236
Total current liabilities	1,112	3,690	7,906
Convertible promissory notes (including related party amounts of $48,500)	—	—	141,900
Long-term debt, net of current portion and issuance costs	2,400	8,469	7,290
Other long-term liabilities	173	714	2,685
Total liabilities	3,685	12,873	159,781
Commitment and contingencies (Note 8)			
Series Seed convertible preferred stock, $0.0001 par value; 6,520,790 shares authorized and outstanding at December 31, 2019, 2020 and March 31, 2021 (unaudited); liquidation preference of $4,499,998 at December 31, 2019, 2020 and March 31, 2021 (unaudited)	4,486	4,486	4,486
Series A convertible preferred stock, $0.0001 par value; 12,932,429 shares authorized and outstanding at December 31, 2019, 2020 and March 31, 2021 (unaudited); liquidation preference of $20,000,002 at December 31, 2019, 2020 and March 31, 2021 (unaudited)	19,908	19,908	19,908
Series B convertible preferred stock, $0.0001 par value; 19,373,169 shares authorized, 19,373,169 shares outstanding at December 31, 2019, 2020 and March 31, 2021 (unaudited); liquidation preference of $44,999,997 at December 31, 2019, 2020 and March 31, 2021 (unaudited)	44,820	44,790	44,790
Stockholders' Deficit:			
Common stock, $0.0001 par value; 60,272,685 of shares authorized, 10,063,023, 10,816,937 and 12,824,184 shares outstanding at December 31, 2019, 2020 and March 31, 2021 (unaudited), respectively	1	1	1
Additional paid-in capital	440	1,552	3,735
Accumulated other comprehensive income (loss)	14	17	(32)
Accumulated deficit	(25,180)	(53,125)	(77,046)
Total stockholders' deficit	(24,725)	(51,555)	(73,342)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 48,174	$ 30,502	$ 155,623

See accompanying notes.

SINGULAR GENOMICS SYSTEMS, INC.

STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share amounts)

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
			(unaudited)	
Operating expenses:				
Research and development	$ 10,484	$ 21,247	$ 4,026	$ 6,608
General and administrative	2,286	6,287	1,377	3,654
Total operating expenses	$ 12,770	$ 27,534	$ 5,403	$ 10,262
Loss from operations	(12,770)	(27,534)	(5,403)	(10,262)
Other income (expense):				
Interest and other income	463	505	216	131
Interest expense	(17)	(718)	(66)	(188)
Change in fair value of convertible promissory notes	—	—	—	(11,400)
Change in fair value of warrant liability	—	(198)	—	(2,202)
Total other income (expense)	446	(411)	150	(13,659)
Net loss	$ (12,324)	$ (27,945)	$ (5,253)	$ (23,921)
Other comprehensive loss:				
Unrealized gain (loss) on available-for-sale securities	48	3	(542)	(49)
Comprehensive loss	$ (12,276)	$ (27,942)	$ (5,795)	$ (23,970)
Net loss per share attributable to common stockholders:				
Basic and diluted	$ (1.43)	$ (2.64)	$ (0.52)	$ (2.05)
Weighted-average shares of common stock outstanding:				
Basic and diluted	8,620,121	10,575,941	10,191,923	11,652,998

See accompanying notes.

SINGULAR GENOMICS SYSTEMS, INC.

STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share data)

	Series Seed Convertible Preferred Stock		Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance at December 31, 2018	6,520,790	$ 4,486	12,932,429	$ 19,908	—	$ —	7,314,531	$ —	$ 195	$ (34)	$ (12,856)	$ (12,695)
Issuance of preferred stock, net of offering costs of $179	—	—	—	—	19,373,169	44,820	—	—	—	—	—	—
Vesting of restricted common stock	—	—	—	—	—	—	2,300,000	1	—	—	—	1
Vesting of common stock issued for early exercise of stock options	—	—	—	—	—	—	214,680	—	34	—	—	34
Issuance of common stock in connection with exercise of stock options	—	—	—	—	—	—	233,812	—	41	—	—	41
Stock-based compensation	—	—	—	—	—	—	—	—	170	—	—	170
Unrealized gain on available-for-sale marketable securities	—	—	—	—	—	—	—	—	—	48	—	48
Net loss	—	—	—	—	—	—					(12,324)	(12,324)
Balance at December 31, 2019	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,820	10,063,023	$ 1	$ 440	$ 14	$ (25,180)	$ (24,725)
Vesting of restricted common stock (unaudited)	—	—	—	—	—	—	420,833	—	—	—	—	—
Vesting of common stock issued for early exercise of stock options (unaudited)	—	—	—	—	—	—	6,445	—	8	—	—	8
Issuance of common stock in connection with exercise of stock options (unaudited)	—	—	—	—	—	—	18,124	—	4	—	—	4
Stock-based compensation (unaudited)	—	—	—	—	—	—	—	—	239	—	—	239
Unrealized loss on available-for-sale marketable securities (unaudited)	—	—	—	—	—	—	—	—	—	(542)	—	(542)
Net loss (unaudited)	—	—	—	—	—	—	—	—	—	—	(5,253)	(5,253)
Balance at March 31, 2020 (unaudited)	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,820	10,508,425	$ 1	$ 691	$ (528)	$ (30,433)	$ (30,269)

	Series Seed Convertible Preferred Stock		Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Income (Loss)	Deficit	Deficit
Balance at December 31, 2019	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,820	10,063,023	$ 1	$ 440	$ 14	$ (25,180)	$ (24,725)
Offering costs in connection with issuance of preferred stock	—	—	—	—	—	(30)	—	—	—	—	—	—
Vesting of restricted common stock	—	—	—	—	—	—	650,000	—	—	—	—	—
Vesting of common stock issued for early exercise of stock options	—	—	—	—	—	—	35,490	—	33	—	—	33
Issuance of common stock in connection with exercise of stock options	—	—	—	—	—	—	68,424	—	19	—	—	19
Stock-based compensation	—	—	—	—	—	—	—	—	1,060	—	(23,921)	(23,921)
Unrealized gain on available-for-sale marketable securities	—	—	—	—	—	—	—	—	—	3	—	3
Net loss	—	—	—	—	—	—	—	—	—	—	(27,945)	(27,945)
Balance at December 31, 2020	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,790	10,816,937	$ 1	$ 1,552	$ 17	$ (53,125)	$ (51,555)
Vesting of common stock issued for early exercise of stock options (unaudited)	—	—	—	—	—	—	151,343	—	92	—	—	92
Issuance of common stock in connection with exercise of stock options (unaudited)	—	—	—	—	—	—	1,855,904	—	995	—	—	995
Stock-based compensation (unaudited)	—	—	—	—	—	—	—	—	1,096	—	—	1,096
Unrealized loss on available-for-sale marketable securities (unaudited)	—	—	—	—	—	—	—	—	—	(49)	—	(49)
Net loss (unaudited)	—	—	—	—	—	—	—	—	—	—	(23,921)	(23,921)
Balance at March 31, 2021 (unaudited)	6,520,790	$ 4,486	12,932,429	$ 19,908	19,373,169	$ 44,790	12,824,184	$ 1	$ 3,735	$ (32)	$ (77,046)	$ (73,342)

See accompanying notes.

SINGULAR GENOMICS SYSTEMS, INC.

STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
			(unaudited)	
Operating activities				
Net loss	$(12,324)	$(27,945)	$ (5,253)	$ (23,921)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation	350	639	131	211
Stock-based compensation	170	1,060	239	1,096
Change in fair value of convertible promissory notes			—	11,400
Change in fair value of warrant liability	—	198	—	2,202
Amortization of discount on short-term investments	(10)	83	21	72
Accretion of debt issuance cost	—	234	31	78
Changes in operating assets and liabilities:				
Prepaid expenses and other assets	(146)	(391)	(174)	(264)
Other long-term assets	(81)	—	—	(804)
Accounts payable	244	(148)	128	144
Accrued expenses	259	1,132	172	585
Other short-term liabilities	27	240	9	(58)
Other long-term liabilities	112	25	(13)	74
Net cash used in operating activities	(11,399)	(24,873)	(4,709)	(9,185)
Investing activities				
Purchases of short-term investments	(42,729)	(6,077)	(2,037)	(101,608)
Maturities of short-term investments	12,029	31,462	4,694	11,654
Purchases of property and equipment	(800)	(1,380)	(261)	(507)
Net cash provided by (used in) investing activities	(31,500)	24,005	2,396	(90,461)
Financing activities				
Proceeds from issuance of common stock	41	47	10	2,984
Proceeds from issuance of Series B convertbile preferred stock, net of issuance cost	44,820	(30)	—	—
Repurchase of unvested options	(21)	(2)	—	—
Proceeds from issuance of convertible promisorry notes	—	—	—	130,500
Proceeds from long-term debt, net of issuance costs	2,464	7,500	7,500	—
Net cash provided by financing activities	47,304	7,515	7,510	133,484
Increase in cash and cash equivalents and restricted cash	4,405	6,647	5,197	33,838
Cash and cash equivalents and restricted cash, beginning of year	1,118	5,523	5,523	12,170
Cash and cash equivalents and restricted cash, end of year	$ 5,523	$ 12,170	$10,720	$ 46,008
Supplemental disclosure for cash activities				
Interest paid	$ 5	$ 461	$ 37	$ 148
Supplemental disclosure for non-cash activities				
Vesting of restricted stock	$ 35	$ 33	$ 8	$ 92
Warrant issued in connection with issuance of long-term debt	$ 64	$ 189	$ 189	$ —
Deferred offering costs in accrued expenses	$ —	$ —	$ —	$ 804
Purchase of property plant and equipment included in accounts payable	$ 80	$ 14	$ 60	$ 86

See accompanying notes.

