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

FORM 10-K

(Mark one)

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2021
or

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____
Commission file number 001-39747

SEER, INC.

(Exact name of Registrant as specified in its charter)

Delaware	**82-1153150**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

3800 Bridge Parkway, Suite 102
Redwood City, California 94065
650-453-0000
(Address, including zip code and telephone number, including area code, of Registrant's principal executive offices)

Securities registered pursuant to section 12(g) of the Act:

Copies to:

Title of each class	**Trading Symbol(s)**	**Name of Exchange on which registered**
Common Stock, par value $0.00001	SEER	NASDAQ Global Select Market

Securities registered pursuant to section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large accelerated filer	☒	Accelerated filer	☐
		Smaller reporting company	☒
Non-accelerated filer	☐	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. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes ☒ No ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant, based on the closing price of the shares of common stock on The NASDAQ Stock Market on June 30, 2021, was approximately $1.6 billion.

As of February 22, 2022, the registrant had 58,048,119 shares of Class A common stock, $0.00001 par value per share, and 4,055,190 of Class B common stock, $0.00001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement relating to the 2022 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2021.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K ("Annual Report") contains forward-looking statements. All statements other than statements of historical facts contained in this Annual Report, including statements regarding our future results of operations and financial position, business strategy, commercial activities and costs, 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.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "would," "expect," "plan," "anticipate," "could," "intend," "target," "project," "believe," "estimate," "predict," "potential," or "continue" or the negative of these terms or other similar expressions. Forward-looking statements contained in this Annual Report include, but are not limited to, statements about:

- estimates of our addressable market, market growth, key performance indicators, capital requirements and our needs for additional financing;
- our expectations regarding our financial performance, including among others, revenue, cost of revenue, gross profit, operating expenses, loss from operations and net losses;
- our ability to successfully implement our three phase commercialization plan, including our ability to attract customers during the broad release phase;
- the implementation of our business model, strategic plans and expected pricing for the Proteograph™ Product Suite;
- our expectations regarding the rate and degree of market acceptance of the Proteograph Product Suite;
- the impact of the Proteograph Product Suite on the field of proteomics and the size and growth of the addressable proteomics market;
- competitive companies and technologies and our industry;
- our ability to manage and grow our business;
- our ability to develop and commercialize new products;
- 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;
- the potential effects of government regulation;
- our ability to hire and retain key personnel and to manage our future growth effectively;
- the volatility of the trading price of our Class A common stock;
- the benefits of the PrognomIQ, Inc. transaction;
- the impact of local, regional, and national and international economic conditions and events;
- the impact of COVID-19 on our business; and
- our expectations about market trends.

We have based these forward-looking statements largely on our current expectations and projections about our business, the industry in which we operate and financial trends that we believe may affect our business, financial condition, results of operations and prospects, and these forward-looking statements are not guarantees of future performance or development. These forward-looking statements speak only as of the date of this Annual Report and are subject to a number of risks, uncertainties and assumptions described in the section titled “Risk Factors” and elsewhere in this Annual Report. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, we undertake no obligation to update or revise any forward-looking statements contained herein to reflect events or circumstances after the date of this Annual Report, whether as a result of any new information, future events or otherwise.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this Annual Report, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain, and you are cautioned not to unduly rely upon these statements.

PART I.

Item 1. Business

Overview

Our mission is to imagine and pioneer new ways to decode the secrets of the proteome to improve human health. Our initial product, the Proteograph Product Suite (Proteograph), leverages our proprietary engineered nanoparticle (NP) technology to provide unbiased, deep, rapid and large-scale access to the proteome. The Proteograph Product Suite is an integrated solution that is comprised of consumables, an automation instrument and software.

We believe that characterizing and understanding the full complexity of the proteome is foundational for accelerating biological insights and will lead to broad potential end-markets for proteomics, encompassing basic research and discovery, translational research, diagnostics and applied applications. This full understanding of the complexity of the proteome and its dynamic nature requires large-scale, unbiased and deep interrogation of thousands of samples across time, which we believe is unavailable with the proteomic approaches available today. We believe that the Proteograph Product Suite has the potential to enable researchers to perform these proteomics studies at scale.

Proteins are the functional units of many biological processes and dynamic indicators of physiology that can gauge health over time, inform disease progression and monitor therapeutic response. Despite the central role proteins play in biology, rich functional content derived from proteomics studies is relatively unexplored compared to the genome, since large-scale proteomic studies have not been possible. We believe large-scale characterization of the proteome has not been feasible with existing proteomics approaches, which broadly fall into two categories: (i) unbiased but not scalable, or (ii) scalable but biased. Current *de novo*, or unbiased, approaches require complex, lengthy, and labor- and capital-intensive workflows that limit their scalability to small, under-powered studies. Targeted or biased methods enable interrogation of a limited number of known proteins per sample. Although targeted approaches are scalable, they lack the breadth and depth necessary to appropriately characterize the proteome and catalog its many protein variants. Therefore, we believe that proteomics researchers are forced into an unattractive trade-off between the number of samples in a study and the depth and breadth of the analysis. These trade-offs limit the ability to advance characterization of the proteome to match the characterization of the genome. We believe deep, unbiased, large-scale proteomic analysis is needed for a more complete understanding of biology.

We are initially focused on driving adoption of the Proteograph with customers in the proteomics and genomics markets, with those researchers who recognize the value of large-scale, unbiased, deep proteomics. Allied Market Research estimates the proteomics market was $32 billion in 2019. We believe that the Proteograph's unique capabilities will enable researchers to undertake unbiased studies not possible today, particularly those of larger scale, and will complement genomics studies by adding critical missing information that can provide functional context to genomic variation. According to the dbSNP database, over 1 billion individual genetic variants have been identified to date; however, fewer than 0.2% of those variants have been cataloged in the ClinVar database with a reported relationship between variation and phenotype.

We believe unbiased, deep and large-scale proteomics will help researchers map biological function of genomic variants, identify impactful disease and response-specific risk factors, and accelerate discovery of molecular mechanisms of health and disease. We believe these capabilities should broadly appeal to researchers and entities undertaking large-scale genomics studies and should attract spending from the genomics market, estimated by Technavio to be $21 billion in 2019. In addition, we believe the Proteograph is likely to enable novel content discovery that will lead to entirely new applications and market opportunities.

We are initially focused on research applications for the Proteograph Product Suite and are selling and marketing the Proteograph for research use only (RUO). We commenced the third and final phase of our commercialization plan with broad release in January 2022.

The Importance of Proteomics

Detailed and complex biological information resides at the protein level. Virtually every function within a living organism occurs by the action of a protein or a group of proteins interacting with each other and in concert. Thus, proteomics is a key area of focus for researchers. Proteins are dynamic indicators of health status and can be used to monitor disease progression and therapeutic response. By contrast, the genome is a static indicator of what a person's physiology could be, not an indicator of current physiological state. In short, the genome represents risk, while the proteome reflects status. Despite the physiological impact, the human proteome is relatively unexplored compared to the human genome.

Through large-scale data collection and widespread adoption of molecular profiling techniques, over one billion genetic variations have been identified across all genomes that have been sequenced. Although this information has significantly improved the understanding of biology, the functional context at the protein level has not been established for the vast majority of this genomics information. In other words, researchers have not been able to connect phenotypic information with the relevant genotypic information. We believe that if we enable researchers to generate large bodies of proteomic data that can be coupled with large bodies of genomic data, they will be better positioned to understand the relationship between variation and function and its impact on biology.

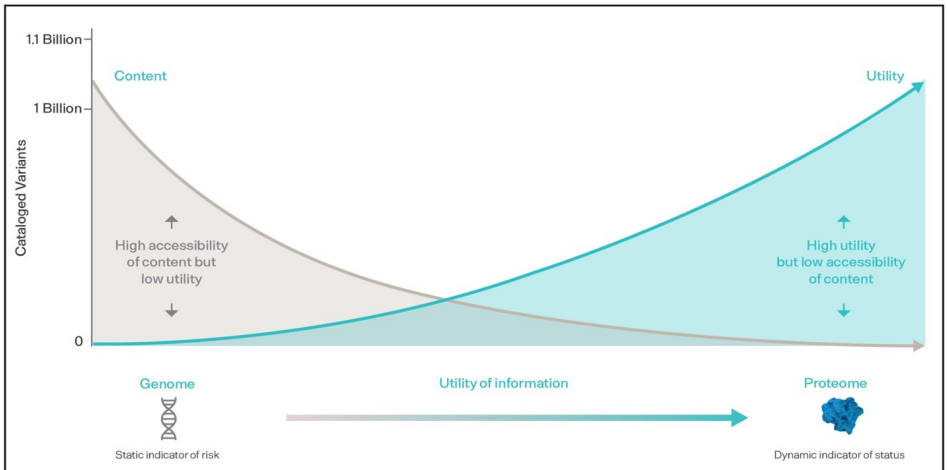

Figure 1: Utility of genomic vs. proteomic information. Over one million human genomes have been highly characterized with over 1 Billion variants, but they have low utility and represent a static indicator of risk. The human proteome is far less characterized but has a much higher utility as a dynamic indicator of health status.

Challenges of Accessing the Proteome

The human proteome is more dynamic, diverse and complex in structure, composition and number of variants than either the genome or transcriptome. Starting from the genome, multiple biological steps take place to arrive at the proteome, each step creates increased complexity and diversity. The human genome has approximately 20,000 genes, which are estimated to give rise to more than 200,000 transcripts, which then give rise to 1,000,000 or more protein variants. As shown in Figure 2, this is in part because a single gene produces distinct ribonucleic acid (RNA) isoforms through the process of transcription and a myriad of structurally distinct proteins through the process of translation. Biological processes can further chemically modify these proteins in unique ways, resulting in a large number of protein variants through post-translational modifications. Overall, these processes result in many levels of protein diversity, from amino acid sequence and structural variations, to post-translational modifications (PTMs), to functional changes due to interactions between the proteins themselves, known as protein-protein interactions

(PPIs). We believe the fundamental challenge with existing proteomics methods is their inability to measure the breadth and depth of the proteome's complexity, rapidly and at scale.

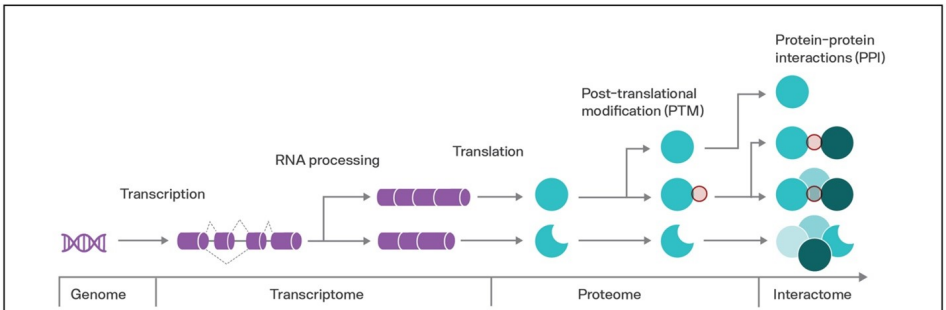

Figure 2: Functional diversity exists through modifications and interactions of different molecules, from static indicators like the genome to increasingly numerous and complex indicators like the proteome and interactome. Image from Bludau et al.

Limitations of Targeted Approaches to Proteomics

Unlike DNA, the structures, chemistries and concentrations of proteins in any given sample are widely variable. Proteins also lack a direct amplification mechanism, which creates technological challenges for identifying them at low concentration. Given the diversity of protein structures, coupled with the lack of a common amplification mechanism, researchers often use analyte-specific reagents (ASRs) to measure proteins. ASRs are ligands, such as antibodies, that have been designed to bind to specific areas of proteins, and therefore, involve a targeted or biased approach. This targeted approach is limited in that ASRs do not have the capability to interrogate the entirety of the protein structure of the molecule that they bind to and may not distinguish important protein variants. The average length of a human protein is approximately 470 amino acids, whereas the average binding site of an ASR is an epitope with a length of five to eight amino acids. ASRs may not recognize differences between proteins outside of the epitope binding site and, therefore, may not differentiate among protein variants, as demonstrated in recent publications including *Pietzner, M. et al*. ASRs and other biased readout technologies are not optimal for discovery given the inherent complexity of proteins. A large number of ASRs can be designed to detect a large number of different proteins, but this approach is limited in its ability to measure new protein variations.

Targeted approaches, in general, are useful when the scientist or clinician knows what is being analyzed. This is analogous to the role of microarrays in genomics, where a specific DNA fragment is used in a targeted or biased manner to confirm the presence of a specific mutation, or a single nucleotide polymorphism (SNP), whereas NGS employs an unbiased approach to interrogate the breadth of content in the genome. With an unbiased approach, as one scales the number of samples in a study, one inherently assays a broader set of novel content. With targeted approaches, regardless of the number of samples in a study, one will not gain any additional novel content beyond the specific targets of the assay.

Limitations of Current Unbiased Approaches to Proteomics

Rather than interrogating proteins at the level of predefined epitopes, unbiased approaches can interrogate proteins at the peptide level, providing amino-acid level resolution to protein variants. However, current unbiased approaches do not scale well due to vastly different protein concentrations in plasma samples. Plasma protein concentration, for example, can span ten orders of magnitude from abundant proteins like albumin to some of the least abundant proteins, such as cytokines. The top 22 most abundant proteins account for approximately 99% of the total protein mass in the plasma, yet the many thousands of less abundant proteins comprising the other one percent of the total proteome by mass have significant impact on biology. Therefore, it is critical to be able to broadly and deeply detect proteins across the proteome, including those proteins that appear in low concentrations in plasma.

Mass spectrometry (MS) is a broadly used technique for detection of proteins and their variants for unbiased discovery, basic research and clinical applications. Given the wide dynamic range of protein concentrations in

plasma and other biological samples, current MS methods for protein detection often require complex sample preparation workflows that involve depletion of abundant proteins and grouping remaining proteins and peptides into smaller units through fractionation. We believe current unbiased approaches in complex biosamples with a skewed dynamic range (e.g., blood plasma) are not widely adopted by researchers because the workflows are extremely complex, the process is expensive and the time required to complete such analysis is significant. As one example of these complex methods, in a paper from *Keshishian, H. et al.*, the researchers first depleted the most abundant proteins with immuno-affinity columns and then separated the remaining proteins by many subsequent and complex chromatographic steps and mass spectrometer injections. The study identified 4,500 different proteins across 16 samples, taking multiple months to complete.

A critical unmet need in proteomic analysis remains how to collect unbiased proteomic data on thousands of proteins in a sample spanning more than ten orders of dynamic range in concentration and to repeat this across thousands of samples in a reasonable amount of time and cost. Genomics faced a similar unmet need before the advent of NGS, which allowed for massively-parallel sampling.

Importance of an Unbiased Approach in the Discovery of Novel Content

The ability to perform unbiased sampling of content at scale in biology has been transformational to biological analysis. Before NGS, genomic approaches were not scalable to either read the entire genome or process very large numbers of samples. Researchers could only sequence hundreds of fragments of DNA or RNA at a time, and not easily in parallel. Genetic analysis was limited to biased, shallow genetic studies that were time-consuming and not scalable. As a result, genomics researchers faced similar challenges that researchers currently face in proteomics. The introduction of NGS enabled unbiased analysis at scale of small fragments of DNA, allowing researchers to, in parallel, sequence tens of millions (currently tens of billions) of fragments of DNA per sample. This transformative approach to sampling enabled genomic sequencing at scale and enabled the discovery of novel content.

The discovery of novel content created the path to genomic end-market opportunities across basic research and discovery, translational research and clinical applications, including early cancer detection, recurrence monitoring and non-invasive prenatal testing. While there are no assurances that the Proteograph Product Suite will have the same effect on the proteomics market as NGS technologies have had on the genomics market, given the utility of proteins for measuring function, health and disease, we believe the same, if not a greater, market opportunity exists for providing unbiased, deep, rapid and scalable access to the proteome. Figure 3 illustrates the concept of increasing content discovery with an unbiased approach as sample cohorts increase in size.

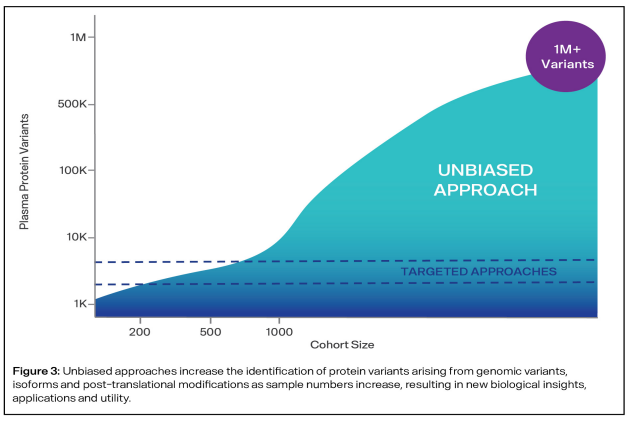

Figure 3: Unbiased approaches increase the identification of protein variants arising from genomic variants, isoforms and post-translational modifications as sample numbers increase, resulting in new biological insights, applications and utility.

Importance of Peptide-Level Resolution in the Understanding of Biology

We believe that peptide-level resolution will be critical to the discovery of novel content and new biological insights. As one example, using data from our *Nature Communications* paper, we identified several biologically-important novel cancer biomarkers at the peptide level that would have been missed if we had only focused on overall protein expression. One of those biomarkers, Bone Morphogenic Protein 1 (BMP1) has been reported to

have a dual role in cancer, but the biology is not well understood. Figure 4 below demonstrates how BMP1 at the protein level ignores the variants of BMP1, showing no apparent difference in the overall expression pattern of BMP1 between cancer and healthy subjects. If one has resolution at the peptide level, individual variants of BMP1 can be seen. It is possible that these findings may help to explain the dual role of BMP1 in cancer. This insight is enabled because an unbiased approach is able to identify peptide sequences at the amino acid-level.

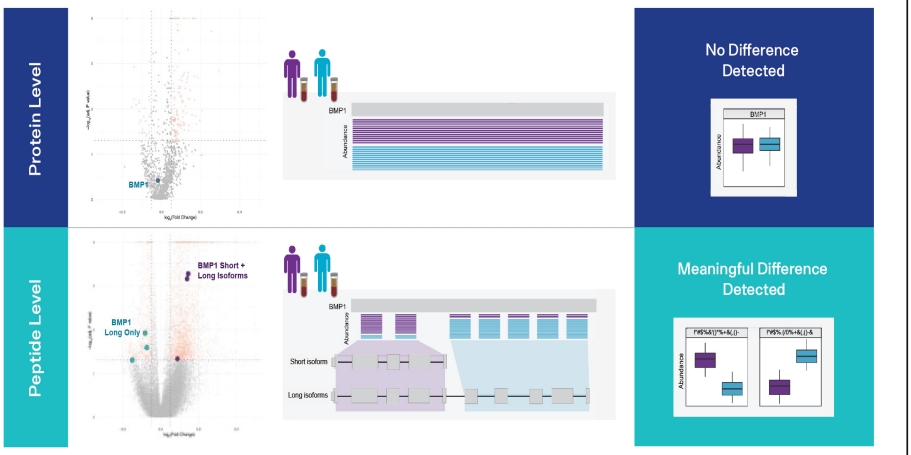

Figure 4: Identification of peptide-level variants of Bone Morphogenic Protein 1 (BMP1) enabled by an unbiased approach. Peptide level information reveals individual BMP1 variants, showing an opposite pattern of differential expression in the short vs long variants of BMP1 in cancer vs normal.

Our Proprietary Engineered Nanoparticle Technology

Our proprietary engineered nanoparticle technology overcomes the limitations of existing methods and is the foundation for the Proteograph Product Suite's easy-to-use workflow for unbiased, deep, rapid and scalable proteomic analysis. Our approach is based on proprietary engineered NPs that enable unbiased sampling of intact proteins across the dynamic range of the proteome, capturing a myriad of molecular information at the level of protein variants as well as PPIs. Our NPs eliminate the need for complex workflows required by other unbiased approaches, which we believe will make proteomics more accessible to the broader scientific community.

The diameter of a nanoparticle is typically in the tens to hundreds of nanometers. As a reference, the diameter of a human hair is 80,000 nanometers. When nanoparticles are placed in contact with a biological sample, a thin layer of intact proteins rapidly, selectively and reproducibly adsorbs onto the surface of a nanoparticle upon contact, forming what is called a protein "corona." Additional intact proteins can also join the corona layer by binding directly to a protein that has already attached to the nanoparticle through PPIs, and intact protein complexes may also attach to the nanoparticle directly. Our NPs' ability to capture whole and intact proteins and their many diverse variants provides access to protein structural information, including information on PPIs. At binding equilibrium, which occurs within minutes after our NPs encounter the protein, the selective sampling of proteins by our NPs is robust and highly reproducible.

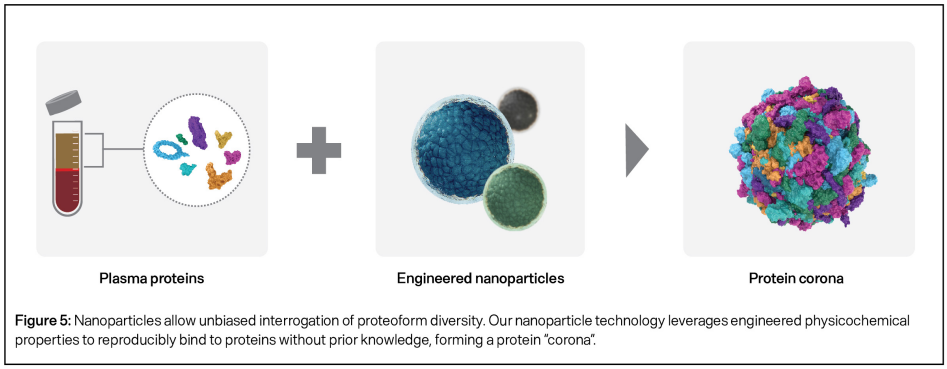

Figure 5: Nanoparticles allow unbiased interrogation of proteoform diversity. Our nanoparticle technology leverages engineered physicochemical properties to reproducibly bind to proteins without prior knowledge, forming a protein "corona".

Protein sampling and binding of proteins to the nanoparticle surface are driven by three primary factors: (i) affinity of a given protein for a given nanoparticle's physicochemical surface; (ii) concentration of a given protein in a biological sample; and (iii) affinity of the proteins for other proteins on the surface of the nanoparticle, forming PPIs. A variety of different methods and materials are used to design and create different nanoparticles. Each nanoparticle can have distinct physicochemical properties that generate a unique protein corona pattern and a unique proteomic fingerprint. We believe the growing body of proteomic data coupled with advanced machine learning will allow us to continue to enhance the unique physicochemical properties of our nanoparticles.

We can combine nanoparticles into panels to provide a representative and thorough sampling across the dynamic range of the proteome, from high to low abundance proteins. In effect, the properties of protein binding to a panel of nanoparticles are functionally equivalent to, and can replace, complex, biochemical laboratory workflows for the preparation of samples for deep, unbiased MS, and which enable the capture of thousands of proteins from biofluids for large-scale proteomics studies. Virtually any solubilized biological sample can be interrogated with nanoparticles, including cell or tissue homogenates, blood or blood components (such as plasma or serum, urine), saliva, cerebrospinal fluid and synovial fluid. The versatility of nanoparticles provides the opportunity to use a vast universe of different nanoparticles with different physicochemical properties, across a broad range of sample types, to selectively, reproducibly and deeply sample the proteome in an unbiased way.

The figure below illustrates the dynamic range of the proteome with high abundance proteins in the upper left of the curve and low abundance proteins in the lower right of the curve. Each of our unique nanoparticles has different physicochemical properties, which allows it to sample selectively across the breadth of the proteome.

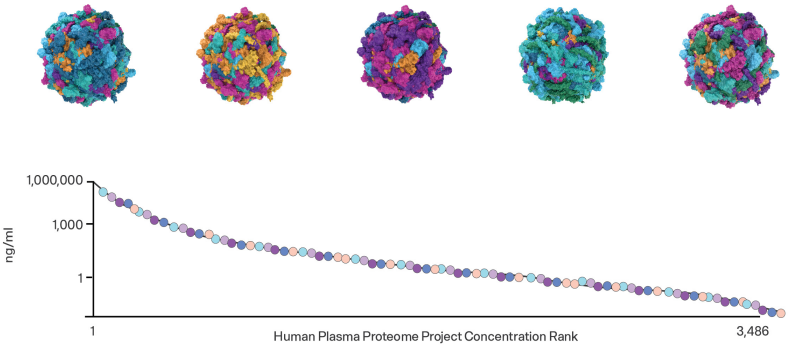

Figure 6: Diverse nanoparticles and their physicochemical properties, represented by the five molecular models, can be used to interrogate the dynamic range by affinity.

Our NPs enable the unique capabilities of the Proteograph Product Suite, including the ability to:

- eliminate complex workflows required by other unbiased proteomic approaches;
- sample in an unbiased manner across the dynamic range of the proteome in a variety of biological samples;
- identify and distinguish protein variants at the peptide level;
- identify and quantify protein variants and PPIs;
- use machine learning to design, synthesize and select different NPs and NP panels to create multiple products and applications; and
- be compatible across a wide range of laboratory workflows, automation equipment and sample processing and detection methods, lowering the hurdle for product adoption.

We have validated our NP technology and the principle of protein corona formation as a robust and reproducible method to deeply and broadly profile the proteome in a high-throughput manner. In our publication in *Nature Communications* (Blume et al.), we demonstrated a rapid, deep and precise profiling of the plasma proteome with our proprietary engineered NP technology.

The Proteograph Product Suite

Our proprietary engineered NP technology forms the basis for our first product, the Proteograph Product Suite. The Proteograph is an integrated solution consisting of consumables, an automation instrument and software to perform unbiased, deep proteomic analysis at scale in a matter of hours. We designed the Proteograph workflow to be efficient and easy-to-use, and to leverage broadly used laboratory instrumentation to enable adoption in both decentralized and centralized settings, making deep, unbiased proteomics accessible to nearly any lab.

The Proteograph consumables consist of our NP panel and all other consumables necessary to assay samples in an automated workflow on our SP100 automation instrument. Our automated workflow is custom configured for researchers to assay samples in approximately seven hours, which includes thirty minutes of hands-on time and six and a half hours of automated instrument time. The output from the Proteograph workflow is peptides ready to be processed on an MS instrument. The Proteograph Product Suite is detector agnostic and, we believe, will be adaptable to other protein detection instruments in the future. The MS component of the Proteograph workflow is either provided by the researcher's laboratory or can be outsourced to a third-party provider. We estimate that there are approximately 16,000 MS instruments with configurations typically used to perform proteomic analysis installed worldwide and, therefore, we believe that MS systems are readily accessible by researchers. The Proteograph Analysis Suite, a data analytics software suite, provides quality control and allows researchers to analyze and interpret the output from the system and gain insights into their data.

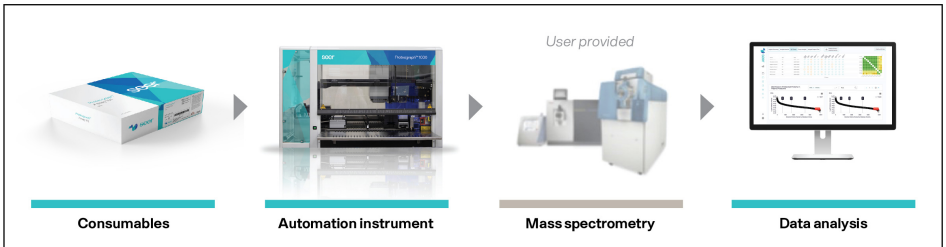

Figure 7: Our Proteograph Product Suite comprises consumables, an automation instrument and software.

Consumables

For our first Proteograph assay, we employ a panel of five NPs. The Proteograph consumables also include buffers and reagents for protein lysis and digestion, peptide purification, peptide quantification and the reconstitution of

lyophilized materials. We designed the performance specifications of the Proteograph Product Suite to meet the core needs of the market in terms of protein coverage and sample throughput required for proteomic experiments that are unbiased and at-scale. The current product allows for the interrogation and processing of up to 16 samples in parallel on a single 96-well plate in approximately seven hours. Each sample incubates separately with each of the five nanoparticles, resulting in 80 wells of peptides in a 96-well plate.The remaining 16 wells are for integrated quality control samples to ensure consistent process performance and to aid in troubleshooting.

The ready availability of the non-particle reagents combined with our ability to efficiently design and fabricate different NPs with different chemical properties, greatly simplifies the development and production of future iterations or additional versions of the Proteograph assays to address potential customer needs, such as expanded coverage or specialized assays. Additionally, we can introduce new assays that include a different number of NPs and process different sample numbers.

Automation Instrument

We designed the Proteograph assay to be run in a robust and automated manner on our SP100 automation instrument, which is a custom-configured industry-standard liquid handling workstation. Our SP100 instrument is designed to consistently run experiments and to enable studies of hundreds to thousands of samples. Our automated workflow allows for rapid highly parallel proteomic sampling with just thirty minutes of set-up time. The flexibility of our instrument, coupled with the inherent diversity of our NP technology, provides for many potential applications and study workflows that can suit particular experimental needs

The Proteograph workflow is driven by the Instrument Control Software (ICS) on the SP100 automation instrument. The workflow has been configured to process one full 96-well plate at a time, in just seven hours, processing 16 samples in parallel for each 96-well plate run. Future workflows and NP panels will be able to be run on the SP100 automation instrument, with an accompanying software update. The output of the Proteograph assay and instrument is peptides that are quantified, dried, and can be reconstituted when ready to inject into a mass spectrometer. MS provides quantitative detection, either on an instrument provided by the user, or sent out for MS analysis to a third-party provider.

Software

The Proteograph Analysis Suite is designed for ease-of-use and was developed to help users arrive at insights quickly and efficiently following quantitative detection of peptides on an MS instrument. To accommodate varying customer needs, we have designed the Proteograph Analysis Suite to be deployed as cloud-based and, in the future, more localized solutions to accommodate different customer types and geographies. Our deployment options will provide a predefined workflow for data management and analysis that leverages publicly available MS data analysis tools, as well as proprietary data analyses developed by us. Without the Proteograph Analysis Suite, proteomics analysis requires expert knowledge and scalable high-performance computer infrastructure to run efficiently. We believe that the Proteograph Analysis Suite could accelerate adoption among non-proteomic experts by providing an intuitive user interface that automates and simplifies data handling, processing and analysis, and provides access to a scalable infrastructure that can be used by any lab.

Another potential roadblock for researchers is understanding and evaluating the quality of their results. The Proteograph assay incorporates a series of controls for monitoring assay performance, and an integrated view of the results of these control runs. Using the Proteograph Analysis Suite, the customer can evaluate trends over time and implement performance boundaries around the expected values that flag unexpected outcomes in the data. Providing a simple, consistent interface for customers to evaluate the control data and generate a quality control (QC) report will help them understand our approach to QC in the Proteograph workflow and simplify support.

We expect that the Proteograph Product Suite will enable generation of large volumes of proteomic data, and we have developed the Proteograph Analysis Suite to ensure that handling, management and analysis of data does not create new bottlenecks for researchers. The Proteograph Analysis Suite offers ease of implementation and addresses key customer needs, which include integrated QC reporting, data management, data visualization, and statistical analysis tools. The Proteograph Analysis Suite is highly scalable and is designed to accommodate inputs from different MS platforms, rapidly expanding data volumes and emerging data analysis tools. Finally, as we continue to

improve and extend our product portfolio, we expect to expand the Proteograph Analysis Suite to include advanced data analysis tools, including PPI analysis, mapping of PTMs, genetic polymorphisms, multi-omics integration, and systems biology framework analysis.

From Sample to Data Using the Proteograph Product Suite

Proteomic analysis using the Proteograph Product Suite has five primary steps:

1. *Protein Corona Formation*. NPs can be mixed with a wide variety of soluble biological sample types (matrices), including cell or tissue homogenates, blood or blood components (such as plasma or serum), urine, saliva, cerebrospinal fluid, and synovial fluid. After combining the biosample and the NP, the mixture is incubated in a solution that mimics physiological conditions, producing protein-corona on the surface of the NPs.

2. *Protein Corona Wash*. NPs are then captured by a magnetic field, after which they undergo repeated cycles of wash with buffer to remove unbound, or loosely bound, proteins.

