

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K**

(Mark One)

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: 001-40344

Akoya Biosciences, Inc.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	47-5586242 (I.R.S. Employer Identification No.)
100 Campus Drive, 6th Floor Marlborough, Massachusetts (Address of principal executive offices)	01752 (Zip Code)

(855) 896-8401

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.00001 per share	AKYA	Nasdaq Global Select Market

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, 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 <input type="checkbox"/>	Accelerated filer <input type="checkbox"/>
Non-accelerated filer <input checked="" type="checkbox"/>	Smaller reporting company <input checked="" type="checkbox"/>
Emerging growth company <input checked="" type="checkbox"/>	

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 13(a) of the Exchange 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.

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

The aggregate market value of common stock held by non-affiliates of the registrant based on the closing price of the registrant's common stock as reported on the Nasdaq Global Select Market on June 30, 2021, was \$319.9 million.

Number of shares of the registrant's common shares outstanding at February 28, 2022: 37,475,309

AKOYA BIOSCIENCES, INC.

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Akoya Biosciences, Inc.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements that are based on management's beliefs and assumptions and on information currently available to management. All statements contained in this report other than statements of historical fact are forward-looking statements, including statements regarding our ability to develop, commercialize and achieve market acceptance of our current and planned products and services, our research and development efforts, and other matters regarding our business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations. In some cases, you can identify forward-looking statements by the words "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. These risks, uncertainties and other factors are described under "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and elsewhere in this report and in other documents we file with the Securities and Exchange Commission (the "SEC") from time to time. We caution you that forward-looking statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. As a result, the forward-looking statements may not prove to be accurate. The forward-looking statements in this report represent our views as of the date of this report. We undertake no obligation to update any forward-looking statements for any reason, except as required by law.

Unless otherwise stated or the context otherwise indicates, references to "we," "us," "our" and similar references refer to Akoya Biosciences, Inc. and its consolidated subsidiary.

Part I

Item 1. Business

BUSINESS

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery and clinical research. Our mission is to deliver a revolutionary new class of spatially derived biomarkers that empower life sciences researchers to better understand disease and clinicians to improve patient outcomes. Spatial biology refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single-cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through our PhenoCycler™ (formerly CODEX®) and PhenoImager™ (formerly Phenoptics™) platforms, reagents, software and services, we offer end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum from discovery through translational and clinical research.

Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as next-generation sequencing (NGS), single-cell analysis, flow cytometry and mass spectrometry, are providing meaningful data but require the destruction of the tissue sample for analysis. While valuable and broadly adopted, these approaches allow scientists to analyze the biomarkers and cells that comprise the tissue but do not provide the fundamental information about tissue structure, cellular interactions and the localized measurements of key biomarkers. Furthermore, current non-destructive tissue analysis and histological methods provide some limited spatial information, but they only measure a minimal number of biomarkers at a time and require expert pathologist interpretation. Our platforms address these limitations by providing end-to-end solutions that enable researchers to quantitatively interrogate a large number of biomarkers and cell types across a tissue section at single-cell resolution. The result is a detailed and computable map of the tissue sample that thoroughly captures the underlying tissue dynamics and interactions between key cell types and biomarkers, a process now referred to as spatial phenotyping. We believe that we are the only business with the breadth of platform capabilities that enable researchers to do a deep exploratory and discovery study, and then further advance and scale their research through the translational and clinical phases, leading to a better understanding of human biology, disease progression and response to therapy.

We offer complete end-to-end solutions for spatial phenotyping, designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The PhenoCycler (formerly CODEX), is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The PhenoImager platforms (formerly Phenoptics), which includes the newly introduced Fusion instrument and HT instrument (formerly Vectra Polaris), provide high-throughput with the automation and robustness needed for translational and clinical applications. Furthermore, the PhenoCycler and the PhenoImager Fusion can be integrated into a combined system, the PhenoCycler-Fusion System, to enable spatial discovery at scale by providing significant improvements in the speed of the workflow. Together the systems offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial

phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas.



PHENOCYCLER-FUSION SYSTEM

PHENOCYCLER PHENOIMAGER FUSION



Our co-founder and director, Dr. Garry Nolan, originally developed our CODEX technology (now rebranded as PhenoCycler) to better identify biomarkers in discovery research while leading a team at Stanford. We license certain patents, know-how and proprietary technology utilized in our PhenoCycler instrument from Stanford. In order to expand our offerings to the translational and clinical markets, we acquired our Phenoptics (now rebranded as PhenoImager) platform in 2018 from Perkin Elmer, Inc. (“PKI”), from whom we license certain patents incorporated into our PhenoImager instruments.

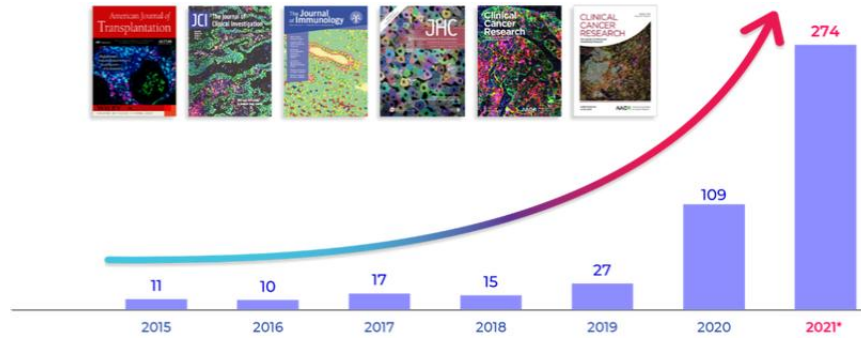
As of December 31, 2021, we have nearly 700 instruments installed across a broad group of customers throughout North America, Asia-Pacific (“APAC”), and Europe-Middle East-Africa (“EMEA”), reflecting an increase of 25% in the number of instrument placements over 2020. Our full set of proprietary reagents, software and services allows us to drive a stream of attractive, recurring and high margin revenue through our installed base, which will grow as we continue to expand our instrument base and implement workflow advancements. We generated total revenue of \$54.9 million in the year ended December 31, 2021, and \$42.4 million in the year ended December 31, 2020. We incurred net losses of \$42.9 million in the year ended December 31, 2021, and \$16.7 million in the year ended December 31, 2020.

Our Competitive Strengths

We believe the growth of our business will be propelled by our competitive strengths, including:

Established leader in the spatial biology market with a strong competitive position and proven products. We believe we are the leading spatial biology company, offering products to hundreds of customers across a diverse base, including leading biopharma companies, academic research centers and governmental institutions worldwide. As the

pioneers and leaders in the spatial biology market, we view our suite of solutions as uniquely positioned to address the varying customer needs across all market segments, from discovery through translational and clinical research. Our instrument base has expanded significantly over the last several years with nearly 700 instruments currently in the market as of December 31, 2021, a 27% increase over 2020. The rate of publications with our technology as a centerpiece has accelerated greatly, with 274 peer-reviewed publications in 2021, a 151% increase over 2020 and a 1,091% increase over 2019. A key driver of these publications and our commercial expansion is the growing body of evidence that spatial biology solutions are increasingly becoming preferred as a biomarker platform of choice. A seminal JAMA Oncology publication in 2019 established the predictive power of spatial biomarker technologies in predicting response to immuno-oncology therapeutics versus the current technologies such as gene expression, NGS and standard diagnostic PD-L1 biomarker assays. We believe that the combination of our broad customer base, expert management team, large instrument installed base, intellectual property protection and extensive and accelerating publication list helps establish our leading position in spatial biology.



*As of Dec. 31, 2021

Comprehensive solutions that address the entire continuum. We are a fully dedicated spatial biology company with a purpose-built portfolio offering instruments, consumables, related software and services to serve the unique needs of our customers from discovery through translational and clinical research. Our PhenoCycler (formerly CODEX) platform is ideal for discovery research, providing ultra-high parameter biomarker discovery, with the ability to analyze high-plex single-cell resolution across the entire tissue sample. By pairing our PhenoCycler with our new Fusion instrument, we provide a complete cycling and imaging solution to our customers that delivers market leading scale with significant improvements in the speed of the workflow. Our PhenoImager (formerly Phenoptics) platform is ideal for translational and clinical research providing a fully automated end-to-end solution with high reproducibility and throughput. Providing complete solutions across this full continuum allows us to serve our customers' full biomarker lifecycle. Comprehensive biomarker discovery is first enabled on PhenoCycler. Potentially predictive biomarkers of interest for translational and clinical studies are then analyzed at scale on PhenoImager.

Relationships with leading biopharma and life science tools companies, top research institutions and medical centers. We have relationships with thought leaders such as Dana Farber Cancer Institute, Johns Hopkins University, UCSF, MD Anderson, AstraZeneca and many other leading biopharma and life science tools companies, top research institutions and medical centers and contract research organizations (CROs). These collaborations and partnerships help demonstrate the utility of our solutions across a broad array of applications, including immuno-oncology, immunology, neuroscience and developmental biology. As we partner with leading companies and institutions, we gain access to valuable customer feedback and insight. With the use of our solutions informing their development efforts:

- *Stanford University and the University of Bern* used the CODEX (now rebranded as PhenoCycler) platform for deep phenotyping of advanced-stage colorectal cancer patient tissue with more than 40 protein markers simultaneously, and at single-cell resolution. Through their use of our technology, they defined a new biological classification unit of cellular groups known as "neighborhoods." These neighborhoods represent a

completely novel organizing principle for understanding cellular activity in the tumor microenvironment and provide a robust analytical framework to better understand colon cancer progression, potentially novel diagnostics and new targets for therapeutic intervention.

- *Johns Hopkins University* developed an interdisciplinary partnership between the Hopkins Kimmel Cancer Center and the Department of Physics and Astronomy called AstroPath with our Phenoptics (now branded as PhenoImager) platform as the centerpiece. Leveraging their leadership in both cancer research and astrophysics, AstroPath is applying astronomy algorithms to PhenoImager imaging data to rapidly identify and optimize predictive phenotypic signatures predicting response to immunotherapies. With our support, the longer-term aim is to create a publicly accessible archive of analyzed tumor samples to help accelerate the field of spatial biology-based immuno-oncology biomarkers.
- *Dana Farber Cancer Institute and Brigham Health* recently announced the availability of their ImmunoProfile assay, an assay they developed on our Phenoptics (now rebranded as PhenoImager) platform to profile the tumors of immuno-therapy eligible patients. This assay is physician orderable and integrates into their clinical pathology workflow alongside NGS-based tumor profiling.
- *AstraZeneca* was a recently announced partnership to advance new multiplex immunofluorescence (mIF) workflows and spatial biomarker signatures, based on our PhenoImager platform. The partnership has the aim of elucidating the immune biology of cancer, in greater detail, to streamline drug development, clinical trials, and biomarker discovery. With this collaboration, we are partnering with AstraZeneca's immuno-oncology division to leverage the comprehensive spatial phenotyping capabilities of the PhenoImager platform to study drug mechanism of action, confirm target biology prevalence, and discover predictive signatures for subsequent trial designs. The aim of this collaboration will be the development and implementation of predictive assays and analysis frameworks to enable AstraZeneca, and the pharmaceutical industry in general, to advance a spatial biomarker-informed drug development strategy for immunotherapy. The results could lead to increased trial success rates, companion diagnostic partnerships with Akoya, and advancement of precision medicine.
- *Advanced Cell Diagnostics, a Bio-Techne brand*, was a recently announced partner to develop a single-cell, spatial multi-omics workflow for comprehensive, unbiased analysis of tissue samples. Through this agreement, the partners will bring to the market an automated, spatial multi-omics workflow that can perform rapid, in situ analysis of multiple analytes, at single cell resolution, across whole slides on the PhenoImager-Fusion System. Combining the PhenoCycler-Fusion workflow with the RNAScope HiPlex v2 assay has the potential to accelerate scientific understanding of human health and complex diseases like cancer. Spatial multi-omics approaches can also unlock new biomarker diagnostic signatures, enabling better stratification of patients and ultimately improving treatment outcomes. Backed by over 4,500 peer-reviewed publications, RNAScope Assays are an established standard for spatial RNA imaging. Under the terms of the agreement, both partners will develop and co-market protocols to enable automated workflows for running RNAScope assays on Akoya's spatial phenotyping systems.
- *PathAI* was a recently announced partner to advance discovery and validation of novel predictive biomarkers for immunotherapies using their artificial intelligence (AI) powered technology for pathology. The partnership will enable a combined capability in spatial biology and deep data mining using the PhenoImager platform, artificial intelligence tools and algorithms to enhance their shared biopharmaceutical partners' ability to identify patients most likely to respond to drugs in clinical trials.

Large, addressable and rapidly evolving market. The spatial biology market sits within a larger life sciences technology market. Within this market, spatial biology is currently estimated to be approximately \$14 billion. The market for spatial biology encompasses the full research and drug development continuum, ranging from discovery through translational and clinical research and, eventually the clinical markets. Each of these specific market segments have unique application and workflow needs and require fit for purpose product offerings. Today, our products and solutions are primarily sold into the cancer discovery and translational markets, representing a \$7 billion addressable market. We believe that our offerings can be readily extended to serve adjacent application areas, including immunology and neurobiology, and in the near future applications in clinical markets, which may include obtaining FDA approval for

our products. We currently estimate that within the spatial biology market, half of the opportunity is in the discovery and translational research markets and the other half is in the clinical market. With the growing adoption and innovation of spatial biology solutions and as spatial phenotyping is further validated through rapid acceleration of peer-reviewed publications, we believe the global TAM will continue to grow over the near and long-term horizon. Given the critical need for spatial biology, we believe our products are uniquely suited to address the specific needs of researchers across this continuum from discovery through translational and clinical markets.

Our people. Our success begins with our people. All of our employees contribute to keeping Akoya at the forefront of the spatial biology market, from research and development, to sales and marketing, to operations and management. Our management team has extensive industry experience among a diversified base of leading companies in the healthcare industry, as well as significant experience with acquisitions and integration of technology. The experiences and skills gained during these prior multi-disciplinary employments will allow our team to continue to execute on current plans and identify future opportunities and build products and services to meet them.

Our Growth Strategy

Our growth strategy includes the following key elements:

Enhance sales and marketing efforts to drive adoption of our solutions with new and existing customers. Our solutions enable researchers to map the distribution of key cell types and biomarkers in normal and disease tissue. In 2021, we commissioned a report of researchers and surveyed their views of and plans to invest in spatial biology platforms and solutions, and approximately 44% of respondents indicated that they intend to purchase a spatial profiling platform. To capitalize on this opportunity to drive adoption of our platforms across the entire market, we intend to invest heavily to expand our sales and marketing organizations, increase the scale of our outbound marketing activities, invest in our commercial organization and deliver new, market-leading solutions to our customers. Sales productivity and output will be achieved by expanding our global team of dedicated regional instrument and reagents sales specialists, building an inside sales team and hiring additional dedicated scientific pre- and post-sales applications specialists. A key focus of the expanded applications specialists will be to drive further platform adoption and utilization within our existing customer base to increase our recurring proprietary reagent and software revenue. Application expansion, workflow improvements, the continued endorsement through peer-reviewed publications, a significant presence at trade conferences and an active digital platform are examples of key drivers of continued and growing market awareness and the expansion of our commercial footprint within new and existing customers.

Invest in new applications, content development and workflow improvements to drive pull-through. Our research and development team is dedicated to continuously developing and improving our instruments, reagents menu, software solutions delivering a full end-to-end workflow and expanding our menu applications. Our instruments are designed to be used with our proprietary reagents. Currently, we offer an extensive menu of reagents, kits, antibodies and other consumables across our PhenoCycler (formerly CODEX) and PhenoImager (formerly Phenoptics) platforms. Researchers have the ability to choose a mixture of our products to customize and design panels to study their biomarkers of interest. As our research and development team identify and launch new applications and biomarker content, we expect to drive incremental pull-through revenue from existing and new customers. Similarly, our workflow improvements and the acceleration of data analysis through continued software advancements will further increase customers' use of our platforms. We believe this incremental software revenue and consumable pull-through will help solidify our solutions with researchers and improve our recurring revenue base and margin profile.

Continued expansion of next-gen cloud-based data analysis and collaboration platform. We are focused on delivering rapid and advanced data analysis and visualization tools that accelerate the timeline from image acquisition to extracting biological meaning. Because many of our customers work on projects collaboratively both internally and externally, it is imperative to provide a platform that enables data sharing and collaboration, as well as powerful next-generation automated data analysis solutions. Our cloud-based Proxima software is an open solution designed to store and share images as well as support visualization and analysis solutions available in the market. The ability to enable artificial intelligence methods will help solve the growing big data challenges associated with spatial biology and enable the accelerated development of even more advanced analysis methods, thereby increasing the speed of collaborations

and biomarker discovery across laboratories. These improved analytical capabilities of our solutions will help increase further incremental use of our instruments and consumables.

Investment in clinical developments to demonstrate validity. Our collaborations with key opinion leaders in major cancer institutions, universities and large biopharma customers provide us with visibility into our platform’s potential to advance from translational research to true clinical use. The learnings from these institutions directly informs the required platform investments, clinical studies and regulatory strategy necessary to continue this advancement. Partnerships such as those with UCSF, Johns Hopkins and the Dana Farber Cancer Institute help drive the demonstration and validation of the clinical utility of our platform. In partnership with these and other key opinion leaders, we will establish clinical industry standards that further solidify our platform as the go-to clinical spatial biology solution. We plan to pursue the development and publication of data on our approach, similar to the approach taken by industry stakeholders involved in NGS-based tests for targeted cancer therapies. In parallel, through our continued partnership with key biopharma companies, particularly with their immuno-oncology franchises, we hope to establish our platforms as the preferred clinical trial biomarker solution and enable potential companion diagnostic partnerships in the long term. The centerpiece of our biopharma partnerships is our Advanced Biopharma Solutions (“ABS”) lab where we are running clinical trial tissue samples for their clinical trials. We continue to expand the projects within and across top biopharmaceutical companies. The ultimate goal of ABS is to continue to advance these biomarker partnerships from clinical trials to companion diagnostics. By providing our end-to-end workflows to industry leading partners and clinicians and directly participating in validating the clinical utility of our platform through peer-reviewed publications, we will establish an ongoing cadence and pipeline to further improve our workflows and deliver clinical proof points for our sales and marketing teams to accelerate adoption in the clinical diagnostic market.

Industry and Market Opportunity

Genomic analysis techniques have evolved from bulk genomics to single-cell analysis, and proteomic techniques such as mass spectrometry are advancing to provide cutting-edge unbiased approaches. In parallel, there is a growing need in areas such as immuno-oncology for more predictive biomarkers that can accurately predict a patient’s response to therapy. Spatial biology has emerged as a potential answer to these needs and represents one of the next major frontiers in life sciences research. It has become a key area of focus for researchers and clinicians alike as spatial phenotyping is able to measure protein and cellular interactions, while maintaining spatial context within a selected tissue sample. The result is a visual and computable measurement of histological patterns and an in-depth understanding of disease pathology, adding a new dimension of insights from discovery through clinical and translational research. By providing single-cell and subcellular resolution with spatial context within a single platform, researchers are able to achieve an understanding of how even small subpopulations of cells can play pivotal roles in disease pathology and patient outcome. In addition, recent innovations within proteomics have enabled unprecedented identification of novel proteins, expanding the need for spatial biology platforms that can functionally characterize these newly discovered proteins.

While spatial biology has many applications, spanning from early discovery through clinical research, the leading applications today include:

- *Immuno-oncology:* profiling of a tumor and its microenvironment.
- *Immunology:* supporting sub-specialties such as autoimmune disorders and transplant medicine.
- *Neuroscience:* characterizing neuroinflammation and neurodegeneration.
- *Infectious disease:* understanding the underlying biology of infectious diseases and immune response.
- *Developmental biology:* understanding tissue differentiation and stem cell biology to inform cell therapy development.
- *Dermatology:* immunophenotyping atopic dermatitis, psoriasis and similar dermatological conditions.

- *Other notable applications:* immunology research and broader disease pathology.

The spatial biology market sits within a larger life sciences technology market. Within this market, spatial biology is currently estimated to be over \$14 billion across the discovery, translational and clinical markets with immediate applications in cancer — especially immuno-oncology — as well as immunology, neurobiology, autoimmune disorders, infectious disease, and more. Each of these specific market segments have unique application and workflow needs and require fit for purpose product offerings. Today, our products and solutions are primarily sold into the cancer discovery and translational markets, representing a \$7 billion addressable market. We believe that our offerings can be readily extended to serve adjacent application areas, including immunology and neurobiology, as well as applications in clinical markets, certain of which may require obtaining FDA approval for our products. We currently estimate that within the spatial biology market, half of the opportunity is in the discovery and translational research markets and the other half is in the clinical market. With the growing adoption and innovation of spatial biology solutions and as spatial phenotyping is further validated through rapid acceleration of peer-reviewed publications, we believe the global TAM will continue to grow over the near and long-term horizon. Given the critical need for spatial biology, we believe our products are uniquely suited to address the specific needs of researchers across the continuum from discovery through translational and clinical markets.



Single-Cell with Spatial Context

Single-cell analysis enables the unbiased discovery of known and unknown cell types within a sample; it measures gene and protein expression on a cell-by-cell basis by preserving information about the cell of origin for each analyte measured. Adding spatial context to single-cell analysis provides a wealth of information to visualize tissue organization and disease pathology on a molecular level. Spatial phenotyping using multiplex immunofluorescence (“mIF”) allows for efficient mapping of cell-to-cell interactions and expression of key biomarkers across an entire tissue. Therefore, by integrating single-cell (and subcellular) resolution into a spatial context within a single solution, we provide both the “what” and “where” that can lead to critical insights that would otherwise be unattainable.