NOTES TO THE FINANCIAL STATEMENTS
(Information as of March 31, 2021 and thereafter and for the three months ended March 31, 2020 and 2021 is unaudited; all tabular amounts presented in thousands, except share, per share and number of years)

1. Organization, Business and Basis of Presentation

Organization and Business

Singular Genomics Systems, Inc. (the "Company") is a life science technology company that is leveraging novel next generation sequencing ("NGS") and multiomics technology to build products that are designed to empower researchers and clinicians to advance science and medicine. The Company developed a novel and proprietary NGS technology, which it refers to as its "Sequencing Engine". This Sequencing Engine is the foundational platform technology that forms the basis of the Company's products in development. The Company is currently developing two integrated solutions that are purpose built to target specific applications. Its first integrated solution is targeted at the NGS market and comprises an instrument (the "G4 Instrument") and an associated menu of consumable kits, which is referred to collectively as the G4 Integrated Solution. The G4 Instrument is a benchtop next generation sequencer designed to produce fast and accurate genetic sequencing results. The integrated purpose built kits that run on the G4 Instrument address specific applications in fast growing markets including oncology and immune profiling. The Company has completed its beta pilot program and anticipates initiating an early access program followed by a commercial launch of the G4 Integrated Solution by the end of 2021, with intentions for units to ship in the first half of 2022. The Company's second integrated solution in development comprises an instrument (the "PX Instrument") and an associated menu of consumable kits, which is referred to collectively as the PX Integrated Solution. Leveraging sequencing as a universal readout, the PX Integrated Solution combines single cell analysis, spatial analysis, genomics and proteomics in one integrated instrument providing a versatile multiomics solution. The Company anticipates commercial launch of the PX Integrated Solution in 2023.

The Company was incorporated in the state of Delaware in June 2016 and has its principal operations in La Jolla, California.

Basis of Presentation

The accompanying financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB").

Unaudited Interim Financial Information

The accompanying interim balance sheet as of March 31 2021, the statements of operations and comprehensive loss, changes in convertible preferred stock and stockholders' deficit, and cash flows for the three months ended March 31, 2020 and 2021 and the related footnote disclosures are unaudited. In management's opinion, the unaudited interim financial statements have been prepared on the same basis as the audited financial statements and include all adjustments, which include only normal recurring adjustments, necessary for the fair presentation of the Company's financial position as of March 31, 2021 and its results of operations and cash flows for the three months ended March 31, 2020 and 2021 in accordance with GAAP. The results for the three months ended March 31, 2021 are not necessarily indicative of the results expected for the full fiscal year or any other interim period.

Liquidity and Capital Resources

The Company has experienced net losses since inception and, as of December 31, 2020 and March 31, 2021, had an accumulated deficit of $53.1 million and $77.0 million, respectively. The Company has a limited

NOTES TO THE FINANCIAL STATEMENTS
(Information as of March 31, 2021 and thereafter and for the three months ended March 31, 2020 and 2021 is unaudited; all tabular amounts presented in thousands, except share, per share and number of years)

operating history and the revenue and income potential of the Company's business are unproven. From incorporation in June 2016 through December 31, 2020, substantially all of the Company's operations have been funded by the sales of equity securities and issuances of debt. In February 2021, the Company raised an aggregate of $130.5 million of proceeds through the issuance of convertible promissory notes (the "2021 Notes"). As of March 31, 2021, the Company had cash and cash equivalents and short-term investments totaling, in aggregate, $150.1 million. Management has performed an assessment and determined that the Company has sufficient resources on hand to fund its operations for a period of at least one year from the date the financial statements are issued, and as such, has the ability to continue as a going concern. However, the Company may need to seek additional funding in the future to support its operations, research and development activities and commercialization plans. If the Company is not able to generate sufficient revenue to finance its cash requirements or raise additional capital or enter into financing agreement or arrangements when required or on favorable terms, or at all, it may have to delay, reduce the scope of, or discontinue one or more development programs, delay potential commercialization or reduce the scope of sales or marketing activities, and pursue other cost cutting measures, including the reduction of headcount, scope of operations, and planned capital expenditures, which may have a material adverse effect on the Company's business, results of operations, financial condition and/or ability to fund its scheduled obligations on a timely basis, or continue as a going concern. The Company cannot be certain that it will ever be profitable or generate positive cash flow from operating activities or that, if it achieves profitability, it will be able to sustain it.

Impact of the COVID-19 Pandemic

As a result of the outbreak of a novel coronavirus ("COVID-19") pandemic, the Company has, and could continue to, experience disruptions that could severely impact its business. For instance, there have been standing "stay-at-home" orders in California, and specifically San Diego County where the Company's headquarters is located. The Company has continued to operate within the rules applicable to its business; however, an extended implementation of these governmental mandates or reinstitution of additional more stringer mandates could further impact the Company's ability to operate effectively and conduct ongoing research and development or other activities. The COVID-19 pandemic has also adversely affected the broader economy and created volatility in the financial markets, which could curtail the research and development budgets of the Company's customers, its ability to hire additional personnel and its financing prospects.

The Company is continuing to assess the impact of the COVID-19 pandemic on its current and future business and operations, as well as on the Company's industry and the healthcare system. Any of the foregoing could harm the Company's operations and the Company cannot anticipate all the ways in which it could be adversely impacted by health epidemics such as COVID-19.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of the Company's financial statements in conformity with GAAP requires management to make estimates and assumptions that impact the reported amounts of assets, liabilities, and expenses and the disclosure of contingent assets and liabilities in the Company's financial statements and accompanying notes. Although these estimates are based on the Company's knowledge of current events and actions it may undertake in the future, actual results may significantly differ from these estimates and assumptions. Significant estimates and assumptions include the useful lives of property and equipment, the fair value of warrant liabilities, the fair value of the Company's preferred and common stock and stock-based compensation and the fair value of the 2021 Notes.

NOTES TO THE FINANCIAL STATEMENTS
(Information as of March 31, 2021 and thereafter and for the three months ended March 31, 2020 and 2021 is unaudited; all tabular amounts presented in thousands, except share, per share and number of years)

Segment Information

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision-maker in making decisions regarding resource allocation and assessing performance. The Company's singular focus is the development and eventual commercialization of proprietary sequencing solutions. The Company views its operations and manages its business in one operating and reporting segment. The Company's long-lived assets are located in the United States.

Cash, Cash Equivalents and Restricted Cash

Cash and Cash Equivalents

Cash and cash equivalents include cash readily available in checking, savings, money market and sweep accounts. The Company considers all highly liquid investments with an original maturity of three months or less at the date of purchase to be cash equivalents.

Restricted Cash

Restricted cash is held in a separate restricted bank account as the collateral for the security deposits on two executed lease agreements and the collateral on the Company's corporate credit card program. The Company has classified these deposits as long-term restricted cash on its balance sheets.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the balance sheets that sum to the total of the same such amounts shown in the statements of cash flows as of December 31, 2019 and 2020 and March 31, 2021 (in thousands):

	December 31,		March 31,
	2019	2020	2021 (unaudited)
Cash and cash equivalents	$5,500	$11,688	$ 45,526
Restricted cash	23	482	482
Total cash, cash equivalents and restricted cash	$5,523	$12,170	$ 46,008

Concentration of Credit Risk

Financial instruments, which potentially subject the Company to a concentration of credit risk, consist primarily of cash, cash equivalents and short-term investments. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company has not experienced any losses in such accounts and management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits are held.

Short-Term Investments

As of December 31, 2019 and 2020 and March 31, 2021, short-term investments primarily consisted of government and corporate debt securities, and U.S. treasury securities. The Company classifies all short-term investments as available-for-sale, as the sale of such investments may be required prior to maturity to implement management strategies, and therefore classifies all short-term investments with maturity dates beyond 90 days at the date of purchase as current assets in the accompanying balance sheets. Short-term investments are carried at fair

NOTES TO THE FINANCIAL STATEMENTS
(Information as of March 31, 2021 and thereafter and for the three months ended March 31, 2020 and 2021 is unaudited; all tabular amounts presented in thousands, except share, per share and number of years)

value with the unrealized gains and losses included in other comprehensive income (loss) as a component of stockholders' equity until realized. Any premium or discount arising at purchase is amortized and/or accreted to interest income as an adjustment to yield using the straight-line method over the life of the instrument. A decline in the market value of any short-term investment below amortized cost that is determined to be other-than-temporary will result in a revaluation of its carrying amount to fair value. The impairment is charged to earnings and a new cost basis for the security is established. No such impairment charges were recorded for any period presented. Realized gains and losses are determined using the specific identification method and are included in other income (expense).

The following tables summarize the short-term investments held at December 31, 2019, 2020 and March 31, 2021 (in thousands):

	December 31, 2019		
	Amortized Cost	Unrealized Gain	Estimated Fair Value
Asset backed securities	$ 15,149	$ 1	$ 15,150
Corporate debt securities	25,533	13	25,546
Total short-term investments	$ 40,682	$ 14	$ 40,696

	December 31, 2020		
	Amortized Cost	Unrealized Gain	Estimated Fair Value
Asset backed securities	$ 3,938	$ 5	$ 3,943
Corporate debt securities	11,276	12	11,288
Total short-term investments	$ 15,214	$ 17	$ 15,231

	March 31, 2021 (unaudited)		
	Amortized Cost	Unrealized Loss	Estimated Fair Value
Asset backed securities	$ 41,996	$ (10)	41,986
Corporate debt securities	62,631	(22)	62,609
Total short-term investments	$ 104,627	$ (32)	$ 104,595

The following table summarizes contractual maturities of available-for-sale debt securities held at December 31, 2019, 2020 and March 31, 2021 (in thousands):

	December 31,		March 31,
	2019	2020	2021 (unaudited)
	Estimated Fair Value	Estimated Fair Value	Estimated Fair Value
Due within one year	$ 11,497	$ 9,559	$ 65,540
After one but within five years	29,199	5,672	39,055
Total contractual maturities for available-for-sale securities	$ 40,696	$ 15,231	$ 104,595

The Company determined there was no material change in the credit risk of any of its investments.