3. *Peptide Preparation*. Washed NPs are subject to enzymatic digestion to generate peptides, which are collected, quantified, dried and ready for subsequent MS analysis.

4. *Mass Spectrometry*. Digested peptides are prepared for measurement by dissolution in appropriate peptide reconstitution buffer suitable for MS injection, at a volume and concentration that meets MS instrument and liquid chromatography gradient requirements.

5. *Data Analysis.* After data acquisition, typical MS analysis methods are employed within the Proteograph Analysis Suite to identify and quantify the peptides and proteins in the sample. Quality control metrics are reported for the MS sample data, sample data summaries and output files are created, and initial cross-sample analyses are provided.

Given the seven-hour run time per plate for our initial five-NP panel, one Proteograph Product Suite coupled with two MS instruments can process 48 samples in approximately two and a half days for unbiased and deep proteomic analysis. By comparison, the workflows developed by leading proteomics labs can take as long as several days to weeks, for sample preparation for MS measurement to reach an equivalent depth of proteomic coverage.

Proteograph Product Suite Performance

The Proteograph Product Suite provides four critical attributes: (i) breadth of protein sampling; (ii) depth of coverage; (iii) accuracy and precision of measurement; and (iv) the ability to scale the number of samples processed in a study. We believe that the Proteograph Product Suite is the only product to provide these technical and operational capabilities in an integrated solution to enable large-scale proteomic analysis. The performance of the Proteograph Product Suite as it relates to these technical attributes is described below:

- ***Breadth of protein sampling.*** Refers to the ability to conduct unbiased, highly parallel sampling of the proteome. Each uniquely engineered NP selectively captures hundreds of distinct intact proteins from a biosample based on their abundance and affinity for the NP surface. Sampling is particularly strong in complex biofluids such as plasma. Our unique NPs capture significantly more proteins and protein variants than current methods of unbiased proteomic analysis, as shown in Figure 8a below.

In a head-to-head experiment, the Proteograph Product Suite was compared with other unbiased proteomics methods using the same biological sample. Neat plasma represents the simplest form of unbiased proteomic analysis, requiring minimal processing time, and resulted in a breadth of coverage of 312 proteins. By adding processing steps such as depletion of high abundance proteins and fractionation (separation of the remaining proteins into multiple fractions), the breadth of protein sampling increased to 670 proteins. However, with the Proteograph Product Suite, we detected 1,656 proteins in plasma, representing a major expansion in breadth of protein coverage.

- ***Depth of coverage.*** Refers to the Proteograph's ability to evaluate the proteome across the wide dynamic range of protein abundance. The depth of coverage using our assay is compared to other unbiased proteomic methods shown in Figure 8b below. The Proteograph assay samples proteins across the entire dynamic range of the plasma proteome, as defined in the Human Plasma Proteome Project database (*Schwenk et al.*), with the 75th percentile point of depth of coverage shown with the orange bar. The depth of coverage for the Proteograph assay reaches further into the low abundant proteins than the fractionation, depletion and neat plasma methods.

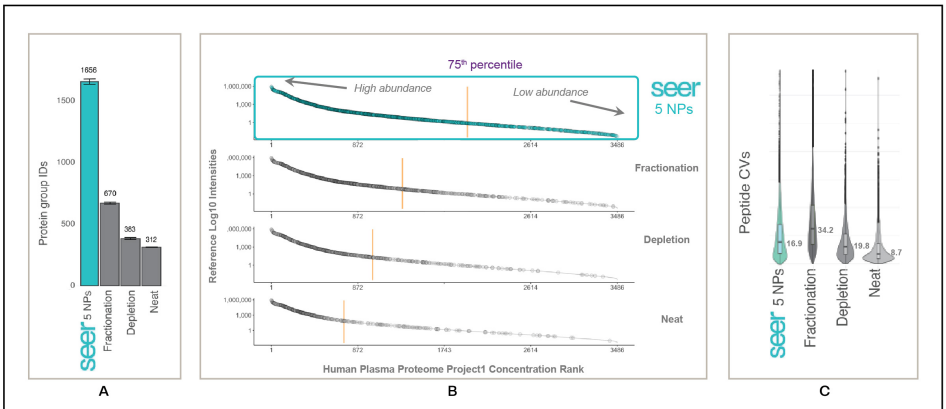

Figure 8: The Proteograph Product Suite yields more low abundant proteins with higher precision. To compare performance, we used a single plasma pool and compared a five nanoparticle panel vs neat, depleted, and fractionated plasma. The Proteograph Product Suite's five nanoparticle panel yielded significantly more protein groups (A) covering low abundance proteins (B) at a higher precision than depletion and fractionation based workflows (C).

- ***Accuracy of measurement.*** Refers to how close the measured abundance of a protein is to the true abundance in a sample. Accuracy of protein abundance measurement can be demonstrated by MS signal intensity of the proteins sampled with the Proteograph assay, and comparing these values with measurements obtained directly by immuno-assay (ELISA). To demonstrate this, purified C-Reactive Protein (CRP) was added or "spiked" in to plasma at levels of 2x, 5x, 10x, and 100x of the baseline measured levels for CRP in the plasma. Samples with known concentrations of CRP were interrogated with the Proteograph Product Suite and ELISA. Figure 9 shows the linearity of measurement, as determined by MS signal intensity of four peptides within CRP when compared to the ELISA measurement of CRP. The Proteograph assay can distinguish changes in protein abundance with significant accuracy, as demonstrated by a slope response approximately equal to one and an r-squared value greater than 0.95.

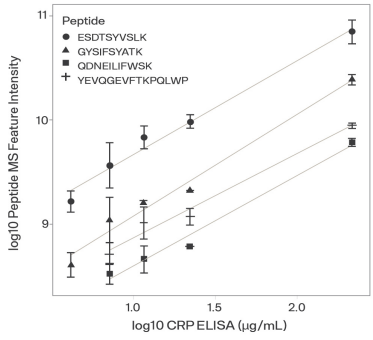

Figure 9: Accuracy of our Proteograph assay. Purified C-Reactive Protein (CRP) was spiked into human plasma at known concentrations and measured by ELISA (X axis) and the Proteograph for signal intensity of for CRP peptides (Y axis).

- ***Precision of measurement.*** Refers to how close several measurements of protein abundance in the same sample are to each other. Less precision in the measurement adds noise to an experiment, requiring a larger number of samples in the study to observe a true difference. Precision is typically measured as the coefficient of variation (CV%), or standard deviation divided by the mean times 100. Therefore, a lower CV% represents a more precise outcome. The precision of the Proteograph Product Suite was compared with that of depletion, fractionation, and neat, by evaluating the same sample three times and calculating the CV% for the detected peptides and proteins. On average across the peptides, the median precision was 16.9 CV%. At this level of performance, the Proteograph has 80% statistical power to detect a 50% change in a peptide levels with only ten samples per sample group. Using the Proteograph, lower CV% is achieved than fractionation and depletion methods, while concurrently sampling significantly more proteins, as shown in Figure 8c. In general, in unbiased assays, CV%s are expected to increase as the number of analytes detected increases. However, the Proteograph assay can increase the number of analytes that it detects while achieving comparatively better CV%s. Although neat plasma has a lower CV%, it is limited in the breadth of protein coverage to 312 proteins compared to 1,656 proteins sampled by the Proteograph.
- ***Scalability*.** The Proteograph Product Suite enables rapid and large-scale proteomic sample processing in a seven-hour workflow, compared to other unbiased solutions that can take days to weeks. With our current five-NP assay, we can process sixteen samples in a single run of the Proteograph SP100 instrument.Given the seven-hour run time per plate for our initial five-NP panel, one Proteograph Product Suite coupled with two MS instruments can process 48 samples in approximately two and a half days for unbiased and deep proteomic analysis. By comparison, the workflows developed by leading proteomics labs can take as long as several days to weeks, for sample preparation for MS measurement to reach an equivalent depth of proteomic coverage.

We believe the Proteograph will broadly appeal to researchers seeking an easy-to-use, scalable approach with a unique combination of attributes spanning breadth, depth, accuracy and precision of measurement and the speed and throughput necessary for large-scale proteomics studies. Sampling across the entire dynamic range has been one of the seminal challenges in the field of proteomics, as the range from the most abundant to the least abundant protein in biological samples can vary up to ten orders of magnitude, and the rich diversity of biology likely resides outside the most abundant proteins.

Markets

We believe the two primary near-term markets for the Proteograph Product Suite are the proteomics market, which was $32 billion in 2019, according to Allied Market Research, and the genomics market, which was $21 billion in 2019, according to Technavio. Within these markets, potential applications of the Proteograph solution span basic research and discovery, translational research, diagnostics and applied applications. Of the $32 billion proteomics market, $25 billion is estimated to be spent on reagents, $5 billion on instruments, and $2 billion on services. In the near-term, we believe we will compete in both the proteomics reagent and instrument markets. Furthermore, the $21 billion genomics market consists of approximately $13 billion spent on products and $7 billion spent on services. In the near-term, we believe we will be able to garner spend from both products and services as genomic customers link genotype to phenotype by supplementing existing genomic data with proteomics data.

While we initially plan to sell and market the Proteograph Product Suite for RUO, we believe that the capabilities of the Proteograph Product Suite may enable other applications. While we currently do not intend to pursue clinical diagnostics applications, we may in the future seek premarket approval or clearance for the Proteograph Product Suite in order to allow our customers to use the Proteograph in other product offerings. We believe that the Proteograph Product Suite’s unique value proposition will resonate with proteomics researchers who already value deep and unbiased proteomic information, and who desire to scale experiments to far greater sample sizes at a fraction of the time and cost of current approaches. We also believe that as more genomics researchers incorporate other omics approaches to elucidate key genomic findings, the Proteograph will uniquely provide large-scale, unbiased and deep proteomic information to complement genomic information, and enable researchers to gain a clearer picture of biology and a deeper understanding of genomic risk factors. Longer-term, we believe that the

capabilities offered by the Proteograph Product Suite and future products may potentially lead to new end-markets, applications, and business models that complement existing proteomics and genomics markets.

Proteomics

Allied Market Research estimates the global proteomics market was $32 billion in 2019, and is expected to grow to $64 billion in 2024, representing a 15% compound annual growth rate. According to Allied Market Research, 60% of the proteomics market is focused on life sciences research, 35% for clinical applications and 5% other applications. Products in the proteomics market include spectrometry, microarray and chromatography instruments as well as reagents, used for both unbiased and biased proteomics. The majority of proteomic analysis to date either relies on biased or targeted methods or expensive, complex, and laborious unbiased or *de novo* deep methods that are applied only to tens of samples versus the thousands needed to power large-scale studies. Few methods are based on capture of intact proteins that enable analysis of proteome complexity at the level of amino acid variants, PTMs and PPIs, all of which have the potential to generate important biological insights. We believe the unique capabilities of the Proteograph Product Suite will appeal to researchers either as a complement or substitute for current approaches, or in creating an entirely novel path to survey the proteome. We estimate that there are approximately 16,000 MS instruments with configurations typically used to perform proteomic analysis installed worldwide. Since the Proteograph can leverage most MS instruments as a detector, we believe that we can take advantage of this installed base to accelerate adoption. We believe that we have an opportunity to provide a strong alternative to both unbiased and biased proteomics approaches, particularly in the discovery of new biology, and to grow the proteomics market by enabling new applications for unbiased proteomics. These applications currently span research, translational and clinical settings, and we believe that the Proteograph Product Suite can address all these applications over time.

Genomics

Technavio estimates the global genomics market was $21 billion in 2019 and is expected to grow to $38 billion by 2024, representing a 13% compound annual growth rate. We believe that large-scale deep, unbiased proteomics studies, such as those the Proteograph could enable, will provide important missing biological information to improve functional characterization of genomic variants, enabling large-scale proteogenomics. In genomics markets, complementing large-scale genomics analysis with large-scale proteomic analysis has the potential to enhance and accelerate our understanding of biology, human health and ultimately the treatment of disease. Therefore, we believe the Proteograph solution can appeal to an increasing number of genomics customers, especially those in translational settings, who are looking to leverage multi-omics approaches to further annotate genomic variants in terms of function and connect genotype to phenotype.

New Markets

We also believe that the Proteograph Product Suite will enable novel applications and insights leading to new end-markets, like the impact that broad access to genomics products have had in creating new applications, end-markets and business models. For example, non-invasive prenatal testing and precision oncology currently make up a significant part of the current $21 billion genomics market, yet we believe that it would have been difficult to anticipate these market opportunities a decade ago. We believe the same dynamic of new market creation will occur in proteomics. One such application for proteomics is early disease detection. We spun out a new entity, PrognomIQ, Inc. (PrognomIQ), which aims to develop and commercialize novel diagnostic tests that leverage the Proteograph Product Suite in combination with genomics and metabolomics information, and will be a participant in the existing ecosystem of early disease detection. More broadly, we believe the Proteograph solution has the potential to further stimulate growth of new applications and end-markets in additional ecosystems.

The Advantages of The Proteograph Product Suite

We believe the Proteograph Product Suite and its underlying NP technology have the following advantages:

- ***The first commercially available solution to provide the combination of unbiased, deep, rapid and large-scale access to the proteome.*** While other proteomics technologies exist today, we believe that the Proteograph

Product Suite is the first and only product to provide the combination of these four attributes in a single integrated solution with an easy-to-use workflow. We believe these capabilities fill a gap that to date has been one of the rate-limiting steps in unlocking the complexity of biology.

- ***A unique solution that provides insight into protein variation and PPIs at a depth and scale that we believe sets a new standard for unbiased and deep proteomics and is unattainable with existing approaches.*** The ability to observe the myriad of possible protein variations, which go beyond simple total protein abundance, with the accuracy and precision necessary to extract useful insights across large numbers of subjects, is a key differentiating attribute of our solution. Furthermore, capturing these variations at scale enables synergistic insights when combined with genomic variations, finally enabling the development of informative, individualized models of biology at population scale.

- ***A solution that will enable broad adoption by a wide variety of customers in both decentralized and centralized settings.*** The Proteograph Product Suite is an integrated solution comprised of consumables, an automation instrument and software, and was designed to deliver ease-of-use, efficiency, robustness and reproducibility of results and to complement existing laboratory infrastructure. The Proteograph's simple and integrated workflow enables the customer to use their own MS instrument or leverage a widely available installed base of MS instruments. We believe these characteristics will facilitate broad adoption of the Proteograph solution across a variety of laboratories and institutions in both decentralized and centralized settings.

- ***A core technology from which we can develop a range of products, applications and platforms.*** From our growing and diverse NP library, we can develop new panels of NP consumables that address a variety of applications and customer needs. We plan to use machine learning techniques and apply large-scale data analyses of our NP binding properties to understand relationships between NP surfaces and protein binding and interactions in order to rationally design our NP panels. We believe these characteristics will enable development of additional differentiated products to enable our customers to utilize applications across the life sciences industry, ranging from basic research and discovery, translational research, diagnostics and applied applications.

- ***A core technology that provides significant operational leverage in research and development, manufacturing and commercialization.*** NPs are efficient to design, develop and manufacture. We believe we will be able to rapidly increase and deploy our understanding of NP design to develop new products with our software and data analytics capabilities. In the NP manufacturing process, we use well-characterized inputs and methods, which require relatively modest capital equipment and space investments. This capital-efficient and labor-efficient model has the potential to provide significant operating leverage to our organization.

- ***A solution with sustainable differentiation.*** The Proteograph is uniquely capable of generating robust, reproducible, deep and unbiased proteomic data, and as more of this data gets created over our time and used by more customers to generate insights, we expect to create a cycle that will fuel further adoption of the Proteograph Product Suite throughout the industry. The Proteograph workflow was designed to fully integrate with customer workflows and provide a unique user experience, supported by our software packages, to create a sustainable solution within our customers' organizations. The SP100 automation instrument, software, and NP technology are covered by numerous issued patents and pending patent applications, worldwide, covering improvements in NPs, assay methods and ways to leverage proteomic data and information for life sciences research and clinical diagnostic and drug discovery applications.

Our Strategy

Our mission is to imagine and pioneer new ways to decode the secrets of the proteome to improve human health. Our growth strategy is to:

- ***Drive adoption of the Proteograph Product Suite to enable researchers to create large-scale unbiased proteomic datasets that generate transformative scientific insights.*** The Proteograph Product Suite uniquely enables researchers and clinicians to generate unbiased, deep proteomic information at speed and scale that was

not previously possible. The utility and potential applications of these capabilities are broad, spanning across basic research and discovery, translational research, diagnostics and applied applications.

- ***Invest in market development activities to establish the importance of large-scale proteomic data and the ability to access it***. To expand and accelerate demand for our products, particularly as new applications are created and adopted by customers, we plan to invest in market development activities to educate prospective customers, funding bodies, commercial entities, government-sponsored omics programs, and other stakeholders of the importance and value of large-scale unbiased and deep proteomic data. These activities will likely include collaborations with key opinion leaders, generation of peer-reviewed publications, sponsorship of targeted projects, joint publications and seminars, and industry partnerships. These activities aim to establish the value of large-scale unbiased and deep proteomic data, and demonstrate the unique capabilities offered by our products.

- ***Continually innovate to develop and commercialize additional transformative products to access the proteome and accelerate our understanding of biology***. We aim to continually innovate and develop new products, applications, workflows and analysis tools that simplify and accelerate researchers and clinicians' ability to generate proteomic data and to connect proteomic data to genomic and transcriptomic data that drive novel biological insights. As leaders in NGS have demonstrated, our sustainable advantage will come from continual development and commercialization of new products and applications based on our technology, and we will drive innovation through both internal R&D projects and from collaborations with customers and partners.

- ***Rapidly build our commercial infrastructure and manufacturing capabilities to enable global customer base expansion.*** We are building our commercial infrastructure to sell and support our products directly in the United States, the European Union and United Kingdom. We are expanding access to our products in other geographies, starting with select countries in Asia Pacific through distributors, and eventually to the rest of the world. We are also scaling our manufacturing capabilities in our facility in Redwood City, California, and will continually evaluate and optimize our manufacturing and supply chain footprint to meet our business objectives.

- ***Foster the creation of an ecosystem of customers, partners and collaborators whose expertise and offerings complement and enhance the power and utility of our products.*** We intend to seed and develop a new ecosystem of applications and organizations that can take advantage of large-scale proteomic analysis. This ecosystem can include areas such as disease detection, large-scale population studies, agriculture, environmental monitoring and food safety. To help seed the growth of this ecosystem, we spun-out a new company called PrognomIQ, which plans to develop and commercialize diagnostic tests for early disease detection, leveraging the Proteograph Product Suite in combination with other omics technologies.

- ***Expand our proprietary engineered NP technology to analyze molecules beyond proteins.*** Given the inherent flexibility and ability to synthesize myriad NPs, we intend to seek over the long-term to expand the scope of our proprietary engineered NP technology to analyze other biomolecules such nucleic acids, metabolites and small molecules among others. As we continue to work closely with our customers, we will better understand their needs and requirements, which will inform our product development pathway and development of our library of NPs and our software capabilities to address other omics applications. We believe our management's knowledge and experience in both the proteomics and genomics markets will position us to take advantage of such new expansion opportunities as they arise.

The Applications of the Proteograph Product Suite

We believe the ability to generate unbiased, deep proteomic data at scale, with rich content at the protein variant level will have broad applications in proteomics, encompassing basic research and discovery, translational research, diagnostics and applied markets. We believe this data will be used in many of the same application areas as are used with genomics data, proteomics applications that are uniquely possible with unbiased proteomic data and in new applications that the field will develop in the future.

Basic Research and Discovery Applications

We believe that researchers will use the Proteograph for a variety of basic research and discovery applications, including cataloging protein diversity, proteogenomics and exploring the interactome. While researchers are pursing these applications today, the studies are either limited in scale due to the complex workflows of current unbiased methods or the limited set of ASRs that are available for biased methods. The Proteograph Product Suite is designed to enable the use of unbiased proteomic data at scale, which we believe will greatly accelerate these areas of basic research and discovery.

Cataloging protein diversity

The Proteograph Product Suite is designed to enable researchers to broadly explore the complexity and diversity of the proteome at the peptide and amino acid levels and discover many distinct protein variants. We expect that researchers will use the Proteograph solution to catalog these protein variants much like the cataloging of genetic variants that occurred over the past fifteen years, and this will uniquely provide functional context at a scale that is not accessible today with other proteomics methods. We believe the utility of these protein variants has the potential to impact a broad spectrum of the life sciences field.

In cataloging protein variants, researchers can also gain valuable insights with PTMs, such as phosphorylation. These PTMs are dynamic and the resulting protein variants can be seen with different states of health and disease. We believe that as researchers pursue large-scale proteomics studies, the literature that links disease biology to protein variants produced from alternative RNA splicing and from PTMs will exponentially increase.

Proteogenomics

Proteogenomics is an emerging area of research, whereby personalized protein sequence databases are generated using genomic and transcriptomic information to help identify novel peptides. In turn, the proteomic data provides functional context to genomic information and refines gene expression models for transcriptomic information. The Proteograph generates large-scale unbiased proteomic data, which will facilitate mapping protein variants to genomic variants, and therefore, the advancement of the emerging proteogenomics field. Given the current level of access to genomic and transcriptomic information, as researchers conduct the large-scale proteomics studies that the Proteograph enables, we expect proteogenomic content to rapidly increase, providing functional information to existing genomics and gene expression information.

Interactome

The interactome refers to the broad set of interaction networks among molecules, such as those interactions among proteins, also referred to as protein-protein interactions, or PPIs. Protein interaction networks have been used to infer the function of proteins. Different types of interaction maps can be composed by the research community for different applications. These include physical interactions or the functional pathway implications of these interactions. PPI network maps can be constructed by pegging individual proteins as nodes and linking proteins that interact to them by a drawn line. These maps naturally cluster into hubs of proteins that fall into related pathways or have related functions.

Access to the deep unbiased proteomic information provided by the Proteograph may enable researchers to better understand biological implications of known PPIs. Furthermore, given our highly parallel sampling of the proteome across multiple NPs and many samples, we believe researchers using the Proteograph Product Suite may be able to leverage machine learning methods on the resulting large data sets to derive novel PPIs.

Translational Research Applications

Researchers can use the Proteograph to address translational research applications, which aim to shorten the cycle time from early discovery research to clinical application. The Proteograph Product Suite allows clinical and translational researchers to conduct unbiased, deep and large-scale proteomics studies in therapeutic and diagnostic research and clinical trials, which can allow for significant advances in biomarker discovery, target identification and exploration, and clinical trial applications.

Biomarker discovery

To date, most *de novo* biomarker discovery research is limited by the size of studies that can be done in an unbiased way or limited to targeted studies that leverage existing knowledge. These approaches have yet to uncover the vast number of putative biomarkers that may be available as single markers or as combinations of markers for a range of clinical applications. We believe the Proteograph can greatly enable the discovery of biomarkers through large-scale, unbiased and deep proteomics studies.

Target Identification and Exploration

We believe that large-scale access to protein variant information that map to different states of health and disease, as enabled by the Proteograph and concurrent advances in proteogenomics, has the potential to lead to the discovery of personalized drug targets that could reach the hundred thousand range. We believe that the translational application of the Proteograph for potential biomarker development, as exemplified above in our NSCLC study, may also be applied to the identification of novel targets for therapeutic development. Components of classifiers may directly be targets themselves for drug development, or they may highlight new knowledge with respect to disease mechanism which then could help in the exploration of additional targets and/or help to elucidate the function of potential targets, particularly if these targets are discovered with genomics approaches, and lack protein functional context.

Clinical Trial Applications

Clinical researchers can use the Proteograph Product Suite for deep and broad proteomic profiling for subjects in therapeutic clinical trials, including to make observations on efficacy and adverse events. Applications could include the real-time monitoring of protein-related drug effects, distribution, and metabolism. Virtually all clinical trials in drug development include monitoring of this type, but currently use biased or targeted panels of proteins. It is currently impractical to do this type of monitoring with unbiased proteomic methods given the inability of these methods to scale to the hundreds or thousands of samples that are evaluated in clinical trials.

The Proteograph Product Suite may also be used to select and group patients in clinical studies based on their proteomics profiles. As our understanding of the complexity of biology increases with new data accrued from the Proteograph as well as in adjacent omics spaces, our ability to refine patient selection at a higher resolution may improve the ability to confirm efficacy for novel therapies, particularly in complex diseases that involve many inter-related physiological systems. Genomic approaches are widely used to select patients in cancer and rare genetic disease clinical trials, but the use of genomics-based selection for clinical trials outside of these indications has not been as widely used, given the relative lack of genetic understanding of these diseases. We believe that the Proteograph has the potential to generate useful proteomic signatures that can complement genomic and other patient selection criteria to improve how clinical researchers select and segment patients for these trials, particularly for indications outside of cancer and rare genetic diseases.

Diagnostic Applications

We see significant opportunities for researchers to use the Proteograph Product Suite for diagnostic development. Similar to the way in which NGS enabled the development of ecosystems that included genomics-based diagnostics in disease areas such as cancer and rare genetic diseases, we see the unbiased, deep and scalable proteomic information provided by the Proteograph solution potentially creating ecosystems, including proteomics and multi-omics based diagnostics in cancer and other complex disease areas. We expect that the Proteograph solution will be used by companies in the healthcare testing space, including PrognomIQ, and we will support all of these customers as the ecosystem grows. We plan to enable our customers by providing the Proteograph Product Suite for their basic research and translational research applications, as they develop their own diagnostic applications.

Applied Applications in Agriculture, Environmental and Food Safety

Outside of the areas related to human health, we believe there are opportunities for the Proteograph solution to be applied in other applied applications, including those applications where broad scale genomics is being widely applied today, and other applications where proteomics can uniquely enable the creation of end-markets. We believe that unbiased, deep and large-scale proteomic information as enabled by the Proteograph can complement and

extend the value of genomics, transcriptomics, and metabolomics information in fields such as agriculture, environmental monitoring and food safety. This is exemplified in a recent plant proteomics study that identified PPIs and multi-protein complexes that likely play a role in important agronomic traits.

Pathogen monitoring is a core research area in environmental sciences. Genomics-based approaches have been applied for environmental monitoring, and we believe that unbiased proteomic data can be used to complement genomic information in monitoring environmental pathogens.

The food industry has complex supply chains where food can be subject to contamination and spoilage in the food product itself as one moves from raw material to processing to distribution, storage and consumption of the food product. We believe that unbiased proteomic data from the Proteograph Product Suite could complement existing biochemical approaches for tracking signals of contamination and food spoilage.

PrognomIQ

In August 2020, we transferred certain assets related to disease testing to PrognomIQ, a wholly-owned subsidiary of the Company, in exchange for all of its outstanding equity interests. Following the transfer, we completed a pro-rata distribution to our stockholders of most of the shares of capital stock of PrognomIQ. Following the distribution and a subsequent $55.0 million financing of PrognomIQ, we hold approximately 19% of the outstanding equity in PrognomIQ.

The rationale for this transaction was to enable the growth of ecosystems around new applications that leverage unbiased, deep and large-scale proteomic information. The transaction allows us to remain focused on our core strategy, which is to be a provider, rather than a consumer, of proteomics solutions to all customers across these ecosystems. By focusing on our role as a provider of proteomics solutions, we are no longer potentially competing with, or creating the perception that we are competing with, our customers. Our relationship with PrognomIQ does not preclude us from selling the Proteograph Product Suite to any customer in any geography, nor does it preclude our customers from using the Proteograph in any way. PrognomIQ has indicated that it plans to combine the protein data from the Proteograph with genomics and other omics data, to create a multi-omics approach to health and disease testing, which we believe will help us drive the adoption of the Proteograph Product Suite in these applications.

Omid Farokhzad, Chief Executive Officer and Chair of our board of directors, serves as the Chair of PrognomIQ's board of directors. Philip Ma, Ph.D. our former Chief Business Officer serves as the Chief Executive Officer of PrognomIQ. While Dr. Ma has fully transitioned to PrognomIQ, he will remain our consultant until April 2022.

We granted PrognomIQ a non-exclusive license to certain patents and patent applications that we own and a non-exclusive sublicense to certain patent applications we exclusively licensed from The Brigham and Women's Hospital, Inc. (BWH), in each case relating to our core technology, to develop, manufacture and commercialize licensed products for the field of human diagnostics on a worldwide basis. In consideration of the non-exclusive sublicense to certain patent applications licensed from BWH, PrognomIQ paid us a low-five digit figure, and would pay a low single digit royalty, in an amount equivalent to what we would have to pay under our license with BWH, on net sales of sublicensed products beginning with the first commercial sale of a sublicensed product during the term of the agreement. For further discussion of our license and sublicense arrangement with PrognomIQ, see the section titled "Business — Collaboration and License Agreements — *PrognomIQ*." We do not view these amounts to be material to our financial condition and results of operations nor do we expect these amounts to ever be material to us in the future.

Commercial

Commercial Strategy

The Proteograph Product Suite is an integrated solution comprising consumables, an automation instrument and software. We have developed the Proteograph solution to simplify and accelerate proteomics workflow, reduce labor and capital requirements, and deliver robust and reproducible performance. We will focus on growing the installed

base of the Proteograph across a wide variety of customer types and driving applications, scale of experimentation and discoveries that lead to increasing utilization of the Proteograph Product Suite by our customers.

We intend to initially target potential customers who value unbiased and deep proteomic information and are performing proteomic or genomic analysis at academic institutions, translational research groups and biopharmaceutical companies. Our direct sales and marketing efforts will be focused on the principal investigators, researchers, department heads, research laboratory directors and core facility directors who control the buying decision. We expect these customers to purchase the Proteograph Product Suite and associated consumables in line with typical purchases of other life science instrumentation and consumables. We believe that we have priced the Proteograph Product Suite to be affordable to most researchers who can directly make the buying decision, without the need for additional levels of approval, simplifying our sales process. For example, we price the SP100 automation instrument on a comparable basis to other similar automated fluid handling systems currently available. We price the Proteograph consumables, on a per sample basis, in a range similar to that of other life sciences consumables that provide deep and unbiased omic information.

The generation of publications and scientific presentations is a core pillar of our market awareness strategy and is important for establishing validity and utility of new products in the life sciences community. We plan to work closely with our customers, including key opinion leaders, to generate clear use-cases, as well as peer-reviewed publications that illustrate our product performance claims and value proposition. In addition, we plan to drive awareness by developing and deploying online and in-person training and educational tools that explain our technology and key applications in easy-to-access, easy-to-understand, and scientifically rigorous and credible ways. We have partnered with select service facilities and core labs globally to be Centers of Excellence for the Proteograph solution. These sites have become our customers and provide fee-for service capabilities that allow interested parties to access and evaluate the Proteograph Product Suite using their own samples. We expect that these Centers of Excellence will actively promote the Proteograph solution and its capabilities and help us further raise awareness.

To service our potential Proteograph customers, we will provide multiple levels of technical service for the Proteograph Product Suite, depending upon customer need. We recognize that excellent customer support can be a critical part of a customer experience, and we will invest accordingly in our technical and application support to achieve the desired levels of service.

Commercial Organization

We are building out our commercial organization across marketing, sales, customer success, and technical support functions to support demand and with the intent to deliver exceptional customer experience. We believe that coupling exceptional customer experience with a transformative product will allow us to deliver substantial value to our customers, build long-term customer loyalty, enhance our competitive differentiation, and, importantly, use our customer relationships to gain insights that inform our product development to grow our offerings in ways that will benefit our customers.

We expect to expand our customers in North America, the European Union and United Kingdom through direct sales and customer support organizations. We expect to grow into other geographies over time, initially through distributors, starting with key countries in Asia Pacific. We expect a highly efficient sales model since the Proteograph Product Suite does not have a large capital expenditure component, can leverage the existing installed base of MS instruments and complements large-scale genomics data ecosystems.

Suppliers and Manufacturing

Our overall manufacturing strategy is to continuously develop and refine our processes to achieve our objectives of continuity of supply, quality of supply and margin enhancement. Over time, this may lead to in-sourcing or outsourcing certain functions, including manufacturing, in various geographic locations in order to achieve our objectives.

Consumables

We leverage well-established unit operations to formulate and manufacture our NPs at our facilities in Redwood City, California. We procure certain components of our consumables from third-party manufacturers, which includes the commonly-available raw materials needed for manufacturing our proprietary engineered NPs. We are currently manufacturing using our pilot line and building out our manufacturing capabilities as we enter broad commercial availability. We obtain some of the reagents and components used in the Proteograph workflow from third-party suppliers. While some of these reagents and components are sourced from a single supplier, these products are readily available from numerous suppliers. While we perform some filling and packaging of the Proteograph assay and the related consumables, in the future, we may have our filling and packaging outsourced to a third-party. We conduct vendor and component qualification for components provided by third-party suppliers and quality control tests on our NPs.