Pressing Need for more Predictive Biomarkers in Immuno-Oncology

Over the last several years, immuno-oncology has been among the most active therapeutic areas at large pharmaceutical companies with an estimated market size of \$33 billion in 2019 and over 5,000 active clinical trials. As a result, there has been a heightened focus and significant investment dedicated to the discovery of predictive biomarkers in immuno-oncology that provide more predictable measures of disease progression and response to therapy in the clinical setting. A recent research study, published in *JAMA Oncology* in 2019, assessed the probability of current biomarker technologies such as NGS, RNA analysis, standard histology and spatial phenotyping to predict patient response to immuno-therapies and found spatial phenotyping to be the superior method for biomarker analysis. In addition, the technology’s ability to monitor the physiological states of tumor cells over time, while maintaining integrity

of the tissue, enables researchers to find correlations to drug resistance and tumor mutations, which could meaningfully facilitate the discovery and development of the next generation of cancer diagnostics and therapies.

Market needs

While NGS and single-cell analysis have led to paramount scientific advances in de-mystifying the genome, and flow cytometry and mass spectrometry have enabled researchers to gain valuable data troves used for improved biomarker analysis, these technologies fail to provide any spatial context to the genes, proteins and cells measured. As a result, there is a clear and unmet need for spatial biology tools in the life sciences research market, from discovery through translational and clinical research. We view the emergence of spatial analysis as largely complementary to current technologies by offering deeper and more contextual insights into the genome, proteome and cellular activity.

Discovery researchers are limited by the tools available within their arsenal. In recent years, the research community has fully embraced single-cell solutions as they have delivered unprecedented insights and facilitated novel medical breakthroughs. However, while single-cell technologies continue to evolve and improve, providing greater insights into cellular makeup and biomarker expression, existing technologies require the full destruction of the tissue and sacrifice all spatial information. Thus, while significant value has been realized from single -cell analysis, spatial phenotyping promises to be the next-generation biomarker solution aiming to provide an in-depth understanding of biological function and disease pathology through a visual and computable map of histological patterns.

Clinical researchers are facing a lack of predictive biomarkers, particularly in immuno-oncology, which limit successful patient outcomes and efficiency in clinical development and deployment of novel therapies. Although targeted therapies have enjoyed many notable successes — to which NGS has been a key driver of this innovation — there remains a critical need for validated predictive biomarkers in immuno-oncology, which could disrupt the current paradigm for patient care and drug development. While significant efforts are being made in the discovery of more predictive biomarkers in immuno-oncology, there is still an ongoing and recognized unmet need. Just as NGS did for targeted cancer therapeutics, we believe spatial biology solutions will provide the necessary biological understanding and predictive power to further accelerate the field of immuno-oncology. All of our products and solutions sold today are for research use only. For future applications in clinical markets, our products may require FDA approval.

Our Platforms

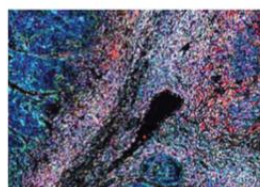
We offer distinct stand-alone as well as integrated platforms for spatial phenotyping, designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The PhenoCycler (formerly CODEX), is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The PhenoImager platforms (formerly Phenoptics), which includes the newly introduced Fusion instrument and HT instrument (formerly Vectra Polaris), are provide high-throughput with the automation and robustness needed for translational and clinical applications. Furthermore, the PhenoCycler and the PhenoImager Fusion can be integrated into a combined system, PhenoCycler-Fusion System, to enable spatial discovery at scale. Together the systems offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas. We believe through these platforms, we are fulfilling our mission to empower life sciences researchers and clinicians to better understand the onset, advancement, treatment, prevention and monitoring of disease.

PhenoCycler

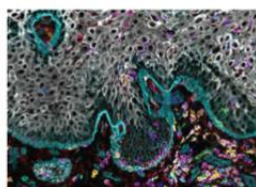
Our PhenoCycler (formerly CODEX) instrument is a powerful, yet simple, compact bench-top fluidics system that integrates with a companion microscope to automate image acquisition. It provides a comprehensive spatial biology solution, converting our customer's standard fluorescent microscope into an automated imaging system to produce ultra-high parameter multiplex images capable of providing in situ analysis at the cellular and subcellular scales. PhenoCycler is the only instrument capable of efficiently capturing greater than 100+ biomarkers in a single tissue sample at single-cell resolution, while preserving tissue architecture, making it the ideal instrument for biomarker discovery. With over

120 biobanks around the world today, most of the researchers utilizing these biobanks are using inferior products, limiting discovery and spending valuable resources. Originally developed in the lab of Dr. Garry Nolan at Stanford University, The PhenoCycler instrument uses antibodies conjugated to a proprietary library of oligonucleotides called Barcodes. This enables customizable panels of greater than 70 antibodies to be combined for a single tissue staining reaction.

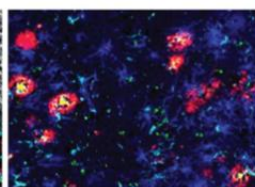
Not only is PhenoCycler a powerful tool for discovery, it is also highly intuitive and appeals to both novice and experts in the field of tissue analysis. The experimental workflow for PhenoCycler is summarized below.



Cancer
Immune cells infiltrating tumor in renal tissue



Immunology
Psoriasis skin sample showing immune cells infiltration

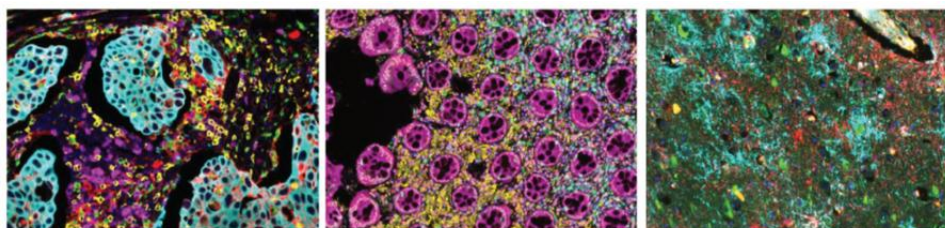


Neurobiology
Inflammation association with plaque formation in Alzheimer brain tissue

PhenoImager

For a deeper understanding of disease and patient response to therapy in large scale studies, translational and clinical researchers need a robust and automated spatial biology solutions. Our PhenoImager (formerly Phenoptics) platform enables researchers to visualize, analyze, quantify and phenotype cells in situ, in fresh frozen or FFPE tissue sections, and tissue microarrays (“TMAs”) utilizing an automated and high-throughput workflow. Proprietary multispectral imaging removes autofluorescence background and precisely measures fluorescent values for each biomarker with subcellular resolution, enabling researchers to capture the multiple interactions occurring between key biomarkers and cells. In contrast, inferior solutions on the market lack the necessary ability to precisely isolate and measure the different fluorescence channels due to color bleed. Users of our platform have confidence in the accuracy of the quantified interactions occurring in the biology of the cell. In addition, just as with PhenoCycler (formerly CODEX), we offer a

simple and easy workflow to stain, image and then analyze tissue samples for the high throughput translational and clinical applications.



Cancer
Immune cells engage lung cancer suppressed by PD-1/PD-L1 checkpoint signaling

Immunology
Immunosuppressive mechanisms driving irritable bowel disease

Neurobiology
Brain cells responding to head trauma

- The Akoya PhenoImager instruments product line is currently comprised of the following scanners: the Mantra 2 Quantitative Pathology Workstation, the Vectra 3 Automated Quantitative Pathology Imaging System, and two PhenoImager instruments, namely the PhenoImager Fusion, and PhenoImager HT (formerly Vectra Polaris) Automated Quantitative Pathology Imaging System. The PhenoImager Fusion is the most recent in this family of microscopes and represents our high-speed whole-slide scanner ideal for everyday use of 7-color imaging and easy integration with the PhenoCycler instrument to enable ultrahigh-plex imaging solution in the translational and clinical markets.
- *Mantra 2 Quantitative Pathology Workstation*: The Mantra 2 Quantitative Pathology Workstation is a single slide manual microscope that incorporates multispectral imaging technology, image acquisition and analysis with the inForm software and can be used with a variety of reagents including Akoya's Opal reagent kits (as further described below). This instrument is compact and ideal for initial multispectral

imaging for assay development prior to scale up on our PhenoImager HT and is easily integrated with our PhenoImager software.



**Mantra Quantitative
Pathology Workstation**

- *Vectra 3 Automated Quantitative Pathology Imaging System:* Vectra 3 is an automated microscope with six-slide capability and pioneered the ability to accurately detect and measure multiple weakly expressed and overlapping biomarkers on a single tissue at the single cell level, allowing for insight to biomarker expression and morphometric characteristics in intact tissue sections. Using our PhenoImager software paired with our Vectra 3 instrument, researchers are able to automatically identify specific tissue types, accelerating research efforts.



**Vectra 3 Automated Quantitative
Pathology Imaging System**

- *PhenoImager Fusion*: is an automated 4-slide microscope, that enables whole-slide, multispectral imaging (MSI) at single-cell resolution at unprecedented speed. Ideal for standard throughput and high-plex applications, the PhenoImager Fusion can function as a stand-alone ultrafast imager for spatial phenotyping applications or can be integrated with the PhenoCycler instrument (formerly CODEX) to form the PhenoCycler-Fusion System for spatial discovery at scale by providing significant improvements in the speed of the workflow.



PhenoImager Fusion (stand-alone) or Integrated into the PhenoCycler-Fusion System

- *PhenoImager HT (formerly Vectra Polaris) Automated Quantitative Pathology Imaging System:* PhenoImager HT is our premier and most highly cited digital pathology slide scanner featuring MOTiF whole-slide multispectral scanning of up to 7 biomarkers with an 80-slide capacity. Because of the proprietary optical components coupled to our reagents and software, it is uniquely able to accurately detect and measure weakly expressed and overlapping biomarkers within a single tissue section. It also supports multiple applications including Hematoxylin and Eosin (“H&E”), immunohistochemistry (IHC), mIF on fresh frozen or FFPE tissue section or TMA. The whole slide multispectral imaging capability creates a simpler, more robust workflow as fields of view do not need to be selected, eliminating selection bias and accelerating the time to result. The PhenoImager HT can also scan brightfield slides for downstream analysis, such as traditional DAB IHC, or scan regions of interest across a whole slide with up to 9 biomarkers. The fully automated process provides a recorded whole slide scan, meaning no re-scans and eliminating redundant work.



PhenoImager HT

Our Proprietary Reagents

PhenoCycler (formerly CODEX) Reagents

- *PhenoCycler Antibodies:* We offer a rapidly growing menu of validated antibody content for use with PhenoCycler. Today, our menu includes over 70 unique antibodies validated for human FFPE tissue, human fresh frozen tissue, and/or mouse fresh frozen tissue.
- *PhenoCycler Antibody Conjugation Kit:* We offer an antibody conjugation kit that allows customers to label their own proprietary antibodies of interest and modify them for use with PhenoCycler. The antibody conjugation kit can be used to add antibodies to existing content or develop entirely new content for new applications.
- *PhenoCycler Workflow Reagents:* We provide the full suite of additional proprietary buffers and reagents needed as part of the full PhenoCycler workflow.

PhenoImager (formerly PhenoOptics) Reagents

We offer a number of proprietary reagents required for the use of our platforms that are a key part of the overall solution for our customers. These reagents include our Opal Predesigned Panels, Opal and Tyramide Signal Amplification (TSA) Detection Reagents, and Essentials for Staining.

- *Opal Predesigned Panels:* Our Opal MOTiF 6-plex / 7-color multiplexed immunofluorescence (mIF) panels are designed for automated staining followed by imaging using the PhenoImager HT and PhenoImager Fusion Imaging Systems and offer pre-optimized, ready-to-use antibody panels and detection reagents. These kits contain the six most clinically relevant biomarkers used in the detection of lung cancer and melanoma and are tailored for translational immuno-oncology research, offering speed and simplicity. These panels are provided with a fully validated plug-and-play mIF staining protocol which allows for flexibility to adjust signal intensity strength for each sample's unique biomarker expression levels. Additionally, we offer several predesigned panel kits which can be used for manual staining.
- *Opal and TSA Detection Reagents:* Through our Opal fluorescent detection kits, we make multiplexing accessible to anyone who works with standard immunohistochemistry (IHC). Unlike other offerings in the market, researchers using our Opal dyes can select antibodies at will for simultaneous mIF detection based on performance rather than species, providing greater biological insights to our customers for their research. Opal kits are optimized for reliable spectral unmixing and simultaneous measurement of three to eight protein biomarkers and a nuclear stain, which produces greater reliability than competitive fluorescent dye products on the market. Our Tyramide Signal Amplification (TSA) Detection Reagents provide signal amplification for a variety of tissue-based imaging applications, including mIF and in situ hybridization (ISH). Opal dyes incorporate TSA technology to allow researchers to gain more information from precious and scarce samples while identifying multiple cell phenotypes and retaining spatial and morphological context, which is lost with bulk measurement techniques and flow cytometry. Opal detection kits can allow researchers to be confident in the data they are generating while preserving precious tissue for further studies.
- *Essentials for Staining:* Akoya offers high quality, stand-alone reagents which are essential for Opal mIF staining, including antigen retrieval buffers, antibody blocking buffers to reduce non-specific binding and secondary antibodies.

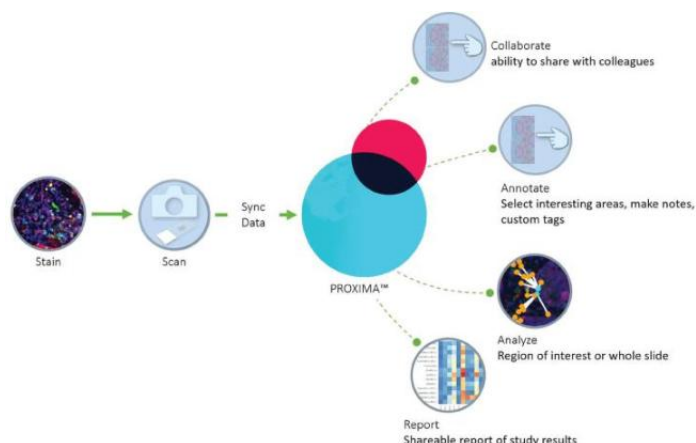
Our Software Services

We offer a number of different software options for our solutions to provide customers with the flexibility and ability to perform their desired work.

Proxima

- Proxima is a cloud-based platform designed to store, analyze and share spatial data. Tissue images generated by our PhenoCycler and PhenoImager platforms can be easily and quickly uploaded in Proxima for storage, sharing and analysis. Proxima is designed to not only perform rapid cloud-based analysis but also integrates with our desktop tissue analysis software for those customers preferring local analysis with our inForm, PhenoChart, and phenoptrReports platforms. The instant and distributed access of experimental results and the ability to collaborate globally through Proxima improves our customer's productivity, ongoing use of our platforms and provides a growing and recurring revenue stream. Furthermore, using application programming interface (API), Proxima can integrate with third-party or user developed data analysis solutions. This provides

infinite flexibility in the number of data analysis solutions the end user can choose from to meet their application needs.



Analysis Software

- *inForm Tissue*: A patented automated image analysis software package for accurately visualizing and quantifying biomarkers in tissue sections. Our software can be tailored to enable biomarker analysis in both solid tissues and TMAs from H&E, multiplexed IHC, and multiplexed immunofluorescence data. The automated, trainable algorithms permit detection, cell and tissue segmentation and identification of multiple markers within a sample. Once trained, inForm will locate and analyze user-specified regions automatically across an entire image or multiple images. Large numbers of images can be rapidly batch processed, allowing analysis that might have taken days to be done in a matter of minutes.
- *phenoptr & phenoptrReports*: Additional software to enhance the experience with our platforms. Phenoptr provides functions that consolidate and analyze output tables created by inForm software, while phenoptrReports generates shareable reports and visualizations based on the phenoptr output in an intuitive front-end GUI.

Our Biopharma Services

Our contract research services laboratory, which we call Advanced Biopharma Solutions (“ABS”), enables biopharma clients to access the PhenoImager (formerly Phenoptics) platform in a fee-for-service model to support the discovery and validation of predictive biomarkers to elucidate drug mechanism of action, better understand the underlying biology of disease in translational research studies and perform patient stratification and selection. The services we offer span the entire PhenoImager workflow and include sample preparation, tissue staining, tissue imaging, image analysis pathological review and reporting. Our ABS lab leverages tissue autostainers, the PhenoImager HT (formerly Vectra Polaris) and our proprietary software to provide automation across the entire workflow. Our strategic focus is partnering with top biopharma companies on clinical trials and retrospective and prospective clinical studies. Ongoing expansion of this business and progression of our partnerships to later stage clinical trials may ultimately lead to companion diagnostic partnerships with these top biopharma companies. On November 30, 2021, we announced that our ABS laboratory, based in Marlborough, Massachusetts, received its Certificate of Registration from the Clinical Laboratory Improvement Amendments (“CLIA”) program, following the receipt of a Massachusetts Department of Public Health clinical laboratory license. This certification enables our ABS lab to support later stage clinical trial studies with our biopharmaceutical partners. CLIA certification affirms that our ABS lab processes and services operate under high quality standards and provides a framework for assay development and validation that consistently meets

guidelines for accuracy, precision, specificity, sensitivity, and reproducibility. This milestone is an important step towards advancing the company's platforms toward clinical use. It further positions us as an attractive partner for biopharmaceutical companies seeking to incorporate our ground-breaking spatial biology technologies into their clinical research, most notably in the expanding field of cancer immunotherapy.

Suppliers and Manufacturing

We outsource the manufacturing and distribution of our instruments and reagents. We use one contract manufacturer to produce our PhenoImager (formerly Phenoptics) instruments, another to produce our PhenoCycler (formerly CODEX) instruments, and a third to produce all reagent kits. The manufacturers procure the majority of materials needed for the finished good production from many different suppliers, with some of those suppliers located in the US and others located outside the U.S. See "Risks Related to Our Business and Strategy — Our third-party manufacturers are dependent upon third-party suppliers, including single source suppliers, making us vulnerable to supply shortages and price fluctuations, which could harm our business."

Distribution to customers generally occurs from the manufacturing location. We manufacture one sub-assembly related to the Phenoptics (now rebranded as PhenoImager) instruments in our Marlborough, MA facility. Inventory is generally held at the contract manufacturer locations or at a third-party warehouse in Massachusetts.

Employees

As of December 31, 2021, we had 319 employees, including 89 in research and development, 137 in sales, marketing, support and business development, 69 in general and administrative and 24 in contract research, manufacturing and field service support. None of our United States employees are represented by a labor union or covered under a collective bargaining agreement and we consider our relationship with our employees to be positive.

Facilities

Our corporate headquarters, research and development facilities and manufacturing and distribution centers are located in Marlborough, Massachusetts and Menlo Park, California, where we lease in aggregate approximately 48,833 and 20,675 square feet of space, respectively, under leases expiring between December 31, 2023 and May 31, 2027. We do not own any real property and believe that our current facilities, together with our global headquarters and research and development center, 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.

Competition

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

However, we believe we are substantially differentiated from our competitors for many reasons, including our position as a leader in a large and growing market, proprietary technologies, rigorous product development processes, scalable infrastructure and positive customer experience. We believe our customers favor our products and company because of these differentiators.

For further discussion of the risks we face relating to competition, see the section titled "Risk Factors — Risks Related to our Business and Industry — Our market is highly competitive, and if we cannot compete successfully with our competitors, we may be unable to increase or sustain our revenue, or achieve and sustain profitability."

Government Regulation

We do not currently offer any products or services intended to provide clinical diagnostic or health assessment information in relation to individual patients, for use by those patients or their healthcare providers in connection with treatment.

We offer technology, products, and services directly to our customers or on a contractual basis to a broad range of customers in the life sciences industry. Our customers may themselves be directly regulated by the U.S. Food and Drug Administration (“FDA”), the Centers for Medicare & Medicaid Services under the Clinical Laboratory Improvement Amendments (“CLIA”), or similar foreign or state regulatory authorities.

We market certain of our products under the FDA exemptions applicable to “Research Use Only” (“RUO”) in vitro diagnostic (“IVD”) products. To qualify for this exemption from the otherwise applicable FDA medical device requirements, IVDs must either themselves be in the laboratory research stage of development; or be instruments, systems, or reagents that are labeled for RUO and intended for use in the conduct of nonclinical laboratory research with goals other than the development of a commercial IVD product, i.e., these products are used to carry out research and are not themselves the object of the research. To make clear that these products are exclusively for research purposes, the FDA requires them to include labeling that is prominently placed to state: “For Research Use Only. Not for use in diagnostic procedures.” RUO products include those intended for use in discovering and developing medical knowledge related to human disease and conditions. For example, instruments and reagents intended for use in research attempting to isolate a gene linked with a particular disease may be labeled for RUO when such instruments and reagents are not intended to produce results for clinical use. FDA guidance describes the agency’s position on RUOs, including labeling and distribution expectations to remain consistent with RUO status. FDA has advised that it will evaluate the totality of the circumstances to determine if it agrees a product is RUO.

In addition, customers may impose contractual requirements relating to, or we may otherwise determine that it is commercially beneficial for us to voluntarily follow, certain regulatory and industry standards such as FDA good manufacturing practices and International Standards Organization (“ISO”) quality or other standards.