Property and Equipment, Net

Property and equipment, net, which consists primarily of computers, software, lab equipment, furniture and fixtures, and leasehold improvements, are stated at cost less accumulated depreciation. Depreciation is calculated

NOTES TO THE FINANCIAL STATEMENTS
(Information as of March 31, 2021 and thereafter and for the three months ended March 31, 2020 and 2021 is unaudited; all tabular amounts presented in thousands, except share, per share and number of years)

using the straight-line method over the estimated useful lives of the assets (generally three to five years). Leasehold improvements are amortized over the remaining life of the lease or the useful life, whichever is shorter. Repairs and maintenance costs are charged to expense as incurred.

Deferred Offering Costs

The Company has deferred offering costs consisting of legal and accounting fees directly attributable to its planned initial public offering. The deferred offering costs will be offset against the proceeds received upon the completion of this offering. In the event this offering is terminated, all of the deferred offering costs will be expensed within the Company's statements of operations. As of March 31, 2021, $0.8 million of deferred offering costs were recorded within other long-term assets on the balance sheet.

Deferred Rent

Rent expense is recognized on a straight-line basis over the initial lease term. The difference between rent expense and amounts paid under the lease agreement is deferred and recorded in short and long-term liabilities in the accompanying balance sheet.

Impairment of Long-Lived Assets

Long-lived assets consist primarily of property and equipment. The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the assets exceeds the fair value of the assets. Fair value would be assessed using discounted cash flows or other appropriate measures of fair value. The Company did not recognize any impairment losses for the years ended December 31, 2019 and 2020 and March 31, 2021.

Convertible Preferred Stock

The Company's Series Seed, Series A and Series B convertible preferred stock (collectively, the "convertible preferred stock") have been classified as temporary equity in the accompanying balance sheets in accordance with authoritative guidance for the classification and measurement of potentially redeemable securities whose redemption is based upon certain change in control events outside the Company's control, including the sale or transfer of the Company. The Company records all convertible preferred stock upon issuance at its respective fair value. The Company has determined not to adjust the carrying values of the convertible preferred stock to the liquidation preferences of such shares because the occurrence of any such deemed liquidation event is not probable.

Fair Value Measurements

Certain assets and liabilities are carried at fair value under GAAP and consist principally of cash equivalents, restricted cash, accounts payable, accrued liabilities, a warrant to purchase convertible preferred stock and convertible promissory notes. The carrying amounts of cash equivalents, accounts payable, and accrued liabilities approximate their related fair values due to the short-term nature of these instruments. None of the Company's non-financial assets or liabilities are recorded at fair value on a recurring basis.

As permitted under Accounting Standards Codification ("ASC") 825, Financial Instruments, ("ASC 825"), the Company has elected the fair value option to account for its convertible promissory notes issued during the

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three months ended March 31, 2021. In accordance with ASC 825, the Company records these convertible promissory notes at fair value on it's balance sheet. Changes in fair value of the warrant to purchase convertible preferred stock and the convertible promissory notes are recorded in the statements of operations and comprehensive loss. As a result of applying the fair value option, direct costs and fees related to the convertible promissory notes were recognized as incurred and not deferred.

There are significant judgments and estimates inherent in the determination of the fair value of these liabilities. If the Company had made different assumptions including, among others, those related to the timing and probability of various corporate scenarios, discount rates, volatilities and exit valuations, the carrying values of the warrant liabilities and the 2021 Notes, and net loss and net loss per common share could have been significantly different.

The Company accounts for the convertible promissory notes at fair value and classifies the interest that has been accrued in the change in fair value of convertible promissory notes on the statement of operations.

Research and Development Expenses

The Company's research and development costs consist primarily of salaries, payroll taxes, employee benefits and stock-based compensation for personnel engaged in research and development activities; fees paid to consultants; license fees paid to third parties for use of their intellectual property, laboratory supplies and development compound materials; allocated overhead costs; and facilities and depreciation costs . All research and development costs are charged to expense as incurred.

Patent Costs

Costs related to filing and pursuing patent applications are recorded as general and administrative expenses within the Company's statements of operations and comprehensive loss and expensed as incurred since recoverability of such expenditures is uncertain.

Issuance Costs Related to Equity and Debt

The Company allocates issuance costs between the individual freestanding instruments identified on the same basis as proceeds were allocated. Issuance costs associated with the issuance of stock or equity contracts (e.g., convertible preferred stock) are recorded against the gross proceeds of the offering. Issuance costs associated with the issuance of debt is recorded as a direct reduction of the carrying amount of the debt liability but limited to the notional value of the debt. The Company accounts for the SVB Loan Agreement debt as liabilities measured at amortized cost and amortizes the resulting debt discount to interest expense using the effective interest method over the expected term of the debt pursuant.

Stock-Based Compensation

The Company accounts for stock-based compensation by measuring and recognizing compensation expense for all share-based awards made to employees and non-employees based on estimated grant-date fair values. The Company uses the straight-line method to allocate compensation cost to reporting periods over the requisite service period, which is generally the vesting period. The Company recognizes actual forfeitures by reducing the stock-based compensation in the same period as the forfeitures occur. The Company estimates the fair value of share-based awards to employees and non-employees using the Black-Scholes option pricing model. The Black-Scholes option pricing model requires the input of subjective assumptions, including fair value of common stock, expected term, expected volatility, risk-free interest rate, and expected dividend yield, which are described in greater detail below.

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Estimating the fair value of equity-settled awards as of the grant date using the Black-Scholes option pricing model is affected by assumptions regarding a number of complex variables. Changes in the assumptions can materially affect the fair value and ultimately how much stock-based compensation is recognized. These inputs are subjective and generally require significant analysis and judgment to develop. These inputs are as follows:

- ***Fair value of common stock***—There has been no public market for the Company's common stock to date. The exercise price of the Company's grants was determined by the Company's board of directors based in part on valuations of the Company's common stock prepared by a third-party valuation specialist. In connection with the preparation of the financial statements for the year ended December 31, 2020 and the three months ended March 31, 2021, the Company performed a retrospective review of the fair value of its common stock related to the current events available. Based on this review, the Company recorded stock compensation as reflected in the financial statements.
- ***Expected term***—The expected term represents the average period that the Company's options granted are expected to be outstanding and is determined using the simplified method (based on the mid-point between the weighted-average vesting date and the end of the contractual term). The Company has very limited historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for its stock option grants.
- ***Expected volatility***—Since the Company has been a privately-held company and has not had any trading history for its common stock, the expected volatility was estimated based on the historical average volatility for comparable publicly traded life sciences technology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, life cycle stage, or area of specialty. The Company will continue to apply this process until enough historical information regarding the volatility of its own stock price becomes available.
- ***Risk-free interest rate***—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of the options.
- ***Expected dividend yield***—The Company has never paid dividends on its common stock and have no plans to pay dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

For options granted to non-employee consultants, the fair value of these options is also measured using the Black-Scholes option pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected term which is assumed to be the remaining contractual life of the option.

The Company will continue to use judgment in evaluating the expected volatility, expected terms, and interest rates utilized for its stock-based compensation calculations on a prospective basis. Assumptions the Company used in applying the Black-Scholes option pricing model to determine the estimated fair value of its stock options granted involve inherent uncertainties and the application of significant judgment. As a result, if factors or expected outcomes change and the Company uses significantly different assumptions or estimates, its equity-based compensation could be materially different.

Income Taxes

The Company accounts for income taxes under 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 included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statements and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized as income or expense in the period that includes the enactment date.

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The Company recognizes net deferred tax assets to the extent that the Company believes these assets are more likely than not to be realized. In making such a determination, management considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies and results of recent operations.

If management determines that the Company would be able to realize its deferred tax assets in the future in excess of their net recorded amount, management would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes.

The Company records uncertain tax positions on the basis of a two-step process whereby (i) management determines whether it is more likely than not that the tax positions will be sustained on the basis of the technical merits of the position and (ii) for those tax positions that meet the more-likely-than-not recognition threshold, management recognizes the largest amount of tax benefit that is more than 50% likely to be realized upon ultimate settlement with the related tax authority. The Company recognizes interest and penalties related to unrecognized tax benefits within income tax expense.

Comprehensive Income (Loss)

Comprehensive income (loss) is defined as a change in equity during a period from transactions and other events and circumstances from non-owner sources. The only component of other comprehensive income (loss) is unrealized gain (loss) on available-for-sale securities. Comprehensive gains have been reflected in the statements of operations and comprehensive loss, and as a separate component in the statements of stockholders' equity.

Net Loss Per Share

In periods of net loss, basic loss per share is computed by dividing net loss available to common stockholders by the weighted-average number of shares of common stock outstanding during the period. The convertible preferred stock contain non-forfeitable rights to dividends with the common stockholders, and therefore are considered to be participating securities. For purposes of this calculation, outstanding stock options, an outstanding warrant, convertible preferred stock and shares of common stock subject to repurchase by the Company are excluded from the calculation of diluted net loss per common share for the periods presented as their effect would be anti-dilutive. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding due to the anti-dilutive effect of the securities.