Automation Instrument

We designed the SP100 automation instrument and have outsourced the manufacturing of the SP100 automation instrument to Hamilton Company, a leading manufacturer of automated liquid handling workstations. We have entered into a non-exclusive agreement with Hamilton that covers the manufacturing of the SP100 automation instrument and its continued supply on a purchase order basis. The agreement has an initial term that runs three years following our commercial launch. We have the option to extend the term of the agreement with Hamilton upon written notice at the end of the initial term; provided that prices are only fixed during the initial term of the agreement. Hamilton has represented to us that it maintains ISO 9001 and ISO 13485 certification.

Competition

The life sciences technology industry is characterized by rapidly advancing technologies, intense competition and a strong emphasis on intellectual property. The proteomics market is served by companies that offer a variety of analytical instruments, such as chromatography and MS instruments, and associated reagents. We believe that competitors in the proteomics market are differentiated by their proprietary technologies, rapid product development capabilities, applications and intellectual property. We believe that there are currently no commercially available products that offer the capability to conduct unbiased, deep proteomics studies at the same scale and throughput as the Proteograph Product Suite. Given the potential market opportunity and scientific promise of proteomics, we expect the intensity of the competition to increase and, as a result, one or more competing products emerging in the future. Competing products may emerge from various sources, including life sciences tools, diagnostics, pharmaceutical and biotechnology companies, third-party service providers, academic research institutions, governmental agencies and public and private research institutions.

Current companies that provide proteomics products include Agilent Technologies, Bruker, Danaher, DiaSorin and Thermo Fisher Scientific. There are also a number of companies that provide proteomic analysis services. In addition, a number of emerging growth companies have developed, or are developing, proteomics products, services and solutions, such as Nautilus Biotechnology, Olink Proteomics, Quanterix, Quantum-Si and SomaLogic.

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 U.S. Food and Drug Administration (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), or premarket approval pursuant to the FDC Act prior to marketing, unless subject to an exemption.

We label and sell our products for research use 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, 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 products labeled RUO, 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 pre-market approval applications (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. 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. PMA reviews generally last between one and two years, although they can take longer. Both the 510(k) and the PMA processes can be expensive and lengthy and may not result in clearance or approval. 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 medical devices, including IVDs, that are regulated by the FDA are also subject to the quality system regulation. Obtaining the requisite regulatory approvals, including the FDA quality system inspections that are required for PMA approval, can be expensive and may involve considerable delay. The regulatory approval process for such products may be significantly delayed, may be significantly more expensive than anticipated, and may conclude without such products being approved by the FDA. Without timely regulatory approval, we will not be able to launch or successfully commercialize such diagnostic products. Changes to the current regulatory framework, including the imposition of additional or new regulations, could arise at any time during the development or marketing of our products. This may negatively affect our ability to obtain or maintain FDA or comparable regulatory clearance or approval of our products in the future. In addition, regulatory agencies may introduce new requirements that may change the regulatory requirements for us or our customers, or both.

As noted above, although our products are currently labeled and sold 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. 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 August 2020, 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. The impact of this HHS rescission policy, including whether or how this policy will be implemented under the current administration, as well as other legislative, executive, and agency actions of the current administration remains unclear. The Biden administration has also issued a "regulatory freeze" memorandum that directs department and agency heads to review any new or pending rules of the prior administration. Any restrictions or heightened regulatory requirements on LDTs, IVDs, or RUO products by the FDA, HHS, Congress, or state regulatory authorities may decrease the demand for our products, increase our compliance costs, and negatively impact our business and profitability. We will continue to monitor and assess the impact of changing regulatory landscape on our business.

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.

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*."

The federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH), and their implementing regulations, which 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, health care clearinghouses and healthcare providers, and their respective business associates that access protected health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make 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, 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 are not 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. Furthermore, the CCPA 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. As of January 1, 2021, and the expiry of transitional arrangements agreed to between the United Kingdom and EU, data processing in the United Kingdom is governed by a United Kingdom version of the GDPR (combining the GDPR and the Data Protection Act 2018), exposing us to two parallel regimes, each of which potentially authorizes similar fines and other potentially divergent enforcement actions for certain violations. Pursuant to the Trade and Cooperation Agreement, which went into effect on January 1, 2021, the United Kingdom and EU agreed to a specified period during which the United Kingdom will be treated like an EU member state in relation to processing and transfers of personal data for four months from January 1, 2021. This period may be extended by two further months. Furthermore, following the expiration of the specified period, there will be increasing scope for divergence in application, interpretation and enforcement of the data protection law as between the United Kingdom and EEA.

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.*"

Intellectual Property

Our success depends in part on our ability to obtain and maintain intellectual property protection for our products and technology. We use a variety of intellectual property protection strategies, including patents, trademarks, trade secrets and other methods of protecting proprietary information.

As of December 31, 2021, our owned patents and patent applications, if issued, are expected to expire between 2023 and 2043, 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.

Such patent portfolio owned by us includes:

- pending U.S. and PCT patent applications that are directed to methods for sampling a proteome at specific levels of protein coverage, methods for sampling a proteome under particular assay conditions, and biosensor compositions for the same;
- a pending PCT patent application that is directed to methods for interrogating protein pathways and PPIs with the biosensors;
- a pending PCT application that is directed to methods for analyzing protein and nucleic acid molecules in a biological sample;

- an issued U.S. patent and a pending U.S. patent application directed to the identification and classification of biological states; and
- an issued U.S. patent and a pending PCT patent application directed to methods for biomarker discovery, including an algorithm-based method that uses data sampled by the biosensor platform.

We exclusively license U.S. patents and patent applications, as well as ex-U.S. patents and pending patent applications from BWH, as of December 31, 2021. These patents and patent applications are directed to methods for identifying a biological state, including classification and early detection of cancers and other diseases, using nanoparticle and biosensor compositions, as well as other nanoparticle compositions. Our in-licensed patents and patent applications, if issued, are expected to expire between 2027 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 licensing patents and patent applications from BWH, we have also non-exclusively licensed certain of our patents and patent applications to PrognomIQ for use in the field of human diagnostics. Pursuant to our agreement with PrognomIQ, we also assigned a patent application related to lung cancer biomarkers to PrognomIQ. In connection with our agreement with PrognomIQ, we have granted PrognomIQ a non-exclusive sublicense to certain patents and patent applications that we license from BWH under our license agreement with BWH for use in the field of human diagnostics. For further information on the intellectual property transfer and license agreement with PrognomIQ and the license agreement with BWH, see the section titled *"Business —Collaboration and License Agreements."*

We intend to pursue additional intellectual property protection to the extent we believe it would be beneficial and cost-effective. Our ability to stop third parties from making, using, selling, offering to sell, importing or otherwise commercializing any of our patented inventions, either directly or indirectly, will depend in part on our success in obtaining, defending and enforcing patent claims that cover our technology, inventions, and improvements. With respect to both our owned and in-licensed intellectual property, we cannot provide any assurance that any of our current or future patent applications will result in the issuance of patents in any particular jurisdiction, or that any of our current or future issued patents will effectively protect any of our products or technology from infringement or prevent others from commercializing infringing products or technology. Even if our pending patent applications are granted as issued patents, those patents may be challenged, circumvented or invalidated by third parties. Consequently, we may not obtain or maintain adequate patent protection for any of our products or technologies.

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 to develop and maintain our competitive position. For example, some elements of manufacturing processes, analytics techniques and processes, as well as computational-biological algorithms, and related processes and software, are based on unpatented trade secrets and know-how that are not publicly disclosed. Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees, advisors and consultants, these agreements may be breached or may be unenforceable and we may not have adequate remedies. In addition, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology. As a result, we may not be able to meaningfully protect our trade secrets. For further discussion of the risks relating to intellectual property, see the section titled *"Risk factors—Risks Related to our Intellectual Property."*

Collaboration and License Agreements

The Brigham and Women's Hospital

In December 2017, we entered into an exclusive patent license agreement with BWH, pursuant to which we obtained an exclusive, royalty-bearing, sub-licensable (with approval from BWH) license to certain U.S. and foreign patents and patent applications in one patent family related to methods for identifying a biological state using nanoparticle and biosensor compositions and other nanoparticle compositions to develop, manufacture, use and commercialize products and processes in all fields, including but not limited to therapeutic, diagnostic, or other uses, on a worldwide basis. In addition, we were also granted an exclusive, royalty-bearing, sub-licensable (with approval

from BWH) license to certain U.S. pending patent applications in another patent family to develop, manufacture, use and commercialize products and processes in all fields, including but not limited to therapeutic, diagnostic, or other uses, other than for the treatment of cancer through antigen-specific immune stimulation or the treatment of disease through immune tolerance or immune switching of lymphocyte subclasses. We may sublicense the patent rights licensed under the agreement subject to certain conditions, including obtaining the review and approval by BWH of such sublicense and any such sublicense must be consistent with and subject to the terms of the agreement.

In consideration for the licenses granted under the agreement, we must pay BWH annual license fees prior to the first commercial sale of a licensed product that range in the low- to mid-five digit figures, and a low single digit royalty on net sales of licensed products beginning with the first commercial sale of a licensed product in any country during the term of the agreement. In the event we commercialize a product in the therapeutic space, we are also required to make certain drug-approval regulatory and commercialization milestone payments to BWH of up to a mid-seven digit figure in the aggregate for licensed products. In the event we sublicense any of the licensed intellectual property, we must pay BWH a percentage of any sublicense income received by us, which on a going-forward basis will be in the high single digits.

Under the terms of the agreement, we are required to use commercially reasonable efforts to develop and commercialize the licensed products, including in accordance to certain developmental, funding, regulatory and commercialization milestones. BWH controls the prosecution, maintenance and enforcement of all licensed patents and patent applications under the agreement.

Unless earlier terminated, the agreement continues until the expiration of the last to expire patent right licensed under the agreement. Subject to an applicable cure period, BWH may terminate the agreement if we fail to comply with applicable payments or diligence obligations or upon a breach of our obligation under the agreement, or for certain insolvency-related events.

PrognomIQ

In August 2020, we entered into an intellectual property transfer and license agreement and, in October 2020, we entered into an intellectual property sublicense agreement, in each case with PrognomIQ in connection with the spin-out of PrognomIQ. Under the intellectual property transfer and license agreement, we granted PrognomIQ a non-exclusive, perpetual, irrevocable (subject to termination for breach) license to certain patents and patent applications that we own and, under the intellectual property sublicense agreement, we granted a non-exclusive sublicense to certain patent applications exclusively licensed from BWH, in each case, relating to our core technology to develop, manufacture and commercialize licensed products for the field of human diagnostics on a worldwide basis. In addition, we assigned a patent application relating to lung cancer biomarkers, and transferred certain clinical samples, contracts and other related assets to PrognomIQ. PrognomIQ may extend such licensed and sublicensed rights to customers of licensed products. PrognomIQ is not required to pay us any royalties or fees pursuant to the intellectual property transfer and license agreement. In consideration of the non-exclusive sublicense to certain patent applications licensed from BWH, PrognomIQ paid us a low-five digit figure, and would pay a low single digit royalty, in an amount equivalent to what we would have to pay under our license with BWH, on net sales of sublicensed products beginning with the first commercial sale of a sublicensed product during the term of the intellectual property sublicense agreement.

In the event we elect to grant an exclusive license to a third party in the field of human diagnostics for any of the patents and patent applications licensed or sublicensed, as applicable, to PrognomIQ under the respective agreements, we are required to first negotiate with PrognomIQ for a period of sixty days for a license or sublicense, as applicable, to such rights on reasonable terms. Furthermore, for a period of two years after the effective date, we are required to negotiate in good faith with PrognomIQ for a license or sublicense, as applicable, to any improvements to the patents and patent applications assigned or licensed or sublicensed, as applicable, under the intellectual property transfer and license agreement and the intellectual property sublicense agreement.

Neither party may assign the intellectual property transfer and license agreement nor any rights or obligations under the agreement without the other party's prior written consent, other than to an affiliate or pursuant to an acquisition. PrognomIQ may not assign the intellectual property sublicense agreement or any rights or obligations under the

agreement without our prior written consent, other than to an affiliate or pursuant to an acquisition, and in any event only with BWH's prior written consent. Our right to assign the intellectual property sublicense agreement and any rights or obligations under the agreement is subject to the terms and conditions of our license with BWH. Unless terminated earlier, the terms of the both agreements continue until the expiration of the last to expire intellectual property right granted under such agreement. Either party may terminate either agreement for an uncured breach of the other party, upon which all licenses granted under such agreement to the breaching party will terminate.

Collaborators

Oregon Health & Science University (OHSU), an academic health center, and The Broad Institute of MIT and Harvard (Broad Institute), a biomedical and genomic research center, are our collaborators. Researchers at OHSU are using our product to facilitate various research efforts focused on proteomic profiling of various oncology versus control samples to determine protein signatures common between various cancer samples versus signatures found in control samples. Researchers at the Broad Institute use our product to analyze protein signatures in diseased vs. non-diseased samples undergoing drug perturbations in various clinical applications including cardiovascular disease.

In January 2021, Discovery Life Sciences, a biomedical and genomic research center, became one of our collaborators. In March 2021, the Salk Institute for Biological Studies, a multi-disciplinary research institute, focused on addressing challenging health issues, including cancer, Alzheimer's, diabetes, became one of our collaborators. In January 2022, we entered into an agreement to form the Proteogenomics Consortium with Discovery Life Sciences and SCIEX. Through this multi-year effort, Discovery will expand and offer unbiased proteomics capabilities to their existing genomics customers using the Proteograph Product Suite and the SCIEX ZenoTOF 7600 platform.

Scientific Advisory Board

We have assembled a highly qualified scientific advisory board composed of advisors who have deep expertise in the fields of nanotechnology, proteomics, genomics, medicine, regulatory compliance and data science. Our scientific advisory board is composed of Robert Langer, Sc.D., Mostafa Ronaghi, Ph.D., Steve Carr, Ph.D., Vivek Farias, Ph.D., Philip Kantoff, M.D., Erwin Böttinger, M.D., Charles Cantor, Ph.D., Bradley Hyman, M.D., Wolfgang Parak, Ph.D., Ralph Weissleder, M.D. and Luis Diaz, M.D.

Employees

Our employees are guided by our mission to imagine and pioneer news ways to decode the secrets of the proteome to improve human health. Our core values Better Together, Customer Centric, Difference Makers, People First and Trailblazers guide us on our path toward achieving our mission. Our core values set the foundation for how we conduct business, interact with each other and our customers and evaluate employee performance.

As of December 31, 2021, we had 118 employees, all based in the United States, many of whom hold masters and doctorate degrees. Of these employees, 62 were engaged in in research and development activities, 13 were engaged in manufacturing and operations, and 43 were engaged in selling, general and administrative activities. We consider our relationship with our employees to be good. None of our employees are represented by a labor union or covered under a collective bargaining agreement.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. The principal purposes of our equity and cash incentive plans are to attract, retain and reward personnel through the granting of stock-based and cash-based compensation awards, in order to increase stockholder value and the success of our company by motivating such individuals to perform to the best of their abilities and achieve our objectives.

Corporate Information and History

We were incorporated in Delaware on March 16, 2017, under the name Seer Biosciences, Inc., and changed our name to Seer, Inc. on July 16, 2018. Our principal executive offices are located at 3800 Bridge Parkway, Suite 102, Redwood City, California 94065. Our telephone number is 650-543-0000. Our website address is http://seer.bio.

Information contained on, or that can be accessed through, our website should not be considered to be part of this Annual Report.

We use Seer and Proteograph as trademarks in the United States and other countries. This Annual Report 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 Annual Report, 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.

References

There are published studies referenced throughout this Annual Report and the citations for those studies are listed below. The studies listed below are not a part of this prospectus and are not incorporated by reference in this Annual Report.

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Available Information

We make our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports, available free of charge at our website as soon as reasonably practicable after they have been filed with the SEC. Our website address is http://seer.bio. Information on our website is not part of this report. The SEC maintains a website that contains the materials we file with the SEC at www.sec.gov.

Item 1A. Risk Factors

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

Summary Risk Factor

Our business is subject to numerous risks and uncertainties that you should consider before investing in our company, as more fully described below. The principal factors and uncertainties that make investing in our company risky include, among others:

- we are an early-stage life sciences technology company with a history of net losses, which we expect to continue, and we may not be able to generate meaningful revenues or achieve and sustain profitability in the future;
- we have a limited operating history, which may make it difficult to evaluate the prospects for our future viability and predict our future performance;
- 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 size of the markets for the Proteograph Product Suite may be smaller than estimated, and new market opportunities may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our products;
- we have only recently commenced the broad commercial release of the Proteograph Product Suite, and we may not be able to successfully implement this release as planned;
- our commercial release success depends on broad scientific and market acceptance of the Proteograph, which we may fail to achieve;
- even if the Proteograph Product Suite is broadly commercialized and achieves broad scientific and market acceptance, if we fail to improve it or introduce compelling new products, our revenues and our prospects could be 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;
- 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;
- if we are unable to identify and recruit qualified employees, and retain or maintain our employee base, it may adversely impact our business and operations; and
- we have previously identified material weaknesses in our internal control over financial reporting, and if we fail to maintain an effective system of internal controls, or otherwise fail to comply with the Sarbanes-Oxley Act of 2002 now that we are a large accelerated filer, we may not be able to accurately and timely

report our financial results, which may adversely affect our business and investor confidence in us and, as a result, the value of our Class A common stock.

Risks Related to Our Business and Industry

We are an early-stage life sciences technology company with a history of net losses, which we expect to continue, and we may not be able to generate meaningful revenues or achieve and sustain profitability in the future.

We are an early-stage life sciences technology company, and we have incurred significant losses since we were formed in 2017, and expect to continue to incur losses in the future. We incurred net losses of $71.2 million and $32.8 million in 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of $126.5 million. These losses and accumulated deficit were primarily due to the substantial investments we have made to develop and improve our technology and the Proteograph Product Suite. Over the next several years, we expect to continue to devote substantially all of our resources towards continuing development and commercialization of the Proteograph Product Suite, including sales and marketing, manufacturing and operations costs, and research and development efforts for products. These efforts may prove more costly than we currently anticipate. While we have generated product revenue, we may never generate revenue sufficient to offset our expenses. In addition, as a newly public company, we will incur significant legal, accounting, administrative, insurance and other expenses that we did not incur as a private company. Accordingly, we cannot assure you that we will achieve profitability in the future or that, if we do become profitable, we will sustain profitability.

We have a limited operating history, which may make it difficult to evaluate the prospects for our future viability and predict our future performance.

We have only recently broadly commercialized the Proteograph Product Suite. Our operations to date have been primarily focused on developing our technology and 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. We have not yet achieved market acceptance for our products, produced our products at scale, established a sales model, or conducted sales and marketing activities necessary for successful broad product commercialization. Consequently, predictions about our future success or viability are highly uncertain and may not be as accurate as they could be if we had a longer operating history or a company history of successfully developing and commercializing products.

In addition, as a business with a limited operating history, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown obstacles. We will need to transition from a company with a focus on research and development to a company capable of supporting broad commercial activities as well, 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 frequently experienced by growing companies with limited operating histories in emerging and rapidly changing industries. 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 successfully, our results of operations could differ materially from our expectations, and our business, financial condition and results of operations could be adversely affected.

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.

Our quarterly and annual operating results may fluctuate significantly, 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 successfully commercialize the Proteograph Product Suite on our anticipated timeline;
- the timing and cost of, and level of investment in, research and development and commercialization activities relating to the Proteograph Product Suite, including our SP100 automation instrument, proprietary engineered nanoparticle (NP) technology and Proteograph Analysis Suite software, which may change from time to time;

- the level of demand for any products we are able to commercialize, particularly the Proteograph Product Suite, which may vary significantly from period to period;
- our ability to drive adoption of the Proteograph in our target markets and our ability to expand into any future target markets;
- our relationship with third-party distributorships, and their ability to promote and sell our products;
- the prices at which we will be able to sell the Proteograph Product Suite;
- the volume and mix of our sales between the Proteograph Product Suite and associated consumables, or changes in the manufacturing or sales costs related to our products;
- the length of time of the sales cycle for purchases of the Proteograph, including lead time needed to procure SP100 automation instruments from our third-party contract manufacturer;
- 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 and budget cycles;
- seasonal spending patterns of our customers;
- the timing of when we recognize any revenues;
- future accounting pronouncements or changes in our accounting policies;
- the outcome of any future litigation or 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, investment in life sciences and research industries, our business operations, and resources and operations of our customers, suppliers and supply chain, and distributors; and
- general industry, economic and market conditions such as inflation and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

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 Class A common stock to decline.

The size of the markets for our Proteograph Product Suite may be smaller than estimated, and new market opportunities may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our products.

The market for proteomics and genomics technologies and products is evolving, making it difficult to predict with any accuracy the size of the markets for our current and future products, including the Proteograph Product Suite. Our estimates of the total addressable market for our current and future products are based on a number of internal and third-party estimates and assumptions. In particular, our estimates are based on our expectations that researchers in the market for certain life sciences research tools and technologies will view our products as competitive

alternatives to, or better options than, existing tools and technologies. We also expect researchers will recognize the ability of our products to complement, enhance and enable new applications of their current tools and technologies. We expect them to recognize the value proposition offered by our products, enough to purchase our products in addition to the tools and technologies they already own. Underlying each of these expectations are a number of estimates and assumptions that may be incorrect, including the assumptions that government or other sources of funding will continue to be available to life sciences researchers at times and in amounts necessary to allow them to purchase our products and that researchers have sufficient samples and an unmet need for performing proteomics studies at scale across thousands of samples. In addition, sales of new products into new market opportunities may take years to develop and mature and we cannot be certain that these market opportunities will develop as we expect. New life sciences technology may not be adopted until the consistency and accuracy of such technology, method or device has been proven. As a result, the sizes of the annual total addressable market for new markets and new products are even more difficult to predict. Our product is an innovative new product, and while we draw comparisons between the evolution and growth of the genomics and proteomics markets, the proteomics market may develop more slowly or differently. In addition, the Proteograph Product Suite may not impact the field of proteomics in the same manner or degree, or within the same time frame, that NGS technologies have impacted the field of genomics, or at all. While we believe our assumptions and the data underlying our estimates of the total addressable market for our products 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 total addressable market for our products may be incorrect.

The future growth of the market for our current and future products depends on many factors beyond our control, including recognition and acceptance of our products by the scientific community and the growth, prevalence and costs of competing products and solutions. Such recognition and acceptance may not occur in the near term, or at all. 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 have only recently commenced the broad release phase of our commercialization plan, and we may not be able to continue this release as planned.

We have only recently initiated the broad commercial release phase for the Proteograph Product Suite, and we may not be able to successfully execute on this phase as planned due to:

- the inability to establish the capabilities and value proposition of the Proteograph Product Suite with key opinion leaders and other customers in a timely fashion;
- delays or longer-than expected lead times to establish customer contacts, complete responsive presentations including platform evaluations tailored to specific requests, and move expeditiously from quote to order to revenue to receipt of payment due to the budgetary constraints of academic organizations, laboratories, biopharmaceutical companies and others;
- changing industry or market conditions, customer requirements or competitor offerings during broad commercialization;
- delays in continuing the build-out of our sales, customer support and marketing organization as needed for broad commercialization;
- delays in ramping up manufacturing, either internally or through our suppliers, to meet the expected demand for broad commercialization; and
- the impact of the COVID-19 pandemic on the economy and research industries, our business operations, and resources and the operations of our customers, suppliers and supply chain, and distributors.

To the extent our broad commercial release phase is delayed or unsuccessful, our financial results will be adversely impacted.

Even if we are able to execute on our broad commercial release phase as planned, our success depends on broad scientific and market acceptance of the Proteograph Product Suite, which we may fail to achieve.

Our ability to achieve and maintain scientific and commercial market acceptance of the Proteograph Product Suite will depend on a number of factors. We expect that the Proteograph will be subject to the market forces and adoption curves common to other new technologies. The market for proteomics and genomics technologies and products is in its early stages of development. If widespread adoption of the Proteograph takes longer than anticipated, or broad scientific and market acceptance does not occur, we will continue to experience operating losses.

The success of life sciences products is due, in large part, to acceptance by the scientific community and their adoption of certain products in the applicable field of research. The life sciences scientific community is often led by a small number of early adopters and key opinion leaders who significantly influence the rest of the community through publications, including peer-reviewed journals. 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 publications, including peer-reviewed journal publications, are a driver for the general acceptance of life sciences products, such as the Proteograph Product Suite. We have and continue to collaborate with a small number of key opinion leaders who are highly skilled at evaluating novel technologies and whose feedback helped us solidify our commercialization plans and processes. Ensuring that early adopters and key opinion leaders publish research involving the use of our products is critical to ensuring our products gain widespread scientific acceptance. In addition, continuing collaborative relationships with key opinion leaders is vital to maintaining any market acceptance we achieve. If too few researchers describe the use of our products, too many researchers utilize or shift to a competing product and publish research outlining their use of that product or too many researchers negatively describe the use of our products in publications, it may drive customers away from our products and it may delay market acceptance and adoption of the Proteograph during broad commercialization.

Other factors in achieving commercial market acceptance, include:

- our ability to market and increase awareness of the capabilities of the Proteograph Product Suite;
- the ability of the Proteograph Product Suite to perform intended use applications broadly in the hands of customers;
- our customers' willingness to adopt new products and workflows;
- the Proteograph's ease of use and whether it reliably provides advantages over other alternative technologies;
- the rate of adoption of the Proteograph Product Suite by academic institutions, laboratories, biopharmaceutical companies and others;
- the prices we charge for the Proteograph Product Suite;
- our ability to develop new products and workflows and solutions for customers;
- if competitors develop and commercialize products that perform similar functions as the Proteograph; and
- the impact of our investments in product innovation and commercial growth.

We cannot assure you that we will be successful in addressing each of these criteria or other criteria that might affect the market acceptance of any products we commercialize, particularly the Proteograph Product Suite. If we are unsuccessful in achieving and maintaining market acceptance of the Proteograph, our business, financial condition and results of operations would be adversely affected.

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

We have limited experience as a company in sales and marketing and our ability to successfully commercialize depends on our being able to attract customers for the Proteograph Product Suite. Although members of our management team have considerable industry experience, we need to expand our sales, marketing, distribution and customer service and support capabilities with the appropriate technical expertise prior to and during the broad commercial release of the Proteograph Product Suite. To perform sales, marketing, distribution, and customer service and support successfully, we will face a number of risks, including:

- our ability to attract, retain and manage the sales, marketing and customer service and support force necessary to commercialize and gain market acceptance for our technology;
- 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 have enlisted and may seek to enlist additional third parties to assist with sales, distribution and customer service and support globally or in certain regions of the world. There is no guarantee that we have attracted or will be successful in attracting desirable or experienced sales or distribution partners or that we have entered or 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, the Proteograph may not gain market acceptance, which could materially impact our business operations.

Even if our Proteograph Product Suite is broadly commercialized and achieves broad scientific and market acceptance, if we fail to improve it or introduce compelling new products, our revenues and our prospects could be harmed.

Even if we are able to broadly commercialize the Proteograph Product Suite and achieve broad scientific and market acceptance, our ability to attract new customers and increase revenue from existing customers will depend in large part on our ability to enhance and improve the Proteograph solution and to introduce compelling new products. The success of any enhancement to the Proteograph Product Suite or introduction of new products depends on several factors, including timely completion and delivery, competitive pricing, adequate quality testing, integration with existing technologies, appropriately timed and staged introduction and overall market acceptance. Any new product or enhancement to the Proteograph 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 generate significant revenue.

The typical development cycle of new life sciences products can be lengthy and complicated, and may require new scientific discoveries or advancements, considerable resources and complex technology and engineering. Such developments may involve external suppliers and service providers, making the management of development projects complex and subject to risks and uncertainties regarding timing, timely delivery of required components or services and satisfactory technical performance of such components or assembled products. If we do not achieve the required technical specifications or successfully manage new product development processes, or if development work is not performed according to schedule, then such new technologies or products may be adversely impacted. If we are unable to successfully develop new products, enhance the Proteograph Product Suite to meet customer requirements, compete with alternative products, or otherwise gain and maintain market acceptance, our business, results of operations and financial condition could be 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 had, and is expected to continue to have, an adverse impact on our operations, particularly as a result of preventive and precautionary measures that we, other businesses, and governments are taking. Governmental mandates related to COVID-19 or other infectious diseases, or public health crises, have impacted, and we expect them to continue to impact, our 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 SP100 automation instrument and NPs. For instance, “stay-at-home” orders in California, and specifically San Mateo County where our headquarters is located, that require businesses to implement certain social distancing protocols and other written health and safety plans and measures and which could affect productivity and morale, could be reinstated. We have continued to operate within the rules applicable to our business; however, an extended implementation of these governmental mandates could further impact our ability to operate effectively and conduct ongoing research and development or other activities. For onsite work in our Redwood City and San Diego offices, we require employees to show proof of vaccination and perform testing. The COVID-19 pandemic and a skilled labor shortage in general have also had an effect on our ability to attract, recruit and interview candidates 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 and our commercial 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 substantially all of our revenue will be derived from sales of the Proteograph Product Suite, including our instruments and associated consumables, to academic, research and commercial customers. We have moved into broad commercial release and, as a result, in the near term, our ability to drive the adoption of the Proteograph solution will depend on our ability to visit customer sites, the ability of our customers to access laboratories, and the ability to install and train on the Proteograph Product Suite and conduct research in light of the COVID-19 pandemic. For example, due to the pandemic, we have encountered delays permitting the travel of our U.S.-based employees to China. We also may encounter delays in other countries. Additionally, since we have moved into broad commercial release, 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, has become increasingly important to the adoption of the Proteograph. All of these considerations are impacted by factors beyond our control, 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;
- 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.

Additionally, our suppliers have also been impacted by the COVID-19 pandemic. For example, our SP100 automation instrument manufacturer, Hamilton Company, has experienced a surge in demand for equipment and associated consumables used for COVID-19 diagnostics, and as a result, we have experienced longer lead times for our instruments. We have also experienced supply delays for critical hardware, instrumentation, medical and testing supplies that we use for product development and certain components of our consumable kits, as these other components and supplies are otherwise diverted to COVID-19-related testing and other uses.

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 potential impacts on our business, any of these occurrences could significantly harm our business, results of operations and financial condition.

Unfavorable U.S. or global economic conditions as a result of the COVID-19 pandemic, or otherwise, could adversely affect our ability to raise capital and our business, results of operations and financial condition.

While the potential economic impact brought by, and the duration of, the COVID-19 pandemic is difficult to assess or predict, 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 the Proteograph Product Suite 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.

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

Our anticipated growth will place significant strains on our management, operational and manufacturing systems and processes, sales and marketing team, financial systems and internal controls and other aspects of our business. Developing and commercializing the Proteograph Product Suite will require us to hire and retain scientific, sales and marketing, software, manufacturing, customer service, distribution, quality assurance and other personnel. In addition, we will need to hire additional accounting, finance and other personnel in connection with our efforts to comply with the requirements of being a public company. As a newly public company, our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements and effectively manage these activities. We may face challenges integrating, developing and motivating our rapidly growing employee base. 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. Our ability to successfully manage our expected growth is uncertain given the fact that we have been in operation only since 2017. 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. 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 key personnel and other highly qualified personnel, and if we are unable to recruit, train and retain our personnel, we may not achieve our goals.

Our future success depends upon our ability to recruit, train, retain and motivate key personnel. Our senior management team, including Omid Farokhzad, one of our founders and our Chief Executive Officer; Omead Ostadan, our President and Chief Operating Officer; and David Horn, our Chief Financial Officer, is critical to our vision, strategic direction, product development and commercialization efforts. On October 13, 2021, we announced that Mr. Ostadan will be taking a leave of absence as an officer of the Company for personal reasons, beginning on November 20, 2021, and lasting approximately three months. Mr. Ostadan returned on a part-time basis as the Company's President beginning on February 28, 2022 and his part-time status is expected to last approximately ten months for ongoing personal reasons. The departure of one or more of our 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 maintain "key man" life insurance on our senior management team.