In the future we may pursue or play a role in the development of “companion diagnostics,” or perform clinical testing using companion diagnostics. A companion diagnostic is a medical device, often an in vitro diagnostic device, which provides information that is essential for the safe and effective use of a corresponding drug or biological product. The test helps a health care professional determine whether a particular therapeutic product’s benefits to patients will outweigh any potential serious side effects or risks. Companion diagnostics would be subject to a much more significant degree of potential FDA and CMS/CLIA and state laboratory regulation than our current product and service offerings.

On November 30, 2021, we announced that our ABS laboratory located in Marlborough, Massachusetts received its Certificate of Registration from the CLIA program. CLIA establishes rigorous quality standards for all laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease, or the impairment of, or assessment of health. Clinical laboratories must obtain a CLIA certificate based on the complexity of testing performed at the laboratory, such as a Certificate of Compliance for high-complexity testing. CLIA also mandates compliance with various operational, personnel, facilities administration, quality and proficiency requirements, intended to ensure that their clinical laboratory testing services are accurate, reliable and timely. Compliance is subject to verification through inspections and audits.

CLIA provides that a state may adopt laboratory regulations that are more stringent than those under federal law, and a number of states have implemented their own more stringent laboratory regulatory requirements. Several states additionally require the licensure of out-of-state laboratories that accept specimens from those states.

If a clinical laboratory is found to be out of compliance with CLIA certification or a state license or permit, the applicable regulatory agency may, among other things, suspend, restrict or revoke the certification, accreditation, license or permit to operate the clinical laboratory, assess civil monetary penalties and impose specific corrective action plans, among other sanctions.

Intellectual Property

Protection of our intellectual property is fundamental to the long-term success of our business. We believe that our continued success depends in large part on our proprietary technologies, the skills of our employees, and the ability of our employees to continue to innovate and incorporate advances into our products and services. We regard our services and our products, including our reagents, our instruments, and our developed software, as proprietary.

We rely primarily on a combination of patent, copyright, trademark, and trade secret laws, as well as contractual provisions with employees and third parties, to establish and protect our intellectual property rights. Our patent strategy is to pursue broad protection for key technologies, supplemented by additional patent filings covering conceptual methods, specific aspects of current and proposed products, and forward-looking applications and technological developments, and licensing of certain patent families from third parties. We also engage in strategic analysis of our owned and licensed patent assets and pursue additional patent claims from our existing portfolio that may provide us with market advantages. We do not rely heavily on trade secret protection but do maintain a certain amount of in-house know-how that is not disclosed publicly.

We provide products to customers and commercial and academic collaborators pursuant to agreements with non-disclosure terms and other conditions that impose restrictions on use and disclosure. We further make use of contractual obligations that require our employees, consultants and contractors with access to our proprietary information to execute nondisclosure, non-competition and assignment of intellectual property agreements, to preserve our intellectual property rights. We generally control access to our proprietary and confidential information through the use of internal and external controls that are subject to periodic review.

Our key tissue labeling technology CODEX (now rebranded as PhenoCycler) originated in the laboratory of Professor Garry P. Nolan at Stanford, who is a board member. Two families of patents covering this technology are exclusively licensed from Stanford.

The first patent family generally covers the “CODEX 1” labeling technology in which an antibody conjugated to an oligonucleotide barcode binds to a target in a tissue sample, and extension of a primer hybridized to the barcode generates a molecular reporter that emits a detectable fluorescent signal. The patent family covering the CODEX 1 technology includes patents directed to compositions generated by use of the CODEX 1 technology as well as methods of using the CODEX 1 technology. Patents directed to the methods of using the CODEX 1 technology include U.S. patents (expiring in 2034-2036) and European patents (expiring in 2035) in Germany, France, United Kingdom and Sweden. The patent directed to the compositions generated by use of the CODEX 1 technology is a U.S. patent expiring in 2034. The second patent family generally covers the “CODEX 2” labeling technology in which an antibody conjugated to an oligonucleotide binds to a target in a tissue sample, and a second oligonucleotide conjugated to a dye hybridizes to the first oligonucleotide to generate a fluorescent molecular reporter. The patent family covering the CODEX2 technology includes a U.S. patent directed to methods of using the CODEX 2 technology, which expires in 2037.

Our key tissue imaging technology Phenoptics® (now rebranded as PhenoImager) originated at Cambridge Research and Instrumentation Inc. (“Cambridge Research”), a company that was later acquired by Caliper Life Sciences, Inc. (“Caliper Life Sciences”). Caliper Life Sciences was subsequently acquired by PKI. We purchased key patent assets covering this technology from PKI, Cambridge Research and Instrumentation and Caliper Life Sciences, Inc., and also licensed certain supplemental patents from PKI, Cambridge Research and Instrumentation and VisEn Medical Inc. Some of the supplemental patents are exclusively licensed and others are non-exclusively licensed.

The PhenoImager technology is embodied in the Mantra 2 Quantitative Pathology Workstation, the Vectra 3 Automated Quantitative Pathology Imaging System, the PhenoImager Fusion System, and the PhenoImager HT Automated Quantitative Pathology Imaging System, and in the inForm® Tissue software that is supplied as part of these systems and is also available independently, or the PhenoImager products. Each of the above systems is a complex combination of imaging components, sample and reagent handling components, and proprietary software. Components

of these systems and software that are protected by specific issued U.S. and foreign utility patents include, as of December 31, 2021:

- software that performs classification of cells and other components of biological tissues and is protected by four owned U.S. patents expected to expire between 2026 and 2028, and owned patents in China, India and Europe expected to expire in 2026;
- systems (including sample handling components) and software that perform dilute eosin staining and imaging of tissue samples and are protected by one owned U.S. patent expected to expire in 2032, and owned patents in Canada, Japan and Europe expected to expire in 2030;
- imaging components and software that perform whole slide imaging of tissue samples and registration of multispectral whole-slide images and are protected by our owned U.S. patent expected to expire in 2034, and also by our owned patents in China and Europe expected to expire in 2034;
- sample- and reagent-handling components, hardware control components, and software that performs pure spectrum determination for spectral unmixing of complex multispectral tissue images and are protected by one owned U.S. patent expected to expire in 2036, and also by owned patents in China and Europe expected to expire in 2034;
- imaging components and software that performs RNA detection in tissue samples and are protected by an owned U.S. patent expected to expire in 2032;
- software that performs real-time spectral unmixing of large multispectral images and is protected by two owned U.S. patents expected to expire between 2030 and 2031;
- imaging components, hardware control components, and software that performs dynamic, spectrally-dependent adjustment of the imaging components for multispectral image acquisition and are protected by one owned U.S. patent expected to expire in 2030 and one owned European patent expected to expire in 2027;
- software that identifies nuclear and non-nuclear regions in a tissue sample stained with two or more counterstains and is protected by one owned U.S. patent expected to expire in 2034;
- imaging components and software that performs spectral unmixing operations on multispectral tissue images to generate component images and are protected by six U.S. patents expected to expire between 2023 and 2026, and four patents in China and Europe expected to expire in 2023, all exclusively in-licensed from PKI; and
- software that decomposes multispectral images of tissue samples stained with an immunohistochemical stain, eosin, and a counterstain, determines a region of interest, and quantifies the immunohistochemical stain in the region of interest and is protected by one U.S. patent exclusively in-licensed from PKI expected to expire in 2029.

We also own patent assets (issued U.S. and foreign patents, pending patent applications, provisional patent applications that will be converted to utility applications, and licensed patent assets from third parties) covering technologies developed internally that are tied to products in development or evaluation for possible commercialization. Many of these applications are not yet open to public inspection.

As of December 31, 2021, our owned patent assets included approximately 17 issued U.S. patents, 13 pending U.S. patent applications (including four U.S. provisional patent applications), 51 granted patents in foreign jurisdictions (including Austria, Canada, China, the European Patent Office (the "EPO"), France, Germany, Ireland, India, Italy, Japan, Switzerland, and the United Kingdom), two pending patent applications at the EPO and four pending Patent Cooperation Treaty applications.

The subject matter covered by our owned patents and patent applications includes systems and methods for sample analysis and classification, methods for spectral unmixing of spectrally dense fluorescence signals, modules and systems for performing dynamic optical correction, methods for training machine classifiers, methods and systems for RNA detection, methods for visualizing and enhancing visualization of samples, methods for visualizing compartments within cells, systems and methods for whole-slide imaging, methods for automated adjustment of imaging systems, systems and methods for multiple- image registration, systems and methods for extraction of pure spectra from sample images, methods for specialized allocation of fluorescence bands within a detection window, systems for low- volume flow cell-based sample analysis, methods for enzyme-mediated amplification of detection signals, methods for detecting receptor-coding nucleic acid segments, methods for selective labeling of targets in samples, compositions and methods for selectively targeting certain analytes, and imaging methods using nanobody probes.

Excluding any potential patent term extension, our currently issued owned patents are expected to expire between 2026 and 2036. See “— Licenses” for more information regarding the agreements under which certain of our patents are licensed.

We also seek to protect our brands through registration of trademark rights. As of December 31, 2021, we owned approximately 12 registered trademarks in the United States, 14 registered foreign trademarks, and six pending U.S. trademark applications. Our registered trademarks and pending trademark applications include trademarks and pending trademark applications for The Spatial Biology Company, Motif, Akoya Biosciences, CODEX, Opal, Vectra, Proxima, The Spatial Biology Solution, The Spatial Biology Platform, The Spatial Biology Solution, PhenoCycler, PhenoCode, PhenoStainer, and PhenoImager, and our logos for Akoya Biosciences, CODEX, and inForm.

To supplement protection of our brand, we have also registered several internet domain names.

See “Risk Factors — Risks Related to Intellectual Property” for more information regarding the risks relating to intellectual property.

Licenses

Stanford University

In November 2015, we entered into an exclusive (equity) agreement with Stanford, pursuant to which Stanford granted us an exclusive, sublicensable (subject to certain requirements), worldwide license under certain patent rights owned by Stanford relating to oligonucleotide-based biological sample labeling to make, use and sell products and services that are covered by such patent rights, or the Stanford Licensed Products, in all fields of use. The patents are related to oligonucleotide-based labeling technology, and we refer to this technology as the CODEX 1 technology.

In November 2016, the agreement was amended to include an exclusive, sublicensable (subject to certain requirements), worldwide license granted to us by Stanford under additional patent rights owned by Stanford relating to oligonucleotide-based biological sample labeling to make, use, and sell products and services that are covered by such patent rights, in all fields of use (such products and services are also included in the Stanford Licensed Products). We refer to the technology disclosed in the additional patents as the CODEX 2 technology. We are obligated to use commercially reasonable efforts to develop, manufacture, sell and develop markets for Stanford Licensed Products, including with respect to accomplishing specific goals with specific deadlines set forth in the agreement.

We made one-time upfront payments of \$50,000 in connection with the initial execution of the agreement and \$13,000 in connection with executing the amendment. We also granted to Stanford 213,333 shares of our non-voting common stock, representing at least 2% of our capitalization. We are also required to pay Stanford annual license maintenance fees in the mid-five figures. We further agreed to make one-time milestone payments (i) at issuance of the first licensed patent included in the original 2015 agreement, (ii) at issuance of the first licensed additional patent included in the 2016 amendment to the agreement, (iii) at the issuance of the first licensed additional patent included in the 2021 amendment to the agreement, (iv) upon the first sale of a Stanford Licensed Product covered by the additional licensed patents included in the 2021 amendment to the agreement and (v) upon the sale of more than \$500,000 of Stanford Licensed Products in a calendar year. The aggregate amount of these milestone payments is \$120,000. We also

agreed to make a payment of \$10,000 as an execution fee for the 2021 amendment to the agreement. We are also obligated to pay Stanford a low single-digit percentage royalty on net sales of Stanford Licensed Products and a portion of any of our sublicensing income.

Subject to Stanford's approval, we control the prosecution and maintenance of the licensed patents and, if we are developing Stanford Licensed Products, have the first right to institute a suit, or defend any declaratory judgment action, related to third-party infringement of the licensed patents.

The agreement will continue until the expiration, revocation, invalidation or abandonment of the last patent or patent application that is licensed to us, unless terminated earlier in accordance with its terms. The last licensed patent is set to expire in 2036. We may terminate the agreement at any time by providing advance written notice of at least 30 days. Stanford may terminate the agreement if we violate or fail to perform any material terms thereof or for our failure to achieve certain milestones or use commercially reasonable efforts to develop and commercialize the Stanford Licensed Products and fail to cure such violation or failure within 30 days of written notice from Stanford.

PerkinElmer Heath Sciences, Inc., Cambridge Research & Instrumentation, Inc., and VisEn Medical Inc.

In September 2018, we entered into a license and royalty agreement with PKI, Cambridge Research, and VisEn Medical Inc., or, collectively, the Licensor, pursuant to which the Licensor granted us an exclusive, sublicensable (subject to certain conditions), worldwide license within certain fields of use under certain patent rights and know-how owned by the Licensor to make, use, and sell products within such fields of use, as well as a similar, non-exclusive license under certain other patent rights. The licensed patents relate to methods and systems for analyzing biological samples, and in particular, slide-mounted tissue samples.

We agreed to pay the Licensor royalties ranging from a low single-digit to high single -digit percentage on net sales of products covered by either license on a decreasing schedule that ends upon the expiration of the last valid claim of the licensed patents, at which point the agreement shall terminate and our rights and licenses thereunder shall survive on a fully-paid up, royalty -free basis. The last licensed patent is set to expire in 2036. Neither we nor the Licensor has the right to terminate the agreement prior to such expiration.

The Licensor has the first right to control the prosecution, maintenance and defense of the licensed patents. We have the first right to enforce any exclusively licensed patent with respect to third -party infringement occurring solely within our licensed field of use, and Licensor has the first right to enforce the license patents with respect to any other third-party infringement. If any exclusively licensed patent is believed to be infringed by the development, manufacture, use, offer for sale, sale or importation of a product by the third-party solely inside field of use worldwide, the Licensor has the first right to institute, prosecute and control any action or proceeding with respect to such infringement of such patent.

University of Washington

In June 2018, we entered into an exclusive patent license agreement with the University of Washington, or the University, pursuant to which the University granted us an exclusive, sublicensable (subject to certain conditions), worldwide license in certain fields of use under certain patent rights owned by the University relating to technology for molecular profiling of cells and tissue specimens, to make, use and sell products that are covered by such patent rights, or the Washington Licensed Products. The licensed patents are related to the detection of biomolecules, particularly proteins and nucleic acids, in biological samples.

We made an upfront payment of \$15,000 following execution of the agreement, and we are obligated to pay the University a low single-digit percentage running royalty on net sales of Washington Licensed Products, subject to certain minimum annual royalty payments and potential reductions based on a royalty-stacking allowance for certain third -party rights that are required to be obtained to make, use, sell or import Washington Licensed Products. We are also obligated to make cumulative one-time payments to the University of \$100,000 upon the achievement of certain commercial milestones, as well as sharing a portion of any of our non-royalty sublicensing income.

We are obligated to use commercially reasonable efforts to commercialize the inventions covered by the licensed patent rights and to make and sell Washington Licensed Products as soon as practicable and maximize sales thereof, including with respect to accomplishing specific goals with specific deadlines set forth in the agreement.

The University must conduct the prosecution of the licensed patents per our instructions and at our expense, subject to certain exceptions. We have the first right to defend and enforce the licensed patents at our expense.

The agreement shall expire when all licensed patent rights have terminated, unless terminated earlier in accordance with the terms thereof. The last licensed patent is set to expire in 2032. We may terminate the agreement at any time by providing advance written notice of at least 60 days. The University may terminate the agreement if we violate or fail to perform any material term thereof and fail to cure such violation or failure within 60 days of written notice from the University. In addition, the University may terminate the exclusive license agreement upon 10 days' prior written notice upon certain insolvency-related events involving us or should we challenge the validity of the licensed patents.

Legal Proceedings

From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. We are not presently a party to any legal proceedings that we believe, if determined adversely to us, would have a material adverse effect on our business, financial condition, operating results, or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources, and other factors.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information in this Annual Report on Form 10-K, including the section titled "Management's discussion and analysis of financial condition and results of operations" and our consolidated financial statements and related notes, before making a decision to invest in our common stock. Our business, results of operations, financial condition and prospects could also be harmed by risks and uncertainties that are not presently known to us or that we currently believe are not material. If any of the risks actually occur, our business, platform, reputation, brand, results of operations, financial condition and prospects could be materially and adversely affected. In such event, the market price of our common stock could decline, and you could lose all or part of your investment.

Risks Related to Our Business and Strategy

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

We have incurred significant losses since our inception. For the years ended December 31, 2021 and 2020, we incurred net losses of \$42.9 million and \$16.7 million, respectively. As of December 31, 2021, we had an accumulated deficit of \$96.1 million. We expect that our operating expenses will continue to increase as we grow our business and will also increase as a result of our becoming a public company. Since our inception, we have financed our operations primarily from private placements of our convertible preferred stock, the incurrence of indebtedness, the sale of our common stock in our IPO, and to a lesser extent, revenue derived from our PhenoCycler (formerly CODEX) and PhenoImager (formerly Phenoptics) platforms. We have devoted substantially all of our resources to the development and commercialization of our PhenoCycler and PhenoImager platforms and to research and development activities related to advancing and expanding our scientific and technological capabilities. We will need to generate significant additional revenue to achieve and sustain profitability, and even if we achieve profitability, we cannot be sure that we will remain profitable for any substantial period of time. We may never be able to generate sufficient revenue to achieve or sustain profitability and our recent and historical growth should not be considered indicative of our future performance.

Our success depends on our ability to drive adoption of our PhenoCycler and PhenoImager platforms.

Our ability to market and sell our PhenoCycler and PhenoImager platforms and increase awareness of spatial biology technology will depend on a number of factors, including:

- our ability to drive adoption of our platforms and complementary products by academic, government, biopharmaceutical, biotechnology and other institutions;
- our ability to increase awareness of the capabilities of our technology and solutions;
- whether our platforms reliably provide advantages over legacy and other alternative technologies and are perceived by customers to be cost effective;
- prices we charge for a direct purchase of, or other access to, our platforms and complementary products;
- the relative reliability and robustness of our platforms and complementary products as a whole and the components of both;
- our ability to develop new workflows, products, services and solutions for customers;
- the impact of our investments in product innovation and commercial growth;
- negative publicity regarding our or our competitors' products resulting from defects or errors; and
- our ability to further validate our technology through research and accompanying publications.

We cannot assure you that we will be successful in addressing each of these criteria or other criteria that might affect the adoption of our solutions. If we are unsuccessful in achieving and maintaining market acceptance of our solutions and spatial biology technology, our business, financial condition, results of operations and prospects could be adversely affected.

Our revenue has been primarily generated from sales of our PhenoCycler and PhenoImager platforms and reagents. If our products do not continue to gain market acceptance, our revenue could be materially and adversely impacted.

We made our first commercial sale of PhenoCycler in the United States in January 2019, and we began selling PhenoImager instruments in October 2018 following our acquisition of this product line from PKI. We currently generate the majority of our revenue from the sale of our PhenoCycler and PhenoImager platforms, reagents and instrument services. Direct sales of PhenoCycler and PhenoImager platforms and consumables together accounted for 78% and 76% of our revenue for the years ended December 31, 2021 and 2020, respectively. We expect that, for at least the foreseeable future, direct sales of our PhenoCycler and PhenoImager platforms and consumables will continue to account for a substantial portion of our revenue while we develop additional products for our spatial biology platforms. As technologies change in the future for research equipment in general and in spatial biology specifically, we will be expected to upgrade or adapt our products in order to keep up with the latest technology and there can be no assurance we will be able to do so. Our sales expectations are based in part on the assumption that our platforms will continue to gain market acceptance as spatial biology becomes more accepted which in turn will increase the associated purchases of our consumables. If sales of our platforms fail to materialize so will the related consumable sales and associated revenue. If our PhenoCycler and PhenoImager platforms fail to achieve sufficient market acceptance or sales of our consumables decrease, our revenue could be materially and adversely impacted.

If we fail to enter into new customer relationships or maintain and expand existing relationships, our future operating results would be adversely affected as a general matter.

Our customer base includes academic, government, biopharmaceutical, biotechnology and other institutions. Our success will depend upon our ability to increase our market penetration among these customers and to expand our market by developing and marketing new products and new applications for existing products. As we continue to scale our business, we may find that certain of our products, certain customers or certain markets, including the biopharmaceutical market, may require a dedicated sales force or personnel with different experience than those we currently employ. Identifying, recruiting and training additional qualified personnel would require significant time, expense and attention.

Our ability to grow our market penetration in existing markets will also depend on our ability to attract new customers by increasing awareness of the capabilities of our spatial biology technology and solutions. Future revenue growth will also depend on our ability to develop and market new workflows, technologies and solutions to meet our existing customers' evolving needs, as well as our ability to identify new applications and customers for our technology in additional markets. If we are unable to drive new customer conversion to our PhenoCycler and PhenoImager platforms, expand adoption of spatial biology technology into new industries and markets, expand the application of workflows across our customers' value chains, increase the usage and value of our workflows to our customers or develop and monetize proprietary biological assets, then our business, financial condition, results of operations and prospects could be adversely affected.

We cannot assure investors that we will be able to further penetrate our existing market or that the market will be able to sustain our current and future product offerings. Any failure to increase penetration in our existing markets would adversely affect our ability to improve our operating results.

Our operating results have fluctuated significantly in the past and 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.