The following table summarizes the number of potentially dilutive securities that were excluded from the Company's calculation of diluted net loss per share:

	December 31,		March 31,
	2019	2020	2021 (unaudited)
Employee stock options	6,338,939	7,274,953	4,475,799
Restricted Stock	650,000	—	—
Warrant for Series B convertible preferred stock	32,289	129,156	129,156
Series Seed convertible preferred stock	6,520,790	6,520,790	6,520,790
Series A convertible preferred stock	12,932,429	12,932,429	12,932,429
Series B convertible preferred stock	19,373,169	19,373,169	19,373,169
Total	45,197,616	46,230,497	43,431,343

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Recently Adopted Accounting Pronouncements

During 2016, the FASB issued ASU No. 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities* ("ASU No. 2016-01") which eliminates the requirement for companies to disclose the fair value of financial instruments measured at amortized cost on the balance sheet. Furthermore, the standard requires presentation of assets and liabilities separately, by measurement category and form of financial asset on the balance sheet or accompanying notes to the financial statements. The updated guidance is effective for annual periods beginning after December 15, 2018, and early adoption is permitted. The Company adopted this standard on January 1, 2019. The Company has evaluated the effect that the updated standard had on its internal processes, financial statements and related disclosures, and has determined that the adoption did not have a material impact on the Company's financial statements.

In July 2017, the FASB issued ASU No. 2017-11, *Earnings Per Share (Topic 260); Distinguishing Liabilities from Equity (Topic 480); Derivatives and Hedging (Topic 815): Accounting for Certain Financial Instruments with Down Round Features (*"ASU 2017-11"*)*. The amendments of this ASU update the classification analysis of certain equity-linked financial instruments, or embedded features, with down round features, as well as clarify existing disclosure requirements for equity-classified instruments. When determining whether certain financial instruments should be classified as liabilities or equity instruments, a down round feature no longer precludes equity classification when assessing whether the instrument is indexed to an entity's own stock. The accounting standard update is effective for fiscal years beginning after December 15, 2019. The Company adopted this standard on January 1, 2020 and evaluated all outstanding financial instruments that would fall under the scope of ASU 2017-11. The Company has evaluated the effect that the updated standard had on its internal processes, financial statements and related disclosures, and has determined that the adoption did not have a material impact on the Company's financial statements.

In June 2018, the FASB issued ASU No. 2018-07 *Compensation-Stock Compensation (Topic 718), Improvements to Nonemployee Share-based Payment Accounting* ("ASU 2018-07") which simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. ASU 2018-07 is effective for fiscal years beginning after December 15, 2019. Early adoption is permitted for those entities that have adopted the new revenue guidance. The Company adopted this standard on January 1, 2020. The Company has evaluated the effect that the updated standard had on its internal processes, financial statements and related disclosures, and has determined that the adoption did not have a material impact on the Company's financial statements.

In August 2018, the FASB issued ASU No. 2018-13, *Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"), which modifies certain disclosure requirements on fair value measurements. ASU 2018-13 is effective for interim and annual periods beginning after December 15, 2019, and early adoption is permitted. The Company adopted this standard on January 1, 2020. The Company has evaluated the effect that the updated standard had on its internal processes, financial statements and related disclosures, and has determined that the adoption did not have a material impact on the Company's historical financial statements. The Company has updated its fair value footnote (Note 3) with additional and modified disclosures as required by the standard upon adoption.

In August 2020, FASB issued ASU No. 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* ("ASU 2020-06"), which, among other things, provides guidance on how to account for contracts on an entity's own equity. This ASU

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simplifies the accounting for certain financial instruments with characteristics of liabilities and equity. Specifically, the ASU eliminated the need for the Company to assess whether a contract on the entity's own equity (i) permits settlement in unregistered shares, (ii) whether counterparty rights rank higher than shareholder's rights, and (iii) whether collateral is required. In addition, the ASU requires incremental disclosure related to contracts on the entity's own equity and clarifies the treatment of certain financial instruments accounted for under this ASU on earnings per share. This ASU may be applied on a full retrospective or modified retrospective basis. The Company adopted this standard on January 1, 2021, on a modified retrospective basis. The Company has evaluated the effect that the updated standard had on its internal processes, financial statements and related disclosures, and has determined that the adoption did not have a material impact on the Company's historical financial statements. The Company has updated its fair value footnote (Note 3) with additional and modified disclosures as required by the standard upon adoption.

Recent Accounting Pronouncements—Not Yet Adopted

In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"*)*. The new standard establishes a right-of-use model and requires a lessee to recognize on the balance sheet a right-of-use asset and corresponding lease liability for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. ASU 2016-02 is effective for the Company's annual periods beginning after December 15, 2021 and early adoption is permitted. The Company is currently evaluating the impact that the adoption of this guidance will have on its financial statements and related disclosures.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments–Credit Losses: Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13") which amends the impairment model by requiring entities to use a forward-looking approach based on expected losses to estimate credit losses on certain types of financial instruments, including trade receivables and available-for-sale debt securities. ASU 2016-13 is effective for the Company's annual periods beginning after December 15, 2022, with early adoption permitted. The Company is currently evaluating the impact that the adoption of this guidance will have on its financial statements and related disclosures.

In November 2018, the FASB issued ASU No. 2018-18 ("ASU 2018-18"), which clarifies the interaction between ASC Topic 808, *Collaborative Arrangements*, and ASC Topic 606, *Revenue from Contracts with Customers*. This guidance, among other items, clarifies that certain transactions between collaborative participants should be accounted for as revenue under Topic 606 when the collaborative arrangement participant is a customer in the context of a unit of account. ASU 2018-18 is effective for the Company's fiscal years beginning after December 15, 2020. The Company is currently evaluating the impact of the adoption of this standard on its financial statements and related disclosures.

In December 2019, the FASB issued ASU No. 2019-12, *Simplifying the Accounting for Income Taxes* ("ASU 2019-12"), as part of its initiative to reduce complexity in accounting standards. The amendments in the ASU are effective for the Company's fiscal years beginning after December 15, 2020, including interim periods therein. Early adoption of the standard is permitted, including adoption in interim or annual periods for which financial statements have not yet been issued. The Company is currently evaluating the impact of the adoption of this standard on its financial statements and related disclosures.

3. Fair Value Measurements

The accounting guidance defines fair value, establishes a consistent framework for measuring fair value and expands disclosure for each major asset and liability category measured at fair value on either a recurring or

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nonrecurring basis. Fair value is defined as an 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. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets.

Level 2: Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly.

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

When quoted market prices are available in active markets, the fair value of assets and liabilities is estimated within Level 1 of the valuation hierarchy.

If quoted prices are not available, then fair values are estimated by using pricing models, quoted prices of assets and liabilities with similar characteristics, or discounted cash flows, within Level 2 of the valuation hierarchy. In cases where Level 1 or Level 2 inputs are not available, the fair values are estimated by using inputs within Level 3 of the hierarchy. The fair value of short-term investments is based upon market prices quoted on the last day of the fiscal period or other observable market inputs. During 2019 and 2020, the Company issued a warrant in connection with its long-term debt (Note 6), which is measured at fair value at each reporting date. The value for the warrant liability balance is based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. Except for short-term investments, the 2021 Notes and the warrant, none of the Company’s assets or liabilities are recorded at fair value on a recurring basis.

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The following tables summarize the Company's assets and liabilities measured at fair value on a recurring basis as of December 31, 2019, 2020 and March 31, 2021 (in thousands):

	December 31, 2019			
Assets:	**Level 1**	**Level 2**	**Level 3**	**Total**
Money market funds (cash equivalents)	$ 4,682		$ —	$ 4,682
Asset backed securities	—	15,150	—	15,150
Corporate debt securities	—	25,546	—	25,546
Total assets	$ 4,682	$ 40,696	$ —	$ 45,378
Liability:				
Warrant liabilities	$ —	$ —	$ 64	$ 64
Total liabilities	$ —	$ —	$ 64	$ 64

	December 31, 2020			
Assets:	**Level 1**	**Level 2**	**Level 3**	**Total**
Money market funds (cash equivalents)	$ 5,426	$ —	$ —	$ 5,426
Asset backed securities	—	3,943	—	3,943
Corporate debt securities	—	11,288	—	11,288
Total assets	$ 5,426	$ 15,231	$ —	$ 20,657
Liability:				
Warrant liabilities	$ —	$ —	$ 451	451
Total liabilities	$ —	$ —	$ 451	$ 451

	March 31, 2021 (unaudited)			
Assets:	**Level 1**	**Level 2**	**Level 3**	**Total**
Money market funds (cash equivalents)	$37,518	$ —	$ —	$ 37,518
Asset backed securities	—	41,986	—	41,986
Corporate debt securities	—	62,609	—	62,609
Total assets	$37,518	$ 104,595	$ —	$ 142,113
Liability:				
Warrant liability	$ —	$ —	$ 2,653	$ 2,653
Convertible promissory notes			$ 141,900	141,900
Total liabilities	$ —	$ —	$ 144,553	$ 144,553

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The following table provides reconciliation for all liabilities measured at fair value using significant unobservable inputs (Level 3) for years ended December 31, 2019, 2020 and the three months ended March 31, 2021 (in thousands):

Balance at December 31, 2018	$ —
Fair value of warrant at issuance	64
Balance at December 31, 2019	$ 64
Fair value of warrant at issuance	189
Change in fair value of warrant during 2020	198
Balance at December 31, 2020	$ 451
Change in fair value of warrant during three months of 2021 (unaudited)	2,202
Change in fair value of 2021 Notes during three months of 2021 (unaudited)	11,400
Balance at March 31, 2021 (unaudited)	$ 14,504

In connection with the second draw of the Company's debt agreement the warrant was amended to increase the number of shares by 96,867. The change in fair value of the warrant between December 31, 2019 and December 31, 2020 was $0.2 million.