Our continued growth and ability to successfully transition from a company primarily focused on development to commercialization depends, in part, on attracting, retaining and motivating qualified personnel, including highly-trained sales personnel with the necessary scientific background and ability to understand our systems at a technical level to effectively identify and sell to potential new customers. New hires 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 is intense, particularly in the San Francisco Bay Area and San Diego. 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 Francisco Bay Area and San Diego, 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. As a result, our 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 expect to be dependent upon revenue generated from the sale of the Proteograph Product Suite from the time it is commercialized through the foreseeable future.

While we have recently moved into broad commercialization, if we are able to successfully broadly commercialize the Proteograph, we expect that we will generate substantially all of our revenue from the sale of the Proteograph Product Suite and associated consumables. There can be no assurance that we will be able to successfully commercialize the Proteograph solution, design other products that will meet the expectations of our customers or that any of our future products will become commercially viable. As technologies change in the future for life sciences research tools, generally, and in proteomics and genomics technologies, specifically, we will be expected to upgrade or adapt the Proteograph solution to keep up with the latest technology. To date, we have limited experience simultaneously designing, testing, manufacturing and selling products and there can be no assurance we will be able to do so. Our sales expectations are based in part on the assumption that the Proteograph Product Suite will increase study sizes for our future customers and their associated purchases of our consumables. If sales of our instruments fail to materialize, or our assumptions about study sizes or customer purchases of our consumables, so will the related consumable sales and associated revenue.

In our development and commercialization plans for the Proteograph Product Suite, we may forego other opportunities that may provide greater revenue or be more profitable. If our research and product development efforts do not result in commercially viable products within anticipated timelines, or at all, our business and results of operations will be adversely affected. Any delay or failure by us to develop and release the Proteograph Product Suite or new products or product enhancements would have a substantial adverse effect on our business and results of operations.

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

We expect that substantially all of our sales revenue in the near term will be generated from sales to commercial companies, academic institutions and other research institutions. Certain of these customers' funding will be, in turn, provided by various state, federal and international government agencies. As a result, the demand for the Proteograph Product Suite will depend 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;
- changes in strategy and funding by commercial companies in their efforts around therapeutic and diagnostic product development and their adoption and use of the Proteograph Product Suite;

- macroeconomic conditions;
- opinions in the scientific community, including researchers' opinions of the utility of the Proteograph solution;
- citation of the Proteograph Product Suite 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-driven pressures to consolidate operations and reduce costs; and
- market acceptance of relatively new technologies, such as the Proteograph Product Suite.

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 (NIH) have generally increased year-over-year for the last 19 years, and reached a new high in 2020, but the NIH also experiences occasional year-over-year decreases in appropriations, including as recently as 2013. In addition, funding for life science research has increased more slowly during the past several years compared to previous years and has actually declined in some countries. 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.

We rely on single suppliers for some of the components of the Proteograph Product Suite, including a single contract manufacturer to manufacture and supply our instruments. If these supplier or manufacturers should fail or not perform satisfactorily, our ability to meet demand and supply the Proteograph Product Suite would be adversely affected.

We rely on a single contract manufacturer, Hamilton Company, a manufacturer of precision measurement devices, automated liquid handling workstations, and sample management systems located in Nevada and other locations, to manufacture and supply our instruments. Since our contract with Hamilton does not commit them to carry inventory or make available any particular quantities, Hamilton may give other customers' needs higher priority than ours, we may not be able to obtain adequate supplies in a timely manner or on commercially reasonable terms, and we may incur price increases from Hamilton Company. For example, due to the COVID-19 pandemic and increased demand for Hamilton's products, we have seen the lead time for our instruments increase significantly. Further, if Hamilton is unable to obtain critical components used in the Proteograph solution or supply our instruments on the timelines we require, our business and commercialization efforts would be harmed.

In the event it becomes necessary to utilize one or more different contract manufacturers for automated liquid handling workstations, products, or product components associated with the Proteograph Product Suite, we would experience additional costs, delays and difficulties in doing so as a result of identifying and entering into new agreements with new suppliers or manufacturers as well as preparing such new suppliers or manufacturers to meet the logistical requirements associated with supplying and manufacturing the Proteograph Product Suite, and our business would suffer.

In addition, certain of the components used in our products are sourced from limited or sole suppliers. If we were to lose such suppliers, there can be no assurance that we will be able to identify or enter into agreements with alternative suppliers on a timely basis on acceptable terms, if at all. An interruption in our ability to sell and deliver instruments to customers could occur if we encounter delays or difficulties in securing these components, or if the quality of the components supplied does not meet specifications, or if we cannot then obtain an acceptable substitute. Our suppliers have also been impacted by the COVID-19 pandemic, and we have also experienced supply delays for critical hardware, instrumentation, medical and testing supplies that we use for product development, and certain components of our consumable kits, as these other components and supplies are otherwise diverted to COVID-19-related testing and other uses. If any of these events occur, our business, results of operations, financial condition and prospects could be harmed.

We have limited experience producing and supplying our products, and we may be unable to consistently manufacture or source our SP100 automation instruments and consumables to the necessary specifications or in quantities necessary to meet demand on a timely basis and at acceptable performance and cost levels.

The Proteograph Product Suite is an integrated solution with many different components that work together. As such, a quality defect in a single component can compromise the performance of the entire solution. In order to successfully generate revenue from the Proteograph Product Suite, 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. Our instruments are manufactured by Hamilton Company at their facility using complex processes, sophisticated equipment and strict adherence to specifications and quality systems procedures. Given the complexity of this automation instrumentation, individual units may occasionally require additional installation and service time prior to becoming available for customer use.

We leverage well-established unit operations to formulate and manufacture our NPs at our facilities in Redwood City, California. We procure certain components of our consumables from third-party manufacturers, which includes the commonly-available raw materials needed for manufacturing our proprietary engineered NPs. These manufacturing processes are complex. As we increase the commercial scale formulation and manufacturing of our NP panels, if we are not able to repeatably produce our NPs at commercial scale or source them from third-party suppliers, encounter unexpected difficulties in packaging our consumables, fail to comply with regulations relating to laboratory safety, the handling of human samples, the use of certain hazardous substances or chemicals, including in commercial products, or the collection, reuse, and recycling of waste from products we manufacture, our business will be adversely impacted.

As we continue to scale commercially and develop new products, 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. There is no assurance that we or our third-party manufacturer will be able to continue to manufacture our SP100 automation instrument so that it consistently achieves the product specifications and produces results with acceptable quality. Our NPs and other consumables have a limited shelf life, after which their performance is not ensured. While we have completed accelerated stability testing for our NPs, our real-time long-term liquid stability studies are underway, but have not been completed. 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 current inventory levels and the availability and lead time for additional inventory, could lead to availability issues. Any future design issues, unforeseen manufacturing problems, such as contamination of our or our manufacturers' facilities, 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 and could result in us or our third-party manufacturers losing International Organization for Standardization (ISO) quality management certifications. If our third-party manufacturers fail to maintain ISO quality management certifications, customers might choose not to purchase products from us.

In addition, as we commercialize the Proteograph Product Suite, 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, related

improvements and quality assurance will be successfully implemented or that appropriate personnel will be available. As we develop additional products, we may need to bring new equipment online, implement new systems, technology, controls and procedures and hire personnel with different qualifications.

An inability to manufacture products and components that consistently meet specifications, in necessary quantities, at commercially acceptable costs and without significant delays, may have a material adverse effect on our business, results of operations, financial condition and prospects.

Our products could have defects or errors, which may give rise to claims against us, adversely affect market adoption of the Proteograph Product Suite, and adversely affect our business, financial condition, and results of operations.

The Proteograph Product Suite utilizes novel and complex technology 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 the Proteograph, these risks may increase. We provide warranties that our products will meet performance expectations and will be free from material defects. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins.

In manufacturing the Proteograph Product Suite, we depend upon third parties for the supply of our instruments and various components, many of which require a significant degree of technical expertise to produce. If our suppliers fail to produce our SP100 automation instrument and 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 the Proteograph Product Suite contains defects, we may experience:

- a failure to achieve market acceptance for the Proteograph or expansion of the Proteograph Product Suite sales;
- loss of customer orders and delay 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;
- diversion of resources from our manufacturing and research and development departments to 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 the Proteograph Product Suite will be used with our potential customers' own mass spectrometry (MS) instruments or the MS instrument of a third-party service provider and the performance of these MS instruments is outside of our control. If such third-party products are not produced to specification, are produced in accordance with modified specifications, are defective, or are not used with recommended equipment, they may not be compatible or perform as intended with the Proteograph. In such case, the reliability, results and performance of the Proteograph may be compromised. The occurrence of any one or more of the foregoing may have a material adverse effect on our business, results of operations, financial condition and prospects.

If we do not successfully develop and deploy the Proteograph Analysis Suite, our commercialization efforts and therefore business and results of operations could suffer.

The success of the Proteograph Product Suite depends, in part, on our ability to design and deploy the Proteograph Analysis Suite in a manner that enables the integration with our potential customers' systems and accommodates our customers' needs. Without the Proteograph Analysis Suite, quality control of the workflow and data analysis is less accessible and robust and it may be difficult for our customers to understand and evaluate the quality of their results.

We have and will continue to spend significant amounts of effort developing the Proteograph Analysis Suite, and potential enhanced versions over time, to meet our customers' and potential customers' evolving needs. There is no assurance that the development or deployment of the Proteograph Analysis Suite, or any potential enhancements, will be compelling to our customers. In addition, we may experience delays in our release dates of the Proteograph Analysis Suite, and there can be no assurance that the Proteograph Analysis Suite will be released according to schedule. If our software development and deployment plan, which may include participation from third party vendors and licensors, does not accurately anticipate customer demands, or if we fail to develop the Proteograph Analysis Suite in a manner that satisfies customer preferences in a timely and cost-effective manner, the Proteograph Product Suite may fail to gain market acceptance. The occurrence of any one or more of the foregoing could negatively affect our business, financial condition, and results of operations.

As we commercialize the Proteograph Product Suite outside of the United States, our international business 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 to 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, including, without limitation, trade retaliation laws;
- 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, political and climate conditions or in laws, regulations and policies governing foreign trade, manufacturing, research and development, investment, and climate control 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.

The collection and transfer of personal data and human samples is subject to increasing regulatory authority around the world. For example, Europe and China have adopted or are in the process of adopting data protections laws, regulations, and practice standards covering personal data, medical samples and data, and their potential transfer

across national borders. In some cases, consent from individuals and the opportunity for revocation of consent, handling by local entities, and approvals from regulatory bodies may be required, and enforcement may include suspension of the ability to conduct business in the regulated jurisdiction along with civil fines and criminal penalties. This could increase our compliance costs and subject us to significant risks of doing business in these jurisdictions, and any failure to comply with these laws, rules, and regulations could materially and adversely affect our revenue and business operations.

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.

A portion of our international sales will be conducted through third-party distributors, and we will not control their efforts to sell our products. If our relationships with these third-party distributors cannot be established or deteriorate, or if these third-party distributors fail to sell our products, or engage in activities that harm our reputation, our results of operation and business may be negatively affected.

Our current commercial model includes direct sales in the United States, and we are building relationships with third party distributors in various countries, including China, to enable us to enter additional markets more efficiently. If we are unable to enter or maintain such distribution arrangements on acceptable terms, or at all, we may not be able to successfully commercialize our products in certain countries.

Furthermore, distributors can choose the level of effort that they apply to selling our products relative to others in their portfolio. The selection, training, and compensation of distributors' sales personnel are within their control rather than our own and may vary significantly in quality from distributor to distributor. They may experience their own financial difficulties, or distribution relationships may be terminated or allowed to expire, which could increase the cost of or impede commercialization of our products in applicable countries. Disputes may also arise between us and our distributors that result in the delay or termination of commercialization or that result in costly litigation or arbitration that diverts management's attention and resources. Distributors may not properly maintain or defend our intellectual property rights or may use our intellectual property, and our confidential or proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property rights, and confidential or proprietary information, and expose us to potential litigation. Distributors could move forward with competing products developed either independently or in collaboration with others, including our competitors.

In addition, although we intend to require contract terms obligating our distributors to comply with all applicable laws regarding the sale of our products, including regulatory labelling, protection of personal data, U.S. export regulations and the U.S. Foreign Corrupt Practices Act (FCPA), we may not be able to ensure proper compliance. If our distributors fail to effectively market and sell our products in full compliance with applicable laws and regulations, our results of operations and business may suffer.

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

We face significant competition in the life sciences technology market. We currently compete with life sciences technology and the diagnostic companies that are supplying components, products and services that serve customers engaged in proteomics analysis. These companies include Agilent Technologies, Bruker Corporation, Danaher, DiaSorin, and Thermo Fisher Scientific. We also compete with a number of emerging growth companies that have developed, or are developing, proteomic products and solutions, such as Nautilus Biotechnology, Olink Proteomics, Quanterix, Quantum-Si and SomaLogic.

Some of our current competitors are large publicly-traded companies, or are divisions of large publicly-traded companies, and may enjoy a number of competitive advantages over us, including:

- greater name and brand recognition;
- greater financial and human resources;
- broader product lines;

- larger sales forces and more established distributor networks;
- substantial intellectual property portfolios;
- larger and more established customer bases and relationships; and
- better established, larger scale and lower cost manufacturing capabilities.

We also face competition from researchers developing their own products. The area in which we compete involves rapid innovation and some of our customers have in the past, and more may in the future, elect to create their own assays rather than rely on a third-party supplier such as ourselves. 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. We will also compete for the resources our customers allocate for purchasing a wide range of products used to analyze the proteome, some of which may be additive to or complementary with our own but not directly competitive.

We cannot assure investors that our products will compete favorably or that we will be successful in the face of increasing competition from products and technologies introduced by our existing or future competitors, companies entering our markets 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 produce competitive products with greater capabilities or at lower costs than ours or that are able to run comparable experiments at a lower total experiment cost. Any failure to compete effectively could materially and adversely affect our business, financial condition and operating results.

Risks Related to Financial Reporting

We are required by Section 404 of the Sarbanes-Oxley Act to evaluate the effectiveness of our internal control over financial reporting. If we are unable to achieve and maintain effective internal controls, our operating results and financial condition could be harmed and the market price of our Class A common stock may be negatively affected.

As a public company with SEC reporting obligations, we are required to document and test our internal control procedures to satisfy the requirements of Section 404(b) of the Sarbanes-Oxley Act (SOX), which requires annual assessments by management of the effectiveness of our internal control over financial reporting. Effective December 31, 2021, we no longer qualify as an emerging growth company and the reduced compliance requirements to emerging growth companies no longer apply to us. As such, our auditor is required to attest to the effectiveness of our internal control over financial reporting beginning with this annual report on Form 10-K. We must implement and maintain substantial internal control systems and procedures to satisfy the reporting requirements under the Securities Exchange Act of 1934.

During our assessments, we may identify deficiencies that we are unable to remediate in a timely manner. Testing and maintaining our internal control over financial reporting may also divert management's attention from other matters that are important to the operation of our business. We may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404(b) of SOX. If we conclude that our internal control over financial reporting is not effective, the cost and scope of remediation actions and their effect on our operations may be significant. Moreover, any material weaknesses or other deficiencies in our internal control over financial reporting may impede our ability to file timely and accurate reports with the SEC. Any of the above could cause investors to lose confidence in our reported financial information or our Class A common stock listing on Nasdaq to be suspended or terminated, which could have a negative effect on the trading price of our common stock.

We previously identified material weaknesses in our internal control over financial reporting, and if we fail to maintain an effective system of internal controls, or otherwise fail to comply with the Sarbanes-Oxley Act of 2002 now that we are a large accelerated filer, we may not be able to accurately and timely report our financial results, which may adversely affect our business and investor confidence in us and, as a result, the value of our Class A common stock.

As previously disclosed in our Annual Report on Form 10-K for the year ended December 31, 2020, we and our independent registered public accounting firm identified the following material weaknesses in our internal control over financial reporting:

- there is insufficient accounting personnel to enable segregation of duties relating to the general ledger, disbursement, and certain accounting functions;
- there are not formalized processes or controls for account reconciliations, including independent review of such reconciliations, or related financial statement analysis prepared in conformity with generally accepted accounting principles in the United States (U.S. GAAP); and
- there is not a sufficient complement of accounting personnel with the necessary U.S. GAAP technical expertise to timely identify and account for complex or non-routine transactions or to formalize accounting policies, memoranda, or controls for such transactions.

We completed remediation measures related to the material weaknesses and concluded that our internal control over financial reporting was effective as of December 31, 2021. 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 unable to successfully maintain internal control over financial reporting, or identify any additional material weaknesses, the accuracy and timing of our financial reporting may be adversely affected. In addition, if we are unable to assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal control over financial reporting, when required, investors may lose confidence in the accuracy and completeness of our financial reports, we may face restricted access to the capital markets, and our stock price may be materially adversely affected. Moreover, we could become subject to investigations by regulatory authorities, which could require additional financial and management resources.

If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results in a timely manner or prevent fraud, which would harm our business.

Effective internal controls over financial reporting are necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, are designed to prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation, could cause us to fail to meet our reporting obligations in a timely manner, or at all. In addition, any testing by us conducted in connection with Section 404(a) of SOX or any subsequent testing by our independent registered public accounting firm in connection with Section 404(b) of SOX, may reveal deficiencies in our internal controls over financial reporting that are deemed to be significant deficiencies or material weaknesses or that may require prospective or retroactive changes to our consolidated financial statements or identify other areas for further attention or improvement. We are also required to disclose material changes made in our internal controls over financing reporting and procedures on a quarterly basis and our management is required to assess the effectiveness of these controls annually. As discussed above, we have identified material weaknesses in the past which we are in the process of remedying. However, our efforts to remediate previous material weaknesses may not be effective or prevent any future deficiency in our internal control over financial reporting. Ineffective internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our Class A common stock.

To achieve compliance with Section 404(a) within the prescribed period, we have engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants and adopt a plan to assess and document the adequacy of our internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are designed and operating effectively and implement a continuous reporting and improvement process for internal control over financial reporting.

An independent assessment of the effectiveness of our internal controls could detect problems that our management's assessment might not identify. Undetected material weaknesses in our internal controls could lead to financial statement restatements and require us to incur the expense of remediation.

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 Class A common stock.

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in our consolidated 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 judgments relating to our critical accounting policies change or if actual circumstances differ from our assumptions, estimates or judgments, 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 Class A common stock.

Risks Related to Regulatory Compliance

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.

Our products are currently labeled and promoted, and are, and in the near-future will be, sold as research use only (RUO) products, primarily to academic and research institutions and research companies, and are not currently designed, or intended to be used, for diagnostic procedures, 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. 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 the Proteograph Product Suite to be subject to the clearance or approval of the FDA, as it is 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 current or 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 as 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 research use only 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.

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 research purposes only 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.

In August 2020, 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. The impact of this HHS rescission policy, including whether or how this policy will be implemented under the current administration, as well as other legislative, executive, and agency actions of the current administration remains unclear. The Biden administration has also issued a "regulatory freeze" memorandum that directs department and agency heads to review any new or pending rules of the prior administration. Any restrictions or heightened regulatory requirements on LDTs, IVDs, or RUO products by the FDA, HHS, Congress, or state regulatory authorities may decrease the demand for our products, increase our compliance costs, and negatively impact our business and profitability. We will continue to monitor and assess the impact of changing regulatory landscape on our business.

Capital Structure and M&A

We may need to raise additional capital to fund commercialization plans for the Proteograph Product Suite, including manufacturing, sales and marketing activities, expand our investments in research, and develop and commercialize new products and applications.

Based on our current plans, we believe that our current cash, cash equivalents and investments will be sufficient to meet our anticipated cash flow requirements for at least twelve months from the date of this Annual Report. If our available cash resources and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements including because of lower demand for our products or the realization of other risks described in this Annual Report, we may be required to raise additional capital prior to such time through issuances of equity or convertible debt securities, entrance into a credit facility or another form of third-party funding or seek other debt financing.

We will consider raising additional capital in the future to expand our business, to pursue strategic investments, to take advantage of financing opportunities or for other reasons, including:

- increasing our sales and marketing and other commercialization efforts to drive market adoption of the Proteograph Product Suite;
- funding development and marketing efforts of the Proteograph Product Suite or any other future products;
- 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.

Our present and future funding requirements will depend on many factors, including:

- our rate of progress in commercializing the Proteograph Product Suite and new products, and the cost of the sales and marketing activities associated with establishing adoption of our products;
- our rate of progress in, and cost of research and development activities associated with, products in research and development; and
- the effect of competing technological and market developments.

The various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, dilution to our stockholders could result. If we raise funds by issuing debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our Class A common stock. The terms of debt securities issued or borrowings pursuant to a credit agreement could impose significant restrictions on our operations. 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.

We may acquire 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 the Proteograph Product Suite or future products, enhance our technical capabilities or otherwise offer growth opportunities. The pursuit of potential acquisitions may divert the attention of management and cause us to incur various costs and expenses in identifying, investigating and pursuing suitable acquisitions, 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 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.

We may not realize the benefits of PrognomIQ as a separate healthcare company in the area of disease testing.

In August 2020, we transferred certain assets to PrognomIQ, as a separate healthcare company to help enable the growth of ecosystems around new applications that leverage the Proteograph solution for unbiased, deep and large-scale proteomic information. As of December 31, 2021, we held approximately 19% of the outstanding capital stock of PrognomIQ. We may not realize the potential benefits of forming PrognomIQ for a variety of reasons, including:

- PrognomIQ may be unable to successfully develop viable testing products;
- PrognomIQ's business may not help demonstrate the value of the Proteograph;
- an inability to reach agreement with PrognomIQ on future commercial arrangements;
- PrognomIQ may not become a meaningful customer of ours;
- PrognomIQ may need to raise additional funding in the future and be unable to do so; and
- the formation of PrognomIQ and our continuing equity position in PrognomIQ may add complexities to our business from a finance, tax and accounting perspective.

Further, PrognomIQ is a separate entity, and as such, may decide over time to pursue a different business model, decide to do business with our competitors in addition to or instead of with us, be acquired by a competitor or take other actions that may not be beneficial to us.

Risks Related to our Intellectual Property

If we are unable to obtain, maintain and enforce 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 protection as well as trademark, copyright, trade secret and other intellectual property rights protection 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. If we fail to obtain, maintain, enforce and protect our intellectual property, 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.

To the extent our intellectual property offers inadequate protection, or is found to be invalid or unenforceable, we would be exposed to a greater risk of direct competition. If our intellectual property does not provide adequate coverage of our competitors' products, our competitive position could be adversely affected, as could our business, financial condition, results of operations and prospects. Both the patent application process and the process of managing patent and other intellectual property disputes can be time-consuming, expensive and unpredictable.

Our success depends in large part on our and our licensor's ability to obtain and maintain protection of the intellectual property we may own solely and jointly with, or license from, third parties, particularly patents, in the United States and other countries with respect to our products and technologies. We 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 generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much 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 services, 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.

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 United States Patent and Trademark Office (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 future 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 or abstract ideas 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 has created 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 assure you 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 material and negative impact on our business, financial condition, prospects and results of operations.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on our technology and products, including the Proteograph Product Suite, in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States, and we and our licensor may encounter difficulties in protecting and defending such rights in foreign jurisdictions. Obtaining granted patents in foreign jurisdictions is time-consuming and expensive, the outcome is unpredictable, and some countries are unable to prosecute and grant patents in a timely manner. Consequently, we and our licensor(s) may not be able to prevent third parties from practicing our inventions in some or all countries outside the United States, or from selling or importing products made using our or our licensor's inventions in and into the United States or other jurisdictions. It is unknown whether we will be successful in obtaining patents with sufficient claim scope in certain jurisdictions to block third parties, in a cost effective or in a timely manner, and if we are unable to do so it could have a material adverse effect on our business, financial condition, results of operation and prospects in various geographies.

Competitors and other third parties may also use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and technologies and may also export infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products. Our and our licensor's patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. In addition, certain countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to other parties. Furthermore, many countries limit the enforceability of patents against other parties, including government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of any patents.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of many other countries do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the misappropriation or other violations of our intellectual property rights including infringement of our patents in such countries. The legal systems in certain countries may also favor state-sponsored or companies headquartered in particular jurisdictions over our first-in-time patents and other intellectual property protection. The absence of harmonized intellectual property protection laws and effective enforcement makes it difficult to ensure consistent respect for patent, trade secret, and other intellectual property rights on a worldwide basis. As a result, it is possible that we will not be able to enforce our rights against third parties that misappropriate our proprietary technology in those countries.

Proceedings to enforce our or our licensor's patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business, could put our and our licensor's patents at risk of

being invalidated or interpreted narrowly and our and our licensor's patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We and our licensors may not prevail in any lawsuits that we or our licensor initiate, or that are initiated against us or our licensor, and the damages or other remedies awarded, if any, may not be commercially meaningful. In addition, changes in the law and legal decisions by courts in the United States and foreign countries may affect our ability to obtain adequate protection for our products, services and other technologies and the enforcement of intellectual property. 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. Any of the foregoing events could have a material adverse effect on our business, financial condition, results of operations and prospects.

Issued patents covering our products could be found invalid or unenforceable if challenged.

Our owned and licensed patents and patent applications may be subject to validity, enforceability and priority disputes. The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability. Some of our patents or patent applications (including licensed patents and patent applications) may be challenged at a future point in time in opposition, revocation, nullification, derivation, reexamination, *inter partes* review, post-grant review or interference or other similar proceedings. Any successful third-party challenge to our patents in this or any other proceeding could result in the unenforceability or invalidity of such patents, which may lead to increased competition to our business, which could have a material adverse effect on our business, financial condition, results of operations and prospects. In addition, if we or our licensor initiate legal proceedings against a third party to enforce a patent covering our products, the defendant could counterclaim that such patent covering our products, as applicable, is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. There are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, lack of written description or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the relevant patent office, or made a misleading statement, during prosecution. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include *ex parte* re-examination, *inter partes* review, post-grant review, derivation and equivalent proceedings in non-U.S. jurisdictions, such as opposition proceedings. Such proceedings could result in revocation of or amendment to our patents in such a way that they no longer cover and protect our products, or exclude our competitor's products. With respect to the validity of our patents, for example, we cannot be certain that there is no invalidating prior art of which we, our licensor, our or its patent counsel and the patent examiner were unaware during prosecution. The outcome following legal assertions of invalidity and unenforceability during patent litigation is unpredictable. If a defendant or other third party were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on certain aspects of our products and technologies, which could have a material adverse effect on our business, financial condition, results of operations and prospects. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, regardless of the outcome, it could dissuade companies from collaborating with us to license intellectual property, or develop or commercialize current or future products.

We may not be aware of all third-party intellectual property rights potentially relating to our products. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until approximately 18 months after filing or, in some cases, not until such patent applications issue as patents. We might not have been the first to make the inventions covered by each of our pending patent applications and we might not have been the first to file patent applications for these inventions. To determine the priority of these inventions, we may have to participate in interference proceedings, derivation proceedings or other post-grant proceedings declared by the USPTO, or other similar proceedings in non-U.S. jurisdictions, that could result in substantial cost to us and the loss of valuable patent protection. The outcome of such proceedings is uncertain. No assurance can be given that other patent applications will not have priority over our patent applications. In addition, changes to the patent laws of the United States allow for various post-grant opposition proceedings that have not been extensively tested, and their outcome is therefore uncertain. Furthermore, if third parties bring these proceedings against our patents, regardless of the merit of such

proceedings and regardless of whether we are successful, we could experience significant costs and our management may be distracted. Any of the foregoing events could have a material adverse effect on our business, financial condition, results of operations and prospects.

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 and confidential information, including parts of the Proteograph Product Suite, 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 between academia and industry.

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 have a material and adverse impact on our ability to establish or maintain a competitive advantage in the market and our 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 may be subject to claims challenging the inventorship of our patents and other intellectual property.

We or our licensor may be subject to claims that former employees, collaborators or other third parties have an interest in our owned or in-licensed patents, trade secrets or other intellectual property as an inventor or co-inventor. For example, we or our licensor may have inventorship disputes arise from conflicting obligations of employees, consultants or others who are involved in developing our products. In addition, counterparties to our consulting, sponsored research, software development and other agreements may assert that they have an ownership interest in intellectual property developed under such arrangements. In particular, certain software development agreements pursuant to which certain third parties have developed parts of our proprietary software may not include provisions

that expressly assign to us ownership of all intellectual property developed for us by such third parties. Furthermore, certain of our sponsored research agreements pursuant to which we provide certain research services for third parties do not assign to us all intellectual property developed under such agreements. As such, we may not have the right to use all such developed intellectual property under such agreements, we may be required to obtain licenses from third parties and such licenses may not be available on commercially reasonable terms or at all, or may be non-exclusive. If we are unable to obtain such licenses and such licenses are necessary for the development, manufacture and commercialization of our products and technologies, we may need to cease the development, manufacture and commercialization of our products and technologies.

Litigation may be necessary to defend against these and other claims challenging inventorship of our or our licensor's ownership of our owned or in-licensed patents, trade secrets or other intellectual property. If we or our licensor 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, intellectual property that is important to our technologies and products, including the Proteograph solution, including our software, workflows, consumables and reagent kits. In such an event, we may be required to obtain licenses from third parties and such licenses may not be available on commercially reasonable terms or at all, or may be non-exclusive. If we are unable to obtain and maintain such licenses, we may need to cease the development, manufacture and commercialization of our products and technologies. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees, and certain customers or partners may defer engaging with us until the particular dispute is resolved. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

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 impacting our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims, or other challenges to our trademarks, brought by owners of 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 impact 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 suffer a competitive disadvantage, 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.

Patent terms may be inadequate to protect our competitive position on our products and technologies, including the Proteograph Product Suite 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 become involved in lawsuits to defend against third-party claims of infringement, misappropriation or other violations of intellectual property or to protect or enforce our intellectual property, any of which could be expensive, time consuming and unsuccessful, and may prevent or delay our development and commercialization efforts.

Our commercial success depends in part on our ability and the ability of future collaborators to develop, manufacture, market and sell our product and use our products and technologies without infringing, misappropriating or otherwise violating the intellectual property rights of third parties. There is a substantial amount of litigation involving patents and other intellectual property rights in the life sciences technology sector, as well as 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 may be exposed to, or threatened with, future litigation by third parties having patent or other intellectual property rights alleging that our products, manufacturing methods, software and/or technologies infringe, misappropriate or otherwise violate their intellectual property rights. Numerous issued patents and pending patent applications that are owned by third parties exist in the fields 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. Thus, because of the large number of patents issued and patent applications filed in our fields, there may be a risk that third parties, including our competitors, may allege they have patent rights encompassing our products, technologies or methods 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, by filing an intellectual property-related lawsuit, including patent infringement lawsuit, against us. Even if we believe the third-party intellectual property claims are without merit, there is no assurance that a court would find in our favor on questions of infringement, validity, enforceability, or priority. For example, we are aware of a U.S. issued patent owned by a third party that is directed to a method for diagnosing a biological condition by analyzing certain types of proteins, including through the use of nanoparticles. Such patent is expected to expire in 2026, without taking into account any possible patent term adjustments or extensions. We are also aware of pending patent applications in Europe and in the United States owned by a third party that are directed to a method of identifying biomarkers in biofluids using nanoparticles and, if issued, is projected to expire in 2037, without taking into account any possible patent term adjustments or extensions. Such patent and patent applications could be construed to cover certain aspects of our products or technologies, including the Proteograph Product Suite. If any of these third parties, or any other third parties, were to assert these or any other 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 technologies and we may be required to redesign such products or 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, however such a license may not be available on commercially reasonable terms or at all, including because certain of these patents are held by or may be licensed to our competitors. 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, including in connection with any allegation of patent infringement by a third party, 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, European Patent Office (EPO), or other foreign patent offices review the patent

claims, such as in an *ex-parte* reexamination, *inter partes* review, post-grant review proceeding, opposition or other comparable proceeding. However, there can be no assurance that any such challenge by us or any third party will be successful. Even if such proceedings are successful, these proceedings are expensive and may consume our time or other resources, distract our management and technical personnel, and the costs of these proceedings could be substantial. There can be no assurance that our defenses of non-infringement, invalidity or unenforceability in a court of law will succeed.