Our quarterly and annual operating results have fluctuated significantly in the past and may fluctuate significantly in the future, 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:

- the level of demand for our platforms, consumables and technologies, which may vary significantly;
- the length of time of the sales cycle for purchases of our systems, including lead time needed to develop custom workflows or to manufacture component parts;
- the timing and cost of, and level of investment in, research, development, regulatory approval and commercialization activities relating to our products, which may change from time to time;
- the start and completion of projects in which our solutions are utilized;
- the relative reliability and robustness of our platforms, including our technologies;
- the introduction of new products or product enhancements by us or others in our industry;
- expenditures that we may incur to acquire, develop or commercialize additional products and technologies;
- changes in governmental regulations or in the status of our regulatory approvals or applications;
- future accounting pronouncements or changes in our accounting policies; and

- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

The effect of one of the factors discussed above, or the cumulative effects of a combination of 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. Stockholders should not rely on our past results as an indication of our future performance.

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

We completed our first commercial PhenoImager sale in October 2018 and PhenoCycler sale in January 2019. Our limited operating history and evolving business make it difficult to evaluate our future prospects and the risks and challenges we may encounter and may increase the risk that we will not grow at or near our expected rates. In addition, we operate in highly competitive markets characterized by rapid technological advances and our business has, and we expect it to continue, to evolve over time to remain competitive.

If we fail to address the risks and difficulties that we face, including those described elsewhere in this “Risk Factors” section, our business, financial condition, results of operations and prospects could be adversely affected. 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 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, results of operations and prospects could be adversely affected.

Acquisitions could disrupt our business, cause dilution to our stockholders and otherwise harm our business.

We have and may continue to acquire other businesses or assets to add products or technologies as well as pursue technology licenses or investments in complementary businesses. In 2018, we acquired our PhenoImager platform from PKI. We believe we are successfully integrating the technologies acquired from PKI into our business, but the long-term success of the acquisition is not guaranteed. This transaction and any future transactions could be material to our financial condition and operating results and expose us to many risks, including:

- disruption in our relationships with customers, distributors, manufacturers or suppliers as a result of such a transaction;
- unanticipated liabilities related to acquired companies, including liabilities related to acquired intellectual property or litigation relating thereto;
- difficulties integrating acquired personnel, technologies and operations into our existing business;
- diversion of management time and focus from operating our business;
- failure to realize anticipated benefits or synergies from such a transaction;
- increases in our expenses and reductions in our cash available for operations and other uses; and
- possible write-offs or impairment charges relating to acquired businesses.

Even if we identify a strategic transaction that we wish to pursue, we may be prohibited from consummating such transaction due to the terms of our existing or any future indebtedness. If we were to pursue an acquisition that is not permitted by our existing indebtedness, we would be required to seek a waiver from the lender and we cannot assure our stockholders that the lender would grant such a waiver.

Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities, amortization expenses or write-offs of goodwill, any of which could materially impact our financial results or operations.

If our existing and new products fail to achieve and sustain sufficient scientific acceptance, we will not generate expected revenue and our prospects may be harmed.

The life sciences community is comprised of a small number of early adopters and key opinion leaders who significantly influence the rest of the community. The success of life sciences products is due, in large part, to acceptance by the scientific community and their adoption of certain products as best practice in the applicable field of research. The current system of academic and scientific research views publishing in a peer-reviewed journal as a measure of success. In such journal publications, the researchers will describe, not only their discoveries, but also the methods and typically the products used to fuel such discoveries. Mentions in peer-reviewed journal publications is a good barometer for the general acceptance of our products as best practices. Ensuring that early adopters and key opinion leaders publish research involving the use of our products is critical to ensuring our products gain widespread acceptance and market growth. Continuing to maintain good relationships with such key opinion leaders is vital to growing our market. The number of times our products were mentioned in peer-reviewed publications has increased significantly in the last two years. During this time our revenue has also increased significantly. We cannot assure our stockholders that our products will continue to be mentioned in peer-reviewed articles with any frequency or that any new products that we introduce in the future will be mentioned in peer-reviewed articles. If too few researchers describe the use of our products, too many researchers 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 existing and potential customers away from our products, which could harm our operating results.

We generally recognize revenue from first-year warranty, extended warranty and service contracts over the contract term, and changes in sales of such contracts may not be immediately reflected in our operating results.

Our instruments are sold with a twelve-month warranty. We offer our customers the option to purchase extended warranty and service programs for regular system maintenance and system optimization on a fixed fee basis. We generally recognize revenue from our first-year warranty, extended warranty and service contracts ratably over the contract term, which is typically twelve months, which could in some cases be subject to an early termination right. Revenue from our first-year warranty, extended warranty and service contracts accounted for 12% and 13% of our revenue for the years ended December 31, 2021 and 2020, respectively. A portion of the revenue we report in each quarter is derived from the recognition of deferred revenue relating to extended warranty and service contracts entered into during previous quarters. Consequently, a decline in new or renewed extended warranty and service contracts by our customers in any one quarter may not be immediately reflected in our revenue for that quarter. Such a decline, however, will negatively affect our revenue in future quarters. Accordingly, the effect of significant downturns in sales and market acceptance of our services and potential changes in our rate of renewals may not be fully reflected in our operating results until future periods.

If we were to be sued for product liability, we could face substantial liabilities that exceed our resources.

The marketing, sale and use of our products could lead to the filing of product liability claims were someone to allege that our products identified inaccurate or incomplete information regarding the tissues analyzed or otherwise failed to perform as designed. We may also be subject to liability for errors in a misunderstanding of or inappropriate reliance upon the information we provide in the ordinary course of our business activities. A product liability claim could result in substantial damages and be costly and time-consuming for us to defend.

We maintain product liability insurance, but this insurance may not fully protect us from the financial impact of defending against product liability claims. Any product liability claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, or cause current customers to terminate existing agreements and potential clinical partners to seek other partners, any of which could impact our business, financial condition, results of operations and prospects.

Our business, financial condition, results of operations and prospects may be harmed if our customers discontinue or spend less on research, development and production and other scientific endeavors.

Our customers include biopharmaceutical companies and academic and clinical institutions. Many factors, including public policy spending priorities, available resources and internal budgets and product and economic cycles, have a significant effect on the capital spending policies of these entities. Fluctuations in the research and development budgets of our customers could have a significant effect on the demand for our products. Our customers determine their research and development budgets based on several factors, including the need to develop new products, continued availability of governmental and other funding, competition and the general availability of resources. If their research and development budgets are reduced, the impact could adversely affect our business, financial condition, results of operations and prospects.

If we are unable to support demand for the PhenoCycler and PhenoImager platforms and consumables, and for our future product offerings, including ensuring that we have adequate capacity to meet increased demand, or if we are unable to successfully manage our anticipated growth, our business could suffer.

As the number of customers using our PhenoCycler and PhenoImager platforms and consumables grows and our volume of installed instruments increases, we will need to continue to increase our capacity for customer service and support and for billing and general process improvements and to expand our internal quality assurance programs. We will also need to purchase additional equipment, some of which can take several months or more to procure, setup and validate, and increase our personnel levels to meet increased demand. There is no assurance that any of these increases in scale, expansion of personnel, equipment, software and computing capacities or process enhancements will be successfully implemented, or that we will have adequate space, including in our laboratory facility, to accommodate such required expansion.

As we commercialize additional products, we will need to incorporate new equipment, implement new technology systems and laboratory processes, and hire new personnel, possibly with supplemental or different qualifications as compared to our current personnel. Failure to manage this growth or transition could result in turnaround time delays, higher product costs, declining product quality, deteriorating customer service and slower responses to competitive challenges. A failure in any one of these areas could make it difficult for us to meet market expectations for our products and could damage our reputation and the prospects for our business.

The sizes of the markets for our solutions 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 solutions.

The market for spatial biology products is new and evolving, making it difficult to predict with any accuracy the sizes of the markets for our current and future solutions. Our estimates of the annual TAM for our current and future solutions are based on a number of internal and third-party estimates and assumptions. In particular, our estimates are based on our expectations that: (a) researchers in the market for certain life sciences research tools and technologies will view our solutions as competitive alternatives to, or better options than, such existing tools and technologies; and (b) researchers who already own such existing tools and technologies will recognize the ability of our solutions to complement, enhance and enable new applications of their current tools and technologies and find the value proposition offered by our solutions convincing enough to purchase our solutions in addition to the tools and technologies they already own. Underlying each of these expectations are a number of estimates and assumptions, including the assumption 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 solutions.

In addition, our growth strategy involves launching new products and expanding sales of existing products into new markets in which we have limited or no experience. Sales of new or existing products into new market opportunities may take several years to develop and mature and we cannot be certain that these market opportunities will develop as we expect. For example, new life sciences technology is often not adopted by the relevant market until a sufficient amount of research conducted using such technology has been published in peer-reviewed publications. Because there can be a considerable delay between the launch of a new life sciences product and publication of research using such product, new life sciences products do not generally contribute a meaningful amount of revenue in the year they are introduced.

In certain markets, such as the biopharmaceutical market, new life sciences technology, even if sufficiently covered in peer-reviewed publications, 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 TAM for new markets and new products are even more difficult to predict.

While we believe our assumptions and the data underlying our estimates of the total annual addressable market for our solutions are reasonable, these assumptions and estimates may not be correct and the conditions supporting our assumptions or estimates, or those underlying the third-party data we have used, may change at any time, thereby reducing the accuracy of our estimates. As a result, our estimates of the annual TAM for our solutions 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 instruments and products by the scientific community as best practice 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 solutions are smaller than estimated or do not develop as we expect, our growth may be limited and our business, financial condition and operational results may be adversely affected.

If we fail to offer high quality customer service, our business and reputation could suffer.

We differentiate ourselves from our competition through our commitment to an exceptional customer experience. Accordingly, high quality customer service is important for the growth of our business and any failure to maintain such standards of customer service, or a related market perception, could affect our ability to sell products to existing and prospective customers. Additionally, we believe our customer service team has a positive influence on recurring consumables revenue. Providing an exceptional customer experience requires significant time and resources from our customer service team. Therefore, failure to scale our customer service organization adequately may adversely impact our business results and financial condition.

The number of our customers has grown significantly and such growth, as well as any future growth, will put additional pressure on our customer service organization. We may be unable to hire qualified staff quickly enough or to the extent necessary to accommodate increases in demand.

In addition, as we continue to grow our operations and reach a global customer base, we need to be able to provide efficient customer service that meets our customers' needs globally at scale. In geographies where we sell through distributors, we rely on those distributors to provide customer service. If these third-party distributors do not provide a high-quality customer experience, our business operations and reputation may suffer.

Our management uses certain key business metrics to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions and such metrics may not accurately reflect all of the aspects of our business needed to make such evaluations and decisions, in particular as our business continues to grow.

In addition to our consolidated financial results, our management regularly reviews a number of operating and financial metrics, including various revenue metrics and cash flows to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions. We believe that these metrics are representative of our current business; however, these metrics may not accurately reflect all aspects of our business and we anticipate that these metrics may change or may be substituted for additional or different metrics as our business grows and as we introduce new products. For example, we expect that our expansion into new markets and adoption by new customers who may not have the same financial resources to devote to consumable purchases as our existing customer base could adversely impact our revenue metrics. If our management fails to review other relevant information or change or substitute the key business metrics they review as our business grows and we introduce new products, their ability to accurately formulate financial projections and make strategic decisions may be compromised and our business, financial results and future growth prospects may be adversely impacted.

We will need to raise additional capital to fund our existing operations, improve our platform or develop and commercialize new products and technologies, or expand our operations.

Based on our current business plan, we believe our current cash and cash equivalents will be sufficient to meet our anticipated cash requirements for at least the next 12 months. 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 on Form 10-K, 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.

In any event, we may 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 to:

- increase our sales and marketing efforts to drive market adoption of our PhenoCycler and PhenoImager platforms and consumables and address competitive developments;
- fund development and marketing efforts of products from our programs or any other future products;
- expand our technologies into additional markets;
- acquire, license or invest in additional intellectual property and technologies;
- acquire or invest in complementary businesses or assets; and
- finance capital expenditures and general and administrative expenses.

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

- our ability to achieve revenue growth;
- our rate of progress in launching and commercializing new products, and the cost of the sales and marketing activities associated with, establishing adoption of our PhenoCycler and PhenoImager platforms and consumables;
- our rate of progress in, and cost of research and development activities associated with, products in research and development;
- the effect of competing technological and market developments;
- costs related to domestic and international expansion; and
- the potential cost of and delays in product development as a result of any regulatory oversight applicable to our products.

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. Any preferred equity securities issued also could provide for rights, preferences or privileges senior to those of holders of our common stock. If we raise funds by issuing debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our 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 platform technologies or products or grant licenses on terms that are not favorable to us.

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

Our Midcap Trust Term Loan contains covenants, which restrict our operating activities, and we may be required to repay the outstanding indebtedness in an event of default, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In October 2020, we entered into a credit and security agreement with Midcap Financial Trust, or the Lender, pursuant to which the Lender agreed to provide us a \$37.5 million credit facility (the “Midcap Trust Term Loan”). The Company has drawn \$32.5 million as of December 31, 2021, subject to our compliance with the covenants contained in the Midcap Trust Term Loan. The Midcap Trust Term Loan matures in October 2025. Until we have repaid such indebtedness, the Term Loan subjects us to various customary covenants, including requirements as to financial reporting, liquidity ratios and insurance and restrictions on our ability to dispose of our business or property, to change our line of business, to liquidate or dissolve, to enter into any change in control transaction, to merge or consolidate with any other entity or to acquire all or substantially all the capital stock or property of another entity, to incur additional indebtedness, to incur liens on our property, to pay any dividends or make other distributions on capital stock other than dividends payable solely in capital stock, to redeem capital stock, to enter into certain in-bound licensing agreements, to engage in transactions with affiliates, and to encumber our intellectual property. In particular, we are subject to a minimum revenue financial covenant measuring our last twelve months trailing revenue, tested on a monthly basis. Our business may be adversely affected by these restrictions on our ability to operate our business.

We are permitted to make interest only payments on the Midcap Trust Term Loan through October 2023, at which time principal payments begin. However, we may be required to repay the outstanding indebtedness if an event of default occurs under the Midcap Trust Term Loan. An event of default will occur if, among other things, we fail to make required payments under the Midcap Trust Term Loan; we breach any of our covenants under the credit and security agreement, subject to specified cure periods with respect to certain breaches; the Lender determines that a material adverse change (as defined in the credit and security agreement) has occurred; we or our assets become subject to certain legal proceedings, such as bankruptcy proceedings; we are unable to pay our debts as they become due; or we default on contracts with third parties which would permit the third-party to accelerate the maturity of such indebtedness or that could have a material adverse change on us. We may not have enough available cash or be able to raise additional funds through equity or debt financings to repay such indebtedness at the time any such event of default occurs. In such a case, we may be required to delay, limit, reduce or terminate our product development or operations or grant to others rights to develop and market products that we would otherwise prefer to develop and market ourselves. The Lender could also exercise its rights as secured lender to take possession of and to dispose of the collateral securing the Midcap Trust Term Loan, which collateral includes substantially all of our property. Our business, financial condition, results of operations and prospects could be materially adversely affected as a result of any of these events.

Our actual operating results may differ significantly from any operating guidance we may provide.

From time to time, we may release guidance in our quarterly or annual earnings conference calls, quarterly or annual earnings releases, or otherwise, regarding our future performance that represents our management’s estimates as of the date of release. This guidance, which will include forward-looking statements, will be based on projections prepared by our management. These projections may not be prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, or AICPA, and neither our registered public accountants nor any other independent expert or outside party compiles or examines the projections. Accordingly, no such person will express any opinion or any other form of assurance with respect to the projections.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. The principal reason that we may release guidance is to provide a basis for our management to discuss our

business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such third parties.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions underlying the guidance furnished by us will not materialize or will vary significantly from actual results.

Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results may vary from our guidance and the variations may be material.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in this “Risk Factors” section in this Annual Report on Form 10-K could result in actual operating results being different from our guidance, and the differences may be adverse and material.

Our market is highly competitive, and if we cannot compete successfully with our competitors, we may be unable to increase or sustain our revenue, or achieve and sustain profitability.

We face significant competition in our market. We currently compete with both established and early stage life sciences technology companies that design, manufacture and market products and software for, among other applications, genomics, tissue analysis, spatial analysis and immunology, and/or provide services related to the same. Growing understanding of the importance of spatial biology information is leading to more companies offering services related to collecting such information. Potential competitors within our space include 10x Genomics, Nanostring Technologies and Fluidigm, among others. In addition, our customers may also elect to develop their workflows on legacy systems rather than our platforms and may decide to stop using our platforms.

Our competitors and potential competitors may enjoy a number of competitive advantages over us, including:

- longer operating histories;
- larger customer bases;
- greater brand recognition and market penetration;
- greater financial resources;
- greater technological and research and development resources;
- more expansive intellectual property and proprietary rights; and
- larger commercial organizations and manufacturing organizations.

As a result, our competitors and potential competitors may be able to respond more quickly to changes in customer requirements, devote greater resources to the development, promotion and sale of their products than we can or sell their products, or offer services competitive with our platforms, consumables and services at prices designed to win significant levels of market share. We may not be able to compete effectively against these organizations.

In addition, competitors may be acquired by, receive investments from or enter into other commercial relationships with larger, well-established and well-financed companies. Certain of our competitors may be able to secure key inputs from vendors on more favorable terms, devote greater resources to marketing and promotional campaigns, adopt more aggressive pricing policies and devote substantially more resources to product development than we can. If we are unable to compete successfully against current and future competitors, we may be unable to increase market adoption and sales of our platform, which could prevent us from increasing our revenue or achieving profitability.

We must develop new products, adapt to rapid and significant technological change and respond to introductions of new products by competitors to remain competitive.

We sell our products in industries that are characterized by significant enhancements and evolving industry standards. As a result, our customers' needs are rapidly evolving. If we do not appropriately innovate and invest in new products and technologies, our offerings may become less desirable in the markets we serve, and our customers could move to new technologies offered by our competitors or make products themselves. Though we believe customers in our markets display a significant amount of loyalty to their supplier of a particular product, we also believe that because of the initial time investment required by many of our customers to reach a purchasing decision for a new product, it may be difficult to regain that customer once the customer purchases a product from a competitor. Without the timely introduction of new products, services and enhancements, our offerings will likely become less competitive over time, in which case our competitive position and operating results could suffer. Accordingly, we focus significant efforts and resources on the development and identification of new technologies, products and markets to further broaden our offerings. To the extent we fail to timely introduce new and innovative products or services, adequately predict our customers' needs or fail to obtain desired levels of market acceptance, our business may suffer and our operating results could be adversely affected.

We may be unable to manage our future growth effectively, which could make it difficult to execute our business strategy.

Since our inception in 2015, we have experienced rapid growth and anticipate further growth in our business operations. Our growth between 2015 and 2021 has required significant time and attention from our management, and placed strains on our operational and manufacturing systems and processes, financial systems and internal controls and other aspects of our business. We expect to continue to increase headcount and to hire more specialized personnel in the future as we grow our business. We will need to continue to hire, train and manage additional qualified scientists, engineers, laboratory personnel, client and account services personnel and sales and marketing staff and improve and maintain our technology to properly manage our growth. We may also need to hire, train and manage individuals with expertise that is separate, supplemental or different from expertise that we currently have, and accordingly we may not be successful in hiring, training and managing such individuals. If our new hires perform poorly, if we are unsuccessful in hiring, training, managing and integrating these new employees, or if we are not successful in retaining our existing employees, our business may be harmed.

Developing and launching new products and innovating and improving our existing products have required us to hire and retain additional scientific, engineering, sales and marketing, software, manufacturing, distribution and quality assurance personnel. As a result, we have experienced rapid headcount growth since our inception in 2015 with 319 employees as of December 31, 2021. As we have grown, our employees have become more geographically dispersed. We currently serve customers located in more than 35 countries and plan to continue to expand to new international jurisdictions as part of our growth strategy, which will lead to increased dispersion of our employees, including sales employees and employees who are in our service and support groups. Our management and other personnel devote a substantial amount of time towards maintaining compliance with the requirements of being a public company. We may also face challenges integrating, developing and motivating our rapidly growing and increasingly dispersed employee base.

We may not be able to maintain the quality, reliability or robustness of our platform, or the expected turnaround times of our services and support, or to satisfy customer demand as it grows. Our ability to manage our growth properly will require us to continue to improve our operational, financial and management controls, as well as our reporting systems and procedures. 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. The time and resources required to improve our existing systems and procedures, implement new systems and procedures and to adequately staff such existing and new systems and procedures is uncertain, and failure to complete this in a timely and efficient manner could adversely affect our operations and negatively impact our business and financial results.

We have limited experience in marketing and sales, and if we are unable to expand our marketing and sales organization to adequately address our customers' needs, our business may be adversely affected.

We have limited experience in marketing and selling our products. We may not be able to market, sell or distribute our current products, or future products that we may develop, effectively enough to support our planned growth.

Competition for employees capable of selling expensive instruments within the pharmaceutical and biotechnology industries is intense. We may not be able to attract and retain personnel or be able to build an efficient and effective sales organization, which could negatively impact sales and market acceptance of our products and limit our revenue growth and potential profitability. In addition, the time and cost of establishing a specialized sales, marketing and service force for a particular product or service may be difficult to justify in light of the revenue generated or projected.