Below are the assumptions used for the Black-Scholes option pricing valuation model for the fair value of the warrant liability as of December 31, 2019, 2020 and March 31, 2021:

Assumption	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Fair value	$ 2.32	$ 4.59	$ 20.53
Expected volatility	60.00%	60.00%	82.50%
Expected term (years)	9.99	8.99	8.42
Expected dividend yield	0.00%	0.00%	0.00%
Risk-free interest rate	1.91%	0.93%	1.73%

The fair value on the date of measurement of the Series B convertible preferred stock, the underlying instrument, was estimated by management with the assistance of a third-party valuation specialist. The expected volatility is based on historical volatilities from guideline companies, since there is no active market for the Company's common stock. The Company based the expected term assumption on the actual remaining contractual term of the warrant as of the date of measurement. The Company has not paid, and does not expect to pay, any cash dividends in the foreseeable future. The risk-free interest rate used is the rate for a U.S. Treasury zero coupon issue with a term consistent with the remaining contractual term of the warrant on the date of measurement.

In February 2021, the Company sold and issued approximately $130.5 million aggregate principal amount of the convertible promissory notes in a private placement transaction. The 2021 Notes accrue 6% interest per annum and will automatically convert into shares of the Company's common stock in connection with the completion of this offering at a conversion price equal to the lower of (i) 80% of the initial public offering price per share and (ii) the price per share obtained by dividing $1.5 billion by the fully-diluted capitalization of our Company prior to the completion of this offering.

The Company elected to account for the 2021 Notes at fair value, as of the issuance date. Management believes that the fair value option better reflects the underlying economics of the 2021 Notes, which contain

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multiple embedded derivatives. Under the fair value election, changes in fair value are reported as "Change in fair value of convertible promissory notes" in the statements of operations in each reporting period subsequent to the issuance. The Company measured the fair value of the 2021 Note using the probability weighted "as converted" plus black scholes model based on the inputs such as probability of IPO scenario vs. Non-IPO scenario, fair value of common stock price, discount yield, risk free rate, equity volatility, years expected term, number of converted shares and price negotiation adjustment for the calibration.

There are significant judgments, assumptions and estimates inherent in the determination of the fair value of each of the instruments described above. These include determination of a valuation method and selection of the possible outcomes available to the Company, including the determination of timing and expected future investment returns for such scenarios. The Company considered the equity value of an initial public offering using market transactions and have determined the expected value of a stay private scenario using the income approach, which is based on assumptions regarding the Company's future operating performance. The related judgments, assumptions and estimates are highly interrelated and changes in any one assumption could necessitate changes in another. In particular, any changes in the probability of a particular outcome would require a related change to the probability of another outcome. In addition, the fair value of the 2021 Notes is derived using assumptions that are consistent with the assumptions used to value the Company's common stock and the Warrant. In the future, depending on the valuation approaches used and the expected timing and weighting of each, the inputs described above, or other inputs, may have a greater or lesser impact on the Company's estimates of fair value.

4. Property and Equipment, Net

Property and equipment, net, consisted of the following (in thousands):

	Useful Life	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Equipment	5 years	$1,731	$ 2,642	$ 2,948
Computers and software	3 years	398	851	1,138
Furniture and fixtures	5 years	57	80	80
Leasehold improvements	4 years of less	28	35	35
		2,214	3,608	4,201
Less: Accumulated depreciation		(601)	(1,240)	(1,451)
Total property and equipment, net		$1,613	$ 2,368	$ 2,750

5. Accrued Expenses

	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Accrued compensation	$ 51	$1,234	$ 554
Accrued professional fees	195	74	433
Accrued research and development costs	34	44	127
Accrued offering costs	-	-	804
Accrued other liabilities	180	240	259
Total accrued expenses	$ 460	$1,592	$ 2,177

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6. Long-Term Debt

In November 2019, the Company entered into a loan and security agreement (the "Loan Agreement") with Silicon Valley Bank ("SVB") pursuant to which SVB agreed to lend to the Company up to $15.0 million in a series of term loans (the "Loan"). Contemporaneously, the Company borrowed $2.5 million in the first of three draw-downs available through September 30, 2021. The additional draws are at the discretion of the Company, but the Company is subject to penalties and fees if not fully drawn down. Simultaneously with the first draw-down, SVB entered into a warrant agreement with the Company to purchase 32,289 shares of Series B convertible preferred stock of the Company at an exercise price of $2.3228 per share (as amended, the "SVB warrant"). The SVB warrant will be adjusted to increase the number of shares of the Company's Series B convertible preferred stock underlying the SVB warrant if the Company elects to draw down additional funds under the Loan (Note 10).

In March 2020, the Company borrowed an additional $7.5 million as a second draw down related to the Loan and the SVB warrant was amended to increase the number of shares of Series B convertible preferred stock of the Company by 96,867. As of December 31, 2020, the SVB warrant remain outstanding and is included within other current liabilities on the balance sheets.

The outstanding balance of the Loan is due on the scheduled maturity date of September 1, 2023 (the "Maturity Date"). Payment on the Loan will be interest only through September 30, 2021, followed by 24 equal monthly payments of principal plus accrued interest commencing on October 1, 2021. The per annum interest rate for any outstanding Loan balance is the greater of (i) 0.65% above the Prime Rate or (ii) 5.90%. The interest rate as of December 31, 2019, 2020 and March 31, 2021 was 5.90%. In addition, a final payment ("Final Payment") equal to the original principal amount of each advance multiplied by 5.50% will be due on the Maturity Date.

The Company may prepay the borrowed amounts, provided that the Company will be obligated to pay a prepayment fee equal to (i) 3% of the outstanding principal balance of all draw-downs if the draw-downs are repaid prior to the first anniversary of the draw-down date, (ii) 2% of the outstanding principal balance of all draw-downs if the draw-downs are repaid on or after the first anniversary of the draw-down date but prior to the second anniversary of the draw-down date, and (iii) 1% of the outstanding principal balance of all draw-downs if the draw-downs are repaid on or after the second anniversary of the draw-down date but before the Maturity Date. Further, the Company is subject to a 1% unused line fee payable to SVB related to the undrawn portion of the borrowing capacity on September 30, 2021 or, if applicable, upon prepayment.

As of December 31, 2019, 2020 and March 31, 2021, total debt issuance costs related to the Loan were $0.1 million $0.8 million and $0.5 million, respectively, if applicable the fair value of the warrant at issuance date is included within this balance (Note 10). The debt issuance costs and Final Payment are amortized to interest expense over the term of the loan using the effective interest method.

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The long-term debt and unamortized discount balances as of December 31, 2019 and 2020 and March 31, 2021, are shown below (in thousands):

	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Total long-term debt	$ 2,500	$ 10,000	$ 10,000
Less unamortized discount	(100)	(605)	(527)
Total long-term debt, net	2,400	9,395	9,473
Less current portion of long-term debt, net of issuance costs	—	(926)	(2,183)
Long-term debt, net of current portion	$ 2,400	$ 8,469	$ 7,290

The Company is subject to customary affirmative and restrictive covenants under the SVB Loan agreement. The Company's obligations under the SVB Loan agreement are secured by a first priority security interest in substantially all of the Company's current and future assets, other than intellectual property. The Company has agreed not to encumber its intellectual property assets, except as permitted by the SVB Loan agreement.

The Loan Agreement also contains customary indemnification obligations and customary events of default, including, among other things, the failure to fulfill certain obligations under the Loan Agreement and the occurrence of a material adverse change in the business, operations, or condition (financial or otherwise), a material impairment of the prospect of repayment of any portion of the Loan, or a material impairment in the perfection or priority of SVB's lien in the collateral or in the value of such collateral. In the event of default by the Company under the Loan Agreement, SVB would be entitled to exercise their remedies thereunder, including the right to accelerate the debt, upon which the Company may be required to repay all amounts then outstanding under the Loan Agreement. As of December 31, 2019, 2020 and March 31, 2021, the Company was in compliance with all covenants under the Loan Agreement and there had been no material adverse change in its business.

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Future minimum payments under the outstanding draw-down of $10.0 million on the Loan consist of the following (in thousands):

Years Ended December 31:	
2021	$ 1,842
2022	5,386
2023	4,393
Total future minimum payments	11,621
Less: Interest payments	(1,621)
Principal amount of long-term debt	10,000
Current portion of long-term debt	(1,250)
Long-term debt, net	$ 8,750

Three Months Ended March 31: (unaudited)	
2021 (nine months remaining)	$ 1,695
2022	5,386
2023	4,393
Total future minimum payments	11,474
Less: Interest payments	(1,474)
Principal amount of long-term debt	10,000
Current portion of long-term debt	(2,500)
Long-term debt, net	$ 7,500

In February 2021, the Company issued the 2021 Notes to various investors, in the aggregate principal amount of $130.50 million. The 2021 Notes bear interest at 6% per annum and have a maturity date in February 2023, or earlier upon certain events of default. The Company cannot prepay the 2021 Notes, without the consent of the holders of a majority in interest of the outstanding Notes (the “Majority Noteholders”). The 2021 Notes shall automatically convert, upon the first of the following transactions to occur, into: (i) shares of the Company’s common stock upon a qualified initial public offering (“IPO”) or a qualified transaction with a Special Purpose Acquisition Company (“SPAC”); or (ii) shares of the Company’s convertible preferred stock in the event of a qualified equity financing in which the Company issues shares of convertible preferred stock. The 2021 Notes are also convertible into shares of the Company’s convertible preferred stock issued in a non-qualifying financing transaction upon the election of the Majority Noteholders. In each case, the 2021 Notes are convertible at a conversion price equal to the lessor of (i) a per share price equal to 80% of the per share price paid by the new investors in such financing, IPO or SPAC transaction or (ii) a per share price equal to the price per share obtained by dividing $1.5 billion by the fully-diluted capitalization of our Company (the Valuation Cap). In the event of a change of control, each Note holder can elect to either receive an amount equal to two times the outstanding principal and interest on such holder’s Note or convert the Note into shares of the Company’s common stock at the Valuation Cap.