Third parties, including our competitors, could be infringing, misappropriating or otherwise violating our owned and in-licensed intellectual property rights. Monitoring unauthorized use of our intellectual property is 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 as against such infringement, misappropriation or violation of our intellectual property. 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. In any such proceedings, a court may refuse to stop the other party from using the technology at issue on the grounds that our owned and in-licensed patents do not cover the technology in question. 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, which could allow third parties to commercialize technology or products similar to ours and compete directly with us, without payment to us, or could require us to obtain license rights from the prevailing party in order to be able to manufacture or commercialize our products without infringing such party's intellectual property rights, and if we unable to obtain such a license, we may be required to cease commercialization of our products and technologies, any of which could have a material adverse effect on our business, financial condition, results of operations and prospects. The outcome in any such proceedings are unpredictable.

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 hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our Class A 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 and continuation 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 material adverse effect on our business, financial condition, results of operations and prospects.

Obtaining and maintaining our patent protection depends on compliance with various required procedures, document submissions, fee payments and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the USPTO and various governmental patent agencies outside of the United States at several stages over the lifetime of the patents and/or applications. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other

similar provisions during the patent application process. In certain circumstances, we rely on our licensor to pay these fees due to the U.S. and non-U.S. patent agencies and to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors may be able to enter the market without infringing our patents and this circumstance would have a material adverse effect on our business, financial condition, results of operations and prospects.

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

We have employed and expect to employ individuals, and engaged consultants and expect to engage consultants, who were previously employed, or consulted, at universities or other companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants, advisors and independent contractors do not use confidential or proprietary information or know-how of others in their work for us, we may be subject to claims that our employees, advisors, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other confidential or proprietary information of their former employers or other third parties, or to claims that we have improperly used or obtained such trade secrets. Litigation may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights and face increased competition to our business. Any such litigation or the threat thereof may adversely affect our ability to hire employees or contract with advisors, contractors and consultants. A loss of key research personnel work product could hamper or prevent our ability to commercialize potential products, which could harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management. This type of litigation or proceeding could substantially increase our operating losses and reduce our resources available for development activities. Some of our competitors may be able to sustain the costs of this type of litigation or proceedings more effectively than we can because of their substantially greater financial resources.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Furthermore, individuals executing agreements with us may have pre-existing or competing obligations to a third party, such as an academic institution, and thus an agreement with us may be ineffective in perfecting ownership of inventions developed by that individual, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Furthermore, we or our licensor may in the future be subject to claims by former employees, consultants or other third parties asserting an ownership right in our owned or licensed patents or patent applications. An adverse determination in any such proceeding may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar technology, without payment to us, or could limit the duration of the patent protection covering our technology and products. Such challenges may also result in our inability to develop, manufacture or commercialize our products without infringing third-party patent rights. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

We currently rely on a license from a third party, and in the future may rely on additional licenses from other third parties, in relation to our technologies and products, including the Proteograph Product Suite and if we lose any of these licenses, then we may be subjected to future litigation.

We are, and may in the future become, a party to license agreements that grant us rights to use certain intellectual property, including patents and patent applications, typically in certain specified fields of use. Currently, we rely on an in-license from The Brigham and Women's Hospital, Inc. (BWH), for patents, for example, relating to methods of using nanoparticles to measure the proteome, including the methods used in the Proteograph Product Suite and may in the future rely on licenses from other third parties with respect to our products, including the Proteograph Product Suite, or other technology. Our rights to use licensed technology in our business are subject to the continuation of and compliance with the terms of the BWH license and any licenses we may enter into in the future. Some of these licensed rights provide us with freedom to operate for aspects of our products and technologies. As a result, any termination of this license could result in the loss of significant rights and could harm our ability to develop, manufacture and commercialize our products, including the Proteograph Product Suite. We may need to obtain additional licenses from others to advance our research, development and commercialization activities. For instance, under our license agreement with BWH, we currently in-license two patent families, one of which includes methods used in the Proteograph Product Suite, and to the extent any additional intellectual property developed by BWH that are not included in such licensed patent families are necessary or useful for the Proteograph Product Suite or any other product or technology, we would need to negotiate for additional licenses to such additional intellectual property. Such licenses may not be available on commercially reasonable terms or at all, or may be non-exclusive, 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.

Our success may depend in part on the ability of our licensor and any future licensors to obtain, maintain and enforce patent protection for our licensed intellectual property. Under our license agreement with BWH and under any licenses we may enter into in the future, BWH controls, and future licensors may control, the prosecution, maintenance and enforcement of patents and patent applications that are licensed to us. BWH or any future licensors may not successfully prosecute the patent applications we license or prosecute such patent applications in our best interest. Even if patents issue in respect of these patent applications, BWH and any future licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents or may pursue such litigation less aggressively than we would. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products and technologies for sale, which could materially adversely affect our competitive business position and harm our business prospects, financial condition or results of operations.

If we fail to comply with our obligations under any license, collaboration or other agreements, we may be required to pay damages and could lose intellectual property rights necessary for developing and protecting our technologies and products, including our Proteograph Product Suite, or we could lose certain rights to grant sublicenses.

Future agreements may impose, and our current license agreement imposes, various diligence, commercialization, funding, milestone payment, royalty, sublicensing, insurance, patent prosecution and enforcement and other obligations on us and require us to meet development timelines, or to exercise commercially reasonable efforts to develop and commercialize licensed products, in order to maintain the licenses. If we fail to comply with any of these obligations, a licensor(s) may have the right to terminate our license and/or we may be required to pay damages, in which event we would not be able to develop or market products or technology covered by the licensed intellectual property. In addition, while we cannot currently determine the amount of any future royalty obligations we would be required to pay on future sales of a licensed product, the amount may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products we commercialize, if at all. Therefore, even if we successfully develop and commercialize existing or future products, we may be unable to achieve or maintain profitability. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

Moreover, disputes may also arise between us and our licensor regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- our financial or other obligations under the license agreement;
- whether, and the extent to which, our products, technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensor(s); and
- the priority of invention of patented technology.

If we do not prevail in such disputes, we may lose any or all of our rights under such license agreements, experience significant delays in the development and commercialization of our products and technologies, or incur liability for damages, any of which could have a material adverse effect on our business, financial condition, results of operations, and prospects. In addition, we may seek to obtain additional licenses from our licensor(s) and, in connection with obtaining such licenses, we may agree to amend our existing licenses in a manner that may be more favorable to the licensor(s), including by agreeing to terms that could enable third parties, including our competitors, to receive licenses to a portion of the intellectual property that is subject to our existing licenses and to compete with our products.

In addition, the agreements under which we currently and in the future license intellectual property or technology from third parties are complex and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize any affected products or services, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Absent the license agreements, we may infringe patents subject to those agreements, and if the license agreements are terminated, we may be subject to litigation by the licensor. Litigation could result in substantial costs to us and distract our management. If we do not prevail, we may be required to pay damages, including treble damages, attorneys' fees, costs and expenses and royalties or be enjoined from selling our products, including the Proteograph Product Suite, which could adversely affect our ability to offer products or services, our ability to continue operations and our business, financial condition, results of operations and prospects. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

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, including the Proteograph Product Suite. 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, 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. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

Certain of our in-licensed patents are, and 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, that may limit our ability to exclude third parties from commercializing products similar or identical to ours.

In addition, our owned and in-licensed patents may be subject to a reservation of rights by one or more third parties. For example, the U.S. government has certain rights, including march-in rights, to patent rights and technology funded by the U.S. government and licensed to us from BWH. 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 in 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 and proprietary 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 products contain third-party open source software components and failure to comply with the terms of the underlying open source software licenses could restrict our ability to sell our products and provide third parties access to our proprietary software.

Our products contain software licensed by third parties under open source software licenses. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source software licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. Some open source software licenses contain requirements that the licensee make its source code publicly available if the licensee creates modifications or derivative works using the open source software, depending on the type of open source software the licensee uses and how the licensee uses it. If we combine our proprietary software with open source software in a certain manner, we could, under certain open source software licenses, be required to release the source code of our proprietary software to the public for free. This would allow our competitors and other third parties to create similar products with less development effort and time and ultimately could result in a loss of our product sales and revenue, which could have a material adverse effect on our business, financial condition, results of operations and prospects. In addition, some companies that use third-party open source software have faced claims challenging their use of such open source software and their compliance with the terms of the applicable open source license. We may be subject to suits by third parties claiming ownership of what we believe to be open source software, or claiming non-compliance with the applicable open source licensing terms. Use of open source software may also present additional security risks because the public availability of such software may make it easier for hackers and other third parties to compromise or attempt to compromise our technology platform and systems.

Although we review our use of open source software to avoid subjecting our proprietary software to conditions we do not intend, the terms of many open source software licenses have not been interpreted by United States courts, and there is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our products and proprietary software. Moreover, we cannot assure investors that our processes for monitoring and controlling our use of open source software in our products will be effective. If we are held to have breached the terms of an open source software license, we could be subject to damages, required to seek licenses from third parties to continue offering our products on terms that are not economically feasible, to re-engineer our products, to discontinue the sale of our products if re-engineering could not be accomplished on a timely basis, or to make generally available, in source code form, our proprietary code, any of which could adversely affect our business, financial condition, results of operations and prospects.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make products that are similar to products and technologies we may develop or utilize similar technology that are not covered by the claims of the patents that we own or license now or in the future;
- we, or our licensor(s), might not have been the first to make the inventions covered by the issued patent or pending patent application that we license or may own in the future;
- we, or our licensor(s), might not have been the first to file patent applications covering certain of our or their inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing, misappropriating or otherwise violating our owned or licensed intellectual property rights;
- it is possible that our pending patent applications, and our licensed pending patent applications, or those that we may own or license in the future, will not lead to issued patents;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we, and our licensor(s), may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent for certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could materially adversely affect our business, financial condition, results of operations and prospects.

Risks Related to Ownership of Our Class A Common Stock

An active trading market for our Class A common stock may not be sustained.

Although our Class A common stock is traded on the Nasdaq Global Select Market under the symbol “SEER,” there is a limited trading history and an active trading market for our Class A common stock may not be sustained. Accordingly, we cannot assure you of your ability to sell your shares of Class A common stock when desired or the

prices that you may obtain for your shares. If an active market for our Class A common stock with meaningful trading volume is not sustained, the market price of our Class A common stock may decline materially and you may not be able to sell your shares.

The market price of our Class A common stock may be volatile.

Some of the factors that may cause the market price of our Class A common stock to fluctuate include, but are not limited to:

- the degree to which our launch and commercialization of our products meets the expectations of securities analysts and investors;
- actual or anticipated fluctuations in our operating results, including fluctuations in our quarterly and annual results;
- revenue being less than anticipated or operating expenses being more than anticipated;
- 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;
- the success of existing or new competitive businesses or technologies;
- announcements about new research programs or products of our competitors;
- developments or disputes concerning patent applications, issued 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 proteomics or genomics sectors specifically;
- investor perceptions of us or our industry;
- the level of expenses related to any of our research and development programs or products;
- actual or anticipated changes in our estimates as to our financial results or development timelines, variations in our financial results or those of companies that are perceived to be similar to us or changes in estimates or recommendations by securities analysts, if any, that cover our Class A 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 Class A common stock by us or sales of our Class A common stock or Class B common stock by our insiders or other stockholders;
- general economic, industry and market conditions; and
- the COVID-19 pandemic, natural disasters or major catastrophic events.

Recently, stock markets in general, and the market for life sciences technology companies in particular, have experienced significant price and volume fluctuations that have often been unrelated or disproportionate to changes

in the operating performance of the companies whose stock is experiencing those price and volume fluctuations, particularly in light of the current COVID-19 pandemic. Broad market and industry factors may seriously affect the market price of our Class A common stock, regardless of our actual operating performance. Following periods of such volatility in the market price of a company's securities, securities class action litigation has often been brought against that company. Because of the potential volatility of our stock price, we may become the target of securities litigation in the future. Securities litigation could result in substantial costs and divert management's attention and resources from our business.

The multi-class structure of our common stock will have the effect of concentrating voting control with certain stockholders and it may depress the trading price of our Class A common stock.

Our Class A common stock, which is our publicly-traded class of stock, has one vote per share, and our Class B common stock has ten votes per share, except as otherwise required by law. Our Class B common stock is held by our founders and early investors. As of February 28, 2022, the holders of our Class B common stock hold in the aggregate 45.7% of the voting power of our capital stock.

As a result, the holders of our Class B common stock collectively will continue to control a significant amount of the combined voting power of our common stock and therefore may be able to control matters submitted to our stockholders for approval. This control will limit to the stockholders' influence over corporate matters for approximately five years following our initial public offering, including the election of directors, amendments of our organizational documents and any sale of the company or other major corporate transaction requiring stockholder approval. This may prevent or discourage unsolicited proposals to acquire the company. Future transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, subject to limited exceptions, such as certain transfers effected for estate planning purposes where sole dispositive power and exclusive voting control with respect to the shares of Class B common stock is retained by the transferring holder. The Class B common stock will also automatically convert into Class A common stock on December 8, 2025. The conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the relative voting power of those individual holders of Class B common stock who retain their shares over the long term.

In July 2017, S&P Dow Jones announced that it would no longer admit companies with multiple-class share structures to certain of its indices. Affected indices include the S&P 500, S&P MidCap 400, and S&P SmallCap 600, which together make up the S&P Composite 1500. Our multi-class capital structure may make us ineligible for inclusion in certain indices, and as a result, mutual funds, exchange-traded funds and other investment vehicles that attempt to passively track these indices may not be investing in our stock. It is unclear what effect, if any, exclusion from any indices has had on the valuations of the affected publicly traded companies. It is possible that such policies could depress the valuations of public companies excluded from such indices compared to those of other companies that are included.

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

The trading market for our Class A common stock relies in part on the research and reports that industry or securities analysts publish about us or our business. If no or few analysts commence or continue coverage of us, the trading price of our Class A common stock could decrease. If one or more of the analysts covering our business downgrade their evaluations of our Class A common stock, the price of our Class A common stock could decline. If one or more of these analysts cease to cover our Class A common stock, we could lose visibility in the market for our Class A common stock, which in turn could cause the price of our Class A common stock to decline.

Sales of a substantial number of shares of our Class A common stock by our existing stockholders could cause the price of our Class A common stock to decline.

Sales of a substantial number of shares of our Class A common stock in the public market could occur at any time following the expiration of the market standoff and lock-up agreements or the early release of these agreements or the perception in the market that the holders of a large number of shares of Class A common stock intend to sell shares and could reduce the market price of our Class A common stock.

Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, any applicable market standoff and lock-up agreements, and Rule 144 and Rule 701 under the Securities Act of 1933, as amended, or the Securities Act.

We have not paid dividends in the past and do not expect to pay dividends in the future, and, as a result, any return on investment may be limited to the value of our stock.

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

Our amended and restated bylaws designate a state or federal court located within the State of Delaware as the exclusive forum for substantially all disputes between us and our stockholders, and also provide that the federal district courts will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act of 1933, as amended, each of which could limit our stockholders' ability to choose the judicial forum for disputes with us or our directors, officers, stockholders, or employees.

Our amended and restated certificate of incorporation specifies that, unless we consent in writing to the selection of an alternative forum, the sole and exclusive forum for (a) any derivative action or proceeding brought on our behalf, (b) any action asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, stockholders, officers, or other employees to us or our stockholders, (c) any action or proceeding asserting a claim arising pursuant to, or seeking to enforce any right, obligation or remedy under, any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation, or our amended and restated bylaws, (d) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction on the Court of Chancery of the State of Delaware, or (e) any action or proceeding asserting a claim that is governed by the internal affairs doctrine shall be the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, another state court in Delaware or, if no state court in Delaware has jurisdiction, the federal district court for the District of Delaware) and any appellate court therefrom, in all cases subject to the court having jurisdiction over the claims at issue and the indispensable parties; provided that the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Exchange Act.

Section 22 of the Securities Act of 1933, as amended (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 amended and restated bylaws also provide that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

Any person or entity purchasing or otherwise acquiring or holding or owning (or continuing to hold or own) any interest in any of our securities shall be deemed to have notice of and consented to the foregoing bylaw provisions. Although we believe these exclusive forum provisions benefit us by providing increased consistency in the application of Delaware law and federal securities laws in the types of lawsuits to which each applies, the exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum of its choosing for disputes with us or any of our directors, officers, stockholders, or other employees, which may discourage lawsuits with respect to such claims against us and our current and former directors, officers, stockholders, or other employees. Our stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder as a result of our exclusive forum provisions. Further, in the event a court finds either exclusive forum provision contained in our amended and restated bylaws to be unenforceable or inapplicable in an

action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our results of operations.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws might discourage, delay or prevent a change in control of our company or changes in our management and, therefore, depress the trading price of our Class A common stock.

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 restated certificate of incorporation and restated bylaws contain provisions that may make the acquisition of our company more difficult, including the following:

- any transaction that would result in a change in control of our company requires the approval of a majority of our outstanding Class B common stock voting as a separate class;
- our multi-class common stock structure provides our holders of Class B common stock with the ability to significantly influence the outcome of matters requiring stockholder approval, even if they own significantly less than a majority of the shares of our outstanding Class A common stock and Class B common stock;
- our board of directors is classified into three classes of directors with staggered three-year terms and directors will only be able to be removed from office for cause by the affirmative vote of holders of at least two-thirds of the voting power of our then outstanding capital stock;
- certain amendments to our amended and restated certificate of incorporation require the approval of stockholders holding two-thirds of the voting power of our then outstanding capital stock;
- any stockholder-proposed amendment to our amended and restated bylaws require the approval of stockholders holding two-thirds of the voting power of our then outstanding capital stock;
- our stockholders may only be able to take action at a meeting of stockholders and may not be able to take action by written consent for any matter;
- our stockholders are be able to act by written consent only if the action is first recommended or approved by the board of directors;
- vacancies on our board of directors may be filled only by our board of directors and not by stockholders;
- only the chair of the board of directors, chief executive officer or a majority of the board of directors are authorized to call a special meeting of stockholders;
- certain litigation against us can only be brought in Delaware;
- our restated certificate of incorporation authorizes undesignated preferred stock, the terms of which may be established and shares of which may be issued, without the approval of the holders of our capital stock; and
- advance notice procedures apply for stockholders to nominate candidates for election as directors or to bring matters before an annual meeting of stockholders.

These anti-takeover defenses could discourage, delay, or prevent a transaction involving a change in control of our company. These provisions could also discourage proxy contests and make it more difficult for stockholders to elect directors of their choosing and to cause us to take other corporate actions they desire, any of which, under certain circumstances, could limit the opportunity for our stockholders to receive a premium for their shares of our capital stock and could also affect the price that some investors are willing to pay for our Class A common stock.

Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2021 we had U.S. federal and state net operating loss carryforwards (NOLs) of $94.0 million and $84.5 million, respectively, which if not utilized will expire in 2035 for state purposes. We may use these NOLs to offset against taxable income for U.S. federal and state income tax purposes. However, Section 382 of the Internal Revenue Code of 1986, as amended, may limit the NOLs we may use in any year for U.S. federal income tax purposes in the event of certain changes in ownership of our company. A Section 382 "ownership change" generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company's stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Similar rules may apply under state tax laws. We have not conducted a 382 study to determine whether the use of our NOLs is impaired. We may have previously undergone multiple "ownership changes." In addition, future issuances or sales of our stock, including certain transactions involving our stock that are outside of our control, could result in future "ownership changes." "Ownership changes" that have occurred in the past or that may occur in the future could result in the imposition of an annual limit on the amount of pre-ownership change NOLs and other tax attributes we can use to reduce our taxable income, potentially increasing and accelerating our liability for income taxes, and also potentially causing those tax attributes to expire unused. States may impose other limitations on the use of our NOLs. Any limitation on using NOLs could, depending on the extent of such limitation and the NOLs previously used, result in our retaining less cash after payment of U.S. federal and state income taxes during any year in which we have taxable income, rather than losses, than we would be entitled to retain if such NOLs were available as an offset against such income for U.S. federal and state income tax reporting purposes, which could adversely impact our operating results.

We continue to incur significant increased costs and management resources as a result of operating as a public company.

As a public company, we continue to incur significant legal, accounting, compliance and other expenses that we did not incur as a private company. Our management and other personnel need to devote a substantial amount of time and incur significant expense in connection with compliance initiatives. As a public company, we continue to bear all of the internal and external costs of preparing and distributing periodic public reports in compliance with our obligations under the securities laws.

In addition, regulations and standards relating to corporate governance and public disclosure, including SOX, and the related rules and regulations implemented by the SEC and the Nasdaq Stock Market, LLC (Nasdaq) have increased legal and financial compliance costs and make some compliance activities more time-consuming. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment will result in increased general and administrative expenses and may divert management's time and attention from our other business activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to practice, regulatory authorities may initiate legal proceedings against us, and our business may be harmed. In the future, it may be more expensive or more difficult for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. These factors could also make it more difficult for us to attract and retain qualified members of our board of directors, particularly to serve on our audit committee and compensation committee, and qualified executive officers.

General Risks

Environmental, social, and governance (ESG) matters are subject to increasing scrutiny and evolving expectations from customers, regulators, investors and other stakeholders and may expose us to reputational, cost and other risks.

Companies across all industries are subject to increasing scrutiny and evolving expectations regarding ESG matters. In particular, customers, regulators, investors and other stakeholders are increasingly focusing on environmental issues, including climate change, energy use, industrial waste, and other sustainability concerns. Failure to implement sufficient standards and practices for responsible corporate citizenship, support for local communities, employee diversity and human capital management, health and safety practices, supply chain management, and

corporate governance can increase our costs of production, decrease our revenue, and negatively affect our reputation, employee retention, and the general willingness of customers and suppliers to do business with us and investors to invest in us. If we do not adapt to or comply with evolving ESG standards and regulations, the resulting consequences could have a material adverse effect on our reputation, business and financial condition.

If our facilities or our third-party manufacturers' facilities become unavailable or inoperable, our research and development program and commercialization plan could be adversely impacted and manufacturing of our instruments and consumables could be interrupted.

Our Redwood City, California, facilities house our corporate, research and development, NP manufacturing and quality assurance teams. Our instruments are manufactured at our third-party manufacturer's facilities in Nevada, and our consumables are manufactured at various locations in the United States and internationally.

Our facilities in Redwood City and those of our third-party manufacturers are vulnerable to natural disasters, public health crises, including the impact of the COVID-19 pandemic, climate change and catastrophic events. For example, our Redwood City facilities are located near earthquake fault zones and are vulnerable to damage from earthquakes as well as other types of disasters, including fires, wildfires, floods, power loss, communications failures and similar events. If any disaster, 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 manufacturer's facilities become unavailable for any reason, we cannot provide assurances that we will be able to secure alternative manufacturing facilities with the necessary capabilities and equipment on acceptable terms, if at all. We may encounter particular difficulties in replacing our Redwood City facilities given the specialized equipment housed within it. The inability to manufacture our instruments or consumables, combined with our limited inventory of manufactured instruments and consumables, 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 some of our NPs 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 NPs, and we may not be able to replace them without disruption to our customers or at all.

If our research and development program or commercialization program were disrupted by a disaster or catastrophe, the launch of new products, including the Proteograph Product Suite, and the timing of improvements to our 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 manufacturer's 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.

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

We rely, or will 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 (including denial of service, ransomware, and other attacks) 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, employee theft or misuse, denial-of-service attacks and sophisticated nation-state and nation-state supported actors now engage in attacks, including advanced persistent threat intrusions. Despite our efforts to create security barriers to such threats, it is virtually impossible for us to entirely mitigate these risks. In addition, we have not finalized our information technology and data security procedures and therefore, our

information technology systems may be more susceptible to cybersecurity attacks than if such security procedures were finalized. 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, including as a result of third-party action, employee or customer error, malfeasance, stolen or fraudulently obtained log-in credentials or otherwise, our reputation could be damaged, 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 on an acceptable timeframe. In addition, our information technology systems, and those of our vendors and partners, are potentially vulnerable to data security breaches, 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. Additionally, a new privacy law, the California Privacy Rights Act (CPRA), was approved by California voters in the election on November 3, 2020. The CPRA will modify the California Consumer Privacy Act significantly, potentially resulting in further uncertainty and requiring us to incur additional costs and expenses in an effort to comply. The CPRA will restrict use of certain categories of sensitive personal information that we may handle, establish restrictions on the retention of personal information, expand the types of data breaches subject to the private right of action, and establish the California Privacy Protection Agency to implement and enforce the new law and impose administrative fines. The majority of the CPRA's provisions will go into effect on January 1, 2023, and additional compliance investment and potential business process changes will likely be required. Similar laws have been proposed in other states and at the federal level, reflecting a trend toward more stringent data privacy and security legislation in the United States. For example, on March 2, 2021, Virginia enacted the Virginia Consumer Data Protection Act, or CDPA, which becomes effective on January 1, 2023, and on June 8, 2021, Colorado enacted the Colorado Privacy Act, or CPA, which takes effect on July 1, 2023. The CPA and CDPA share similarities with the CCPA, CPRA, and legislation proposed in other states. Aspects of these state privacy statutes remain unclear, resulting in further uncertainty and potentially requiring us to modify our data practices and policies and to incur substantial additional costs and expenses in an effort to comply. In addition, U.S. and international laws and regulations that have been applied to protect user privacy (including laws regarding unfair and deceptive practices in the U.S. and GDPR in the EU) may be subject to evolving interpretations or applications. 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 Class A 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. 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.

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 are vital to our operations and business strategy. We are, and may increasingly become, subject to various laws and regulation relating to data privacy and security in the jurisdictions in which we operate. We also may be subject to contractual obligations and may be, or may be asserted to be, subject to industry standards relating to privacy and data security. 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 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.

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”) and require the implementation of administrative, physical and technological safeguards to protect the privacy of protected health information and ensure the confidentiality, integrity and availability of electronic protected health information. 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, and liability under federal or state laws that protect the privacy of personal information, such as the HIPAA, 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.

We are in the process of evaluating compliance needs, but do not currently have in place formal policies and procedures related to the storage, collection and processing of information, and have not conducted any internal or external data privacy audits, to ensure our compliance with all applicable data protection laws and regulations. Additionally, we do not currently have policies and procedures in place for assessing 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 would 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.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters, research and development facilities, and manufacturing and distribution centers are located at 3800 Bridge Parkway, Redwood City, CA 94065. The facility is approximately 51,000 square feet and is compliant with all relevant state and federal requirements. Our lease on this facility runs through February 2032. In addition, we lease approximately 6,000 square of office space in San Diego, California under a lease that runs through September 2023. We do not own any real property and believe that our current facilities are sufficient to meet our ongoing needs and that, if we require additional space, we will be able to obtain additional facilities on commercially reasonable terms.

Item 3. Legal Proceedings

We are not currently a party to any material legal proceedings. From time to time we may be involved in legal proceedings or investigations, which could have an adverse impact on our reputation, business and financial condition and divert the attention of our management from the operation of our business.

Item 4. Mine Safety Disclosure

Not applicable.

PART II.

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our Class A common stock has been listed on the Nasdaq Global Select Market under the symbol "SEER" since December 4, 2020. Prior to that date, there was no public trading market for our Class A common stock.

Our Class B common stock is not listed or traded on any stock exchange.

Holders of Common Stock

As of February 22, 2022, there were 49 holders of record of our Class A common stock and 6 holders of record of our Class B common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

Dividend Policy

We have not declared or paid any cash dividends on our capital stock since our inception. We intend to retain future earnings, if any, to finance the operation and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future. Payment of future cash dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs, the requirements and contractual restrictions of then-existing debt instruments and other factors that our board of directors deems relevant.

Unregistered Sales of Equity Securities

None.

Use of Proceeds from Public Offering of Common Stock

On December 8, 2020, we closed our initial public offering, or IPO, of 10,592,106 shares of common stock (inclusive of 1,381,579 shares of common stock from the full exercise of the overallotment option of shares granted to the underwriters). The offer and sale of all of the shares in the initial public offering were registered under the Securities Act pursuant to a registration statement on Form S-1 (File Nos. 333-250035 and 333-251116), which was declared effective by the SEC on December 3, 2020. J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, BofA Securities, Inc. and Cowen and Company, LLC acted as the underwriters. The public offering price of the shares sold in the offering was $19.00 per share. The total gross proceeds from the offering were $201.3 million.

After deducting underwriting discounts and commissions of $14.1 million and offering expenses paid or payable by us of approximately $3.3 million, the net proceeds from the offering were approximately $183.9 million.

There has been no material change in the planned use of proceeds from our IPO as described in our final IPO prospectus filed with the SEC on December 4, 2020 pursuant to rule 424(b) of the Securities Act. We invested the funds received in short-term and long-term, interest-bearing investment-grade securities and government securities.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our audited consolidated financial statements and related notes included elsewhere in this Annual Report. This discussion contains forward-looking statements that involve risks and uncertainties, including those described in the section titled "Special Note Regarding Forward Looking Statements." Our actual results and the timing of selected events could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those set forth under the section titled "Risk Factors."

Overview

Our mission is to imagine and pioneer new ways to decode the secrets of the proteome to improve human health. Our initial product, the Proteograph Product Suite (Proteograph), leverages our proprietary engineered nanoparticle (NP) technology to provide unbiased, deep, rapid and large-scale access to the proteome. The Proteograph Product Suite is an integrated solution that is comprised of consumables, an automation instrument and software.

We believe that characterizing and understanding the full complexity of the proteome is foundational for accelerating biological insights and will lead to broad potential end-markets for proteomics, encompassing basic research and discovery, translational research, diagnostics and applied applications. This full understanding of the complexity of the proteome and its dynamic nature requires large-scale, unbiased and deep interrogation of thousands of samples across time, which we believe is unavailable with the proteomic approaches available today. We believe that the Proteograph Product Suite has the potential to enable researchers to perform these proteomics studies at scale.

Since we were incorporated in 2017, we have devoted substantially all of our resources to research and development activities, including with respect to the Proteograph Product Suite, building our commercial infrastructure including manufacturing, operations, sales and marketing and service and support functions, establishing and maintaining our intellectual property portfolio, hiring personnel, raising capital, becoming a publicly-traded company, and providing general and administrative support for these activities.

Our ability to generate product revenue sufficient to achieve profitability, if ever, will depend on the successful commercialization of the Proteograph Product Suite. We are commercializing the Proteograph Product Suite as an integrated solution comprised of consumables, our SP100 automation instrument and software. Our commercial strategy is focused on growing adoption by the research community of the Proteograph, expanding the installed base and increasing utilization to generate revenue from the purchase of the Proteograph consumables. We expect a highly efficient sales model because our workflow integrates with most existing proteomics laboratories' workflows and also complements large-scale genomics research.

We are broadly commercializing the Proteograph Product Suite through a direct sales channel in the United States, and through both direct and distributor sales channels in regions outside the United States. Given our recent launch of broad commercialization, we have built, and will continue to build, sales, marketing, support and product distribution capabilities. We will continue to build the necessary infrastructure for these activities in the United States, European Union, the United Kingdom, and other countries and regions, including Asia-Pacific, as we execute on our broad release commercialization strategy for the Proteograph.

We leverage well-established unit operations to formulate and manufacture our NPs at our facilities in Redwood City, California. We procure certain components of our consumables from third-party manufacturers, which includes the commonly-available raw materials needed for manufacturing our proprietary engineered NPs. We are currently manufacturing using our pilot line and building out our manufacturing capabilities as we enter broad commercial availability. We obtain some of the reagents and components used in the Proteograph workflow from third-party suppliers. While some of these reagents and components are sourced from a single supplier, these products are readily available from numerous suppliers. While we perform some filling and packaging of the Proteograph assay and the related consumables, in the future, we may have our filling and packaging outsourced to a third-party. We conduct vendor and component qualification for components provided by third-party suppliers and quality control tests on our NPs.

We have designed our SP100 automation instrument and have outsourced the manufacturing of our SP100 to Hamilton Company, a leading manufacturer of automated liquid handling workstations. We have entered into a non-exclusive agreement with Hamilton that covers the manufacturing of our SP100 automation instrument and its continued supply on a purchase order basis. The agreement has an initial term that runs three years following our commercial launch. Pricing for the supply of our SP100 is on a fixed schedule during the initial term of the agreement, with tiered pricing dependent upon the number of units purchased in a twelve-month period.