Our expected future growth will impose significant added responsibilities on members of management, including the need to identify, recruit, maintain and integrate additional employees. Our future financial performance and our ability to commercialize our products and to compete effectively will depend, in part, on our ability to manage this potential future growth effectively, without compromising quality.

We rely on distributors for the sale of our products in certain countries outside of the United States, in some cases, in addition to direct sales in such countries. We exert limited control over these distributors under our agreements with them, and if their sales and marketing efforts for our products in the region are not successful, our business would be materially and adversely affected. Locating, qualifying and engaging distribution partners with local industry experience and knowledge will be necessary in at least the short to mid-term to effectively market and sell our platform in certain countries outside the United States. We may not be successful in finding, attracting and retaining distribution partners, or we may not be able to enter into such arrangements on favorable terms. Even if we are successful in identifying distributors, such distributors may engage in sales practices that violate local laws or our internal policies. Furthermore, sales practices utilized by any such distribution parties that are locally acceptable may not comply with sales practices standards required under U.S. laws that apply to us, which could create additional compliance risk. If our sales and marketing efforts by us or our distributors are not successful outside the United States, we may not achieve significant market acceptance for our products outside the United States, which would materially and adversely impact our business, financial condition, results of operations and prospects.

The loss of any member of our senior management team or our inability to attract and retain highly skilled scientists, engineers and salespeople could adversely affect our business.

Our success depends on the skills, experience and performance of key members of our senior management team, including Brian McKelligon, our Chief Executive Officer. The individual and collective efforts of these employees will be important as we continue to develop our platforms and additional products, and as we expand our commercial activities. The loss or incapacity of existing members of our executive management team could adversely affect our operations if we experience difficulties in hiring qualified successors. Our executive officers are at-will employees, and we cannot guarantee their retention for any period of time. We do not maintain "key person" insurance on any of our employees.

Our research and development programs and laboratory operations depend on our ability to attract and retain highly skilled scientists and engineers. We may not be able to attract or retain qualified scientists and engineers in the future due to the competition for qualified personnel among life sciences businesses. We also face competition from universities and public and private research institutions in recruiting and retaining highly qualified scientific and engineering personnel. We may have difficulties locating, recruiting or retaining qualified salespeople. Recruiting and retention difficulties can limit our ability to support our research and development and sales programs. All of our employees are at-will, which means that either we or the employee may terminate their employment at any time.

Due to the significant resources required to enable access in new markets, we must make strategic and operational decisions to prioritize certain markets, technology offerings or partnerships. We may expend our resources to access markets, develop technologies or form certain partnerships that do not yield meaningful revenue, or we may fail to capitalize on markets, technologies or partnerships that may be more profitable or with a greater potential for success.

We believe our platforms have potential applications across a wide range of markets and we have targeted certain markets in which we believe our technology has significant advantages, or for which we believe we have a higher probability of success or revenue opportunity or for which the path to commercialize products and realizing or achieving revenue is shorter. We seek to maintain a process of prioritization and resource allocation among our programs to maintain a balance between advancing near-term opportunities and exploring additional markets for our technology. However, due to the significant resources required for the development of workflows for new markets, we must make decisions on which markets to pursue and the amount of resources to allocate to each. Our decisions concerning the allocation of research, development, collaboration, management and financial resources toward particular markets or workflows may not lead to the development of any viable product and may divert resources away from better opportunities. Similarly, our potential decisions to delay, terminate or collaborate with third parties in respect of certain markets may subsequently also prove to be suboptimal and could cause us to miss valuable opportunities. In particular, if we are unable to develop additional relevant workflows for markets such as antibody therapeutics, cell therapy or the synthetic biology market it could slow or stop our business growth and negatively impact our business, financial condition, results of operations and prospects.

If our operating facilities, including those of our third-party manufacturers, become damaged or inoperable, our ability to conduct and pursue our research and development efforts and manufacture our products may be jeopardized.

We currently derive the majority of our revenue based upon scientific and engineering research and development conducted at two facilities located in California and Massachusetts and from products manufactured by our third-party manufacturers. Our facilities and equipment, and that of our third-party manufacturers, could be harmed or rendered inoperable or inaccessible by natural or man-made disasters or other circumstances beyond our control, including fire, earthquake, power loss, communications failure, war or terrorism, or another catastrophic event, such as a pandemic or similar outbreak or public health crisis, which may render it difficult or impossible for us to support our customers and develop updates, upgrades and other improvements to our PhenoCycler and PhenoImager platforms, and workflow software for some period of time. The inability to address system issues or manufacture our products could develop if our facilities, or those of our third-party manufacturers, are inoperable or suffer a loss of utilization for even a short period of time, may result in the loss of customers or harm to our reputation, and we may be unable to regain those customers or repair our reputation in the future. Furthermore, our facilities and the equipment we use to perform our research and development work could be unavailable or costly and time-consuming to repair or replace. It would be difficult, time-consuming and expensive to rebuild either of our facilities, to locate and qualify a new facility or license or transfer our proprietary technology to a third-party. Even in the event we are able to find a third-party to assist in research and development efforts, we may be unable to negotiate commercially reasonable terms to engage with the third-party.

We carry insurance for damage to our property and the disruption of our business, but this insurance may not cover all of the risks associated with damage or disruption to our business, may not provide coverage in amounts sufficient to cover our potential losses and may not continue to be available to us on acceptable terms, if at all.

Our insurance policies are expensive and protect us only from some business risks, which leaves us exposed to significant uninsured liabilities.

We do not carry insurance for all categories of risk that our business may encounter and our policies have limits and significant deductibles.

Some of the policies we currently maintain include general liability, property, umbrella and directors' and officers' insurance.

Any additional product liability insurance coverage we acquire in the future, may not be sufficient to reimburse us for any expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and in the future we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses. A successful product liability claim or series of claims in which judgments exceed our insurance coverage could adversely affect our business, financial condition, results of operations and prospects, including preventing or limiting the commercialization of any products we develop.

In addition, our director and officer liability insurance includes policy limits which may not provide sufficient coverage in the event of a successful claim or series of claims. Any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our business, financial condition, results of operations and prospects.

Public health crises such as COVID-19 and similar pandemics or outbreaks have caused and could cause disruptions of the development of our platform technologies and products, and adversely impact our business, financial condition and results of operations.

The global spread of the COVID-19 pandemic, including the spread of recent variants, continues to evolve, and to date has led to the implementation of various containment efforts. While conditions appear to be improving, particularly as more people get vaccinated, the impact of this pandemic has been and will likely continue to be extensive in many aspects of society. In the event that government authorities were to further modify current restrictions, our employees conducting research and development or manufacturing activities may not be able to access our laboratory or manufacturing space, and our core activities may be significantly limited or curtailed, possibly for an extended period of time.

The COVID-19 pandemic has also created many negative headwinds that present risks to our business and results of operations. For example, it has generally disrupted the operations of our customers and prospective customers, and may continue to disrupt their operations, including as a result of laboratory closures, travel restrictions and/or business shutdowns, uncertainty in the financial markets or other harm to their business and financial results. These disruptions have caused reduced capital spend by our existing customers and potential new customers, which has negatively impacted our instrument and consumables sales. These disruptions could result in further reductions to capital expenditure budgets, delayed purchasing decisions, longer sales cycles, extended payment terms or missed payments, and postponed or canceled projects, any of which would negatively impact our business and operating results, including sales and cash flows. We do not yet know the net impact that the COVID-19 pandemic may have on our business and cannot guarantee that it will not be materially negative. Although we continue to monitor the situation and may adjust our current policies as more information and public health guidance become available, the ongoing effects of the COVID-19 pandemic and/or the precautionary measures that we have adopted may create operational and other challenges, any of which could harm our business and results of operations. The uncertain development of the COVID-19 pandemic may also exacerbate the severity of the other risks disclosed herein.

Security incidents, loss of data or modification of information, and other disruptions could compromise information related to our business or prevent us from accessing critical information, result in a significant disruption of our activities and expose us to liability, which could adversely affect our business and our reputation.

In the ordinary course of our business, we collect and store information, including personal information, intellectual property and proprietary business information that we own or control or have an obligation to protect. For example, we collect and store research and development information, employee data, commercial information, customer information, business and financial information, and payment card data. We and our service providers, including security and infrastructure vendors, manage and maintain our applications and data using a combination of on-site systems and cloud-based data centers. We face a number of risks related to protecting critical information and our applications, including inappropriate use or disclosure, unauthorized access or acquisition, or inappropriate modification of, critical information. We also face the risk of being unable to access our critical information, applications, or systems due to actual or threats of ransomware, unauthorized encryption, or other malicious activity. We face the risk of our being unable to adequately monitor and audit and modify our controls over our critical information and applications. These risks extend to third-party service providers and subcontractors we use to assist us in managing our information or otherwise process it on our

behalf. The secure processing, storage, maintenance and transmission of our critical information are vital to our operations and business strategy, and we devote significant resources to protecting such information.

Although we take reasonable measures to protect critical information and other data from unauthorized access, acquisition, use or disclosure, our information technology and infrastructure and that of our service providers handling and storing information on our behalf may be vulnerable to a variety of disruptions, including data breaches, attacks by hackers and other malicious third parties (including the deployment of computer viruses, malware, ransomware, denial-of-service attacks, social engineering, and other events that affect service reliability and threaten the confidentiality, integrity, and availability of information), unauthorized access, natural disasters, fires, terrorism, war, telecommunications or electrical interruptions or failures, employee error or malfeasance or other malicious or inadvertent disruptions. In particular, the risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, has generally increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased. We may not be able to anticipate all types of security threats, and we may not be able to implement preventive measures effective against all such security threats. Because the techniques used by cyber criminals change frequently, may not be recognized until launched, and can originate from a wide variety of sources, including outside groups such as external service providers, organized crime affiliates or terrorist organizations, we and our services providers and other partners may be unable to anticipate these techniques or implement adequate preventative measures. Further, we do not have any control over the operations of the facilities or technology of third parties that collect, process and store sensitive information on our behalf. Any unauthorized access or acquisition, breach, or other loss, of information could result in legal claims or proceedings, and liability under U.S. federal or state, or non-U.S., laws regarding the privacy and protection of information, including personal information, and could disrupt our operations and harm our reputation. In addition, notice of breaches may be required to affected individuals, regulators, credit reporting agencies or the media. Any such publication or notice could harm our reputation and our ability to compete. The financial exposure from the events referenced above could either not be insured against or not be fully covered through any insurance that we may maintain, and there can be no assurance that the limitations of liability in any of our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages as a result of the events referenced above.

In December 2019, we experienced a ransomware incident, which resulted in the encryption of certain Company files. We did not experience a loss of information and determined that we were not required to notify any person of such incident. The breach was caused by a consultant's support access application becoming compromised which allowed for the installation of malware that encrypted large datasets within our internal network. Upon discovery of the malware, we immediately terminated the consultant's access, files were restored to their original state prior to the encryption, the access application and malware were removed and all users were required to update their passwords. After investigation, we determined that no personal information was accessed or lost. In order to protect against similar occurrences, we took a series of remedial measures, including limiting remote access to our network by third parties, implementing a robust intrusion detection system to protect the network, installing multiple scanning applications on all systems, and implementing a required cybersecurity awareness training program to ensure end users can identify potentially harmful emails and files. However, despite these remedial measures, there can be no assurance that we will be able to protect against similar incidents in the future. Though we determined the ransomware incident had no material impact on our business, including no access to or loss of personal information, this event or similar events in the future may subject us to unfavorable publicity, claims by one or more state attorneys general, or other regulators, any of which could expose us to a disruption or challenges relating to our daily operations, as well as to litigation, disputes, regulatory investigations, orders, damages, fines, indemnity obligations, damages for contract breach, penalties for violation of applicable laws and regulations, and significant increases in compliance costs, and could inhibit sales. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Seasonality may cause fluctuations in our revenue and results of operations.

We operate on a December 31st year end and believe that there are seasonal factors which may cause sales of our products to vary on a quarterly or yearly basis and increase the magnitude of quarterly or annual fluctuations in our operating results. We believe that this seasonality results from a number of factors, including the procurement and budgeting cycles of many of our customers, especially government- or grant-funded customers, whose cycles often coincide with government fiscal year ends. For example, the United States government's fiscal year end occurs in our

third quarter and may result in increased sales of our products during this quarter if government- funded customers have unused funds that may be forfeited, or future budgets that may be reduced, if such funds remain unspent at such fiscal year end. Furthermore, the academic budgetary cycle similarly requires grantees to ‘use or lose’ their grant funding, which seems to be tied disproportionately to the end of the calendar year, driving sales higher during the fourth quarter. Similarly, our biopharmaceutical customers typically have calendar year fiscal years which also result in a disproportionate amount of their purchasing activity occurring during our fourth quarter. These factors have contributed, and may contribute in the future, to fluctuations in our quarterly operating results. Because of these fluctuations, it is possible that in some quarters our operating results will fall below the expectations of securities analysts or investors. If that happens, the market price of our common stock would likely decrease. These fluctuations, among other factors, also mean that our operating results in any particular period may not be relied upon as an indication of future performance. Seasonal or cyclical variations in our sales have in the past, and may in the future, become more or less pronounced over time, and have in the past materially affected, and may in the future materially affect, our business, financial condition, results of operations and prospects.

Risks Related to Manufacturing and Supply

Our third-party manufacturers are dependent upon third-party suppliers, including single source suppliers, making us vulnerable to supply shortages and price fluctuations, which could harm our business.

Our instruments and reagents contain components that are currently manufactured by a single supplier or a limited number of suppliers. In many of these cases, we and our third-party manufacturers have not yet engaged alternate suppliers and rely upon purchase orders, rather than long-term supply agreements. A supply interruption or an increase in demand beyond our current suppliers’ capabilities could harm our ability to manufacture our systems unless and until new sources of supply are identified and qualified. Our reliance on these suppliers subjects us to a number of risks that could harm our business, including:

- interruption of supply resulting from modifications to or discontinuation of a supplier’s operations;
- trade disputes or other political or economic conditions, including any global macroeconomic impact resulting from the Russia-Ukraine conflict;
- interruption of or insufficient supply resulting from labor strikes, work stoppages, infectious disease, epidemics or pandemics, political or regulatory prohibition, unrest, acts of terrorism or other interruptions in production and transportation systems;
- delays in product shipments resulting from uncorrected defects, reliability issues, or a supplier’s variation in a component;
- a lack of long-term supply arrangements for key components with our suppliers;
- inability to obtain adequate supply in a timely manner, or to obtain adequate supply on commercially reasonable terms;
- difficulty and cost associated with locating and qualifying alternative suppliers for our components in a timely manner;
- a modification or change in a manufacturing process or part that unknowingly or unintentionally negatively impacts the operation of our systems;
- production delays related to the evaluation and testing of products from alternative suppliers, and corresponding regulatory qualifications;
- delay in delivery due to our suppliers prioritizing other customer orders over ours;

- damage to our brand reputation caused by defective components produced by our suppliers;
- increased cost of our warranty program due to product repair or replacement based upon defects in components produced by our suppliers; and
- fluctuation in delivery by our suppliers due to changes in demand from us or their other customers.

Any interruption in the supply of components or materials, or our inability to obtain substitute components or materials from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers, which would have an adverse effect on our business.

We outsource the manufacturing of our instruments and reagents to third-party manufacturers. The failure of these manufacturers to manufacture finished goods on a timely basis could adversely affect our business.

We have engaged with three different third parties to manufacture our instruments and reagents. One such third-party manufacturer manufactures PhenoCycler instruments, a second manufactures PhenoImager instruments, and the other third-party manufactures our reagent kits. In addition, the third parties we rely on source certain key parts of our instruments from other various parties. We do not have any control over the process or timing of the acquisition or manufacture of materials by our third-party manufacturers, and cannot ensure that they will deliver to us the finished goods we order on time, or at all. If the operations of our third-party manufacturers are interrupted, cease, or if they are unable to meet our delivery requirements due to capacity limitations or other constraints, we may be limited in our ability to fulfill new customer orders or to service or repair instruments at current customer sites. Any change to another contract manufacturer, even if ultimately consummated, would likely entail significant delay, require us to devote substantial time and resources, result in additional costs, and could involve a period in which our systems could not be produced in a timely or consistently high-quality manner, any of which could harm our reputation and business, and frustrate our customers and cause them to turn to our competitors. Additionally, we may be unable to enter into agreements with another contract manufacturer on commercially reasonable terms or at all, which could have a material adverse impact on our business.

We forecast sales to determine requirements for components and materials used in our systems, and if our forecasts are incorrect, we may experience delays in shipments or increased inventory costs.

We and our third-party manufacturers keep limited materials, components and finished products on hand. To manage our operations with our third-party manufacturers and suppliers, we forecast anticipated product orders and material requirements to predict our inventory needs and enter into purchase orders on the basis of these requirements. Several components of our instruments and reagent kits have long lead times. Our limited historical commercial experience and rapid growth may not provide us with enough data to consistently and accurately predict future demand. If our business expands and our demand for components and materials increase beyond our estimates, our manufacturers and suppliers may be unable to meet our demand. In addition, if we or our third-party manufacturers underestimate our component and material requirements, we may have inadequate inventory, which could interrupt, delay, or prevent delivery of our systems to our customers. By contrast, if we overestimate our component and material requirements, we may have excess inventory, which would increase our working capital and decrease our cash. Any of these occurrences would negatively affect our financial performance and business results.

Risks Related to Government Regulation

We market certain of our products as Research Use Only, or RUO, in the United States. Our RUO products support the research and development conducted at institutions and biopharmaceutical companies of potential diagnostic and therapeutic products and services for which they may later pursue investigation and clearance, authorization or approval from regulatory authorities, such as the FDA.

RUO products belong to a separate regulatory classification under a long-standing FDA regulation. From an FDA perspective, products that are intended for research use only and are labeled as RUO are not regulated by the FDA as in vitro diagnostic devices for clinical use, and are therefore not subject to those specific regulatory requirements. RUO

products may be used or distributed for research use without first obtaining FDA clearance, authorization or approval. The products must bear the statement: “For Research Use Only. Not for Use in Diagnostic Procedures.” RUO products cannot make any claims related to safety, effectiveness or diagnostic utility, and they cannot be intended for human clinical diagnostic use. Accordingly, a product labeled RUO but intended or promoted for clinical diagnostic use may be viewed by the FDA as adulterated and misbranded under the FDCA and subject to FDA enforcement action. The FDA will consider the totality of the circumstances surrounding distribution and use of an RUO product, including how the product is marketed and to whom, when determining its intended use. If the FDA disagrees with our RUO status for our product, we may be subject to FDA enforcement activities, including, without limitation, requiring us to seek clearance, authorization or approval for our products.

We are currently subject to, and may in the future become subject to additional, U.S. state and federal, and non-U.S. laws and regulations, industry guidelines, and contracts, imposing obligations on how we collect, store, use 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 customer base, and thereby decrease our revenue.

We are, and may increasingly become, subject to various laws and regulations, as well as contractual obligations and mandatory industry standards relating to data privacy and security in the jurisdictions in which we operate. The regulatory environment related to data privacy and security is increasingly rigorous, with new and constantly changing requirements applicable to our business, and enforcement practices are likely to remain uncertain for the foreseeable future. These laws and regulations may be interpreted and applied differently 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.

We are not a business associate under the Health Insurance Portability and Accountability Act of 1996, or HIPAA, and do not receive, access, store, or transmit any individually identifiable health information of any patient; however, we are a covered entity under HIPAA as an employer that sponsors a group health plan for its employees. Therefore, the HIPAA Privacy, Security and Breach Notification Rules apply to our group health plan. We have appointed a HIPAA Privacy Officer and HIPAA Security Officer, train our group health plan employees on HIPAA compliance and ensure that individuals outside of the group health plan functions do not have access to protected health information of our employees. We have also entered into a business associate agreement with our third-party administrator to handle medical claims for our group health plan. The HIPAA privacy regulations govern the use and disclosure of protected health information by covered healthcare providers, as well as health insurance plans. They also set forth certain rights that an individual has with respect to his or her protected health information maintained by a covered plan, including the right to access or amend certain records containing protected health information or to request restrictions on the use or disclosure of protected health information. The HIPAA security regulations establish requirements for safeguarding the confidentiality, integrity and availability of protected health information that is electronically transmitted or electronically stored. A covered entity must also notify HHS and each affected individual of a breach of unsecured protected health information as well as the media if the breach involves more than 500 individuals in a particular jurisdiction. HIPAA violations are subject to civil and criminal penalties.

Despite the fact that we do not currently access, store, receive or transmit any protected health information on behalf of a covered entity which could qualify us as a business associate under HIPAA, from time to time we are asked by a customer to enter into a business associate agreement. To date, we have not entered into any business associate agreements and do not intend to do so as a standard practice. We are in the process of undergoing HITRUST certification and revising our policies and procedures to establish compliance with the HIPAA Security Rule for our commercial business, in the event that we have access to protected health information in the future or if a customer insists that we execute a business associate agreement. We expect that we will complete the necessary reviews and implement the procedures and policies required to fully comply with the elements of HIPAA applicable to a business associate by the end of Q3 of this year. The HIPAA Security Rule regulations establish requirements for safeguarding the confidentiality, integrity and availability of protected health information that is electronically transmitted or electronically stored or electronically stored by a business associate. Under the HIPAA Breach Notification Rule, a business associate must notify a covered entity, within certain required timeframes, of any breach of the security of an individual’s protected health information by the business associate or any subcontractor of the business associate.