Due to certain embedded features within the 2021 Notes, the Company elected to account for these notes and all their embedded features under the fair value option. For the three months ended March 31, 2021, the Company recognized $11.4 million of change in fair value of convertible promissory notes in the statements of

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operations and comprehensive loss related to increases in the fair value of the 2021 Notes. As of March 31, 2021, the fair value on the 2021 Notes was $141.9 million.

7. Commitments and Contingencies

Columbia License Agreement and Sponsored Research Agreement

In 2016, the Company entered into an exclusive license agreement (the "License Agreement") with The Trustees of Columbia University ("Columbia"). Under the License Agreement, the Company acquired the exclusive right to use certain patents, materials and information. The License Agreement includes a number of diligence obligations that require the Company to use commercially reasonable efforts to research, discover, develop and market products covered by the patents, materials and information licensed by Columbia by certain dates. The License Agreement provides for the potential payment to Columbia of development milestones and royalties on net sales of products covered by the licensed patents, materials or information. The license fee was immaterial for all periods presented. The Company does not believe that its G4 or PX Instruments or the associated consumables, as the Company presently intends to commercialize them, fit within the definitions in the License Agreement that would require the Company to make milestone payments or pay royalties on sales of these products and as a result no amounts have been accrued to date. However, there is no assurance that Columbia will agree with the Company's interpretation of the License Agreement or its payment obligations thereunder or agree that the Company has complied with its other obligations under the License Agreement.

In addition to the License Agreement, the Company entered into a sponsored research agreement (the "Research Agreement") to fund a research program with Columbia. The program ended in 2019. The Company recorded $0.1 million of expense in connection with the Research Agreement for the year ended December 2019.

Operating Lease

In November 2017, the Company entered into a non-cancelable operating lease that expires upon commencement of the new HQ lease, as defined below (estimated second quarter of 2022). The lease includes certain rent escalations and additional charges for common area maintenance and other costs. The Company gained access to the leased space and began recognizing rent expense under this lease in February 2018.

In December 2019, the Company entered into a 5-year lease agreement for an additional office space in La Jolla, California. The lease includes certain rent escalations and additional charges for common area maintenance and other costs. The Company gained access to the leased space and began recognizing rent expense under this lease in January 2020. The sublease expires upon commencement of new HQ lease (estimated second quarter of 2022).

In June 2020, the Company entered into a sublease agreement for an additional office space in La Jolla, California. The sublease includes certain rent escalations and additional charges for common area maintenance and other costs. The Company gained access to the leased space and began recognizing rent expense under this sublease in July 2020. The sublease expires upon commencement of new HQ lease (estimated April 2022).

In June 2020, the Company entered into a 10-year lease agreement with ARE-SD Region No. 27, LLC ("landlord") for new office and laboratory space containing approximately 76,778 rentable square feet located in La Jolla, California ("premises", "new HQ lease"), with a target commencement date in April 2022. If landlord does not deliver the premises within 120 days of the target commencement date for any reason other than Force

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Majeure delays or delays by the Company, the Company may terminate by the Company and neither landlord nor the Company will have any further rights, duties, or obligations under the new HQ lease. Landlord shall make available to the Company for use within 12-months after the commencement date a Tenant Improvement Allowance ("TI Allowance"), which the Company will repay to the landlord as additional rent over the base term and shall accrue interest at a rate of 8% per annum. Upon commencement, the contractual base rent will be charged, subject to partial rent abatement, annual base rent adjustments, the Company's share of operating expenses, and additional rent for the TI Allowance actually disbursed by the landlord.

The Company recorded rent expense of $0.4 million, $1.0 million and $0.3 million for the years ended December 31, 2019, 2020 and the three months ended March 31, 2021, respectively.

Future minimum payments under the Company's non-cancelable operating leases are as follows (in thousands):

Years Ended December 31:	
2021	1,610
2022	3,948
2023	4,994
2024	5,144
2025 and thereafter	40,999
Total	$56,695

As of March 31, 2021: (unaudited)	
2021 (nine months remaining)	1,215
2022	3,948
2023	4,994
2024	5,144
2025 and thereafter	40,999
Total	$56,300

8. Convertible Preferred Stock

Series Seed Convertible Preferred Stock

In 2016, the Company completed its Series Seed convertible preferred stock financing, providing it with $4.5 million in aggregate gross proceeds, net of $0.0 million of issuance costs, from the issuance of 6,520,790 shares of its Series Seed convertible preferred stock at $0.6901 per share.

Series A Convertible Preferred Stock

In 2017, the Company completed its Series A convertible preferred stock financing, providing the Company with $20.0 million in aggregate gross proceeds, net of $0.1 million of issuance costs, from the issuance of 12,932,429 shares of its Series A convertible preferred stock at $1.5465 per share.

Series B Convertible Preferred Stock

In 2019, the Company completed two closings of its Series B convertible preferred stock financing, providing the Company with $45.0 million in aggregate gross proceeds, net of $0.2 million of issuance costs,

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from the issuance of 19,373,169 shares of its Series B convertible preferred stock at $2.3228 per share. In 2020, the Company paid an additional $0.03 million of issuance costs related to this financing.

Dividends

The holders of the Series Seed, Series A and Series B convertible preferred stock are entitled to receive non-cumulative dividends at a rate of $0.055208, $0.12372 and $0.18582 per share per annum, respectively. Convertible preferred stock dividends are payable when and if declared by the Company's Board of Directors. As of December 31, 2020 and March 31, 2021, the Company's Board of Directors had not declared any dividends on the convertible preferred stock outstanding.

Liquidation

The holders of the Series Seed, Series A and Series B convertible preferred stock are entitled to receive liquidation preferences at the rate of $0.6901, $1.5465 and $2.3228 per share, respectively. Liquidation payments to the holders of Series Seed, Series A and Series B convertible preferred stock shall be distributed with equal priority and pro rata among holders in proportion to the respective aggregate liquidation preference of each holder, and collectively prior to any distribution to the holders of common stock.

Conversion

Each share of Series Seed, Series A and Series B convertible preferred stock is convertible at any time at the option of the holder into a number of shares of common stock determined by dividing the original issue price for such series by the applicable conversion price for such series, which conversion price is subject to adjustment under certain conditions. The conversion prices for each series of convertible preferred stock shall be adjusted in the event that the Company issues additional convertible preferred stock at a price (or prices) less than the original issue price related to each series (down round protection). All outstanding shares of convertible preferred stock will be automatically converted upon the earlier of (i) the closing of firm commitment underwritten public offering pursuant to a registration statement on Form S-1 under the Securities Act of 1933, as amended, with an offering price per share of at least $6.968 (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date) and $60.0 million aggregate proceeds, or (ii) the affirmative election of the holders of at least (A) a majority of the outstanding shares of convertible preferred stock voting together as a single class on an as-converted basis and (B) a majority of the outstanding shares of Series B convertible preferred stock. Upon such conversion, any declared and unpaid dividends shall be paid in accordance with the agreement.

Voting Rights

The holders of the Series Seed, Series A and Series B convertible preferred stock are entitled to vote together with the holders of common stock on all matters submitted to stockholders for a vote. Each holder of convertible preferred stock is entitled to the number of votes equal to the number of shares of common stock into which such shares of convertible preferred stock could be converted at the record date for determination of the stockholders entitled to vote.

9. Common Stock

The Company is authorized to issue up to 60,272,685 shares of its common stock, each having a par value of $0.0001 per share. In 2016, the Company issued 9,260,000 shares of its common stock as restricted stock awards with a weighted-average grant date fair value of $0.0001 to various employees, advisors and directors of

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the Company, which are subject to a repurchase right in favor of the Company that lapses over a period of six months to four years. Upon the termination of service of a restricted stockholder, the Company has the option to repurchase any shares for which its repurchase right has not lapsed. As of December 31, 2019 and 2020, 8,610,000 and 9,260,000, respectively, the Company's repurchase rights had lapsed with respect to those restricted stock awards and none were repurchased. At December 31, 2019 and 2020, 650,000 and 0 of the shares subject to repurchase, respectively, remained unvested. The liability related to shares subject to the Company's repurchase rights as of December 31, 2019 was immaterial.

Common stock reserved for future issuance consisted of the following at December 31, 2020:

Conversion of preferred stock	38,826,388
Warrant for purchase of preferred stock	129,156
Stock options issued and outstanding	7,274,953
Authorized for future option grants	3,213,259
Total	49,443,756

Common stock reserved for future issuance consisted of the following at March 31, 2021:

Conversion of preferred stock	38,826,388
Warrant for purchase of preferred stock	129,156
Stock options issued and outstanding	4,475,799
Authorized for future option grants	934,124
Total	44,365,467

10. Series B Convertible Preferred Stock Warrant

In connection with the first draw-down under the Loan Agreement (Note 6) in November 2019, the Company issued the SVB warrant. The warrant is exercisable for ten years at any time starting on November 19, 2019. In March 2020, the SVB warrant was amended to increase the number of shares of Series B convertible preferred stock of the Company by 96,867 in connection with the second draw-down under the Loan Agreement. The SVB warrant has a ten-year term from the original agreement date of November 23, 2020.