On December 8, 2020, we completed our IPO, in which we sold 10,592,106 shares of Class A common stock at a price to the public of $19.00 per share, resulting in net proceeds of $183.9 million after deducting offering costs, underwriting discounts and commissions. Concurrent with the IPO, we issued 7,105,262 shares of our Class A common stock in a private placement for net proceeds of $130.3 million after deducting underwriting discounts and commissions. On February 1, 2021, we completed an underwritten public offering of 1,650,000 shares of our Class A common stock at a public offering price of $67.00 per share. We received net proceeds of $103.0 million after deducting offering costs, underwriting discounts and commissions.

During the years ended December 31, 2021 and 2020, we incurred a net loss of $71.2 million and $32.8 million and used $46.3 million and $20.8 million of cash in operations, respectively. As of December 31, 2021, we had an accumulated deficit of $126.5 million and cash, cash equivalents, and investments of $493.3 million. We expect to continue to incur significant and increasing losses and do not expect positive cash flows from operations for the foreseeable future.

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

- broadly commercialize the Proteograph Product Suite;
- attract, hire and retain qualified personnel;
- continue to build our sales, marketing, service, support and distribution infrastructure as part of our broad commercialization efforts;
- build-out and expand our in-house NP manufacturing capabilities;
- continue to engage in research and development of other products and enhancements to the Proteograph Product Suite;
- implement operational, financial and management information systems;
- obtain, maintain, expand, and protect our intellectual property portfolio; and
- build the infrastructure to operate and scale as a public company.

PrognomIQ

In August 2020, we transferred certain assets related to human disease testing to PrognomIQ, Inc. (PrognomIQ), a new wholly-owned subsidiary, in exchange for all of its outstanding equity interests. Following the transfer, we completed a pro-rata distribution to our stockholders of most of the shares of capital stock of PrognomIQ. Following the distribution and a subsequent $55.0 million equity financing of PrognomIQ, we hold approximately 19% of the outstanding capital stock in PrognomIQ as of December 31, 2021.

The rationale for this transaction was to enable the growth of ecosystems around new applications that leverage unbiased, deep and large-scale proteomic information. The transaction allows us to remain focused on our core strategy, which is to be a provider, rather than a consumer, of proteomics solutions to all customers across these ecosystems. By focusing on our role as a provider of proteomics solutions, we are no longer potentially competing with, or creating the perception that we are competing with, our customers. Our relationship with PrognomIQ does not preclude us from selling the Proteograph Product Suite to any customer in any geography, nor does it preclude our customers from using the Proteograph in any way. PrognomIQ has indicated that it plans to combine the protein data from the Proteograph solution with genomics and other -omics data, to create a multi-omics approach to health

and disease testing. We believe PrognomIQ's use of proteomics and the potential for other similar companies which use proteomics in their research and products will help us drive the adoption of the Proteograph Product Suite in these applications. We have entered into certain agreements with PrognomIQ.

Omid Farokhzad, Chief Executive Officer and Chair of our board of directors, serves as the Chair of PrognomIQ's board of directors. Philip Ma, Ph.D. our former Chief Business Officer serves as the Chief Executive Officer of PrognomIQ. Dr. Ma has fully transitioned to PrognomIQ, but will remain our consultant through April 2022. In addition, three of our other employees also transitioned to PrognomIQ. We provided general transition services and support, including laboratory and office space to PrognomIQ during the transition period.

We granted PrognomIQ a non-exclusive license to certain patents and patent applications that we own and a non-exclusive sublicense to certain patent applications we exclusively licensed from Brigham and Women's Hospital (BWH), in each case relating to our core technology, to develop, manufacture and commercialize licensed products for the field of human diagnostics on a worldwide basis. In consideration of the non-exclusive sublicense to certain patent applications licensed from BWH, PrognomIQ paid us a low-five digit figure, and would pay a low single digit royalty, in an amount equivalent to what we would have to pay under our license with BWH, on net sales of sublicensed products beginning with the first commercial sale of a sublicensed product during the term of the agreement. We do not view these amounts to be material to our financial condition and results of operations nor do we expect these amounts to be material to us in the future. In accordance with the non-exclusive license agreement with PrognomIQ, we entered into a supply agreement with PrognomIQ in June 2021. The PrognomIQ supply agreement provides that we will supply PrognomIQ with the Proteograph Product Suite and associated consumables.

COVID-19 Pandemic

As a result of the COVID-19 pandemic, we could experience disruptions that could severely impact our business. For example, we have experienced longer lead times from Hamilton for orders of our SP100 automation instruments and may experience delays and longer lead times from our other suppliers of critical hardware, instrumentation and consumables used for product development, manufacturing and commercial 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 the Proteograph products, training such customers on our products, and their ability to conduct research. We have experienced delays in our ability to access customers in certain countries with strict COVID-19 policies to provide installation and training services. The ongoing build-out of our expansion facilities may also be delayed by COVID-related restrictions. Furthermore, COVID-19 has adversely affected the broader economy and financial markets, resulting in an economic downturn that could curtail the research and development budgets of our customers, our ability to hire additional personnel and our financing prospects. 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 details, see the section titled "Risk Factors."

Components of Results of Operations

Revenue

We generate revenue from product sales, including sales of the Proteograph Product Suite, which consists of an instrument with embedded software essential to the instrument's functionality and associated consumables as well as our platform evaluation agreements. In addition, we may at times generate revenue from performing services and the receipt of grant revenue for the reimbursement of research-related expenses. Our revenue is primarily generated domestically. We intend to focus our commercial efforts in the United States and expect to grow our international presence. A portion of our revenue is generated by sales to a related party and we anticipate a portion of our revenue to continue to be generated by sales to such related party. Our grant-funded activities are expected to decrease as a percentage of total revenue as we decrease grant-funded activities and continue to ramp up commercialization of the Proteograph Product Suite.

Cost of Revenue

We utilize third-party manufacturers for production of our SP100 instrument and we manufacture our NPs and assemble our assay kits internally. Cost of goods sold consists primarily of costs of the components of Proteograph Product Suite, including the SP100 instrument with embedded software essential to the instrument's functionality, and consumables, and distribution-related expenses such as logistics and shipping costs. In addition, cost of revenue includes stock-based compensation and related employee benefits and allocated overhead.

Research and Development Expenses

Research and development, or R&D, expenses include cost associated with performing services under research and development service contracts and research and development of our technology and product candidates. R&D expenses consist primarily of employee compensation, including stock-based compensation, and related employee benefits, laboratory supplies used for in-house research, consulting costs, costs related to clinical studies for the collection of biological samples for research use, which relate to the assets transferred to PrognomIQ, and allocated overhead, including rent, depreciation, information technology and utilities.

We plan to increase our investment in our R&D efforts related to the Proteograph Product Suite, our product development pipeline and our proprietary engineered NP and other technologies. Therefore, we expect R&D 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 build-out of our expansion facilities to support our R&D efforts.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of employee compensation, including stock-based compensation, and related benefits for executive management, sales and marketing, service and support, finance, administration and human resources, legal, allocated overhead, professional service fees and other general overhead costs to support our operations.

We expect to incur additional selling, general and administrative expenses as we continue to invest in our personnel as we grow our commercial operations and with the additional costs incurred as a result of operating as a public company, including accounting, human resources, legal, insurance and investor relations costs. As a result, we expect selling, general and administrative expenses to increase in absolute dollars in future periods.

Interest Income

Interest income consists of interest earned on cash, cash equivalents and investments.

Results of Operations

Comparisons of the Years Ended December 31, 2021 and 2020

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

	Year ended December 31,		Change	
	2021	2020	Amount	%
	(dollars in thousands)			
Revenue:				
Product	$ 3,577	$ —	$ 3,577	*
Service	500	—	500	*
Related party	2,317	—	2,317	*
Grant and other	223	656	(433)	(66)%
Total revenue	6,617	656	5,961	909 %
Cost of revenue:				
Product	2,300	—	2,300	*
Service	42	—	42	*
Related party	863	—	863	*
Total cost of revenue	3,205	—	3,205	*
Gross profit	3,412	656	2,756	420 %
Operating expenses:				
Research and development	29,121	18,942	10,179	54 %
Selling. general and administrative	45,764	15,363	30,401	198 %
Total operating expenses	74,885	34,305	40,580	118 %
Loss from operations	(71,473)	(33,649)	(37,824)	112 %
Other income (expense):				
Interest income	326	883	(557)	(63)%
Interest expense	(22)	—	(22)	*
Other expense	—	(9)	9	(100)%
Total other income	304	874	(570)	(65)%
Net loss	$ (71,169)	$ (32,775)	$ (38,394)	117 %

**** Not meaningful***

Revenue

	Year ended December 31,		Change	
	2021	2020	Amount	%
	(dollars in thousands)			
Revenue	$ 6,617	$ 656	$ 5,961	909 %

Revenue increased by $6.0 million, or 909%, from $0.7 million in 2020 to $6.6 million in 2021, due to sales of products related to the Proteograph Product Suite in the year ended December 31, 2021. Revenue recognized primarily consisted of sales of the Proteograph SP100 instrument, consumable kits and platform evaluations, of which $2.3 million was attributed to related parties and $0.5 million was attributable to a research-related service agreement. Revenue related to our grant-funded activities related to our Small Business Innovation Research (SBIR) grant from the National Institutes of Health Grant (NIH) decreased between the two periods by ($0.1) million and research collaboration revenue decreased by ($0.3) million.

Cost of Revenue

	Year ended December 31,		Change	
	2021	2020	Amount	%
	(dollars in thousands)			
Cost of revenue	$ 3,205	$ —	$ 3,205	*

Cost of revenue for the year ended December 31, 2021 was $3.2 million compared to $0 for the year ended December 31, 2020, primarily due to the initial sales of the Proteograph Product Suite. Cost of revenue related to the Proteograph Product Suite consist of costs of the SP100 instrument, consumable kits and other related costs, including labor and overhead.

Research and Development

	Year ended December 31,		Change	
	2021	2020	Amount	%
	(dollars in thousands)			
Research and development	$ 29,121	$ 18,942	$ 10,179	54 %

R&D expenses increased by $10.2 million, or 54%, from $18.9 million in 2020 to $29.1 million in 2021. The increase was primarily due to an increase in product development efforts related to the Proteograph Product Suite including $11.1 million in employee compensation costs and other related expenses, including stock-based compensation. This was offset by a decrease in clinical study fees of ($0.8) million related to the costs associated with the ramp down of site enrollment for clinical studies related to the collection of biological samples for research use. These clinical studies are related to the assets transferred to PrognomIQ.

Selling, General and Administrative

	Year ended December 31,		Change	
	2021	2020	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 45,764	$ 15,363	$ 30,401	198 %

Selling, general and administrative expenses increased by $30.4 million, or 198%, from $15.4 million in 2020 to $45.8 million in 2021, primarily due to a $7.5 million increase in employee compensation and other related expenses, and a $13.3 million increase in stock-based compensation. Other increases are attributable to $0.8 million in marketing costs related to the Limited Release phase of our commercial launch, and costs related to becoming a publicly traded company including a $4.2 million increase in professional and consulting fees related to accounting and audit services, and a $4.7 million increase in general business expenses which includes insurance premiums.

Total Other Income

	Year ended December 31,		Change	
	2021	2020	Amount	%
	(dollars in thousands)			
Total other income	$ 304	$ 874	$ (570)	(65)%

Total other income decreased by ($0.6) million or (65%), from $0.9 million in 2020 to $0.3 million in 2021. Short-term interest rate yields decreased significantly during fiscal year 2020 and remained low during fiscal year 2021. These decreases were partially offset quantitatively by higher amounts of cash invested in money market funds and U.S. Treasury securities during fiscal year 2020 and fiscal year 2021 as a result of multiple private and public financing events.

Liquidity and Capital Resources

Since the date of our incorporation, we have not generated significant revenue 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 equity securities since inception. We anticipate that we will continue to incur net losses and do not expect positive cash flows from operations for the foreseeable future. However, based on our cash on hand, we believe we will have adequate liquidity over the next twelve months following the date of this Annual Report to operate our business and to meet our cash requirements.

In connection with our IPO that closed on December 8, 2020, we sold 10,592,106 shares of Class A common stock and received net proceeds of $183.9 million after deducting offering costs, underwriting discounts and commissions. Concurrent with the IPO, we issued 7,105,262 shares of our Class A common stock in a private placement for net proceeds of $130.3 million after deducting underwriting discounts and commissions. On February 1, 2021, we completed an underwritten public offering of 1,650,000 shares of our Class A common stock and received net proceeds of $103.0 million after deducting offering costs, underwriting discounts and commissions.

Cash Flows

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

	Year ended December 31,	
	2021	2020
	(in thousands)	
Net cash used in operating activities	$ (46,347)	$ (20,828)
Net cash used in investing activities	(170,878)	(34,558)
Net cash provided by financing activities	116,634	371,486
Net increase (decrease) in cash, cash equivalents and restricted cash	$ (100,591)	$ 316,100

Operating Activities

In 2021, cash used in operating activities was $46.3 million, attributable to a net loss of $71.2 million, partially offset by a net change in our net operating assets and liabilities of ($5.9) million and non-cash charges of $30.7 million. Non-cash charges primarily consisted of $25.9 million in stock-based compensation, $2.6 million of depreciation and amortization, $1.2 million of net amortization of premiums on available-for-sales securities and $1.0 million of non-cash operating lease expense. The change in our net operating assets and liabilities was primarily due to an increase in inventory levels of $3.6 million, an increase in accounts receivable of $2.5 million and a decrease of $0.6 million in accrued research and development and partially offset by an increase in accounts payable of $1.6 million.

In 2020, cash used in operating activities was $20.8 million, attributable to a net loss of ($32.8) million, partially offset by a net change in our net operating assets and liabilities of $2.7 million and non-cash charges of $9.2 million. Non-cash charges primarily consisted of $7.3 million in stock-based compensation, $1.6 million of depreciation and amortization and $0.3 million of net amortization of premiums on available-for-sales securities. The change in our net operating assets and liabilities was primarily due to increased accrued liabilities related to employee-related compensation of $1.3 million, and professional, consulting and legal fees related to our initial public offering of $1.1 million.

Investing Activities

In 2021, cash used in investing activities was $170.9 million, which related to cashflow used in purchases of available-for-sale securities, net of proceeds from maturities of ($164.0) million, in addition to ($6.9) million in payments primarily for laboratory equipment.

In 2020, cash used in investing activities was $34.6 million, which related to cashflows provided by purchases of available-for-sale securities, net of proceeds from maturities of $30.0 million, in addition to $4.5 million in payments primarily for laboratory equipment.

Financing Activities

In 2021, cash provided by financing activities was $116.6 million. This was primarily attributable to net proceeds of $103.0 million from issuance of common stock upon our follow-on offering, net of issuance costs, $11.4 million in short-swing profits from a beneficial owner and $1.9 million from the exercise of stock options.

In 2020, cash provided by financing activities was $371.5 million. This was attributable to net proceeds of $183.9 million from issuance of common stock upon initial public offering, net of issuance costs, net proceeds of $130.3 million from the concurrent private placement, net of issuance costs, and net proceeds of $54.9 million from the issuance of Series D-1 convertible preferred stock, net of issuance costs.

Contractual Obligations

We enter into agreements as a part of normal course of business with various vendors, which are generally cancellable without material penalty upon written notice. Payments associated with these agreements are not included in this discussion of contractual obligations.

Our operating lease obligations reflect our lease obligations for our headquarters facility in Redwood City, California. In June 2020, we amended the lease agreement for this facility to expand the office and laboratory space covered by the lease, extend the lease through February 2032, and increase the annual base rent for the expanded premises. Upon occupancy of the expansion facility that is anticipated to occur in the first quarter of 2022, the annual base rent will be $0.9 million in the first twelve months of the lease term (subject to an abatement period of nine months), and increases on an annual basis to $1.2 million in the final twelve months of the lease term. The amendment also provides for tenant incentives in the amount of $2.4 million.

In April 2021, we entered into a lease amendment for this facility to further expand the office and laboratory space for an approximate term of eleven years. Payments associated with this operating lease agreement will result in additional operating lease obligations not included in the above paragraph of approximately $160,000 per month plus operating expenses.

We have certain purchase commitments related to our inventory management with certain manufacturing suppliers wherein the Company is required to purchase the amounts forecasted in a blanket purchase order within a certain time period. The contractual obligations represent future cash commitments and liabilities under agreements with third parties and exclude orders for goods and services entered into in the normal course of business that are not enforceable or subject to change. These outstanding commitments amounted to $5.5 million as of December 31, 2021.

Critical Accounting Policies, Significant Judgments and Use of Estimates

The discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with United States generally accepted accounting principles. The preparation of these consolidated 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 consolidated 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 the notes to our consolidated financial statements, we believe that the following critical accounting policies are most important to understanding and evaluating our reported financial results.

Revenue Recognition

Our revenue is generated primarily from the sale of products and services. Product revenue consists of sales of an instrument with embedded software essential to the instrument's functionality and consumables as well as platform evaluation agreements. Service revenue primarily consists of revenue received from the generation and analysis of proteomic data on behalf of our customers.

We recognize revenue when control of our products and services is transferred to our customers in an amount that reflects the consideration we expect to receive from our customers in exchange for those products and services. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the transaction price, allocating the transaction price to the distinct performance obligations in the contract, and recognizing revenue when the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. We consider a performance obligation satisfied once we have transferred control of a good or service to the customer, meaning the customer has the ability to use and obtain the benefit of the good or service.

Revenue from product sales is recognized when control of the product is transferred, which is generally upon shipment to the customer. In instances where right of payment or transfer of title is contingent upon the customer's acceptance of the product, revenue is deferred until all acceptance criteria have been met. Revenue from services is recognized once the report is delivered to a customer, which is when the customer obtains benefit of the service.

Revenue is recorded net of discounts and sales taxes collected on behalf of governmental authorities. Customers are invoiced generally upon shipment, or upon order for services, and payment is typically due within 30 or 60 days. Cash received from customers in advance of product shipment or providing services is recorded as a contract liability. Our contracts with our customer generally do not include rights of return or a significant financing component.

We have elected the practical expedient to account for shipping and handling activities that occur after the customer has obtained control as a fulfillment activity. We expense incremental costs of obtaining a contract as and when incurred if the expected amortization period is one year or less or the amount is immaterial. We exclude from the transaction price all taxes assessed by a governmental authority on revenue-producing transactions that are collected by us from a customer.

We regularly enter into contracts that include various combinations of products and services which are generally distinct and accounted for as separate performance obligations. The transaction price is allocated to each performance obligation in proportion to its standalone selling price. We determine standalone selling price using average selling prices with consideration of current market conditions. If the product or service has no history of sales or if the sales volume is not sufficient, we rely upon prices set by management, adjusted for applicable discounts.

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 valuation model. The Black-Scholes 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—Prior to our IPO, there was no public market for our common stock. As such, the estimated fair value of our common stock and underlying stock options has been determined at each grant date by our board of directors, with input from management, based on the information known to us on the grant date and upon a review of any recent events and their potential impact on the estimated per share fair value of our common stock. As part of these fair value determinations, our board of directors obtained and considered valuation reports prepared by a third-party valuation firm in accordance with the guidance outlined in the American Institute of Certified Public Accountants Technical Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. For valuations after the completion of our initial public offering, the fair value of each share of underlying common stock is based on the closing price of our Class A common stock as reported on the date of grant.

- Expected term—The expected term for options granted to employees and directors 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. The expected term for options granted to non-employees is the contractual term.

- Expected volatility—As we had no publicly available stock price information prior to our IPO and limited publicly available stock price information subsequent to our IPO, 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.

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.

Recent Accounting Pronouncements

See Note 2 to our consolidated financial statements included elsewhere in this Annual Report for more information about recent accounting pronouncements, the timing of their adoption, and our assessment, to the extent we have made one yet, of their potential impact on our financial condition of results of operations.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Our exposure to market risk relates to our cash, cash equivalents, and investments. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and capturing a market rate of return based on our investment policy parameters and market conditions. We select investments that maximize interest income to the extent possible within these guidelines. To achieve our goals, we maintain a portfolio of cash equivalents and investments in securities of high credit quality and with varying maturities to match projected cash needs. The securities in our investment portfolio are not leveraged and are classified as available-for-sale. Our investments

primarily consists of U.S. government securities. Our investment policy, approved by our Board of Directors, limits the amount we may invest in any one type of investment issuer, thereby reducing credit risk concentrations. All investments are carried at market value, which approximates cost. We do not use derivative financial instruments in our investment portfolio. If market interest rates were to increase or decrease by one hundred basis points, the fair value of our investment portfolio as of December 31, 2021 would increase or decrease by an immaterial amount.

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Seer, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Seer, Inc. and subsidiary (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flows, for each of the two years in the period ended December 31, 2021, 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 as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 1, 2022, expressed an unqualified opinion on the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the financial statements, the Company has changed its method of accounting for leases effective January 1, 2021 due to the adoption of Financial Accounting Standards Board (“FASB”) Accounting Standard Update (“ASU”) Topic 842, *Leases* (“ASC 842”), using the modified retrospective approach.

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 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. 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.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue – Revenue Recognition – Product and Services - Refer to Notes 2 and 5 to the financial statements

Critical Audit Matter Description

The Company generates revenue from sales of products and services. The Company's product, the Proteograph Product Suite, consists of an instrument with embedded software essential to the instrument's functionality, and consumables as well as platform evaluation agreements. The Company's services primarily consist of the generation and analysis of proteomic data. The Company recognizes revenue when control of the products and services are transferred to its customers in an amount that reflects the consideration it expects to be entitled to receive from its customers in exchange for those products and services. This process involves identifying the contract with a customer, determining performance obligations in the contract, determining the transaction price, allocating the transaction price to the distinct performance obligations in the contract, and recognizing revenue when the performance obligations have been satisfied. For the year ended December 31, 2021, the Company recognized product and services revenue of $6.4 million.

The Company regularly enters into contracts that include various combinations of products and services, which are generally distinct and accounted for as separate performance obligations. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is distinct within the context of the contract. The Company considers a performance obligation satisfied once it has transferred control of a good or service to the customer, meaning the customer has the ability to direct the use and obtain substantially all the economic benefits from the good or service. In instances where right of payment or transfer of title is contingent upon the customer's acceptance of the product, revenue is deferred until all acceptance criteria have been met. The transaction price is allocated to each performance obligation in proportion to its standalone selling price. The Company determines the standalone selling price using average selling prices with consideration of current market conditions. If the product or service has no history of sales or if the sales volume is not sufficient, the Company relies upon prices set by management, adjusted for applicable discounts.

Given the significant judgments made by management to determine whether various combinations of products and services are distinct and accounted for as separate performance obligations, whether performance obligations have been satisfied, and the standalone selling price of performance obligations, performing audit procedures to evaluate the reasonableness of management's judgments in the recognition of product and services revenue required a high degree of auditor judgment and an increased extent of effort, including the involvement of more experienced engagement team members. We have identified the revenue recognition of product and services revenue a critical audit matter.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the significant judgments made by management in the recognition of products and services revenue included the following, among others:

- We tested the operating effectiveness of controls over the Company's revenue recognition process, including those over management's determination of distinct performance obligations, determination of the timing of revenue recognition when performance obligations are satisfied, and determination of the standalone selling prices of performance obligations.
- We evaluated the reasonableness of the Company's significant accounting policies related to product and services revenue recognition.
- We selected a sample of recorded product and services revenue transactions and performed the following procedures:
    - Obtained and read customer source documents such as contracts, master agreements, and/or amendments thereto, to evaluate if relevant contractual terms have been appropriately identified and considered by management in making revenue recognition judgments.

- Evaluated management’s application of the Company’s accounting policy and tested revenue recognition for the distinct performance obligations by comparing management’s judgments to the underlying source documents.
- Tested the mathematical accuracy of management’s calculations of product and services revenue.
- Evaluated the appropriateness of management’s determination of the timing of revenue recognition and obtained third party evidence of transfer of control of the products and services to the customer.

◦ We evaluated the reasonableness of management’s determination of standalone selling prices by performing the following:

- Evaluated the application of the Company’s accounting policy and mathematical accuracy of the determined standalone selling prices.
- Tested the completeness and accuracy of the source data used in management’s calculations.

/s/ Deloitte and Touche LLP

San Francisco, California

March 1, 2022

We have served as the Company's auditor since 2018.

SEER, INC.
Consolidated Balance Sheets
(in thousands, except share and per share amounts)

	December 31, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 232,813	$ 333,585
Short-term investments	167,261	98,278
Accounts receivable, net	2,495	—
Related party receivables	1,283	99
Other receivables	366	163
Inventory	4,145	551
Prepaid expenses and other current assets	3,336	452
Total current assets	411,699	433,128
Long-term investments	93,186	—
Operating lease right-of-use assets	20,142	—
Property and equipment, net	13,087	8,441
Restricted cash	524	343
Other assets	501	407
Total assets	$ 539,139	$ 442,319
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 3,789	$ 2,115
Accrued expenses	7,371	5,147
Accrued research and development	1,023	396
Deferred revenue	376	250
Deferred rent, current	—	186
Operating lease liabilities, current	864	—
Total current liabilities	13,423	8,094
Deferred rent, net of current portion	—	1,899
Operating lease liabilities, net of current portion	22,459	—
Other noncurrent liabilities	341	717
Total liabilities	36,223	10,710
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Preferred stock, $0.00001 par value; 5,000,000 shares authorized as of December 31, 2021 and 2020; zero shares issued and outstanding as of December 31, 2021 and 2020	—	—
Class A common stock, $0.00001 par value; 94,000,000 shares authorized as of December 31, 2021 and 2020; 57,493,005 and 53,395,319 shares issued and outstanding as of December 31, 2021 and 2020, respectively;	1	1
Class B common stock, $0.00001 par value; 6,000,000 shares authorized as of December 31, 2021 and 2020; 4,522,478 and 5,865,732 shares issued and outstanding as of December 31, 2021 and 2020, respectively;	—	—
Additional paid-in capital	629,981	486,915
Accumulated other comprehensive income (loss)	(536)	54
Accumulated deficit	(126,530)	(55,361)
Total stockholders' equity	502,916	431,609
Total liabilities and stockholders' equity	$ 539,139	$ 442,319

The accompanying notes are an integral part of these consolidated financial statements.

SEER, INC.
Consolidated Statements of Operations and Comprehensive Loss
(in thousands, except share and per share amounts)

	Year Ended December 31,	
	2021	**2020**
Revenue:		
Product	$ 3,577	$ —
Service	500	—
Related party	2,317	—
Grant and other	223	656
Total revenue	6,617	656
Cost of revenue:		
Product	2,300	—
Service	42	—
Related party	863	—
Total cost of revenue	3,205	—
Gross profit	3,412	656
Operating expenses:		
Research and development	29,121	18,942
Selling, general and administrative	45,764	15,363
Total operating expenses	74,885	34,305
Loss from operations	(71,473)	(33,649)
Other income (expense):		
Interest income	326	883
Interest expense	(22)	—
Other expense	—	(9)
Total other income	304	874
Net loss	$ (71,169)	$ (32,775)
Other comprehensive income (loss):		
Unrealized gain (loss) on available-for-sale securities	(590)	30
Comprehensive loss	$ (71,759)	$ (32,745)
Net loss per share attributable to common stockholders, basic and diluted	$ (1.17)	$ (2.48)
Weighted-average common shares outstanding, basic and diluted	60,863,950	13,216,657

The accompanying notes are an integral part of these consolidated financial statements.

SEER, INC.
Consolidated Statements of Changes in Stockholders' Equity
(in thousands, except share amounts)

	Convertible Preferred Stock		Class A and Class B Common Stock		Additional Paid in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total
	Shares	Amount	Shares	Amount				
Balance at December 31, 2019	22,173,216	$ 107,953	12,193,677	$ —	$ 2,288	$ (22,586)	$ 24	$ 87,679
Issuance of Class A common stock from exercise of options	—	—	725,579	—	145	—	—	145
Repurchase of Class A common stock	—	—	(382,360)	—	—	—	—	—
Vesting of early exercised stock options and restricted common stock	—	—	—	—	185	—	—	185
Issuance of Series D-1 convertible preferred stock, net of issuance costs of $104	6,853,571	54,896	—	—	—	—	—	54,896
Issuance of Class A common stock upon initial public offering, net of issuance costs of $17,277	—	—	10,592,106	—	183,866	—	—	183,866
Issuance of Class A common stock in connection with private placement, net of issuance costs of $4,725	—	—	7,105,262	—	130,275	—	—	130,275
Conversion of convertible preferred stock into Class A common stock	(29,026,787)	(162,849)	29,026,787	1	162,848	—	—	—
Stock-based compensation	—	—	—	—	7,348	—	—	7,348
Distribution of PrognomIQ shares	—	—	—	—	(40)	—	—	(40)
Other comprehensive income	—	—	—	—	—	—	30	30
Net loss	—	—	—	—	—	(32,775)	—	(32,775)
Balance at December 31, 2020	—	—	59,261,051	1	486,915	(55,361)	54	431,609
Issuance of Class A common stock from exercise of options and release of restricted stock units	—	—	1,107,059	—	1,885	—	—	1,885
Repurchase of Class A common stock	—	—	(20,556)	—	—	—	—	—
Vesting of early exercised stock options and restricted common stock	—	—	—	—	470	—	—	470
Issuance of Class A common stock upon follow-on offering, net of issuance costs of $7,591	—	—	1,650,000	—	102,959	—	—	102,959
Issuance of Class A common stock in connection with employee stock purchase plan	—	—	17,929	—	422	—	—	422
Return of profit	—	—	—	—	11,403	—	—	11,403
Stock-based compensation	—	—	—	—	25,927	—	—	25,927
Other comprehensive loss	—	—	—	—	—	—	(590)	(590)
Net loss	—	—	—	—	—	(71,169)	—	(71,169)
Balance at December 31, 2021	—	$ —	62,015,483	$ 1	$ 629,981	$ (126,530)	$ (536)	$ 502,916

The accompanying notes are an integral part of these consolidated financial statements.

SEER, INC.
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31,	
	2021	**2020**
OPERATING ACTIVITIES		
Net loss	$ (71,169)	$ (32,775)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	25,927	7,348
Depreciation and amortization	2,558	1,606
Net amortization of premium on available-for-sale securities	1,197	261
Non-cash interest expense and other adjustments	—	10
Non-cash operating lease expense	1,005	—
Changes in operating assets and liabilities:		
Accounts receivable, net	(2,495)	—
Related party receivables	(1,184)	—
Other receivables	(203)	64
Prepaid expenses and other current assets	(2,884)	8
Inventory	(3,594)	(551)
Other assets	(94)	(7)
Accounts payable	1,603	912
Deferred revenue	126	75
Deferred rent	—	242
Accrued expenses	2,277	2,036
Accrued research and development	627	(254)
Operating lease liabilities	91	—
Other noncurrent liabilities	(135)	197
Net cash used in operating activities	(46,347)	(20,828)
INVESTING ACTIVITIES		
Purchases of property and equipment	(6,922)	(4,534)
Purchase of available-for-sale securities	(279,956)	(87,724)
Proceeds from maturities of available-for-sale securities	116,000	57,750
Investment in equity method investee	—	(50)
Net cash used in investing activities	(170,878)	(34,558)
FINANCING ACTIVITIES		
Proceeds from issuance of common stock upon follow-on public offering, net of issuance costs	102,959	—
Proceeds from return of profit	11,403	—
Repurchase of Class A common stock	(35)	(13)
Proceeds from exercise of Class A common stock options including early exercised options	1,885	1,265
Proceeds from issuance of common stock in connection with employee stock purchase plan	422	—
Proceeds from issuance of Series D-1 convertible preferred stock, net of issuance costs	—	54,896
Proceeds from issuance of Class A common stock upon initial public offering, net of issuance costs	—	185,063
Proceeds of issuance of Class A common stock in private placement	—	130,275
Net cash provided by financing activities	116,634	371,486
Net increase (decrease) in cash, cash equivalents and restricted cash	(100,591)	316,100
Cash, cash equivalents and restricted cash, beginning of period	333,928	17,828
Cash, cash equivalents and restricted cash, end of period	$ 233,337	$ 333,928
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION		
Cash paid for income taxes	$ 645	$ —
SUPPLEMENTAL DISCLOSURE OF NON-CASH ACTIVITIES		
Property and equipment purchases included in accounts payable	$ 186	$ 115
Property and equipment purchases included in accrued expenses	$ 269	$ 58
Lease liability obtained in exchange for right-of-use assets	$ 23,232	$ —
Conversion of convertible preferred stock into common stock upon initial public offering	$ —	$ 162,848
Offering costs in accounts payable	$ —	$ 468
Offering costs in accrued expenses	$ —	$ 729

The accompanying notes are an integral part of these consolidated financial statements.