In the United States, in addition to HIPAA, various federal and state regulators, including governmental agencies like the Federal Trade Commission, or the FTC, have adopted, or are considering adopting, laws and regulations concerning personal information and data security. According to the FTC, failing to take appropriate steps to keep consumers' personal information secure or using or disclosing personal information in violation of a company's privacy notice may constitute unfair or deceptive acts or practices in or affecting commerce in violation of the Federal Trade Commission Act ("FTCA"). The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business and the cost of available tools to improve security and reduce vulnerabilities. We may also become subject to additional data privacy and security laws and regulations in the future, and we anticipate that states and potentially, the federal government, may propose or enact legislation to strengthen data privacy and security standards, which may cause us to incur additional costs and expenses to maintain compliance and could subject us to fines, penalties and negative publicity in the event of a breach or violation under any such law or regulation. 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 of 2018, or CCPA, which increases privacy rights for California residents and imposes obligations on companies that process their personal information and meet certain revenue or volume processing thresholds, came into effect on January 1, 2020, and was further amended by the California Privacy Rights Act, or CPRA, on November 3, 2020. Among other things, the CCPA requires covered companies to provide new disclosures to California residents and provide such residents 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. The CPRA significantly modifies the CCPA by expanding residents' rights with respect to certain personal information and creates a new state agency to oversee implementation and enforcement efforts. Many of the CPRA's provisions will become effective on January 1, 2023. This private right of action may increase the likelihood of, and risks associated with, data breach litigation, including class-action litigation. In addition, laws in all 50 U.S. states require businesses to provide notice to individuals if certain of their personal information has been disclosed as a result of a qualifying 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 may likely become subject, if enacted.

Internationally, laws, regulations and standards in many jurisdictions apply broadly to the collection, use, retention, security, disclosure, transfer, marketing and other processing of personal information. For example, the EU General Data Protection Regulation, or GDPR, which became effective in May 2018, greatly increased the European Commission's jurisdictional reach of its data privacy and security laws and introduced a broad array of requirements for handling personal data. EU member states are tasked under the GDPR to enact, and have enacted, certain implementing legislation that adds to and/or further interprets the GDPR requirements and potentially extends our obligations and potential liability for failing to meet such obligations. The GDPR, together with national legislation, regulations and guidelines of the EU member states governing the processing of personal data, impose strict obligations and restrictions on the ability to collect, use, retain, protect, disclose, transfer and otherwise process personal data. In particular, the GDPR includes requirements to establish a legal basis for processing, higher standards for obtaining consent from individuals to process their personal data, more robust disclosures to individuals, a strengthened individual data rights regime, requirements to implement safeguards to protect the security and confidentiality of personal data, data breach notification obligations to appropriate data protection authorities or individuals, limitations on retention and secondary use of information, increased requirements pertaining to health data and additional obligations when entities contract with third-party processors to process personal data. The GDPR allows for fines for certain violations of up to 4% of global annual revenue or €20 million, whichever is greater, and other administrative penalties. Following the withdrawal of the United Kingdom from the European Union, data privacy and security laws that are substantially similar to the GDPR are in effect in the United Kingdom, which carry similar risks and authorize similar fines for certain violations.

Certain legal regimes outside of the United States, including in the United Kingdom and under the GDPR, prohibit the transfer of personal data to the United States unless certain measures are in place, including, for example, executing Standard Contractual Clauses, or historically, relying on the receiving entity's certification under the EU-US and/or Swiss-US Privacy Shield Frameworks, or the Privacy Shield Frameworks. The Privacy Shield Frameworks were invalidated, and the adequacy of Standard Contractual Clauses is now in question, following the Court of Justice of the European Union's July 2020 decision in the so-called Schrems II case (Data Protection Commissioner v. Facebook Ireland Limited, Maximilian Schrems (Case C-311/18)). Due to this evolving regulatory guidance, we are continuing to

evaluate the validity of the data transfer mechanisms upon which we rely and we may need to invest in additional technical, legal and organizational safeguards in the future to avoid disruptions to data flows within our business and to and from our customers and service providers. There is no guarantee that any transfer mechanism upon which we rely will be deemed to be valid by the relevant legal authorities, or that mechanisms that are currently deemed to be valid will remain valid in the future. This uncertainty, and its eventual resolution, may increase our costs of compliance, impede our ability to transfer data and conduct our business and harm our business or results of operations.

We use third-party credit card processors to process payments from our customers. Through our agreements with our third-party credit card processors, we are subject to payment card association operating rules, including the Payment Card Industry Data Security Standard, or PCI-DSS, which governs a variety of areas, including how consumers and customers may use their cards, the security features of cards, security standards for processing, data security and allocation of liability for certain acts or omissions, including liability in the event of a data breach. Any change in these rules or standards and related requirements could make it difficult or impossible for us to comply. Additionally, any data breach or failure to hold certain information in accordance with PCI-DSS may have an adverse effect on our business and results of operations.

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 and legal advisors, which are likely to increase over time. In addition, such requirements may require us to modify our data processing practices and policies, utilize management's time 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 to comply with any applicable federal, state or similar non-U.S. laws and regulations relating to data privacy and security 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, injunctions, penalties or judgments. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

As we continue to expand our product and technology offerings and the applications and uses of our products into new fields, we may become subject to government regulation, and the regulatory approval and maintenance process for such products may be expensive, time-consuming and uncertain both in timing and in outcome.

As we continue to expand our product and technology offerings and the applications and uses of our existing products into new fields, certain of our current or future products could become subject to regulation by the FDA, or comparable regulatory authorities, including requirements for regulatory clearance or approval of such products before they can be marketed. Such regulatory approval processes or clearances may be expensive, time-consuming and uncertain, and our failure to obtain or comply with such approvals and clearances could have an adverse effect on our business, financial condition and operating results. The laws, regulations and policies governing the marketing of our products or future products, for example, RUO products, companion diagnostics, or other products and services are extremely complex and in many instances there may be no significant regulatory or judicial interpretations of these laws and regulations. These laws and regulations are subject to interpretation by the relevant regulatory and enforcement officials, and they may interpret them differently than we do. Furthermore, 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, if we sell devices for diagnostic purposes, we may in turn be subject to additional healthcare regulation and enforcement by the applicable government agencies. Such laws and regulations include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, data privacy and security and transparency and reporting requirements for payments and transfers of value to physicians and certain other healthcare professionals.

Diagnostic products are regulated as medical devices by the FDA and comparable international agencies and may require either clearance from the FDA following the 510(k) pre-market notification process or pre-market approval from the FDA, in each case prior to marketing. Obtaining the requisite regulatory clearances or approvals can be expensive and may involve considerable delay in our ability to commercialize our products. For example, we may in the future assist in the development of, or perform clinical testing relative to, companion diagnostics which would subject us to

much more extensive regulation under FDA law, CMS/CLIA regulations and state laboratory requirements. None of our products are currently offered to customers as medical devices, however, if our products labeled as RUO are used, or could be used, for the diagnosis of disease, the regulatory requirements related to marketing, selling and supporting such products could change or be uncertain, even if such use by our customers is without our consent.

If the FDA or other regulatory authorities assert that any of our products are subject to regulatory clearance or approval, our business, financial condition or results of operations could be adversely affected.

International expansion of our business exposes us to business, regulatory, political, operational, financial and economic risks associated with doing business outside of the United States.

We currently have limited international operations, and our business strategy incorporates potentially significant international expansion. We currently maintain relationships with distributors outside of the United States, and may in the future enter into new distributor relationships. We may also extend laboratory capabilities outside of the United States, both directly and possibly indirectly. Doing business internationally involves a number of risks, including:

- multiple, conflicting and changing laws and regulations such as data privacy and security regulations, tax laws, export and import restrictions, tariffs, economic sanctions and embargoes, employment laws, regulatory requirements and other governmental approvals, permits and licenses;
- failure by us or our distributors to obtain approvals to conduct our business in various countries;
- differing respect, and protection for, intellectual property rights in other jurisdictions;
- complexities and difficulties in obtaining intellectual property protection, maintaining, enforcing and defending our intellectual property and proprietary rights and defending against third-party intellectual property claims;
- difficulties in staffing and managing foreign operations;
- logistics and regulations associated with shipping systems and parts and components for systems, consumables and reagent kits, as well as transportation delays;
- travel restrictions that limit the ability of marketing, presales, sales, services and support teams to service customers;
- financial risks, such as longer payment cycles, difficulty collecting accounts receivable, the impact of local and regional financial crises on demand and payment for our products and exposure to foreign currency exchange rate fluctuations;
- international trade disputes that could result in tariffs and other protective measures;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, outbreak of disease, boycotts, curtailment of trade and other business restrictions; and
- regulatory and compliance risks that relate to maintaining accurate information and control over sales and distributors' activities that may fall within the purview of the U.S. Foreign Corrupt Practices Act, or FCPA, its books and records provisions, or its anti-bribery provisions.

Any of these factors could significantly harm our future international expansion and operations and, consequently, our business, financial condition, results of operations and prospects. In addition, certain international markets are subject to significant political and economic uncertainty, including for example the effect of the withdrawal of the United Kingdom from the European Union. Significant political and economic developments in international markets for

which we intend to operate, or the perception that any of them could occur, creates further challenges for operating in these markets in addition to creating instability in global economic conditions.

We could be adversely affected by violations of the FCPA and the anti-bribery and anti-corruption laws of the United States or other countries.

We are subject to the FCPA, which among other things prohibits companies and their intermediaries from making payments in violation of law to non-U.S. government officials for the purpose of obtaining or retaining business or securing any other improper advantage. We have engaged independent distributors in the past and currently use independent distributors to sell our platforms and instruments outside of the United States. Our reliance on independent distributors to sell the PhenoCycler and PhenoImager platforms internationally demands a high degree of vigilance in maintaining our policy against participation in corrupt activity, because these distributors could be deemed to be our agents and we could be held responsible for their actions. Other U.S. companies in the biotechnology and biopharmaceutical field have faced criminal penalties under the FCPA for allowing their agents to deviate from appropriate practices in doing business with these individuals. We are also subject to similar anti-bribery laws in the jurisdictions in which we operate, including the United Kingdom's Bribery Act of 2010, which also prohibits commercial bribery and makes it a crime for companies to fail to prevent bribery, and the People's Republic of China anti-bribery laws, including the PRC Anti-Unfair Competition Law amended in 2017, the PRC Criminal Law amended in 2017. These laws are complex and far-reaching in nature, and, as a result, we cannot assure you that we would not be required in the future to alter one or more of our practices to be in compliance with these laws or any changes in these laws or the interpretation thereof. Any violations of these laws, or allegations of such violations, could disrupt our operations, involve significant management distraction, involve significant costs and expenses, including legal fees and could result in a material adverse effect on our business, financial condition, results of operations and prospects. We could also suffer severe penalties, including criminal and civil penalties, disgorgement and other remedial measures.

Our employees, consultants, distributors and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements, and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants, distributors and commercial partners. Misconduct by these parties could include intentional failures to comply with the applicable laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. These laws and regulations may restrict or prohibit a wide range of pricing, discounting and other business arrangements. Such misconduct could result in legal or regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and any other precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses, or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could result in the imposition of significant civil, criminal and administrative penalties, which could have a significant impact on our business. Whether or not we are successful in defending against such actions or investigations, we could incur substantial costs, including legal fees and divert the attention of management in defending ourselves against any of these claims or investigations.

We use biological and hazardous materials that require considerable expertise and expense for handling, storage and disposal and may result in claims against us.

We work with materials, including chemicals, biological agents and compounds that could be hazardous to human health and safety or the environment. Our operations also produce hazardous and biological waste products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. We are subject to periodic inspections by federal, state and local authorities to ensure compliance with applicable laws. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental laws and regulations may restrict our operations. If we do not comply with applicable regulations, we may be subject to fines and penalties.

In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes, which could cause an interruption of our commercialization efforts, research and development programs and business operations, as well as environmental damage resulting in costly clean-up and liabilities under applicable laws and regulations. In the event of contamination or injury, we could be liable for damages or penalized with fines in an amount exceeding our resources and our operations could be suspended or otherwise adversely affected. Furthermore, environmental laws and regulations are complex, change frequently and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance.

Risks Related to Intellectual Property

If we are unable to obtain and maintain sufficient patent or other intellectual property protection for our technology, including the PhenoCycler and PhenoImager platforms, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and our technology 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 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 or to protect our intellectual and proprietary 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, is found to be invalid or unenforceable, or laws affecting the scope of intellectual property protection and remedial actions change, we would be exposed to a greater risk of direct competition. If our intellectual property does not provide adequate coverage of our own or our competitors' products, our competitive position could be adversely affected, as could our business. Both the patent application process and the process of managing patent disputes can be time-consuming and expensive.

As is the case with other life sciences and biotechnology companies, our success depends in large part on our ability to obtain and maintain protection of the intellectual property we may own solely and jointly with others, 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 in our industry is costly, time-consuming and complex, and we may fail to apply for patents on important products, services 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. 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. We may not have the right to control the preparation, filing and prosecution of patent applications, to maintain the rights to patents licensed to or from third parties, or to control enforcement of licensed patent rights. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. We may not be able to control the extent of auxiliary rights licensed to other parties by entities from whom we license patent rights, which may affect our ability to exclude other parties from markets and jurisdictions based on those licensed patent rights.

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 and invalidated by third parties. It is possible that others will design around our current or future patented technologies or that our patents and patent applications may be challenged at the United States Patent and Trademark Office, or USPTO, or in proceedings before the patent offices of other jurisdictions. We may not be successful in defending any such challenges made against our patents or patent applications. We may not be able to intervene or participate in any challenge to patent rights that are licensed by us from another party. Any successful third-party challenge to our patents could result in the unenforceability or invalidity of such patents, in whole or in part, and increased competition to our business. We may have to challenge the patents or patent applications of third parties. The outcome of patent litigation or other proceedings 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, if successful, may take substantial time and result in substantial cost, and may divert our efforts and attention from other aspects of our business.

Furthermore, our patents may be subject to a reservation of rights by one or more third parties. For example, the research resulting in certain of our in-licensed patent rights and technology was funded in part by the U.S. government. As a result, the government may have certain rights, or march-in rights, to such patent rights and technology. When new technologies are developed with government funding, the government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention for non-commercial purposes. These rights may permit the government to disclose our confidential information to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The 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.

The patent positions of life sciences companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in such companies' patents has emerged to date in the United States or elsewhere. Courts frequently render opinions in the biotechnology field that may affect the patentability of certain inventions or discoveries. Further, codified patent laws, legal principles, the scope of damages, and remedies for patent infringement can vary widely among jurisdictions, and our business may be affected differentially among those jurisdictions by any verdict, judgment, administrative proceeding, or other decision relating to enforcement of patent rights.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we license or own, currently or in the future, issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own may be challenged, narrowed, circumvented or invalidated by third parties. Consequently, we do not know whether our products or other technologies will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner which could harm our business, financial condition and results of operations.

Some of our patents and patent applications may in the future be co-owned with third parties. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patents or patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co-owners of our patents in order to enforce such patents against third parties, and such cooperation may not be provided to us. Any of the foregoing could harm our business, financial condition and results of operations.

Additionally, we may find it necessary or prudent to acquire or obtain licenses from third-party intellectual property holders. However, we may be unable to acquire or secure such licenses to any intellectual property rights from third parties that we identify as necessary for our products or any future products we may develop. The acquisition or licensing of third-party intellectual property rights is a competitive area, and our competitors may pursue strategies to acquire or license third-party intellectual property rights that we may consider attractive or necessary. Our competitors may have a competitive advantage over us due to their size, capital resources and greater 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 acquire or license third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We heavily depend on intellectual property licensed from third parties, including our license agreements with Stanford for our PhenoCycler product, PKI, Cambridge Research and VisEn Medical Inc. for our PhenoImager product, and our licensors may not always act in our best interest. If such owners do not properly or successfully obtain, maintain or enforce the patents underlying such licenses, or if they retain or license to others any competing rights, our competitive position and business prospects may be adversely affected.

We are dependent on patents, know-how and proprietary technology licensed from others. As a result, any termination of these licenses could result in the loss of significant rights and could harm our ability to commercialize our product candidates. For example, we are a party to an agreement with Stanford pursuant to which we in-license key patents and patent applications for our proprietary PhenoCycler product, as well as possible future product candidates and other technology used in our PhenoCycler product. We are also a party to license agreements with the University of Washington; Caliper Life Sciences, Inc.; and PKI, Cambridge Research, and VisEn Medical Inc., pursuant to in which we have in-licensed important patents that protect key aspects of our current and future technologies.

Our current license agreements impose, and future agreements may impose, various diligence, commercialization, milestone payment, royalty, insurance 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 these obligations, our licensors may have the right to terminate our license, in which event we would not be able to further develop or market our PhenoCycler product. For example, our license agreement with Stanford imposes various due diligence, development and commercialization obligations, milestone payments, royalties and other obligations on us.

Certain of our licenses, including certain licenses with Stanford may not provide us with exclusive rights to use the licensed intellectual property and technology, or may not provide us with exclusive rights to use such intellectual property and technology in all relevant fields of use and in all territories in which we may wish to develop or commercialize our technology and product candidates in the future. In addition, the intellectual property portfolio licensed to us by our licensors, including certain intellectual property licensed by Stanford, at least in some respects, may be used by such licensors or licensed to third parties, and such third parties may have certain enforcement rights with respect to such intellectual property. Thus, patents licensed to us could be put at risk of being invalidated or interpreted narrowly in litigation filed by or against our licensors or another licensee or in administrative proceedings brought by or against our licensors or another licensee in response to such litigation or for other reasons. As a result, we may not be able to prevent competitors or other third parties from developing and commercializing competitive products, including in territories covered by our licenses.

In addition, we may need or desire to obtain additional licenses from our existing licensors and others to advance our research or allow commercialization of product candidates we may develop. In addition, third parties may allege that we require a license to their intellectual property rights to use our software and technology in connection with the exploitation of our products. It is possible that we may be unable to obtain needed or desired additional licenses at a reasonable cost or on reasonable terms, if at all. In such an event, we may be required to expend significant time and resources to redesign our technology, product candidates, or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be liable for damages, which may be significant, and we may be unable to develop or commercialize the affected technology or product candidates, or face greater risk in the development or commercialization of such technologies and product candidates, which would significantly harm our business, financial condition, results of operations and prospects significantly. We cannot provide any assurances that third-party patents and other intellectual property rights do not exist which might be enforced against our current technology, manufacturing methods, product candidates, or future methods or products resulting in either an injunction prohibiting our manufacture or future sales, or, with respect to our future sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties, which could be significant. Even if we are able to obtain such additional licenses, they may be non-exclusive thereby giving our competitors and other third parties access to the same technology licensed to us.

In addition, we may seek to obtain additional licenses from our licensors 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 licensors, 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 product candidates.

For example, some of our future agreements with certain of our third-party research partners may provide that improvements developed in the course of our relationship may be owned solely by either us or our third-party research partner. If we determine that rights to such improvements owned solely by a third-party research partner or other third-party with whom we collaborate are necessary to commercialize our products or maintain our competitive advantage, we may need to obtain a license from such third-party in order to use the improvements and continue developing, manufacturing or marketing our products. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our product candidates or allow our competitors or others the chance to access technology that is important to our business.

Our success will depend in part on the ability of our licensors to obtain, maintain, protect and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications licensed to us. If we or our licensors fail to adequately protect our licensed intellectual property, our ability to commercialize our product candidates and technology could suffer. In addition, we may not have the right to control the maintenance, prosecution, preparation, filing, enforcement, defense and litigation of patents and patent applications that we license from other third parties. For example, in each of our agreements with Stanford; the University of Washington; and PKI, Cambridge Research and VisEn Medical Inc., we do not maintain control over the prosecution and maintenance of the licensed patents. We thus cannot be certain that activities such as the maintenance and prosecution by our licensors have been or will be conducted consistent with our best interests or in compliance with applicable laws and regulations, or will result in valid and enforceable patents and other intellectual property rights. It is possible that our licensors' infringement proceedings or defense activities may be less vigorous than had we conducted them ourselves or may not be conducted in accordance with our best interests. If our licensors fail to maintain such patents or patent applications, determine not to pursue litigation against other companies that are infringing these patents, pursue litigation less aggressively than we would, or lose rights to those patents or patent applications, the rights we have licensed may be reduced or eliminated, and our right to develop and commercialize any of our product candidates that are the subject of such licensed rights and our right to exclude third parties from commercializing competing products could be adversely affected. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own, which are described herein. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our products are dependent on intellectual property we license from third parties. If we fail to comply with our obligations under our intellectual property licenses, if the licenses are terminated, or if disputes regarding these licenses arise, we could lose significant rights that are important to our business and could interfere with our ability to operate our business.

Our instruments incorporate intellectual property we license from Stanford, with respect to PhenoCycler, and PKI, Cambridge Research and VisEn Medical Inc., with respect to PhenoImager. Disputes may arise regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights, if any, granted under the license agreement and other interpretation-related issues;
- our financial and other obligations under the license agreement;
- whether and the extent to which our technology and processes infringe, misappropriate or otherwise violate intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;

- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates and what activities satisfy those diligence obligations;
- the inventorship or ownership of inventions and know-how resulting from the creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected technology or product candidates.

Our license agreements are, and future license agreements are likely to be, 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.