The Company accounts for the SVB warrant in accordance with the provisions of ASC 480, *Distinguishing Liabilities from Equity*, which requires the SVB warrant for the purchase of shares in contingently redeemable instruments be accounted for as liabilities. The Company adjusts the carrying value of such warrant liability to its estimated fair value at the end of each reporting period, with increases or decreases in fair value recorded as other income or expense in the statements of operations. The SVB warrant is valued using the Black-Scholes option pricing model. The Company recorded warrant liability of $0.1 million, $0.5 million and $2.7 million at December 31, 2019, 2020 and March 31, 2021, respectively.

11. Stock Incentive Plan

In September 2016, the Company adopted its 2016 Stock Plan (the "Plan"). The Plan provides for the grant of incentive stock options and non-statutory stock options to employees, directors or consultants of the Company. Options granted under the Plan generally vest over a period of four years, as determined by the Company's Board

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of Directors, and the maximum term of stock options granted under the Plan is 10 years. Recipients of stock options are eligible to purchase shares of the Company's common stock at an exercise price equal to no less than the estimated fair market value of such stock on the grant date. As of December 31, 2020 and March 31, 2021, the Company had 11,528,297 shares authorized for issuance under the Plan and 3,213,259 and 934,124 shares remained available for grant, respectively.

The following table summarizes stock option activity under the Plan since March 31, 2021:

	Number of Options	Weighted-average exercise price (per share)	Weighted-average remaining contract term (in years)	Intrinsic value (in thousands)
Outstanding at December 31, 2019	6,338,939	$ 0.54	9.61	$ 559
Exercisable at December 31, 2019	6,338,939	$ 0.54	9.61	$ 559
Granted	1,451,500	$ 0.65		
Exercised	(116,068)	$ 0.41		
Canceled / Forfeited	(399,418)	$ 0.39		
Outstanding at December 31, 2020	7,274,953	$ 0.57	8.81	$ 32,129
Exercisable at December 31, 2020	7,274,953	$ 0.57	8.81	$ 32,129
Granted (unaudited)	2,321,700	$ 5.39		
Exercised (unaudited)	(5,096,415)	$ 0.59		
Canceled / Forfeited (unaudited)	(24,439)	$ 0.63		
Outstanding at March 31, 2021 (unaudited)	4,475,799	$ 3.05	8.99	$ 71,512
Exercisable at March 31, 2021 (unaudited)	4,475,799	$ 3.05	8.99	$ 71,512

The weighted-average estimated fair value per share of employee stock options granted during the years ended December 31, 2019, 2020 and three months ended March 31, 2021 was $0.47, $0.65 and $5.35 for employees, respectively, and $0.54, $0.69 and $8.95 for nonemployees, respectively.

The intrinsic value of options exercised during the years ended December 31, 2019, 2020 and three months ended March 31, 2021 was $0.3 million, $0.5 million and $67.6 million, respectively.

The total fair value of options vested during the years ended December 31, 2019, 2020 and three months ended March 31, 2021 was $0.1 million, $1.1 million and $8.7 million, respectively.

The Plan allows for the early exercise of awards to employees and nonemployees subject to the right of repurchase by the Company at the lower of the original exercise price or fair market value for unvested awards. At December 31, 2019, 2020 and March 31, 2021, the Company has a liability for the cash received from the early exercise of stock options in the amount of $0.1, $0.0 and $2.0 million, respectively. The Company reduces the liability as the underlying shares vest in accordance with the vesting terms of the individual award.

As of December 31, 2019, 2020 and March 31, 2021, there were 286,131, 137,788 and 3,169,464, respectively, of employee early exercised stock options that remain subject to the Company's repurchase right and there were 0, 4,167 and 33,532 non-employee early exercised stock options, respectively, that remain subject

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to the Company's repurchase right. The weighted-average exercise price during the year ended December 31, 2020 was $0.42 and $0.24 and during the three months ended at March 31, 2021 was $0.60 and $0.22 for employees and nonemployees, respectively.

The classification of equity-based compensation expense is summarized as follows (in thousands):

	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Research and development	$ 75	$ 832	$ 225
General and administrative	95	228	871
Total equity-based compensation expense	$170	$1,060	$ 1,096

As of December 31, 2020 and March 31, 2021, total unrecognized stock-based compensation costs related to options subject to the Company's repurchase right was $2.9 and $28.1 million and is expected to be recognized over the weighted average period of approximately 1.46 and 1.76 years on a straight-line basis, respectively.

The following table shows the weighted-average assumptions used to compute the fair value of the awards granted to employees and nonemployees, using the Black-Scholes option pricing model as of December 31, 2019, 2020 and March 31, 2021:

Assumption	December 31, 2019	December 31, 2020	March 31, 2021 (unaudited)
Expected volatility	60.00%	60.00%	82.50%
Expected term (years)	5.3 - 6.1	5.3 - 6.2	6.0 - 6.1
Expected dividend yield	0.00%	0.00%	0.00%
Risk-free interest rate	1.75%	0.63%	0.87%
Forfeiture rate	1.00%	1.00%	0.00%

The risk-free interest rate assumption was based on the United States Treasury's rates for U.S. Treasury zero-coupon bonds with maturities similar to those of the expected term of the award being valued. The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. For awards granted to nonemployees, the full remaining contractual term is used. The estimated volatility reflects an average volatility of comparable companies whose share prices are publicly available adjusted to align with the stage of development of the Company.

12. Income Taxes

Due to its net losses for the years ended December 31, 2019 and December 31, 2020, and since it has a full valuation allowance against deferred tax assets, the Company did not record any provision or benefit for income taxes. There were no components of current or deferred federal, state or foreign tax provisions for the year ended December 31, 2019 or 2020.

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A reconciliation of the total income tax provision tax rate to the statutory federal income tax rate of 21% for the year ended December 31, 2020 is as follows:

	December 31,	
	2019	2020
Income taxes at statutory rates	21.00%	21.00%
State income tax, net of federal benefit	6.54%	6.23%
Permanent items	-0.10%	-1.45%
Research credit	5.92%	5.67%
Change in valuation allowance	-33.36%	-31.47%
Other	0.00%	0.02%
	0.00%	0.00%

Significant components of the Company's deferred tax assets and deferred tax liabilities are as follows (in thousands):

	December 31,	
	2019	2020
Deferred tax assets:		
Net operating loss carryforward	$ 6,552	$ 13,556
Credits	1,368	2,945
Other	306	563
Total deferred tax assets	8,226	17,064
Valuation allowance	(8,147)	(16,941)
Net deferred tax assets	80	123
Deferred tax liabilities		
Fixed assets	(80)	(123)
Total deferred tax liabilities	(80)	(123)
Total net deferred taxes	$ —	$ —

At December 31, 2020, the Company had federal and California tax loss carryforwards of approximately $48.7 million and $47.1 million, respectively. The federal net operating loss generated prior to 2018 and state net operating loss carryforwards begin to expire in 2036, if unused. The federal net operating loss carryover includes $45.0 million of net operating losses generated in 2018, 2019 and 2020 which will carryover indefinitely.

At December 31, 2020, the Company had federal and state tax credit carry forwards of approximately $1.6 million and $2.2 million, respectively. The Company has not performed a formal research and development credit study with respect to these credits. The federal credits will begin to expire in 2037, if unused, and the state credits carry forward indefinitely.

Due to the Company's history of losses and uncertainty regarding future earnings, a valuation allowance has been recorded against the Company's deferred tax assets, as it is more likely than not that such assets will not be realized. The net change in the total valuation allowance for the year ended December 31, 2020 was $8.8 million.

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Pursuant to Internal Revenue Code of 1986, as amended ("IRC"), specifically IRC §382 and IRC §383, the Company's ability to use net operating loss and research and development tax credit carryforwards ("tax attribute carryforwards") to offset future taxable income is limited if the Company experiences a cumulative change in ownership of more than 50% within a three-year testing period. The Company has not completed an ownership change analysis pursuant to IRC Section 382. If ownership changes within the meaning of IRC Section 382 are identified as having occurred, the amount of remaining tax attribute carryforwards available to offset future taxable income and income tax expense in future years may be significantly restricted or eliminated. Any limitation may result in the expiration of a portion of the net operating loss or research credit carryforwards before utilization.

The Company recognizes a tax benefit from an uncertain tax position when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. Income tax positions must meet a more likely than not recognition threshold to be recognized. The Company's practice is to recognize interest and/or penalties related to income tax matters in income tax expense. The Company had no accrual for interest and penalties on the Company's balance sheets and has not recognized interest and/or penalties in the statements of operations and comprehensive loss for the years ended December 31, 2019 and 2020.

The following table summarizes the changes to the Company's unrecognized tax benefits for the periods presented (in thousands):

	December 31,	
	2019	2020
Balance at beginning of year	$137	$274
Increases related to current year tax positions	137	219
Balance at end of year	$274	$493

The Company is subject to taxation in the United States and California. The U.S. federal and California returns are open to examination for all years since inception. The Company has not been, nor is it currently, under examination by any federal or state tax authority.

13. Related Party Transactions

In February 2021, the Company sold and issued Convertible promissory notes to certain related parties (prior investors, some affiliated with members of the Company's board of directors), for an aggregate principal amount of $48.5 million (see Note 6 for long-term debt disclosure).

14. Subsequent Events

The Company has evaluated all events or transactions that occurred after the December 31, 2020 balance sheet date through March 19, 2021, the date when the financial statements were available to determine if they must be reported.

15. Subsequent Events (unaudited)

The Company has evaluated all events or transactions that occurred after the March 31, 2021 balance sheet date for recognition purposes through April 26, 2021, the date when the unaudited financial statements were available. The Company has evaluated all events or transactions that occurred after the March 31, 2021 balance sheet date for disclosure purposes through May 7, 2021 to determine if they must be disclosed.