1. ORGANIZATION AND DESCRIPTION OF THE BUSINESS

Seer, Inc. (the Company) was incorporated in Delaware on March 16, 2017, and is headquartered in Redwood City, California. In December 2020, the Company formed the wholly-owned subsidiary, Seer Securities Corporation, located in Massachusetts. The Company is a life sciences company focused on capturing deep molecular insights from the proteome to enable novel insights and breakthroughs in the understanding of biology and disease. Since inception, the Company has devoted its efforts principally to research, development and commercialization of its technology and products, recruiting management and technical staff, acquiring operating assets, and raising capital.

The Company is subject to a number of risks, similar to other early-stage life science companies, including, but not limited to, development and commercialization of its products, market acceptance of its products, development by its competitors of new technological innovations, protection of its intellectual property, and raising additional capital.

Initial Public Offering

The Company's registration statement on Form S-1 related to its initial public offering (IPO) was declared effective on December 3, 2020 by the Securities and Exchange Commission (SEC), and the Company's Class A common stock began trading on the Nasdaq Global Select Market on December 4, 2020. On December 8, 2020, the Company completed its IPO, in which the Company sold 10,592,106 shares of Class A common stock, including 1,381,579 shares of Class A common stock that were offered and sold pursuant to the full exercise of the underwriters' option to purchase additional shares, at a price to the public of $19.00 per share. Including the option exercise, the Company received net proceeds of $183.9 million after deducting offering costs, underwriting discounts, and commissions of $17.4 million.

Concurrent with the IPO, the Company issued 7,105,262 shares of its Class A common stock in a private placement for net proceeds of $130.3 million after deducting offering costs, underwriting discounts and commissions of $4.7 million. In addition, 526,315 shares of Class B common stock converted into Class A common stock in connection with the sale of such shares by an existing shareholder in a secondary transaction and 2,803,737 shares of Class B common stock were voluntarily converted to an equal amount of Class A common stock.

Public Offering

On February 1, 2021, the Company completed an underwritten public offering of 1,650,000 shares of its Class A common stock at a public offering price of $67.00 per share. The Company received net proceeds of $103.0 million after deducting offering costs, underwriting discounts, and commissions of $7.6 million.

Liquidity

As of December 31, 2021, the Company has incurred significant losses and has had negative cash flows from operations. As of December 31, 2021, the Company had cash, cash equivalents and investments of $493.3 million and an accumulated deficit of $126.5 million. Management expects to continue to incur significant expenses for the foreseeable future and to incur operating losses in the near term while the Company makes investments to support its anticipated growth. The Company believes that its cash and cash equivalents balance as of December 31, 2021 provides sufficient capital resources to continue its operations for at least 12 months from the issuance date of the accompanying consolidated financial statements.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND BASIS OF PRESENTATION

Basis of Presentation

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). The Company has issued shares of Class A common stock herein referred to as "Class A common stock" or "Class A" and Class B common stock herein referred to as "Class B common stock" or "Class B," and collectively as "common stock." The consolidated financial statements include the accounts of Seer, Inc. and its wholly-owned subsidiary. All intercompany transactions and balances have been eliminated.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management 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 consolidated financial statements and the reported amounts of expenses during the reporting period. On an ongoing basis, the Company evaluates its estimates and assumptions, including, but not limited to, those related to the determination of stand-alone selling price for revenue recognition, the fair value of common stock, stock-based compensation, accrued research and development expenses, allowance for credit losses, inventory valuation, useful lives and valuation of property and equipment, income tax uncertainties, and tax valuation allowances.

Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Concentration of Credit Risk and Other Risks and Uncertainties

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents, and investments. The Company maintains bank deposits in federally insured financial institutions, and these deposits may exceed federally insured limits. The Company is exposed to credit risk in the event of default by the financial institutions holding its cash and cash equivalents and issuers of investments to the extent recorded in the consolidated balance sheets.

In fiscal year 2021, two customers accounted for 35% and 12% of the Company’s total revenue. In fiscal year 2020, total revenue was immaterial.

As of December 31, 2021, there were three customers which represented 34%, 23%, and 19% of the total accounts receivable balance. As of December 31, 2020, total accounts receivable were immaterial..

The Company is subject to a number of risks similar to other early-stage life science companies, including, but not limited to its competitors developing new technological innovations, the need to successfully commercialize and gain market acceptance of the Company’s products, protection of its proprietary technology, and the need to secure and maintain adequate product inventory through its own manufacturing and through manufacturing arrangements with third parties. If the Company does not successfully commercialize or partner any of its products, it will be unable to generate product revenue sufficient to achieve profitability.

Impact of the COVID-19 Pandemic

As a result of the COVID-19 pandemic (COVID-19), the Company’s operations experienced disruptions and restrictions on employees’ ability to work and on the hiring of additional personnel, particularly as a result of preventive and precautionary measures taken by the Company and some of its suppliers and other service providers. In particular, some of the Company’s laboratory material and equipment suppliers, collaborators, and service providers used in the performance of its research activities and phased commercial launch plan have been similarly impacted by COVID-19, which may limit the Company’s ability to achieve its planned progress. In addition, Company personnel have experienced delays in accessing customers in certain countries with strict COVID-19 policies to provide installation and training services. COVID-19 has adversely affected the broader economy, which could affect the Company’s financing prospects. Continued disruptions from COVID-19 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.

The COVID-19 pandemic has mainly impacted some of the Company’s suppliers who have experienced a surge in demand for their products resulting in supply delays for critical hardware, instrumentation and medical and testing supplies used for product development and commercialization. The Company continues to monitor and assess the effects of the COVID-19 pandemic on its business, financial condition, results of operations and cash flows.

Variable Interest Entities and Voting Interest Entities

The Company consolidates those entities in which it has direct, or indirect controlling financial interest based on either the Variable Interest Entity (VIE) model or the Voting Interest Entity (VOE) model.

VIEs are primarily entities that, by design, either lack sufficient equity-at-risk to finance their activities without additional subordinated financial support from other parties or whose equity-at-risk holders, as a group, lack one or more of the following characteristics: (i) direct or indirect ability to make decisions (ii) obligation to absorb expected losses or (iii) right to receive expected residual returns. VIEs must be evaluated quantitatively and qualitatively to determine the primary beneficiary, which is the reporting entity that has (a) the power to direct activities of a VIE that most significantly impact the VIE's economic performance and (b) the obligation to absorb losses of the VIE that could potentially be significant to the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE. The primary beneficiary of a VIE is required to consolidate the assets and liabilities of the VIE. To determine a VIE's primary beneficiary, the Company performs a qualitative assessment to determine which party, if any, has the power to direct activities of the VIE and the obligation to absorb its losses or receive its benefits. This assessment involves identifying the activities that most significantly impact the VIE's economic performance and determining whether the Company, or another party, have the power to direct those activities.

To assess whether the Company has the power to direct the activities of a VIE that most significantly impact the VIE's economic performance, the Company considers all the facts and circumstances, including its role in establishing the VIE and its ongoing rights and responsibilities. In general, the parties that make the most significant decisions affecting the VIE (management and representation on the board of directors) and have the right to unilaterally remove those decision-makers are deemed to have the power to direct the activities of a VIE.

To assess whether the Company has the obligation to absorb losses of the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE, the Company considers all of its economic interests, which typically include equity investments in preferred and common stock that are deemed to be variable interests in the VIE. This assessment requires the Company to apply judgment in determining whether these interests, in the aggregate, are considered potentially significant to the VIE. Factors considered in assessing the significance include: the design of the VIE, including its capitalization structure; subordination of interests; payment priority; relative share of interests held across various classes within the VIE's capital structure; and the reasons why the interests are held by the Company.

At the VIE's inception, the Company determines whether it is the primary beneficiary and if the VIE should be consolidated based on the facts and circumstances. The Company then performs on-going reassessments of the VIE based on reconsideration events and reevaluates whether a change to the consolidation conclusion is required at each reporting period.

Entities that do not qualify as a VIE are assessed for consolidation under the VOE model. Under the VOE model, the Company consolidates the entity if it determines that it, directly or indirectly, has greater than 50% of the voting shares and that other equity holders do not have substantive voting, participating or liquidation rights.

Equity Method Investments

The Company utilizes the equity method to account for investments when it possesses the ability to exercise significant influence, but not control, over the operating and financial decisions of the investee.

In applying the equity method, the Company records the investment at cost and subsequently increases or decreases the carrying amount of the investment by its proportionate share of the net earnings or losses and other comprehensive income of the investee based on its percentage of common stock ownership during the respective reporting period. Payments to investees such as additional investments and payments from investees such as dividends are recorded as adjustments to the carrying value of the investment. In the event that net losses of the investee reduce the carrying amount to zero, no additional net losses are recorded unless the Company makes additional investment in the investee, has guaranteed obligations of the investee, or is otherwise committed to provide further financial support for the investee.

As of December 31, 2021, the Company has an equity method investment in PrognomIQ. Refer to Note 10 for additional information.

Cash, Cash Equivalents and Restricted Cash

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. As of December 31, 2021 and 2020, all amounts recorded as cash and cash equivalents consist of money market funds and are stated at fair value.

Restricted cash as of December 31, 2021 and 2020 represents cash held by a financial institution as security for a letter of credit issued to the lessor for one of the Company's operating leases and is classified as noncurrent.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the consolidated balance sheets that sum to the total of the same amounts shown in the consolidated statements of cash flows (in thousands):

	December 31,	
	2021	2020
Cash and cash equivalents	$ 232,813	$ 333,585
Restricted cash	524	343
Total cash, cash equivalents and restricted cash	$ 233,337	$ 333,928

Segment Information

The Company operates as a single operating segment. The Company's chief operating decision maker, its Chief Executive Officer, manages the Company's operations on a consolidated basis for the purposes of allocating resources, making operating decisions and evaluating financial performance.

Investments

The Company has designated all investments, which includes U.S. Treasury securities, as available-for-sale, and therefore, such investments are reported at fair value, with unrealized gains and losses excluded from earnings and reported as a component of other comprehensive loss. The cost of available-for-sale securities is adjusted for the amortization of premiums and accretion of discounts to expected maturity. Such amortization and accretion are included in other income (expense) on the consolidated statements of operations and comprehensive loss. Realized gains and losses and interest income on available-for-sale securities are also included in other income (expense). The cost of securities sold is based on the specific identification method. The Company determines the appropriate classification of its investments in debt securities at the time of purchase and reevaluates such designation at each balance sheet date. As of December 31, 2021, the Company classifies its available-for-sale securities as short-term investments or long-term investments based on the remaining contractual maturity of the securities.

All of the Company's investments are subject to a periodic impairment review. The Company recognizes an impairment charge when a decline in the fair value of its investments below the cost basis is judged to be other than temporary. Factors considered in determining whether a loss is temporary include the length of time and extent to which an investment's fair value has been less than its cost basis, the financial condition and near-term prospects of the investee, extent of the loss related to credit of the issuer, the expected cash flows from the security, the Company's intent to sell the security and whether or not the Company will be required to sell the security before the recovery of its amortized cost. During the year ended December 31, 2021, the Company did not recognize any impairment charges on its investments.

Any unrealized losses on available-for-sale debt securities that are attributed to credit risk are recorded to the consolidated statements of operations and comprehensive loss through an allowance for credit losses. During the year ended December 31, 2021, the Company did not recognize any such impairment charges on its investments.

Accounts Receivable, Net

Accounts receivable consist of amounts due from customers for the sales of products and services, net of any allowance for credit losses. The Company's expected loss allowance methodology for receivables is developed using its historical collection experience, current and future economic market conditions and a review of the current aging status and financial condition of its customers. Specific allowance amounts are established to record the appropriate allowance for customers that have an identified risk of default. General allowance amounts are established based upon an assessment of expected credit losses for the Company's receivables by aging category. Balances are written off when they are ultimately determined to be uncollectible. There was no allowance for credit losses related to accounts receivable as of December 31, 2021 and 2020.

Inventory

Inventory is recorded at the lower of standard cost, which approximates actual cost on a weighted-average basis, or net realizable value, on a first-in, first-out basis. Provisions for slow-moving, excess or obsolete inventories are recorded when required to reduce inventory values to their estimated net realizable values based on product expiration, development plans, or quality issues. The Company writes down specifically identified unusable, obsolete, slow-moving or known unsalable inventory in the period that it is first recognized by using a number of factors including product expiration dates, open and unfulfilled orders and sales forecasts. Any write-down of its inventory to net realizable value establishes a new cost basis and will be maintained even if certain circumstances suggest that the inventory is recoverable in subsequent periods. Costs associated with the write-down of inventory are recorded to cost of revenue on the Company's consolidated statements of operations.

Property and Equipment

Property and equipment are recorded at cost, net of accumulated depreciation and amortization. Depreciation is recorded using the straight-line method over the estimated useful lives of the assets, generally three to five years. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation and amortization are removed from the consolidated balance sheet and any resulting gain or loss is included as a part of income (loss) from operations within the consolidated statements of operations and comprehensive loss. Leasehold improvements are capitalized and amortized over the shorter of the lease term or the estimated useful life of the related asset. Major replacements and improvements are capitalized, while general repairs and maintenance are expensed as incurred. Construction-in-process assets consist primarily of tools and equipment that have not yet been placed in service. These assets are stated at cost and are not depreciated. Once the assets are placed into service, assets are reclassified to the appropriate asset class on their nature and depreciated in accordance with the useful lives above.

Impairment of Long-Lived Assets

The Company evaluates the carrying amount of its long-lived assets whenever events or changes in circumstances indicate that the assets may not be recoverable. If indicators of impairment exist and the undiscounted future net cash flows expected to be generated by such assets are less than the carrying amount of the asset, an impairment loss is recorded to write the asset down to its estimated fair value based on a discounted future cash flow approach or quoted market values. There have been no such impairment losses for the periods presented.

Leases

The Company adopted Accounting Standards Codification (ASC) Topic 842, *Leases* (ASC 842) during the fourth quarter of 2021 effective as of January 1, 2021, as discussed below in the section titled Recently Adopted Accounting Pronouncements. Under ASC 842, the Company determines if an arrangement is or contains a lease at contract inception.

Operating lease right-of-use (ROU) assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized based on the present value of lease payments over the lease term at the commencement date of the lease. ROU assets also include any initial direct costs incurred and any lease payments made at or before the lease commencement date, less any lease incentive received. The Company

uses its incremental borrowing rate in determining the present value of lease payments based on the information available at the date of lease commencement. The incremental borrowing rate reflects the rate of interest that a lessee would have to pay to borrow, on a collateralized basis over a similar term, an amount equal to the lease payments in a similar economic environment. Lease expense for an operating lease is recognized on a straight-line basis over the lease term.

The Company elected to not separate non-lease components from the associated lease components and to not recognize right-of-use assets and lease liabilities for leases with a term of twelve months or less. Variable lease payments are primarily related to property taxes, insurance and common area maintenance, and are recognized as lease costs when incurred.

Revenue Recognition

The Company generates revenue from sales of products and services. The Company's product, the Proteograph Product Suite, consists of an instrument with embedded software essential to the instrument's functionality, and consumables as well as platform evaluation agreements. The Company began recognizing revenue from shipments of its Proteograph Product Suite during the second quarter of 2021. The service revenue primarily consists of revenue received from the generation and analysis of proteomic data on behalf of the customer and revenue is recognized upon delivery of the reports.

The Company recognizes revenue when control of the products and services is transferred to its customers in an amount that reflects the consideration it expects to be entitled to receive from its customers in exchange for those products and services. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the transaction price, allocating the transaction price to the distinct performance obligations in the contract, and recognizing revenue when the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is distinct with the context of the contract. The Company considers a performance obligation satisfied once it has transferred control of a good or service to the customer, meaning the customer has the ability to direct the use and obtain substantially all the economic benefits from the good or service.

In instances where right of payment or transfer of title is contingent upon the customer's acceptance of the product, revenue is deferred until all acceptance criteria have been met. Revenue is recorded net of discounts and sales taxes collected on behalf of governmental authorities. Customers are invoiced generally upon shipment, or upon order for services, and payment is typically due within 30 or 60 days. Cash received from customers in advance of product shipment or providing services is recorded as a contract liability. The Company's contracts with its customers generally do not include rights of return or a significant financing component.

The Company elected the practical expedient to account for shipping and handling activities that occur after the customer has obtained control as a fulfillment activity and not a separate performance obligation. The Company expenses incremental costs of obtaining a contract as and when incurred if the expected amortization period is one year or less or the amount is immaterial. The Company excludes from the transaction price all taxes assessed by a governmental authority on revenue-producing transactions that are collected by the Company from a customer.

The Company regularly enters into contracts that include various combinations of products and services, which are generally distinct and accounted for as separate performance obligations. The transaction price is allocated to each performance obligation in proportion to its standalone selling price. The Company determines the standalone selling price using average selling prices with consideration of current market conditions. If the product or service has no history of sales or if the sales volume is not sufficient, the Company relies upon prices set by management, adjusted for applicable discounts.

Grant and Other Revenue

Grant revenue represents funding under cost reimbursement programs from federal foundation sources for qualified research and development activities performed by the Company and are not based on estimates that are subject to change. Grants received are assessed to determine if the agreement should be accounted for as an exchange

transaction or a contribution. An agreement is accounted for as a contribution if the resource provider does not receive commensurate value in return for the assets transferred. Such amounts are recorded as revenue as grant-funded activities are performed up to the amount of expenses incurred. Any advance funding payments are recorded as deferred revenue until the activities are performed.

The Company recognizes revenue for research and development services contracts when control is transferred, which is upon completion of the services and when results of the services have been transferred to the customer. Upfront payments and fees received are recorded as deferred revenue until the Company performs its obligations under its arrangements. Amounts payable to the Company are recorded as other receivables when its right to consideration is unconditional.

Shipping and Handling Costs

Shipping and handling costs are included in cost of revenue.

Research and Development Expenses

Research and development costs, which includes cost associated with performing services under research and development service contracts and research and development of the Company's technology and product candidates, are expensed as incurred. Research and development expenses primarily consist of employee compensation, including stock-based compensation, and related benefits, laboratory supplies, consulting costs, costs related to clinical studies for the collection of biological samples for research use and allocated costs, including rent, depreciation, information technology, and utilities. Advance payments for goods or services for future research and development activities are deferred as prepaid expenses and expensed as the goods are delivered or the related services are performed.

Accrued Research and Development Expenses

Goods or services for research and development activities that have not yet been invoiced are recorded as liabilities within accrued research and development on the consolidated balance sheets. The Company estimates clinical discovery studies expenses based on the services performed related to clinical studies for the collection of biological samples for research use. In accruing service fees, the Company estimates the period over which services will be performed and the level of effort to be expended in each period. These estimates are based on communications with the service provider and the Company's estimates of services performed based on information available at each balance sheet date determined through analysis with internal personnel and external service providers as to the progress or stage of completion of the associated services. Although the Company does not expect its estimates to be materially different from amounts actually incurred, the Company's estimate of the status and timing of services performed relative to the actual status and timing of services performed may vary. Through December 31, 2021, there have been no material differences from the Company's estimated accrued research and development expenses to actual expenses.

General and Administrative

General and administrative expenses include employee compensation, including stock-based compensation, and related benefits for executive management, finance, legal, administration and human resources, allocated costs, including rent, depreciation, information technology, insurance, utilities, professional service fees, and other general overhead costs to support the Company's operations.

Stock-Based Compensation

The Company accounts for stock-based compensation, including from restricted common stock awards (RSAs), grants of restricted stock units (RSUs), and stock options that may be settled in shares of our common stock, based on the fair values of the equity instruments issued. The fair value is determined on the measurement date, which is generally the date of grant. The fair value of RSAs is the difference between the fair value of the underlying stock at the measurement date and the purchase price. The fair value of RSUs is the fair value of the underlying stock at the measurement date. The fair value for our stock option awards is determined at the grant date using the Black-

Scholes valuation model. For share-based payment awards that vest subject to the satisfaction of a service requirement, the fair value of the awards is recognized as expense on a straight-line basis over the requisite service period in which the awards are expected to vest. For share-based payment awards with performance-based vesting conditions, the fair value of the awards is recognized as expense using the accelerated attribution method over the vesting period. Forfeitures are accounted for in the period in which they occur. Share-based payment awards that include a service condition and a performance condition are expected to vest when the performance condition is probable of being met.

The Black-Scholes model considers several variables and assumptions in estimating the fair value of stock-based awards that require judgment, for which changes if they occur can materially affect the resulting estimates of fair value. These assumptions include the per share fair value of the underlying common stock, exercise price, expected term, risk-free interest rate, expected annual dividend yield, and the expected stock price volatility over the expected term as follows:

Fair Value of Common Stock

For grants prior to the Company's IPO in December 2020, the grant-date fair market value of the shares of common stock underlying stock options was determined by the Company's Board of Directors with assistance of third-party valuation specialists. Because there was no public market for the Company's common stock, the Board of Directors exercised reasonable judgment and considered a number of objective and subjective factors to determine the best estimate of the fair market value, which include important developments in the Company's operations, the prices at which the Company sold shares of its convertible preferred stock, the rights, preferences and privileges of the Company's convertible preferred stock relative to those of the Company's common stock, actual operating results, financial performance, external market conditions in the life sciences industry, general U.S. market conditions, equity market conditions of comparable public companies, and the lack of marketability of the Company's common stock. For all grants subsequent to the IPO, the fair value of common stock was determined by using the closing price per share of common stock as reported on the Nasdaq Global Select Market.

Expected Volatility

The Company had no publicly available stock price information prior to its IPO and limited publicly available stock price information subsequent to its IPO and therefore the Company has used the historical volatility of the stock price of similar publicly traded peer companies. The historical volatility is calculated based on a period of time commensurate with the expected term assumptions.

Expected Term

For stock options granted to employees and directors, the expected term is calculated using the simplified method for "plain vanilla" stock option awards. The expected term for stock options granted to non-employees is the contractual term.

Risk-Free Interest Rate

The risk-free interest rate is based on the yield available on U.S. Treasury zero-coupon issues similar in duration to the expected term of the equity-settled award.

Expected Dividends

The expected dividend yield is assumed to be zero as the Company has never paid dividends and has no current plans to pay dividends on its common stock.

Income Taxes

The Company accounts for income taxes using the asset and liability method. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the consolidated financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between

the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse.

A valuation allowance is recorded for deferred tax assets if it is more likely than not that some portion or all of the deferred tax assets will not be realized. In evaluating the ability to recover its deferred income tax assets, the Company considers all available positive and negative evidence, including its operating results, ongoing tax planning, and forecasts of future taxable income on a jurisdiction-by-jurisdiction basis. In the event the Company determines that it would be able to realize its deferred income tax assets in the future in excess of their net recorded amount, it would make an adjustment to the valuation allowance that would reduce the provision for income taxes. Conversely, in the event that all or part of the net deferred tax assets are determined not to be realizable in the future, an adjustment to the valuation allowance would increase the provision for income taxes in the period when such determination is made.

The Company records uncertain tax positions in accordance with ASC 740, *Income Taxes* on the basis of a two-step process in which (1) we determine 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 (2) for those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is more likely than 50 percent likely to be realized. Interest and penalties related to unrecognized tax benefits are included within the provision for income tax. At both December 31, 2021 and 2020, there were no interest and penalties.

Net Loss Per Share Attributable to Common Stockholders

Net loss per share of common stock is computed using the two-class method required for multiple classes of common stock and participating securities based upon their respective rights to receive dividends as if all income for the period has been distributed. The rights, including the liquidation and dividend rights and sharing of losses, of the Class A and Class B common stock are identical, other than voting rights. As the liquidation and dividend rights and sharing of losses are identical, the undistributed earnings are allocated on a proportionate basis and the resulting net loss per share attributed to common stockholders is therefore the same for Class A and Class B common stock on an individual or combined basis.

The Company also considers any shares issued on the early exercise of stock options subject to repurchase to be participating securities because holders of such shares have non-forfeitable dividend rights in the event a dividend is paid on common stock. The holders of early exercised shares subject to repurchase do not have a contractual obligation to share in losses.

Basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, adjusted for outstanding shares that are subject to repurchase.

Diluted net loss per share is computed by giving effect to all potentially dilutive securities outstanding for the period using the treasury stock method or the if-converted method based on the nature of such securities. For periods in which the Company reports net losses, diluted net loss per common share attributable to common stockholders is the same as basic net loss per common share attributable to common stockholders, because potentially dilutive common shares are not assumed to have been issued if their effect is anti-dilutive.

Commitments and Contingencies

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties, and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

Comprehensive Loss

Comprehensive loss is comprised of net loss and changes in accumulated other comprehensive income and loss on the Company’s available-for-sale investments related to unrealized gains and losses.

Fair Value Measurement

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability, or an exit price, in the principal or most advantageous market for that asset or liability in an orderly transaction between market participants on the measurement date. Fair value measurement establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value.

The Company determined the fair value of financial assets and liabilities using the fair value hierarchy that describes three levels of inputs that may be used to measure fair value, as follows:

Level 1—Quoted prices in active markets for identical assets and liabilities;

Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

Recently Adopted Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which is intended to simplify the accounting for income taxes. This standard removes certain exceptions to the general principles in Topic 740 and also clarifies and amends existing standards to improve consistent application. The Company adopted this standard as of January 1, 2021, which did not have a material impact on its financial statements as of the adoption date.

In January 2020, the FASB issued ASU No. 2020-01, *Investments—Equity Securities (Topic 321), Investments—Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815)*. This standard clarifies the interaction between accounting standards related to equity securities, equity method investments, and certain derivative instruments. The Company adopted this standard as of January 1, 2021, which did not have a material impact on its financial statements as of the adoption date.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. This standard clarifies the definition of a lease and requires a lessee to recognize in the statement of financial position a liability to make lease payments (the lease liability) and a right-to-use asset representing its right to use the underlying asset for the lease term. Since the Company ceased to be an emerging growth company as of December 31, 2021, the Company adopted this standard during the fourth quarter of 2021 effective as of January 1, 2021, using the modified retrospective method by applying the new standard to all leases existing as of the effective date and not restating comparative periods. The Company elected the practical expedients to not reassess whether any expired or existing contracts are or contain leases, carry forward its historical lease classification and not reassess initial direct costs for existing leases. The Company also elected the practical expedient to use hindsight in determining the lease term and in assessing impairment of the Company's ROU assets upon transition. The impact of adoption and additional disclosures required by the standard have been included in "Significant Accounting Policies - Leases" above and in Note 9. Upon adoption of ASC 842 effective January 1, 2021, the Company recorded an operating ROU asset of $5.7 million, operating lease liabilities of $7.8 million and derecognized deferred rent of $2.1 million. Prior period amounts before January 1, 2021 have not been adjusted and continue to be reported in accordance with the Company's historical accounting under previous lease guidance, ASC 840: *Leases (Topic 840)*.

Recently Issued Accounting Pronouncements Not Yet Adopted

In November 2021, the FASB issued ASU No. 2021-10, *Government Assistance (ASC Topic 832): Disclosures by Business Entities about Government Assistance*. This standard requires annual disclosures that increase the transparency of transactions involving government grants, including the type of transactions, the accounting for those transactions and the effect of those transactions on an entity's financial statements. This standard is effective for fiscal years beginning after December 15, 2021, with early adoption permitted. The Company does not expect this standard to have a material impact on its consolidated financial statements and related disclosures.

3. FAIR VALUE MEASUREMENTS AND FAIR VALUE OF FINANCIAL INSTRUMENTS

The following tables set forth the fair value of the Company's financial assets that were measured at fair value on a recurring basis by level within the fair value hierarchy (in thousands).

		December 31, 2021			
		Level 1	Level 2	Level 3	Total
Assets:	Classification:				
Money market funds	Cash and cash equivalents	$ 232,813	$ —	$ —	$ 232,813
U.S. Treasury securities	Investments	—	260,447	—	260,447
Total assets measured at fair value		$ 232,813	$ 260,447	$ —	$ 493,260

		December 31, 2020			
		Level 1	Level 2	Level 3	Total
Assets:	Classification:				
Money market funds	Cash and cash equivalents	$ 333,585	$ —	$ —	$ 333,585
U.S. Treasury securities	Investments	—	98,278	—	98,278
Total assets measured at fair value		$ 333,585	$ 98,278	$ —	$ 431,863

There were no financial liabilities measured at fair value. The Company classifies money market funds within Level 1 of the fair value hierarchy because they are valued using quoted market prices. The Company classifies its investments in U.S. Treasury securities (Treasury bills, Treasury notes, and Treasury bonds) as Level 2 instruments and obtains fair value from an independent pricing service, which may use quoted market prices for identical or comparable instruments or model-driven valuations using observable market data or inputs corroborated by observable market data.

The carrying amount of the Company's accounts receivable, other receivables, prepaid expenses and other current assets, accounts payable, and accrued expenses approximate fair value due to their short maturities.

The following is a summary of the Company's cash equivalents and investments and the gross unrealized holding gains and losses (in thousands):

	December 31, 2021			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
Assets:				
Money market funds	$ 232,813	$ —	$ —	$ 232,813
U.S. Treasury securities	260,983	—	(536)	260,447
Total	$ 493,796	$ —	$ (536)	$ 493,260

	December 31, 2020			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
Assets:				
Money market funds	$ 333,585	$ —	$ —	$ 333,585
U.S. Treasury securities	98,223	57	(2)	98,278
Total	$ 431,808	$ 57	$ (2)	$ 431,863

As of December 31, 2021 and 2020, unrealized losses on available-for-sale investments are not attributable to credit risk and are considered to be temporary. No investments have been in a continuous unrealized loss position for 12 months or longer. The Company believes it is more likely than not that investments in an unrealized loss position will be held until maturity or the recovery of the cost basis of the investment. To date, the Company has not recorded any impairment charges on marketable securities related to other-than-temporary declines in market value. As of December 31, 2021, $93.2 million of available-for-sale investments had remaining maturities between one and two years. The remainder of the available-for-sale investments have a remaining maturity of one year or less.

4. OTHER FINANCIAL STATEMENT INFORMATION

Inventory

Inventory consists of the following (in thousands):

	December 31,	
	2021	2020
Raw materials	$ 1,836	$ —
Work-in-progress	221	—
Finished goods	2,088	551
Total inventory	$ 4,145	$ 551

Property and Equipment, Net

Property and equipment, net consists of the following (in thousands):

	December 31,	
	2021	2020
Laboratory equipment	$ 13,823	$ 8,075
Computer equipment and software	461	182
Furniture and fixtures	478	241
Leasehold improvements	2,449	2,294
Construction-in-progress	784	—
Property and equipment	17,995	10,792
Less: accumulated depreciation and amortization	(4,908)	(2,351)
Total property and equipment, net	$ 13,087	$ 8,441

Depreciation and amortization expense related to property and equipment was $2.6 million and $1.6 million for the years ended December 31, 2021 and 2020, respectively.

Accrued Expenses

Accrued expenses consists of the following (in thousands):

	December 31,	
	2021	2020
Accrued compensation	$ 4,730	$ 2,866
Accrued professional services	388	1,074
Accrued property and equipment	269	—
Accrued taxes	457	—
Restricted stock liability, current	220	484
Other	1,307	723
Total accrued expenses	$ 7,371	$ 5,147

5. REVENUE AND DEFERRED REVENUE

Product revenue consists of instrument with embedded software essential to the instrument's functionality, consumables and platform evaluation agreements. Service revenue primarily consists of revenue received from the generation and analysis of proteomic data on behalf of the customer. Related party revenue is comprised of both the sale of products and services performed for PrognomIQ, as further discussed in Note 10. Grant revenues consist of services performed specifically for the reimbursement of research-related expenses.

Product Revenue

For the year ended December 31, 2021 and 2020, the Company recognized $3.6 million and $0 of product revenue to non-related customers. As of December 31, 2021 and 2020, the Company recorded $0.4 million and $0 of deferred revenue related to product sales.

Service Revenue

For the year ended December 31, 2021 and 2020 the Company recognized $0.5 million and $0 of service revenue to non-related customers. In March 2020, the Company entered into a sponsored research service agreement with a pharmaceutical company for a total consideration of $0.5 million of which $0.3 million was received and recorded as deferred revenue as of December 31, 2020. All of these deferred service revenues were recognized during the year ended December 31, 2021. As of December 31, 2021, there were $0 of deferred service revenue.