In spite of our efforts, our current and future licensors might conclude that we have materially breached our obligations under our license agreements and might therefore terminate such license agreements, thereby removing or limiting our ability to develop and commercialize products and technology covered by these license agreements. If these in-licenses are terminated, or if the underlying patents fail to provide the intended exclusivity, competitors would have the freedom to seek regulatory approval of, and to market, products identical or competitive to ours and we may be required to cease our development and commercialization of certain of our product candidates. Moreover, if disputes over intellectual property that we license prevent or impair our ability to maintain other licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected technology or product candidates. In addition, certain of these license agreements may not be assignable by us without the consent of the respective licensor, which may have an adverse effect on our ability to engage in certain transactions. As a result, any termination of or disputes over our intellectual property licenses could result in the loss of our ability to develop and commercialize our product candidates, or we could lose other significant rights, experience significant delays in the development and commercialization of our product candidates, 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, a third-party may in the future bring claims that our performance under our license agreements, including our sponsoring of clinical trials, interferes with such third-party's rights under its agreement with one of our licensors. If any such claim were successful, it may adversely affect our rights and ability to advance our product candidates as clinical candidates or subject us to liability for monetary damages, any of which would have an adverse effect on our business, financial condition, results of operations and prospects.

Changes in patent law and its interpretation in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products and technologies.

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. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. We may not develop additional proprietary products, methods and technologies that are patentable.

Assuming that other requirements for patentability are met, prior to March 16, 2013, in the United States, the first to invent the claimed invention was entitled to the patent, while outside the United States, the first to file a patent application was entitled to the patent. On or after March 16, 2013, 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 will be entitled to the patent on an invention regardless of whether a third-party was the first to invent the claimed invention. A third-party that files a patent application in the USPTO on or after March 16, 2013, but before us could therefore be

awarded a patent covering an invention of ours even if we had made the invention before it was made by such third-party. This will require us to be cognizant of the time from invention to filing of a patent application. Since patent applications in the United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensors were the first to either file any patent application related to our products or technologies or invent any of the inventions claimed in our or our licensors' patents or patent applications.

The America Invents Act also included a number of significant changes that affect the way patent applications are prosecuted and also may affect patent litigation. These include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO-administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third-party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third-party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third-party as a defendant in a district court action. Therefore, the America Invents Act and its implementation have increased the uncertainties and costs surrounding the prosecution of our owned or in-licensed patent applications and the enforcement or defense of our owned or in-licensed issued patents.

In addition, the patent position of companies in the biotechnology field is particularly uncertain. Various courts, including the United States Supreme Court, have rendered decisions that affect the scope of patentability of certain inventions or discoveries relating to biotechnology. These decisions state, among other things, that a patent claim that recites an abstract idea, natural phenomenon or law of nature (for example, the relationship between particular genetic variants and cancer) are not themselves patentable. Precisely what constitutes a law of nature or abstract idea is uncertain and continues to evolve in the courts, and it is possible that certain aspects of our technology could be considered natural laws. Accordingly, the evolving statutory and case law in the United States may adversely affect our ability to obtain patents and may facilitate third-party challenges to any owned or licensed patents. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Issued patents covering our products and technologies could be found invalid or unenforceable if challenged or unenforceable if challenged in court or before administrative bodies in the United States or abroad, which could harm our business, financial condition and results of operations.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability. Our patents or patent applications (including licensed patents) may be challenged at the USPTO or foreign patent offices in opposition, derivation, reexamination, *inter partes* review, post-grant review, interference or other proceedings. Any successful third-party challenge to our patents could result in the unenforceability or invalidity of such patents, in whole or in part, which may lead to increased competition to our business, which could harm our business. In addition, in patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness 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 USPTO, or made a misleading statement, during prosecution. The outcome following legal assertions of invalidity and unenforceability during patent litigation is unpredictable. If a defendant 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 platform technologies. 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, 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 foreign patent offices that could result in substantial cost to us. The outcome of such proceedings is uncertain. No assurance can be given that third-party 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, we could experience significant costs and management distraction.

In addition, if we initiate legal proceedings against a third-party to enforce a patent covering our products, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness 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 USPTO or made a misleading statement during prosecution. Defenses of these types of claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. Third parties may also raise claims challenging the validity or enforceability of our patents before administrative bodies in the United States or abroad, even outside the context of litigation, including through re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings and equivalent proceedings in foreign jurisdictions (such as opposition proceedings). Such proceedings could result in the revocation of, cancellation of or amendment to our patents in such a way that they no longer cover our products or technologies. The outcome for any particular patent following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. 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 our products and technology. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our rights to develop and commercialize our products and technologies are subject, in part, to the terms and conditions of licenses granted to us by others.

We have in-licensed certain intellectual property rights from third parties, including Stanford and the University of Washington, with respect to our PhenoCycler platform, and PKI, Cambridge Research and VisEn Medical Inc. with respect to our PhenoImager platform, and we may license intellectual property rights from others in the future. See “Business — Licenses” for more information regarding such agreements. If, for any reason, our license agreements are terminated or we otherwise lose the rights associated with such licenses, it could adversely affect our business. Our current and any future license agreements may impose various development, commercialization, funding, diligence, sublicensing, insurance, patent prosecution and enforcement or other obligations on us, as well as milestone, royalty, annual maintenance and other payment obligations. If we breach any material obligations, or use the intellectual property licensed to us in an unauthorized manner, or if, in spite of our efforts, a collaborator or licensor concludes that we have materially breached our obligations under such agreement, we may be required to pay damages and the licensor may have the right to terminate the license, which could result in us being unable to develop, manufacture and commercialize products that are covered by the licensed technology or having to negotiate new or reinstated licenses on less favorable terms, or enable a competitor or other third-party to gain access to the licensed technology.

Licensing of intellectual property is of high importance to our business and involves complex legal, business and scientific issues. Disputes may arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- our compliance with reporting and financial obligations under our license agreements;

- whether and the extent to which our products and technologies infringe on, misappropriate or otherwise violate intellectual property of the licensor that is not subject to the license agreement;
- our right to sublicense the applicable intellectual or proprietary rights to third parties;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our products and technologies, and what activities satisfy those diligence obligations;
- our right to transfer or assign the license;
- the inventorship and/or ownership of patents, inventions, know-how and other intellectual property and proprietary rights resulting from activities performed by our licensors, us and our partners; and
- the priority of invention of patented technology.

These agreements may be 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. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our licensing arrangements on acceptable terms, we may not be able to successfully develop and commercialize the affected product candidates. In addition, certain of our agreements may limit or delay our ability to consummate certain transactions, may impact the value of those transactions, or may limit our ability to pursue certain activities. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we cannot acquire or license rights to use technologies on reasonable terms or at all, we may not be able to commercialize our current or any future products or technologies.

In the future, we may identify third-party intellectual property and technology we may need to license in order to engage in our business, including to develop or commercialize new products or technologies, and the growth of our business may depend in part on our ability to acquire, in-license or use this technology. However, such licenses may not be available to us on acceptable terms or at all. 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 development or commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. Even if such licenses are available, we may be required to pay the licensor in return for the use of such licensor's technology, including lump-sum payments, ongoing maintenance fees, payments based on certain milestones such as development and regulatory events and sales volumes, or royalties based on sales of our platform. In addition, such licenses may be non-exclusive, which could give our competitors and other third parties access to the same intellectual property licensed to us. We may also need to acquire or negotiate licenses to patents or patent applications before or after introducing a commercial product. The acquisition and licensing of third-party patent and other intellectual property and proprietary rights is a competitive area, and other companies may also be pursuing strategies to acquire or license such rights that we may consider attractive. Our business, financial condition, results of operations and prospects could be materially and adversely affected if we are unable to enter into necessary agreements on acceptable terms or at all, if any necessary licenses are subsequently terminated, if the licensors fail to abide by the terms of the licenses or fail to prevent infringement, misappropriation or other violation by third parties, or if the acquired or licensed patents or other rights are found to be invalid or unenforceable. Moreover, we could encounter delays in the introduction of products or services while we attempt to develop alternatives. Defense of any lawsuit or failure to obtain any of these licenses on favorable terms could prevent us from commercializing our current and any future products and technologies. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We have limited foreign intellectual property rights and we may not be able to protect our intellectual property rights throughout the world, which could harm our business, financial condition and results of operations.

We have limited intellectual property rights outside the United States. Filing, prosecuting and defending patents on our products, technologies, instruments and workflows 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. In addition, 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 may encounter difficulties in protecting and defending such rights in foreign jurisdictions. Consequently, we 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 inventions in and into the United States or other jurisdictions. Competitors or other third parties may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and may also export infringing products to territories where we have patent protection, but enforcement is not as strong as in the United States. These products may compete with our products. Our 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 and proprietary protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement, misappropriation or other violation of our intellectual property rights including infringement of our patents in such countries. Proceedings to enforce our 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 patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, or that are initiated against us, 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.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition and results of operations may be harmed.

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 on trade secrets and confidentiality agreements to protect our unpatented know-how, technology and other proprietary information, including parts of our technology platforms, and to maintain our competitive position. However, trade secrets and know-how can be difficult to protect. In addition to pursuing patents on our technology, we seek 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 advisors. However, we cannot be certain that such agreements have been entered into with all relevant parties. We therefore cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors or other third parties will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. For example, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the

event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure, which could adversely impact our ability to establish or maintain a competitive advantage in the market. If we are required to assert our rights against such party, it could result in significant cost and distraction. Depending upon the parties involved in such a breach, the available remedies may not provide adequate compensation for the value of any proprietary information disclosed to a third-party.

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 attempt to enforce a claim that a third-party had illegally obtained and was using our trade secrets, it would be expensive and time-consuming, and the outcome would be unpredictable. In addition, the scope of protection for trade secrets outside the United States varies widely and may be significantly less than in the United States, and damages and other remedies available for improper disclosure of proprietary information can differ substantially from those in the United States, and in some jurisdictions may not be available at all.

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. If any of our trade secrets were to be disclosed to or independently discovered by a competitor or other third-party, it could harm 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 trade secrets or other confidential information of their former employers or other third parties or claims asserting ownership of what we regard as our own intellectual property.

We have employed and expect to employ individuals who were previously employed 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 the 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 deliberately, inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other 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. 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.

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. Any of the foregoing could harm 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 impeding our ability to build brand identity and possibly leading to market confusion. If they succeed in registering or developing common law rights in such trademarks, and if we are not successful in challenging such rights, we may not

be able to use these trademarks to develop brand recognition of our technologies, products or services. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Further, we may in the future be required to enter into agreements with owners of such third-party trade names or trademarks to avoid potential trademark litigation which may limit our ability to use our trade names or trademarks in certain fields of business.

We have not yet registered certain of our trademarks in all of our potential markets, although we have registered 10 trademarks in the United States as well as certain of our trademarks outside of the United States. If we apply to register these trademarks in other countries, and/or other trademarks in the United States and other countries, our applications may not be allowed for registration in a timely fashion or at all; and further, our registered trademarks may not be maintained or enforced. In addition, opposition or cancellation proceedings have been, or may in the future be, filed against our trademark applications and registrations, and our trademarks may not survive such proceedings. In addition, third parties may file first for our trademarks in certain countries. If they succeed in registering such trademarks, and if we are not successful in challenging such third-party rights, we may not be able to use these trademarks to market our products and technologies in those countries. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively, which could harm our business, financial condition, results of operations and prospects. Over the long-term, if we are unable to establish name recognition based on our trademarks, then our marketing abilities may be materially adversely impacted.

We may be subject to claims challenging the ownership or inventorship of our patents and other intellectual property and, if unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms, or at all, or to cease the development, manufacture and commercialization of one or more of our products.

We or our licensors 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 licensors may have inventorship disputes arise from conflicting obligations of employees, consultants or others who are involved in developing our products.

Litigation may be necessary to defend against these and other claims challenging inventorship of our or our licensors' owned or in-licensed patents, trade secrets or other intellectual property. If we 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 systems, including our software, workflows, consumables and reagent kits. If we or our licensors were to lose exclusive ownership of such intellectual property, other owners may be able to license their rights to other third parties, including our competitors. We also may be required to obtain and maintain licenses from third parties, including parties involved in any such disputes. 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 one or more of our products. The loss of exclusivity or the narrowing of our patent claims could limit our ability to stop others from using or commercializing similar or identical technology and products. 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. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

We may become involved in litigation related to intellectual property, which could be time-intensive and costly and may adversely affect our business, financial condition, results of operations and prospects, and may require us to pay damages, or prevent us from making our existing or future products.

In recent years, there has been significant litigation in the United States involving intellectual property rights. Our commercial success depends in part upon our ability and that of our contract manufacturers and suppliers to manufacture, market, and sell our products and to use our proprietary technologies without infringing, misappropriating or otherwise violating the proprietary rights or intellectual property of third parties. We may in the future be involved in litigation or actions at the USPTO with various third parties that claim we or our partners or customers using our

solutions and services have infringed, misappropriated, misused or otherwise violated other parties' intellectual property rights. We expect that the number of such claims may increase as the number of our products, instruments, workflows, and the level of competition in our industry segments, grow. Any claim of infringement, misappropriation or other violation, regardless of its validity, could harm our business by, among other things, resulting in time-consuming and costly litigation, diverting management's time and attention from the development of the business, requiring the payment of monetary damages (including treble damages and attorneys' fees in circumstances where infringement of patent rights is deemed to be willful) or royalty payments, or result in potential or existing customers delaying purchases of our products or entering into engagements with us pending resolution of the dispute.

As we move into new markets and applications for our platforms, incumbent participants in such markets may assert their patents and other intellectual property and proprietary rights against us as a means of slowing our entry into such markets or as a means to extract substantial license and royalty payments from us. Our competitors and others may now and, in the future, have significantly larger and more mature patent portfolios than we currently have. In addition, future litigation may involve patent holding companies or other adverse patent owners who have no relevant product or service revenue and against whom our own patents may provide little or no deterrence or protection. Therefore, our commercial success may depend in part on our ability to avoid infringing, misappropriating or otherwise violating the patents or other intellectual property and proprietary rights of third parties, or our ability to prove the invalidity or unenforceability of such rights.

Our research, development and commercialization activities may in the future be subject to claims that we infringe, misappropriate or otherwise violate patents or other intellectual property or proprietary rights owned or controlled by third parties. There is a substantial amount of patent challenges and other litigation involving intellectual property and proprietary rights, both within and outside the United States, in the biotechnology industry, including patent infringement lawsuits, interferences, *inter partes* review, *ex parte* review, and post-grant review proceedings before the USPTO and corresponding proceedings (such as oppositions) in foreign patent offices. Numerous U.S. and foreign issued patents and pending patent applications owned by third parties exist in the fields in which we are developing products. As the biotechnology industry expands and more patents are issued, the risk increases that our products may be subject to claims of infringement of the patent rights of third parties. Numerous significant intellectual property issues have been litigated, are being litigated and will likely continue to be litigated, between existing and new participants in our existing and targeted markets, and one or more third parties may assert that our products or services infringe, misappropriate or otherwise violate their intellectual property or proprietary rights as part of a business strategy to impede our successful entry into or growth in those markets.

Third parties may assert that we are employing their proprietary technology without authorization. In addition, we may in the future receive correspondence from third parties referring to the relevance of such third parties' intellectual property to our technology, our workflows or our advanced automated systems.

Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our current or future products and services may be accused of infringing. In addition, we expect our competitors and other third parties may have patents or other intellectual property rights or may in the future obtain patents or other intellectual property rights and allege that making, having made, using, selling, offering to sell or importing our platforms, or the systems, workflows, consumables and reagent kits that comprise our platforms, infringe, misappropriate or otherwise violate these patents and other intellectual property rights. Pending patent applications that may or may not have been published can, subject to certain limitations, be later amended in a manner that may be alleged to cover our platforms, including our products, instruments and workflows. Future patent applications that are related to currently pending patent applications filed by third parties may also be alleged to cover our products, instruments and workflows.

Under the applicable laws of various jurisdictions, the scope of a patent claim is determined by a variety of factors which can include, but are not limited to, an interpretation of statutes, decisions of courts of competent jurisdiction, the written disclosure in a patent, the patent's prosecution history, and an understanding of the scope of knowledge available to a person of ordinary skill in the particular art to which the patent claim pertains at the earliest effective priority date of the patent claim. These various factors can be weighed differently in different jurisdictions, and some may not be taken into account at all. Our interpretation of the meaning or the scope of one or more claims of an issued patent or a pending

application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by third-party patent claims or may incorrectly predict whether a third-party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our products. In order to successfully challenge the validity of a U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent.

Even if we believe third-party intellectual property claims are without merit, there can be no assurance that we will prevail in any suit initiated against us by third parties, successfully reach a settlement, or otherwise resolve patent or other intellectual property-related claims. Third parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize and sell products or services, import or export products, components, reagents and other articles, and could result in the award of substantial damages against us, including treble damages and attorney's fees if we are found to have willfully infringed a patent. In the event of a successful claim of infringement, misappropriation or other violation against us, we may be required to pay damages and ongoing royalties, and obtain one or more licenses from third parties, or be prohibited from selling certain products or services. We may not be able to obtain these licenses on acceptable or commercially reasonable terms, if at all, or these licenses may be non-exclusive, which could result in our competitors or other third parties gaining access to the same intellectual property. In addition, we could encounter delays and incur significant costs in product or service introductions while we attempt to develop alternative products or services or redesign our products or services in order to avoid infringing, misappropriating or otherwise violating third-party patents or other intellectual property and proprietary rights. Defense of any lawsuit or failure to obtain any of these licenses or to develop a workaround could prevent us from commercializing our products and technologies, and the prohibition of sale or the threat of the prohibition of sale of any of our products or technologies could materially affect our business and our ability to gain market acceptance for our products and technologies.

In addition, our agreements with some of our customers, suppliers or other entities with whom we do business require us to defend or indemnify these parties to the extent they become involved in infringement claims, including the types of claims described above. We could also voluntarily agree to defend or indemnify third parties in instances where we are not obligated to do so if we determine it would be important to our business relationships. If we are required or agree to defend or indemnify third parties in connection with any infringement claims, we could incur significant costs and expenses. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Intellectual property litigation could cause us to spend substantial resources, distract our personnel from their normal responsibilities and result in negative publicity and other harms.

Litigation or other legal proceedings relating to intellectual property claims, even if resolved in our favor, may cause us to incur substantial costs and divert the attention of our management and technical personnel from their normal responsibilities in defending against any of these claims. Parties making claims against us may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Such litigation or proceedings could substantially increase our operating costs and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of intellectual property proceedings could harm our ability to compete in the marketplace. In addition, 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. There also 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 common stock. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

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

Third parties, including our competitors, could infringe, misappropriate or otherwise violate our intellectual property and proprietary rights. Monitoring unauthorized use of our intellectual property is difficult and costly. 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 proprietary rights may not be adequate to enforce our rights as against such infringement, misappropriation or other violation of our intellectual property. We may not be able to detect unauthorized use of, or take appropriate steps to enforce, our intellectual property rights. Any inability to meaningfully enforce our intellectual property rights could harm our ability to compete and reduce demand for our products and services.

Litigation may be necessary for us to enforce our patent and other proprietary rights or to determine the scope, coverage and validity of the proprietary rights of others. We are not currently engaged in any lawsuits based upon allegations of infringement, misappropriation or other violation of intellectual property or proprietary rights. If we become engaged in litigation related to intellectual property rights and we do not prevail in such legal proceedings, we may be required to pay damages and we may lose significant intellectual property protection for our products or services, such that competitors could copy our products or services. Any litigation that may be necessary in the future 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. In any lawsuit we bring to enforce our intellectual property rights, a court may refuse to the stop the other party from using the technology at issue on grounds that our intellectual property rights 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. The outcome in any such lawsuits are unpredictable. Even if we do prevail in any future litigation related to intellectual property rights, the cost and time requirements of the litigation could negatively impact our financial results.

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 our patents and/or applications. We have systems in place to remind us to pay these fees, and we engage an outside service and rely on our outside counsel to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. governmental patent agencies also require compliance with a number of procedural, documentary and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply, but we also may be dependent on our licensors 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 and other third parties may be able to enter the market without infringing our patents, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

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

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest claimed priority date. Modifications to this lifetime may occur, but the life of a patent, and the protection it affords, is limited. Even if patents covering our products are obtained, once the patent term 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 within a commercially meaningful window.

Our use of “open source” software could adversely affect our ability to offer our products and technologies and subject us to possible litigation.

We use open source software in connection with our products and technologies. Companies that incorporate open source software into their technologies have, from time to time, faced claims challenging the use of open source software and/or compliance with open source license terms. As a result, we could be subject to suits by parties claiming ownership of what we believe to be open source software or claiming non-compliance with open source licensing terms. Some open source software licenses require users who distribute software containing open source software to publicly disclose all or part of the source code to such software and/or make available any derivative works of the open source code, which could include valuable proprietary code of the user, on unfavorable terms or at no cost. While we monitor our use of open source software and try to ensure that none is used in a manner that would require us to disclose our internally developed source code or that would otherwise breach the terms of an open source agreement, such use could inadvertently occur, in part because open source license terms are often ambiguous. In addition to risks related to license requirements, use of certain open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or controls on the origin of software which, thus, may contain security vulnerabilities or infringing or broken code. Any requirement to publicly disclose our internally developed source code or pay damages for breach of contract could have a material adverse effect on our business, financial condition, results of operations and prospects and could help our competitors develop products and technologies that are similar to or better than ours.