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In April 2021, the Company entered into a 62-month lease agreement for an additional office space in San Diego, California. The lease includes certain rent escalations and additional charges for common area maintenance and other costs. The Company will gain access to the leased space in June 2021 and will begin recognizing rent expense under this lease at that time.

Shares

Common Stock

Prospectus

J.P. Morgan	**Goldman Sachs & Co. LLC**	**BofA Securities**	**Cowen**	**UBS Investment Bank**

, 2021

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table presents the costs and expenses, other than underwriting discounts and commissions, payable in connection with this offering. All amounts are estimates except the SEC registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and the Nasdaq Global Market (Nasdaq) listing fee. Except as otherwise noted, all the expenses below will be paid by us.

	Amount Paid or to Be Paid
SEC registration fee	$ *
FINRA filing fee	*
Nasdaq listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous fees and expenses	*
Total	$ *

* To be completed by amendment.

Item14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation's board of directors to grant, indemnity to directors and officers under certain circumstances and subject to certain limitations. The terms of Section 145 of the Delaware General Corporation Law are sufficiently broad to permit indemnification under certain circumstances for liabilities, including reimbursement of expenses incurred, arising under the Securities Act of 1933, as amended (the Securities Act).

As permitted by the Delaware General Corporation Law, our amended and restated certificate of incorporation and amended and restated bylaws contain provisions relating to the limitation of liability and indemnification of directors and officers. The amended and restated certificate of incorporation provides that our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, except for liability:

- for any breach of the director's duty of loyalty to us or our stockholders;
- for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- in respect of unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- for any transaction from which the director derives any improper personal benefit.

Our amended and restated certificate of incorporation also provides that if Delaware law is amended after the approval by our stockholders of the certificate of incorporation to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law.

Our amended and restated bylaws provide that we will indemnify our directors and officers to the fullest extent permitted by Delaware law, as it now exists or may in the future be amended, against all expenses and

liabilities reasonably incurred in connection with their service for or on our behalf. Our amended and restated bylaws provide that we shall advance the expenses incurred by a director or officer in advance of the final disposition of an action or proceeding, and permit us to secure insurance on behalf of any director, officer, employee, or other enterprise agent for any liability arising out of his or her action in that capacity, whether or not Delaware law would otherwise permit indemnification.

We intend to enter into indemnification agreements with each of our directors and executive officers and certain other key employees, a form of which is attached as Exhibit 10.1. The form of agreement provides that we will indemnify each of our directors, executive officers and such other key employees against any and all expenses incurred by that director, executive officer, or other key employee because of his or her status as one of our directors, executive officers, or other key employees, to the fullest extent permitted by Delaware law, our restated certificate of incorporation and our amended and restated bylaws. In addition, the form agreement provides that, to the fullest extent permitted by Delaware law, we will advance all expenses incurred by our directors, executive officers and other key employees in connection with a legal proceeding.

Reference is made to the underwriting agreement contained in Exhibit 1.1 to this registration statement, indemnifying our directors and officers against limited liabilities. In addition, Section 2.8 of our amended and restated investors' rights agreement (the IRA) contained in Exhibit 4.2 to this registration statement provides for indemnification of certain of our stockholders against liabilities described in our IRA.

We currently carry and intend to continue to carry liability insurance for our directors and officers.

Item15. Recent Sales of Unregistered Securities

The following list sets forth information regarding all unregistered securities sold by us since January 1, 2018. No underwriters were involved in the sales and the certificates representing the securities sold and issued contain legends restricting transfer of the securities without registration under the Securities Act or an applicable exemption from registration.

(a) From January 2018 through February 2021, we granted to our directors, officers, employees, consultants and other service providers stock options to purchase an aggregate of 9,821,471 shares of common stock upon the exercise of options under our 2016 Plan at exercise prices per share ranging from $0.2108 to $8.95, for an aggregate exercise price of approximately $16.9 million.

(b) From January 2018 through April 2021, we issued 5,461,757 shares of common stock upon the exercise of options under our 2016 Plan at exercise prices per share ranging from $0.2108 to $8.95, for an aggregate exercise price of approximately $3.2 million.

(c) In June and August of 2019, we issued and sold an aggregate of 19,373,169 shares of our Series B convertible preferred stock at a cash purchase price of $2.3228 per share for an aggregate purchase price of approximately $45.0 million.

(d) In February 2021, we sold and issued approximately $130.5 million aggregate principal amount of convertible promissory notes (the 2021 Notes). The 2021 Notes accrue 6% interest per annum and will automatically convert into shares of our common stock in connection with the closing of this offering.

(e) In November 2019, we sold and issued a warrant to purchase 32,289 shares of Series B convertible preferred stock with an exercise price of $2.3228 per share. In May 2020, in connection with the second draw of the Company's debt agreement, which occurred in March 2020, the warrant was amended to increase the number of shares available to purchase up to an aggregate of 129,156 shares of Series B convertible preferred stock with an exercise price of $2.3228 per share.

The offers, sales and issuances of the securities described in Items (a) and (b) above were exempt from registration under the Securities Act under either (1) Rule 701 in that the transactions were under compensatory

benefit plans and contracts relating to compensation as provided under Rule 701 or (2) 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 such securities were the registrant's directors, officers, employees, consultants or other service providers and received the securities under our 2016 Stock Plan. The recipients of securities in each of these transactions represented their intention to acquire the securities for investment only and not with view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions.

The offers, sales and issuances of the securities described in Items (c), (d) and (e) above were exempt from registration under the Securities Act under Section 4(a)(2) of the Securities Act or Regulation D promulgated thereunder as transactions by an issuer not involving a public offering. The recipients of securities in each of these transactions acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions was an accredited person and had adequate access, through employment, business or other relationships, to information about the registrant.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits. The following exhibits are included herein or incorporated herein by reference:

Exhibit Number	Description
1.1*	Form of Underwriting Agreement.
3.1**	Amended and Restated Certificate of Incorporation of Registrant, as currently in effect.
3.2*	Form of Amended and Restated Certificate of Incorporation of Registrant, to be effective upon completion of this offering.
3.3**	Bylaws of Registrant, as currently in effect.
3.4*	Form of Amended and Restated Bylaws of Registrant, to be effective upon completion of this offering.
4.1*	Form of Registrant's common stock certificate.
4.2**	Amended and Restated Investors' Rights Agreement, dated June 27, 2019, as amended, by and among the Registrant and the other parties thereto.
4.3**	Series B Preferred Stock Warrant, as amended.
5.1*	Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP.
10.1*	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers.
10.2**	2016 Stock Plan, as amended, and forms of agreements thereunder.
10.3*	2021 Equity Incentive Plan and form of agreements thereunder.
10.4*	2021 Employee Stock Purchase Plan.
10.5**	Lease Agreement, dated November 1, 2017, by and between ARE-10933 North Torrey Pines, LLC and the Registrant.
10.6**	Lease Agreement, dated June 26, 2020, by and between ARE-SD Region No. 27, LLC and the Registrant.
10.7**	Sublease, dated June 15, 2020, by and between the Registrant and Gossamer Bio, Inc.
10.8**	Amended and Restated Offer Letter, dated January 7, 2020, by and between the Registrant and Andrew Spaventa.
10.9**	Amended and Restated Offer Letter, dated January 11, 2020, by and between the Registrant and Eli Glezer.
10.10**	Offer Letter, dated September 25, 2019, by and between the Registrant and Dalen Meeter.
10.11**	Loan Agreement, dated November 19, 2019, by and between the Registrant and Silicon Valley Bank.
10.12†**	Exclusive License Agreement, date August 12, 2016, as amended, by and between the Registrant and The Trustees of Columbia University in the City of New York.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2*	Consent of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP (contained in Exhibit 5.1).
24.1**	Power of Attorney (included on signature page).

* To be filed by amendment.
** Previously filed.
† Pursuant to Item 601(b)(10) of Regulation S-K certain confidential portion of this exhibit have been omitted by means of marking such portions with asterisks as the identified confidential portions (i) are not material and (ii) would likely cause competitive harm to the registrant if publicly disclosed.

(b) Financial Statement Schedules. All schedules have been omitted because the information required to be presented in them is not applicable or is shown in the consolidated financial statements or related notes.

Item17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriter at the closing specified in the underwriting agreements certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the 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, 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 whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, as amended, 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 of 1933, as amended, 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 of 1933, as amended, 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.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of La Jolla, State of California, on this 12th day of May, 2021.

Singular Genomics Systems, Inc.

/s/ Andrew Spaventa
Andrew Spaventa
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Andrew Spaventa Andrew Spaventa	Chief Executive Officer and Chair of the Board of Directors *(Principal Executive Officer)*	May 12, 2021
/s/ Dalen Meeter Dalen Meeter	Vice President, Finance *(Principal Financial Officer and Principal Accounting Officer)*	May 12, 2021
* David Barker, Ph.D.	Director	May 12, 2021
* Andrew ElBardissi, M.D.	Director	May 12, 2021
* Kim Kamdar, Ph.D.	Director	May 12, 2021
* Michael Pellini, M.D.	Lead Independent Director	May 12, 2021
* Jason Ryan	Director	May 12, 2021

*By: /s/ Dalen Meeter
Dalen Meeter
Attorney-in-fact

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” and to the use of our report dated March 19, 2021, in Amendment No. 1 to the Registration Statement (Form S-1 No. 333-255912) and related Prospectus of Singular Genomics Systems, Inc. for the registration of shares of its common stock.

/s/ Ernst & Young LLP

San Diego, California
May 12, 2021