Deferred revenue activity for the year ended December 31, 2021 and 2020 are as follows (in thousands):

	December 31,	
	2021	2020
Balance, beginning of period	$ 250	$ —
Additions	376	250
Revenue recognized	(250)	—
Balance, end of period	$ 376	$ 250

Transaction price allocated to remaining performance obligations represents contracted revenue that has not yet been recognized, which includes deferred revenue and non-cancelable amounts that will be invoiced and recognized as revenues in future periods. The Company expects to recognize substantially all of the remaining transaction price in the next 12 months.

In fiscal year 2021, 21% of our total revenue was generated outside of the United States, primarily from countries in Asia. In fiscal year 2020, no revenues were generated outside of the United States.

Grant and other revenue

In February 2019, the Company entered into a sponsored research agreement with a biotechnology company under which the Company was required to execute certain research and development activities. During the year ended December 31, 2021 and 2020, the Company recognized research revenue of $0 and $0.3 million, with respect to this research agreement.

In August 2019, the Company received a notice of a Small Business Innovation Research grant award from the National Institutes of Health, which will provide funding of approximately $1.1 million to the Company for its development of research applications. In June 2020, the Company received a notice that additional grant consideration of $0.9 million will be awarded. During the year ended December 31, 2021 and 2020, the Company recognized grant revenue of $0.2 million and $0.4 million with respect to the award.

6. CAPITAL STOCK AND STOCKHOLDERS' EQUITY

As of December 31, 2021, the Company is authorized to issue 105,000,000 shares of capital stock consisting of 94,000,000 shares of Class A common stock, 6,000,000 shares of Class B common stock, and 5,000,000 shares of preferred stock.

Common Stock

Common stock issued and outstanding is as follows:

	December 31,	
	2021	2020
Class A common stock	57,493,005	53,395,319
Class B common stock	4,522,478	5,865,732
Total common stock issued and outstanding	62,015,483	59,261,051

Class A and Class B common stock have a par value of $0.00001 per share. Holders of Class A common stock are entitled to one vote per share and holders of Class B common stock are entitled to 10 votes per share. Class B common shares are convertible to Class A common shares at any time at the option of the holder on a one-for-one basis. Holders of common stock are entitled to dividends as declared by the Board of Directors, subject to rights of holders of all classes of stock outstanding having priority rights as to dividends. There have been no dividends declared to date.

Common stock issued and outstanding on the consolidated balance sheets and consolidated statements of changes in stockholders' equity includes shares related to early exercised options and restricted stock that are subject to repurchase.

In the first quarter of 2021, the Company received $11.4 million related to the return of short-swing profits from one of its beneficial owners. These proceeds are recognized as a capital contribution from stockholders as an increase to additional paid-in capital on the consolidated statements of changes in stockholders' equity and as cash provided by financing activities on the consolidated statements of cash flows.

7. EQUITY INCENTIVE PLANS

In 2017, the Company adopted the 2017 Stock Incentive Plan (2017 Plan), which provided for the granting of awards to employees, directors, and consultants of the Company. Awards issuable under the Plan include incentive stock options (ISO), nonqualified stock options (NSO), and restricted stock awards. In 2020, the Company adopted the 2020 RSU Equity Incentive Plan (2020 RSU Plan), which provided for the granting of RSUs to certain employees of the Company.

In 2020, the Company adopted the 2020 Equity Incentive Plan (2020 Plan), which became effective in connection with the IPO. The Company's 2017 Plan and 2020 RSU Plan were terminated in connection with the IPO and no further grants will be made under the 2017 Plan and 2020 RSU Plan from the date that the 2020 Plan became effective.

Stock Options

Stock options to purchase the Company's Class A common stock may be granted at a price not less than the fair market value of the Company's Class A common stock at the date of grant in the case of both NSOs and ISOs, except for grants of stock options to an employee or non-employee with options who owns more than 10% of the voting power of all classes of stock of the Company, in which case the exercise price shall be no less than 110% of the fair market value per Class A common stock on the grant date. The exercise price for an ISO cannot be less than the fair market value of the Class A common stock on the grant date. Stock options granted under the 2017 Plan and 2020 Plan generally vest over four years and expire no later than 10 years from the date of grant. 5,336,569 shares of Class A common stock were initially reserved for issuance under the 2020 Plan, which includes 516,710 shares that remained available for issuance under the 2017 Plan. As of December 31, 2021, there are 8,299,622 shares of

Class A common stock reserved for issuance under the 2020 Plan, 5,129,240 shares of which are available for issuance in connection with grants of future awards.

Stock option activity for the year ended December 31, 2021 is as follows:

	Options Outstanding	Weighted-Average Exercise Price	Weighted-Average Remaining Term (Years)	Aggregate Intrinsic Value (in thousands)
Balance - December 31, 2020	9,551,105	$ 5.55	8.99	$ 483,194
Options granted	1,678,042	46.89		
Options exercised	(1,040,515)	1.84		
Options cancelled and forfeited	(355,708)	19.64		
Balance - December 31, 2021	9,832,924	$ 12.49	8.48	$ 139,143
Vested and exercisable, December 31, 2021	3,062,451	$ 5.32	8.03	$ 55,309

The weighted-average grant-date fair value of stock options granted to employees during the years ended December 31, 2021 and 2020, was $28.93 and $4.26 per share, respectively. The total intrinsic value of stock options exercised during the years ended December 31, 2021 and 2020, was $46.5 million and $1.6 million, respectively. As of December 31, 2021, the total unrecognized stock-based compensation related to unvested stock options was $60.8 million, which the Company expects to recognize over a remaining weighted-average period of 2.71 years.

The fair value of stock options granted to employees, directors, and non-employees is calculated using the Black-Scholes option pricing model using the following assumptions:

	Year Ended December 31,	
	2021	2020
Risk-free interest rate	0.6% - 1.4%	0.3% - 1.6%
Expected volatility	62.5% - 71.4%	62.2% - 70.6%
Expected term (in years)	6.00 - 10.00	5.00 - 10.00
Expected dividend yield	—	—

Restricted Stock Awards

Certain stock options granted under the 2017 Plan provide stock option holders the right to exercise unvested stock options in exchange for restricted shares of Class A common stock. The Company has also issued restricted shares of Class A common stock to employees and directors under the 2017 Plan. The restricted shares of Class A common stock related to early exercised stock options and restricted shares of Class A common stock awards are subject to repurchase by the Company at the original purchase price in the event that the optionee’s employment is terminated prior to the shares vesting. The consideration received for early exercised stock options and for shares sold pursuant to restricted stock purchase agreements is recorded as a liability on the consolidated balance sheets and reclassified to stockholders’ equity as the shares vest.

The activity of restricted shares of Class A common stock for the year ended December 31, 2021 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
Unvested at December 31, 2020	775,641	$ 1.77
Granted	10,728	1.66
Repurchased	(20,556)	1.14
Vested	(591,513)	1.89
Unvested at December 31, 2021	174,300	$ 1.43

Restricted Stock Units

The Company has granted RSUs under the 2020 RSU Plan and the 2020 Plan. Restricted stock units ("RSUs") are share awards that entitle the holder to receive freely tradable shares of the Company's common stock upon vesting. The RSUs cannot be transferred and the awards are subject to forfeiture if the holder's employment terminates prior to the release of the vesting restrictions. The fair value of the RSUs is equal to the closing price of the Company's common stock on the grant date. The RSUs generally vest over a two- to three-year period from the vesting start date.

RSU activity for the year ended December 31, 2021 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
Balance at December 31, 2020	491,318	$ 7.91
Granted	325,378	51.98
Vested	(66,544)	14.12
Cancelled	(9,786)	24.70
Balance at December 31, 2021	740,366	$ 26.49

As of December 31, 2021, the total unrecognized stock-based compensation related to RSUs was $14.4 million, which the Company expects to recognize over a remaining weighted-average period of 1.72 years.

Employee Stock Purchase Plan

In November 2020, the Company's board of directors adopted the 2020 Employee Stock Purchase Plan (ESPP), which was subsequently approved by the Company's stockholders and became effective in connection with the IPO. The ESPP permits participants to purchase common stock through payroll deductions of up to 15% of their eligible compensation.

A total of 1,195,327 shares of Class A common stock are reserved for issuance under the ESPP as of December 31, 2021. During the year ended December 31, 2021, 17,929 shares of Class A common stock were issued under the ESPP. As of December 31, 2021, the total unrecognized stock-based compensation related to the ESPP was $0.2 million, which the Company expects to recognize over a remaining weighted-average period of 0.37 years.

The fair value of the ESPP shares is estimated using the Black-Scholes option pricing model, based on the following assumptions:

	Year Ended December 31, 2021
Risk-free interest rate	0.1%
Expected volatility	56.9% - 67.4%
Expected term (in years)	0.34 - 0.50
Expected dividend yield	—

Stock-Based Compensation

The following table summarizes the components of stock-based compensation recognized in the Company's consolidated statements of operations and comprehensive loss (in thousands):

	Year Ended December 31,	
	2021	2020
Cost of revenue	$ 1,800	$ —
Research and development	4,422	899
Selling, general and administrative	19,705	6,449
Total stock-based compensation	$ 25,927	$ 7,348

In October 2020, in connection with the transition of our former Chief Business Officer to a consulting role, the vesting of 461,876 share-based awards were accelerated. An additional 76,304 options to purchase Class A common stock are expected to vest over the term of the consulting agreement pursuant to the terms and conditions of the original options. The total amount of stock-based compensation associated with the modification is $2.8 million, of which $2.3 million was recorded on the date of the modification.

8. EMPLOYEE BENEFIT PLANS

The Company sponsors a qualified 401(k) defined contribution plan covering eligible employees. Participants may contribute a portion of their annual compensation limited to a maximum annual amount set by the Internal Revenue Service. There were no employer contributions under this plan for fiscal 2021 and 2020.

9. COMMITMENTS AND CONTINGENCIES

Facility Lease Agreement

On January 4, 2019, the Company entered into a lease agreement for office and laboratory space in Redwood City, California. The lease term commenced in November 2019 and was set to end on September 30, 2029. The Company entered into an amendment to the lease agreement in June 2020 that makes certain changes to the original lease, including (i) additional office and laboratory space in the same building (the Expansion Premises) and (ii) an extension of the expiration date of the original lease to 127.5 months following the delivery date of the Expansion Premises, which is estimated to be in the first quarter of 2022. The Company entered into another amendment to the lease agreement in April 2021 that further expanded the office and laboratory space and commenced in May 2021. The same lease term applies to all space leased under the lease and its amendments and the Company has an option to renew all such leased space for an additional five-year term at then-current market rates. In connection with the lease and its amendments, the Company maintains a letter of credit issued to the lessor in the amount of $0.5 million and $0.3 million as of December 31, 2021 and 2020, respectively, which is secured by restricted cash that is classified as noncurrent at each date based on the term of the underlying lease.

During the period from June 2020 through May 2021, the Company was provided with temporary space. The Company was not required to pay additional rent for the temporary space, but was required to pay property taxes, insurance and normal maintenance costs with respect to the temporary space.

On January 1, 2021, the Company adopted ASC 842 and the following disclosures as of and for the year ended December 31, 2021 are presented under ASC 842. As of December 31, 2021, the remaining weighted-average lease term was 10.8 years and the weighted-average incremental borrowing rate used to determine the operating lease liabilities was 5.9%.

During the year ended December 31, 2021, the Company incurred $2.8 million of lease costs, of which $0.1 million is related to the Company's short-term lease and $0.7 million is related to variable lease payments, which are primarily comprised of common area maintenance and include costs associated with the temporary space. During the year ended December 31, 2020, the Company incurred $0.7 million in rent expense.

As of December 31, 2021, future minimum commitments under the Company's non-cancelable facility operating lease, in accordance with ASC 842, are as follows:

Years ending December 31,	(in thousands)
2022	$ 2,209
2023	2,698
2024	2,775
2025	2,855
2026	2,937
Thereafter	18,495
Total undiscounted future minimum lease payments	31,969
Present value adjustment for minimum lease commitments	(8,646)
Total operating lease liabilities	$ 23,323

The total undiscounted future minimum lease payments associated with the Expansion Premises are approximately $10.5 million and are not included in the table above. The Company has not recognized an ROU asset or aggregate lease liability as of December 31, 2021 for the Expansion Premises as the Company did not control the underlying assets at any time during the year ended December 31, 2021.

As of December 31, 2020, future minimum commitments under the Company's non-cancelable facility operating lease, in accordance with ASC 840, Lease Accounting, are as follows:

Years ending December 31,	(in thousands)
2021	$ 795
2022	1,279
2023	1,783
2024	1,833
2025	1,884
Thereafter	12,792
Total	$ 20,366

Purchase Commitments and Obligations

The Company has certain purchase commitments related to its inventory management with certain manufacturing suppliers wherein the Company is required to purchase the amounts forecasted in a blanket purchase order within a certain time period. The contractual obligations represent future cash commitments and liabilities under agreements with third parties and exclude orders for goods and services entered into in the normal course of business that are not

enforceable or subject to change. These outstanding commitments amounted to $5.5 million and $3.1 million as of December 31, 2021 and 2020, respectively.

Guarantees and Indemnifications

In the normal course of business, the Company enters into agreements that contain a variety of representations and provide for general indemnification. The Company's exposure under these agreements is unknown because it involves claims that may be made against the Company in the future. The Company has entered into indemnification agreements with certain directors and officers that require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of the status or service as directors or officers. To date, the Company has not paid any claims or been required to defend any action related to its indemnification obligations. As of December 31, 2021 and 2020, the Company does not have any material indemnification claims that were probable or reasonably possible and consequently has not recorded related liabilities.

Contingencies

From time to time, the Company may become involved in legal proceedings arising in the ordinary course of business. The Company is not currently a party to any material legal proceedings.

10. PROGNOMIQ, INC.

In August 2020, the Company formed a new entity, PrognomIQ, Inc. (PrognomIQ), and entered into a stock purchase agreement with PrognomIQ, pursuant to which the Company transferred to PrognomIQ certain assets that comprise the Company's human diagnostics activities in exchange for all the outstanding equity interests of PrognomIQ. The Company subsequently completed a pro-rata distribution to its stockholders of most of the shares of capital stock of PrognomIQ.

The Company has concluded that PrognomIQ is a VIE due to its reliance on future financing and insufficient equity investment at risk. However, the Company is not the primary beneficiary of the VIE as it does not have the power to direct the activities that most significantly impact the economic performance of PrognomIQ and does not have control over the PrognomIQ board of directors. The Company has determined that it has the ability to exercise significant influence over PrognomIQ and therefore has accounted for its investment in PrognomIQ using the equity method. During the year ended December 31, 2020, the carrying value of the Company's investment in PrognomIQ was reduced to nil after recognizing net losses based on its percentage of ownership in PrognomIQ.

PrognomIQ constitutes a related party and, as of December 31, 2021 and 2020, the Company recorded $1.3 million and $0.1 million in related party receivables, respectively, on the consolidated balance sheets representing amounts due from product sales and services and for general transition services and support provided. Revenue received from PrognomIQ is recorded as related party revenue on the consolidated statements of operations and comprehensive loss and is comprised of the sale of instruments and consumables, and services performed.

11. NET LOSS PER SHARE ATTRIBUTABLE TO COMMON STOCKHOLDERS

The following table shows the computation of basic and diluted net loss per share (in thousands, except share and per share data):

	Year Ended December 31,	
	2021	2020
Numerator:		
Net loss attributable to common stockholders	$ (71,169)	$ (32,775)
Denominator:		
Weighted-average common shares used in computing net loss per share attributable to common stockholders, basic and diluted	60,863,950	13,216,657
Net loss per share attributable to common stockholders, basic and diluted	$ (1.17)	$ (2.48)

The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share attributable to common stockholders for the periods presented, because including them would have been anti-dilutive (on an as-converted basis):

	December 31,	
	2021	2020
Class A common stock options issued and outstanding	9,832,924	9,551,105
Restricted common stock subject to future vesting	174,300	775,641
Restricted stock units	740,366	491,318
Total	10,747,590	10,818,064

12. INCOME TAXES

Income tax expense differs from the amount computed by applying the statutory federal income tax rate due to the following (in thousands):

	Year Ended December 31,	
	2021	2020
Federal tax benefits at statutory rate	$ (14,887)	$ (6,859)
State taxes, net of federal benefit	(1,275)	(1,065)
Change in valuation allowance	17,751	6,248
Stock-based compensation tax deduction over book expense	(2,790)	—
Permanent differences	(47)	557
Gain on PrognomIQ transaction	—	1,392
Research and development credits	(1,697)	(104)
Executive compensation limitations	2,806	—
Other	139	(169)
Total income tax expense	$ —	$ —

Deferred income tax reflects the tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The categories that give rise to components of the deferred tax assets are as follows (in thousands):

	December 31,	
	2021	2020
Deferred tax assets:		
Net operating loss carryforwards	$ 22,385	$ 9,374
Accrued expenses and reserves	1,129	1,336
Research and development credits	2,073	534
Stock-based compensation	4,198	1,782
Lease liabilities	6,182	—
Other	56	13
Gross deferred tax assets	36,023	13,039
Less valuation allowance	(30,194)	(12,443)
Net deferred tax assets	$ 5,829	$ 596
Deferred tax liabilities:		
Fixed assets and intangibles	(490)	(596)
Right-of-use assets	(5,339)	—
Gross deferred tax liabilities	(5,829)	(596)
Total net deferred tax assets (liabilities)	$ —	$ —

The tax benefit of net operating losses, temporary differences, and credit carryforwards are recorded as an asset to the extent that management assesses that realization is “more likely than not.” Management assesses the available positive and negative evidence to estimate whether sufficient future taxable income will be generated to permit use of existing deferred. A significant piece of objective negative evidence evaluated was the cumulative loss incurred since the Company’s incorporation in 2017. Such objective evidence limits the ability to consider other subjective evidence, such as our projections for future growth. On the basis of this evaluation, as of December 31, 2021 and 2020, a full valuation allowance has been recorded against the Company’s net deferred tax assets. The amount of the net deferred tax assets considered realizable, could be adjusted as estimates of future taxable income during the carryforward period are reduced or increased or if objective negative evidence in the form of cumulative losses is no longer present and additional weight is given to subjective evidence such as our projections for growth. For the years ended December 31, 2021 and 2020, the net changes in the net valuation allowance were an increase of $17.8 million and an increase of $6.2 million, respectively.

As of December 31, 2021 and 2020, the Company had federal net operating loss carryforwards of approximately $94.0 million and $36.2 million, respectively, which will carry forward indefinitely. At December 31, 2021 and 2020, the Company had state net operating loss carryforwards of approximately $84.5 million and $33.0 million, respectively, which will begin to expire in 2035 for state tax purposes.

As of December 31, 2021 and 2020, the Company had federal research and development credit carryforwards of approximately $1.5 million and $0.2 million, respectively, which begin to expire in 2037 and state research and development credit carryforwards of approximately $1.6 million and $0.7 million, respectively, which will carry forward indefinitely.

Utilization of the Company’s federal and state net operating loss and tax credit carryforwards may be subject to an annual limitation in the event that there is a change in ownership as provided by Section 382 of the Internal Revenue Code and similar state codes. Such limitation could result in a deferral or expiration of the utilization of the net operating loss and tax credit carryforwards. The Company has not performed a Section 382 study in the current year. The Company does not believe that per Section 382 there will be a deferral or limitation on the utilization of the net operating loss and tax credit carryforwards.

As of December 31, 2021 and 2020, the Company had unrecognized tax benefits of approximately $0.8 million and $0.3 million, respectively. The amount of unrecognized tax benefits is not expected to significantly change over the next 12 months. If recognized, unrecognized tax benefits would not have an impact on the Company's effective tax rate due to the Company's full valuation allowance position. The beginning and ending unrecognized tax benefits amounts is as follows (in thousands):

	December 31,	
	2021	2020
Beginning balance	$ 337	$ 264
Change related to prior year provisions	(154)	(80)
Change related to current year provisions	656	153
Ending balance	$ 839	$ 337

It is the Company's policy to include any assessed penalties and interest expense related to income taxes as a component of other expense and interest expense, respectively, as necessary. Management determined that no accrual for interest and penalties was required as of December 31, 2021.

For year ended December 31, 2021 and 2020, the Company did not record an income tax expense. The Company will continue to maintain a full valuation allowance against its deferred tax assets as the Company believes it is more likely than not that the related deferred tax asset will not be realized. As a result, the Company's income tax expense will remain at nil as no items that are either estimated or discrete items would impact the tax expense for the period.

On March 27, 2020 and December 27, 2020, the United States enacted the Coronavirus Aid, Relief, and Economic Security (CARES) Act and the Consolidated Appropriation Act (CAA), respectively, as a result of the Coronavirus pandemic, which contain among other things, numerous income tax provisions. Some of these tax provisions are expected to be effective retroactively for years ending before the date of enactment. The Company has evaluated the current legislation and at this time, does not anticipate the CARES Act or the CCA to have a material impact on its consolidated financial statements for the year ended December 31, 2021.

All tax returns will remain open for examination by the federal and state taxing authorities for three and four years, respectively, from the date of utilization of any net operating loss carryforwards or research and development credits.

13. SUBSEQUENT EVENTS

There were no events subsequent from December 31, 2021 through March 1, 2022, the date at which the financial statements as of and for the years ended December 31, 2021 and 2020 were available to be issued.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer (CEO), and Chief Financial Officer (CFO), we evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act) as of the end of the period covered by this report. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including the CEO and the CFO, to allow timely decisions regarding required disclosures. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on that evaluation, our CEO and CFO have concluded, as of December 31, 2021, our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate, to allow timely decisions regarding required disclosures.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Our internal control system is designed to provide reasonable assurance regarding the preparation and fair presentation of externally-reported consolidated financial statements in accordance with generally accepted accounting principles in the United States (U.S. GAAP). As discussed above, internal control systems, no matter how well designed, have inherent limitations and can provide only reasonable assurance that their objectives have been met.

As disclosed in Part II Item 9A Controls and Procedures in our Annual Report on Form 10-K for the year ended December 31, 2020, we identified material weaknesses in each of the following components of the *Internal Control -Integrated Framework* (2013), issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO):

- insufficient accounting personnel to enable segregation of duties relating to the general ledger, disbursement, and certain accounting functions;
- no formalized processes or controls for account reconciliations, including independent review of such reconciliations, or related financial statement analysis prepared in conformity with U.S. GAAP; and
- an insufficient complement of accounting personnel with the necessary U.S. GAAP technical expertise to timely identify and account for complex or non-routine transactions or to formalize accounting policies, memoranda, or controls for such transactions.

During 2021, management implemented our previously disclosed remediation plan that included: (i) hiring six finance department employees with appropriate expertise, including our CFO and Controller; (ii) retaining an accounting consulting firm to provide additional depth and breath to our technical and financial reporting capabilities; and (iii) implementing formal financial reporting processes and internal controls and building out our financial management and reporting systems infrastructure, which includes ongoing senior management review, and establishing our audit committee oversight.

During the fourth quarter of 2021, we completed our testing of the operating effectiveness of the implemented controls and found them to be effective. As of December 31, 2021, our management conducted

an evaluation, under the supervision and with the participation of our CEO and CFO, of the effectiveness of our internal control over financial reporting based upon the framework in the *Internal Control -Integrated Framework* (2013), issued by COSO. Based upon that evaluation, our CEO and CFO concluded that our internal control over financial reporting was effective as of December 31, 2021 and that the material weaknesses have been remediated as of December 31, 2021.

Deloitte & Touche LLP, an independent registered public accounting firm that audited the consolidated financial statements included in this Annual Report on Form 10-K, has also audited the effectiveness of our internal control over financial reporting as of December 31, 2021, as stated in their report which appears herein under Part II, Item 9A of this Annual Report on Form 10-K.

Inherent Limitations on Effectiveness of Controls

Our management, including our CEO and CFO, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all error 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. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, 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, if any, within a company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

Changes in Internal Control over Financial Reporting

Except for the changes in connection with our implementation of the remediation plan discussed above, there have been no other changes in our internal control over financial reporting (as defined in Rules 13a-15(f) or 15d-15(f) of the Exchange Act) that occurred during the period that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Seer, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Seer, Inc. and subsidiary (the "Company") as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2021, of the Company and our report dated March 1, 2022, expressed an unqualified opinion on those financial statements and included an explanatory paragraph regarding the Company's change in its method of accounting for leases in fiscal year 2021 due to the adoption of ASC Topic 842, *Leases.*

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk

that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte and Touche LLP

San Francisco, California

March 1, 2022

Item 9B. Other Information

None

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None

PART III.

Item 10. Directors, Executive Officers and Corporate Governance.

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller or, persons performing similar functions. The code of business conduct and ethics is available on our website at http://seer.bio. We intend to disclose future amendments to such code, or any waivers of its requirements, applicable to any principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions, or our directors on our website identified above or in a Current Report on Form 8-K. Information contained on the website is not incorporated by reference into this Annual Report.

The remaining information required under this item is incorporated herein by reference to our definitive proxy statement (the "Proxy Statement") pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended, which Proxy Statement is expected to be filed with Securities and Exchange Commission not later than 120 days after the close of our fiscal year ended December 31, 2021.

Item 11. Executive Compensation

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

PART IV.

Item 15. Exhibit and Financial Statement Schedules

The following documents are filed as part of this Annual Report:

1. Financial Statements: The financial statements filed as part of this Annual Report are included in Part II, Item 8 of this Annual Report.

2. Financial Statement Schedules: Financial statement schedules have been omitted in this Annual Report because they are not applicable, not required under the instructions or the information requested is set forth in the financial statements or related notes thereto.

3. Exhibits: The list of exhibits filed with this Annual Report on Form 10-K is set forth in the Exhibit Index preceding the signature page and is incorporated herein by reference or filed with this Annual Report on Form 10-K, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

Exhibit Number	Description	Form	File No.	Exhibit	Filing Date
3.1	Amended and Restated Certificate of Incorporation of the Registrant.	8-K	001-39747	3.1	12/8/2020
3.2	Amended and Restated Bylaws of the Registrant.	8-K	001-39747	3.2	12/8/2020
4.1	Form of common stock certificate of the Registrant.	S-1	333-250035	4.1	11/12/2020
4.2	Amended and Restated Investors' Rights Agreement, by and among the Registrant and certain holders of its capital stock, dated as of December 9, 2020.	S-1	333-252395	4.2	1/25/2021
4.3	Description of the Registrant's securities registered pursuant to Section 12 of the Securities Exchange Act of 1934.	10-K	001-39747	4.3	3/29/2021
10.1+	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers.	S-1	333-250035	10.1	11/12/2020
10.2+	2020 Equity Incentive Plan and related form agreements.	S-1/A	333-250035	10.2	11/30/2020
10.3+	2017 Stock Incentive Plan and related form agreements.	S-1/A	333-250035	10.3	11/30/2020

10.4+	2020 RSU Equity Incentive Plan and related form agreements.	S-1/A	333-250035	10.4	11/30/2020
10.5+	2020 Employee Stock Purchase Plan.	10-Q	001-39747	10.2	8/12/2021
10.6+	Key Executive Change in Control and Severance Plan, and form of Participation Agreement thereunder.	S-1/A	333-250035	10.6	11/30/2020
10.7+	Confirmatory Offer Letter between the Registrant and Dr. Omid Farokhzad, dated November 30, 2020.	S-1/A	333-250035	10.7	11/30/2020
10.8+	Confirmatory Offer Letter between the Registrant and Omead Ostadan, dated November 30, 2020.	S-1/A	333-250035	10.8	11/30/2020
10.9+	Confirmatory Offer Letter between the Registrant and David Horn, dated November 30, 2020.	S-1/A	333-250035	10.9	11/30/2020
10.10+	CEO Change in Control and Severance Agreement between the Registrant and Dr. Omid Farokhzad, dated November 30, 2020.	S-1/A	333-250035	10.10	11/30/2020
10.11+	Executive Incentive Compensation Plan.	S-1/A	333-250035	10.11	11/30/2020
10.12+	Outside Director Compensation Policy	10-Q	001-39747	10.1	8/12/2021
10.13#	Umbrella Development & Supply Agreement between the Registrant and Hamilton Company, dated March 9, 2020.	S-1	333-250035	10.14	11/12/2020
10.14#	Exclusive Patent License Agreement between the Registrant and The Brigham and Women's Hospital, Inc., dated December 18, 2017.	S-1	333-250035	10.15	11/12/2020

10.15	Class A Common Stock Purchase Agreement by and among the Registrant, Fidelity Management & Research Company LLC, SoftBank, certain funds and accounts advised by T. Rowe Price Associates, Inc. and aMoon Fund, dated as of November 12, 2020.	S-1	333-250035	10.15	11/12/2020
10.16	Leave of Absence Agreement between Omead Ostadan and the Company effective October 7, 2021.	8-K	001-39747	10.1	10/13/2021
10.17	Amended Confirmatory Employment Letter between the Company and Omead Ostadan, dated February 18, 2022.	8-K	001-39747	10.1	2/18/2022
21.1	List of Subsidiaries of the Registrant.	S-1	333-252395	21.1	1/25/2021
23.1	Consent of Deloitte & Touche LLP, independent registered public accounting firm.				*
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				*
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				*
32.1†	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				

101.INS	Inline XBRL Instance Document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File - the Cover Page Interactive Data File does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

+ Indicates management contract or compensatory plan.

† The certifications attached as Exhibit 32.1 that accompany this Annual Report on Form 10-K, are deemed furnished and not filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Annual Report on Form 10-K, irrespective of any general incorporation language contained in such filing.

Confidential treatment has been requested for portions of this exhibit. These portions have been omitted and have been filed separately with the Securities and Exchange Commission.

* Filed herewith

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: March 1, 2022

SEER, INC.

By: /s/ Omid Farokhzad, M.D.
Omid Farokhzad, M.D.
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

SIGNATURE	TITLE	DATE
/s/ Omid Farokhzad, M.D. Omid Farokhzad, M.D.	Chief Executive Officer and Chair of the Board of Directors (*Principal Executive Officer*)	March 1, 2022
/s/ David R. Horn David R. Horn	Chief Financial Officer (*Principal Financial Officer and Accounting Officer*)	March 1, 2022
/s/ David Halla David Hallal	Lead Independent Director	March 1, 2022
/s/ Catherine Friedman Catherine Friedman	Director	March 1, 2022
/s/ Meeta Gulyani Meeta Gulyani	Director	March 1, 2022
/s/ Rachel Haruwitzm Ph.D. Rachel Haurwitz, Ph.D.	Director	March 1, 2022
/s/ Robert Langer, Sc.D. Robert Langer, Sc.D.	Director	March 1, 2022
/s/ Terrance McGuire Terrance McGuire	Director	March 1, 2022
/s/ Deep Nishar Deep Nishar	Director	March 1, 2022
/s/ Omead Ostadan Omead Ostadan	Director	March 1, 2022
/s/ Mostafa Ronahi. Ph.D. Mostafa Ronaghi, Ph.D.	Director	March 1, 2022

Ex. 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statement Nos. 333-252534 and 333-251158 on Form S-8 of our reports dated March 1, 2022, relating to the financial statements of Seer, Inc. and the effectiveness of Seer's internal control over financial reporting appearing in this Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ Deloitte & Touche LLP
San Francisco, California
March 1, 2022

Exhibit 31.1

CERTIFICATION PURSUANT TO

RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,

AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Omid Farokhzad, certify that:

1.I have reviewed this Annual Report on Form 10-K of Seer, Inc.;

2.Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3.Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4.The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2022
By: /s/ Omid Farokhzad
Omid Farokhzad
Chief Executive Officer and Chair of the Board of Directors
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO

RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,

AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David Horn, certify that:

1.I have reviewed this Annual Report on Form 10-K of Seer, Inc.;

2.Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3.Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4.The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation;

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2022
By: /s/ David Horn
David Horn
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, Omid Farokhzad, Chief Executive Officer and Chair of the Board of Directors of Seer, Inc. (the "Company"), and David Horn, Chief Financial Officer of the Company, each hereby certify that:

1. The Company's Annual Report on Form 10-K for the period ended December 31, 2021, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

2.The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company

/s/ Omid Farokhzad
Date: March 1, 2022
Omid Farokhzad
Chief Executive Officer & Chair of The Board of Director
(Principal Executive Officer)

/s/ David Horn
Date: March 1, 2022
Chief Financial Officer
(Principal Financial Officer)