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 and technologies that are similar to any products and technologies we may develop but that are not covered by the claims of the patents that we own or license;
- we, or our current or future license partners or collaborators, might not have been the first to make the inventions covered by our owned or licensed issued patents or pending patent applications;
- we, or our current or future license partners or collaborators, 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 our owned or licensed intellectual property rights;
- it is possible that our current and future owned or licensed pending patent applications will not lead to issued patents;
- it is possible that there are prior public disclosures that could invalidate our issued patents, or parts of our issued patents;
- it is possible that there are unpublished applications or patent applications maintained in secrecy that may later issue with claims covering our product candidates or technology similar to ours;
- the claims of our patent applications, if and when issued, may not cover our products or technologies;

- the laws of foreign countries may not protect our proprietary rights or the proprietary rights of license partners or current or future collaborators to the same extent as the laws of the United States;
- the inventors of our patent applications may become involved with competitors, develop products or processes that design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors;
- we engage in scientific collaborations and will continue to do so in the future, and our collaborators may develop adjacent or competing products that are outside the scope of our patents;
- any products or technologies we develop may be covered by third parties' patents or other exclusive rights;
- 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 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 in order to maintain 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 have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to Ownership of Our Common Stock

The market price of our common stock has been and is likely to continue to be volatile, and you may be unable to sell your shares at or above the price at which you purchased them.

The market price of our common stock is highly volatile and may fluctuate substantially due to many factors, including:

- actual or anticipated fluctuations in our financial condition and operating results, including fluctuations in our quarterly and annual results;
- the introduction of new products or product enhancements by us or others in our industry;
- variances in our product and system reliability;
- overall conditions in our industry and the markets in which we operate;
- disputes or other developments with respect to our or others' intellectual property or proprietary rights;
- actual or anticipated changes in our operating results or growth rate as a result of our competitors' operating results;

- our ability to develop, obtain any required regulatory clearance or approval for, and market new and enhanced products on a timely basis;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- product liability claims or other litigation;
- announcement or expectation of additional financing effort;
- sales of our common stock by us or our stockholders;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- media exposure of our products or of those of others in our industry;
- the COVID-19 pandemic and its impact on our ability to receive products and supplies from third parties and our ability to sell our products;
- changes in applicable governmental regulations or in the status of our regulatory approvals or applications;
- changes in earnings estimates or recommendations by securities analysts; and
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

In recent years, the stock markets generally have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of listed companies. Broad market and industry factors may significantly affect the market price of our common stock, regardless of our actual operating performance. As a result, you may not realize any return on your investment in us and may lose some or all of your investment.

In addition, in the past, class action litigation has often been instituted against companies whose securities have experienced periods of volatility in market price. Securities litigation brought against us following volatility in our stock price, regardless of the merit or ultimate results of such litigation, could result in substantial costs, which would hurt our financial condition and operating results and divert management's attention and resources from our business.

Securities analysts may not publish favorable research or reports about our business or may publish no information at all, which could cause our stock price or trading volume to decline.

The trading market for our common stock is influenced to some extent by the research and reports that industry or financial analysts publish about us and our business. We do not control these analysts. As a newly public company, we may be slow to attract research coverage and the analysts who publish information about our common stock will have had relatively little experience with us or our industry, which could affect their ability to accurately forecast our results and could make it more likely that we fail to meet their estimates. If any of the analysts who cover us provide inaccurate or unfavorable research or issue an adverse opinion regarding our stock price, our stock price could decline. If one or more of these analysts cease coverage of us or fail to publish reports covering us regularly, we could lose visibility in the market, which in turn could cause our stock price or trading volume to decline.

We are an “emerging growth company” and a “smaller reporting company” and the reduced disclosure requirements applicable to “emerging growth companies” and “smaller reporting companies” may make our common stock less attractive to investors.

We are an “emerging growth company,” as defined in the JOBS Act, and we may take advantage of certain exemptions and relief from various reporting requirements that are applicable to other public companies that are not

“emerging growth companies.” In particular, while we are an “emerging growth company,” we will not be required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act; we will be exempt from any rules that could be adopted by the Public Company Accounting Oversight Board requiring mandatory audit firm rotations or a supplement to the auditor’s report on financial statements; we will be subject to reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements; and we will not be required to hold nonbinding advisory votes on executive compensation or stockholder approval of any golden parachute payments not previously approved.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

We may remain an “emerging growth company” until the fiscal year-end following the fifth anniversary of the completion of our initial public offering, though we may cease to be an “emerging growth company” earlier under certain circumstances, including if (i) we have more than \$1.07 billion in annual revenue in any fiscal year, (ii) the date on which we are deemed to be a large accelerated filer under the rules of the SEC or (iii) we issue more than \$1.0 billion of non-convertible debt over a three-year period.

The exact implications of the JOBS Act are subject to interpretations and guidance by the SEC and other regulatory agencies, and we cannot assure you that we will be able to take advantage of all of the benefits of the JOBS Act. In addition, investors may find our common stock less attractive to the extent we rely on the exemptions and relief granted by the JOBS Act. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may decline or become more volatile.

We are also a “smaller reporting company,” meaning that the market value of our stock held by non-affiliates is less than \$700 million as of the last trading day of our second quarter and our annual revenue is less than \$100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company if either (i) the market value of our stock held by non-affiliates is less than \$250 million or (ii) our annual revenue is less than \$100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than \$700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

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

The preparation of financial statements in conformity with generally accepted accounting principles, or 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 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. If our assumptions change or if actual circumstances differ from our assumptions, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

Future sales and issuances of our common stock or rights to purchase our common stock, including pursuant to our equity incentive plans, or other equity securities or securities convertible into our common stock, could result in additional dilution of the percentage ownership of our stockholders and could cause the stock price of our common stock to decline.

In the future, we may sell common stock, other series of common stock, convertible securities, or other equity securities, including preferred securities, in one or more transactions at prices and in a manner we determine from time to time. We also expect to continue to issue common stock to employees, consultants, and directors pursuant to our equity incentive plans. If we sell common stock, other series of common stock, convertible securities, or other equity securities in subsequent transactions, or common stock is issued pursuant to equity incentive plans, stockholders may be materially diluted. New investors in subsequent transactions could gain rights, preferences, and privileges senior to those of holders of our common stock.

We do not intend to pay dividends for the foreseeable future. Consequently, any gains from an investment in our common stock will likely depend on whether the price of our common stock increases.

We have not and do not intend to pay any dividends on our common stock in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the operation and growth of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, stockholders must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments. Furthermore, our Midcap Trust Term Loan contain negative covenants that limit our ability to pay dividends. For more information, see the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources.”

Our directors, officers and principal stockholders have significant voting power and may take actions that may not be in the best interests of our other stockholders.

Our officers, directors and principal stockholders each holding more than 10% of our common stock, collectively control approximately 42.5% of our outstanding common stock as of December 31, 2021. As a result, these stockholders, if acting together, have significant influence over the outcome of corporate actions requiring stockholder approval, including the election of directors, amendment of our organizational documents, any merger, consolidation or sale of all or substantially all of our assets and any other significant corporate transaction. The interests of these stockholders may not be the same as or may even conflict with your interests. For example, these stockholders could delay or prevent a change of control of our company, even if such a change of control would benefit our other stockholders, which could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company or our assets and might affect the prevailing market price of our common stock. The significant concentration of stock ownership may adversely affect the trading price of our common stock due to investors’ perception that conflicts of interest may exist or arise.

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

As a public company, and particularly after we are no longer an emerging growth company or smaller reporting company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, Nasdaq listing requirements and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, we expect these rules and regulations to substantially increase our legal and financial compliance costs and to make some activities more time consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain sufficient coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as

executive officers. Moreover, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

If we experience material weaknesses in the future or otherwise fail to implement and maintain an effective system of internal controls in the future, we may not be able to accurately report our financial condition or results of operations which may adversely affect investor confidence in us and, as a result, the value of our common stock.

As a result of becoming a public company, we will be required, under Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting beginning with our Annual Report on Form 10-K for the year ended December 31, 2022. This assessment will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. A material weakness is a deficiency or combination of deficiencies in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company's annual and interim financial statements will not be detected or prevented on a timely basis.

The rules governing the standards that must be met for management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. To comply with the requirements of being a reporting company under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), including performing the evaluation needed to comply with Section 404, we will need to implement additional financial and management controls, reporting systems and procedures and hire additional accounting and finance staff. We may not be able to complete our evaluation, testing and any required remediation in a timely fashion. During the evaluation and testing process, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal controls are effective. The effectiveness of our controls and procedures may be limited by a variety of factors, including:

- faulty human judgment and simple errors, omissions or mistakes;
- fraudulent action of an individual or collusion of two or more people;
- inappropriate management override of procedures; and
- the possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial control.

We cannot assure you that there will not be material weaknesses in our internal control over financial reporting in the future. Any failure to implement and maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness in our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

When we cease to be an "emerging growth company" under the JOBS Act, our auditors will be required to express an opinion on the effectiveness of our internal controls, unless we are then eligible for any other exemption from such requirement. If we are unable to confirm that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion on the effectiveness of our internal controls, we could lose investor confidence in the accuracy and completeness of our financial reports, which could cause the price of our common stock to decline.

The failure to successfully implement and maintain accounting systems could materially adversely impact our business, results of operations, and financial condition.

If our revenue and other accounting or tax systems do not operate as intended or do not scale with anticipated growth in our business, the effectiveness of our internal control over financial reporting could be adversely affected. Any failure to develop, implement, or maintain effective internal controls related to our revenue and other accounting or tax systems and associated reporting could materially adversely affect our business, results of operations, and financial condition or cause us to fail to meet our reporting obligations. In addition, if we experience interruptions in service or operational difficulties with our revenue and other accounting or tax systems, our business, results of operations, and financial condition could be materially adversely affected.

Our results of operations and financial condition could be materially adversely affected by changes in accounting principles.

The accounting for our business is subject to change based on the evolution of our business model, interpretations of relevant accounting principles, enforcement of existing or new regulations, and changes in policies, rules, regulations, and interpretations, of accounting and financial reporting requirements of the SEC or other regulatory agencies. Adoption of a change in accounting principles or interpretations could have a significant effect on our reported results of operations and could affect the reporting of transactions completed before the adoption of such change. It is difficult to predict the impact of future changes to accounting principles and accounting policies over financial reporting, any of which could adversely affect our results of operations and financial condition and could require significant investment in systems and personnel.

Provisions in our corporate charter documents and under Delaware law could make an acquisition of us more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and our amended and restated bylaws may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. Among others, these provisions include that:

- our board of directors has the right to expand the size of our board of directors and to elect directors to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- our board of directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered three-year terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- our stockholders may not act by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- a special meeting of stockholders may be called only by the chair of the board of directors, the chief executive officer, or a majority of the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- our amended and restated certificate of incorporation prohibits cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;

- our board of directors may alter our bylaws without obtaining stockholder approval;
- the required approval of the holders of at least two-thirds of the voting power of all of the then outstanding shares of voting stock to adopt, amend or repeal our bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- stockholders must provide advance notice and additional disclosures in order to nominate individuals for election to the board of directors or to propose matters that can be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of our company; and
- our board of directors is authorized to issue shares of preferred stock and to determine the terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws and our indemnification agreements that we have entered into with our directors and officers provide that:

- we will indemnify our directors and officers to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful;
- we may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law;
- we are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers will undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification;
- the rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons; and
- we may not retroactively amend our amended and restated bylaw provisions to reduce our indemnification obligations to directors, officers, employees, and agents.

While we have procured directors' and officers' liability insurance policies, such insurance policies may not be available to us in the future at a reasonable rate, may not cover all potential claims for indemnification, and may not be adequate to indemnify us for all liability that may be imposed.

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

Our amended and restated certificate of incorporation specifies that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for most legal actions involving actions brought against us by stockholders; provided that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware. Our amended and restated certificate of incorporation also provides that the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action against us or any of our directors, officers, employees or agents and arising under the Securities Act of 1933, as amended (the "Securities Act"). We believe these provisions may benefit us by providing increased consistency in the application of Delaware law and federal securities laws by chancellors and judges, as applicable, particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, these provisions may have the effect of discouraging lawsuits against our directors and officers. The choice of forum provision requiring that the Court of Chancery of the State of Delaware be the exclusive forum for certain actions would not apply to suits brought to enforce any liability or duty created by the Exchange Act.

There is uncertainty as to whether a court would enforce such provisions, and the enforceability of similar choice of forum provisions in other companies' charter documents has been challenged in legal proceedings. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. If a court were to find these types of provisions to be inapplicable or unenforceable, and if a court were to find the exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could materially adversely affect our business.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. Any future determination related to dividend policy will be made at the discretion of our board of directors, subject to applicable laws and the restrictions set forth in any of our contractual agreements, and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions and capital requirements. In addition, any future debt or preferred securities or future debt agreements we may enter may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

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

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, if a corporation undergoes an "ownership change," generally defined as a cumulative change of more than 50 percentage points (by value) in its equity ownership by certain stockholders over a three-year period, the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change income or taxes may be limited. We may have experienced at least one ownership change in the past, and we may experience ownership changes in the future as a result of shifts in our stock ownership (some of which shifts are outside our control). As a result, if we earn net taxable income, our ability to use our pre-change NOL carryforwards to offset such taxable income will be subject to limitations. Similar provisions of state tax law may also apply to limit our use of accumulated state tax attributes. As a result, even if we attain profitability, we may be unable to use a material portion of our NOL carryforwards and other tax attributes, which could adversely affect our future cash flows.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters, research and development facilities and manufacturing and distribution centers are located in Marlborough, Massachusetts and Menlo Park, California, where we lease in aggregate approximately 48,833 and 20,675 square feet of space, respectively, under leases expiring between December 31, 2023 and May 31, 2027. We do not own any real property and believe that our current facilities, together with our global headquarters and research and development center, 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

From time to time, we may be subject to legal proceedings. We are not currently a party to or aware of any proceedings that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

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

Certain Information Regarding the Trading of Our Common Stock

Our common stock trades under the symbol "AKYA" on the Nasdaq Global Select Market. Trading of our common stock commenced on April 16, 2021 in connection with our initial public offering ("IPO"). Prior to that time, there was no established public market for our common stock.

Holder of Our Common Stock

As of February 28, 2022, there were approximately 35 holders of record of our common stock. The actual number of holders of our common stock 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 or held by other "nominees." The number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

Securities Authorized for Issuance Under Equity Compensation Plans

Information about our equity compensation plans will be included in our definitive proxy statement to be filed with the SEC with respect to our 2022 Annual Meeting of Stockholders ("2022 Proxy Statement") and is incorporated herein by reference.

Recent Sales of Unregistered Equity Securities

Set forth below is information regarding securities issued or granted by us during the period covered by this Annual Report on Form 10-K that were not registered under the Securities Act. The information presented in this Item 5 gives effect to a 1-for-2.33 reverse stock split, which became effective on April 9, 2021.

Issuance of Class A Common Stock upon Conversion of Preferred Stock and Class B Common Stock

Immediately prior to completing the IPO, all preferred stock converted into 26,545,579 shares of common stock, and all outstanding shares of the Company's Class B common stock converted on a 1 for 1 basis into 2,835,099 shares of the Company's Class A common stock. The issuance of such common shares was exempt from the registration requirements of the Securities Act, pursuant to Section 3(a)(9) of the Securities Act, involving an exchange of securities exchanged by the issuer with its existing security holders exclusively where no commission or other remuneration is paid or given directly or indirectly for soliciting such exchange. No underwriters were involved in this issuance of shares.

Grants and Exercises of Stock Options

During the period covered by this Annual Report on Form 10-K, we granted options to purchase an aggregate of 1,369,451 shares of common stock, with exercise prices ranging from \$0.84 to \$16.12 per share, to directors, employees and consultants pursuant to our 2015 Equity Incentive Plan, or the 2015 Plan. During 2021, an aggregate of 747,758 shares of common stock were issued upon the exercise of stock options pursuant to the 2015 Plan, with exercise prices ranging from \$0.12 to \$0.91 per share.

No underwriters were involved in the foregoing issuance of securities. The issuances of the securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act or Rule 701 promulgated under the Securities Act as transactions pursuant to compensatory benefit plans. The shares of common stock issued upon the exercise of stock options or warrants are deemed to be restricted securities. All recipients either received adequate information about us or had access, through employment or other relationships, to such information.

Use of Proceeds from Initial Public Offering

On April 20, 2021, we closed our IPO, in which we issued and sold 7,567,000 shares of common stock, including the full exercise of the underwriters' option to purchase additional shares. The offer and sale of all of the shares in the IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-254760), which was declared effective by the SEC on April 15, 2021. J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Piper Sandler & Co. and Canaccord Genuity LLC acted as the underwriters. The public offering price of the shares sold in the offering was \$20.00 per share. The total gross proceeds from the offering were \$151.3 million. After deducting underwriting discounts and commissions and offering expenses paid or payable by us, the net proceeds from the offering were approximately \$138.6 million.

There has been no material change in the planned use of proceeds from our IPO as described in our prospectus dated April 15, 2021 and filed with the SEC on April 19, 2021 in connection with our IPO.

Issuer Purchases of Equity Securities

We did not purchase any of our equity securities during the period covered by this Annual Report on Form 10-K.

Dividends

We have never declared or paid any cash dividends on our common stock, and we do not currently intend to pay any cash dividends on our common stock in the foreseeable future. We currently intend to retain any future earnings for use in the operation and expansion of our business, and we do not plan to declare or pay cash dividends in the foreseeable future. Any further determination to pay dividends on our capital stock will be at the discretion of our board of directors, subject to applicable laws, and will depend on our financial condition, results of operations, capital requirements, general business conditions, and other factors that our board of directors considers relevant. In addition, our ability to pay dividends is currently restricted by the terms of our Midcap Trust Term Loan.

Item 6. [Reserved]

Not applicable.

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

You should read the following discussion and analysis of financial condition and results of operations together with our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K and our audited consolidated financial statements and notes thereto. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those in the Annual Report, as referred to in the section titled "Risk Factors." Please also see the section titled "Special Note Regarding Forward-Looking Statements."

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery and clinical research. Our mission is to deliver a revolutionary new class of spatially derived biomarkers that empower life sciences researchers to better understand disease and clinicians to improve patient outcomes. Spatial biology refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single-cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through our PhenoCycler™ (formerly CODEX®) and PhenoImager™ (formerly Phenoptics™) platforms, reagents, software and services, we offer end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum from discovery through translational and clinical research.

Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as next-generation sequencing (NGS), single-cell analysis, flow cytometry and mass spectrometry, are providing meaningful data but require the destruction of the tissue sample for analysis. While valuable and broadly adopted, these approaches allow scientists to analyze the biomarkers and cells that comprise the tissue but do not provide the fundamental information about tissue structure, cellular interactions and the localized measurements of key biomarkers. Furthermore, current non-destructive tissue analysis and histological methods provide some limited spatial information, but only measure a minimal number of biomarkers at a time and require expert pathologist interpretation. Our platforms address these limitations by providing end-to-end solutions that enable researchers to quantitatively interrogate a large number of biomarkers and cell types across a tissue section at single cell resolution. The result is a detailed and computable map of the tissue sample that thoroughly captures the underlying tissue dynamics and interactions between key cell types and biomarkers, a process now referred to as spatial phenotyping. We believe that we are the only business with the breadth of platform capabilities that enable researchers to do a deep exploratory and discovery study, and then further advance and scale their research through the translational and clinical phases, leading to a better understanding of human biology, disease progression and response to therapy.

We offer distinct stand-alone as well as integrated platforms for spatial phenotyping, designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The PhenoCycler (formerly CODEX), is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The Phenolmager platforms (formerly Phenoptics), which includes the newly introduced Fusion instrument and HT instrument (formerly Vectra Polaris), provide high-throughput with the automation and robustness needed for translational and clinical applications. Furthermore, the PhenoCycler and the Phenolmager Fusion can be integrated into a combined system, PhenoCycler-Fusion System, to enable spatial discovery at scale. Together, the systems offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas.

For the years ended December 31, 2021 and 2020, revenue from North America accounted for approximately 51% and 47% of our revenue, respectively.

As of December 31, 2021, we employed a commercial team of 148 employees, including many with significant industry and technical experience. This total includes field instrument service personnel who are classified in cost of goods sold in our consolidated statements of operations. We follow a direct sales model in North America and EMEA, while selling through third-party distributors and dealers in APAC.

We focus a substantial portion of our resources on research and development, as well as on business development and sales and marketing. Our research and development efforts are geared towards developing new instruments and assay capabilities, as well as new reagent kits, to meet both our customers' needs and to address new markets. We intend to continue making significant investments in this area for the foreseeable future. We also intend to continue to make investments in building our sales team and marketing our products and services to potential customers.

We generally outsource all of our production manufacturing. Design work, prototyping and pilot manufacturing are performed in-house before outsourcing to third-party contract manufacturers. Our outsourced production strategy is intended to drive cost leverage and scale and avoid the high capital outlays and fixed costs related to constructing and operating a manufacturing facility. The contract manufacturers of our systems and reagent kits are located in the United States and Asia. Certain of our suppliers of components and materials are single source suppliers. We manufacture and assemble certain instrument components in-house.

As of the date of this Annual Report on Form 10-K, we have financed our operations primarily from the issuance and sale of convertible preferred stock, borrowings under our long-term debt agreement, and our IPO. We have incurred net losses in each year since our inception in 2015. Our net losses were \$42.9 million and \$16.7 million for the years ended December 31, 2021 and 2020, respectively. We expect to continue to incur significant expenses and operating

losses for the foreseeable future. We expect our expenses will increase substantially in connection with our ongoing activities, as we:

- attract, hire and retain qualified personnel, including the expansion of our commercial capabilities and organizations;
- market and sell new and existing solutions and services;
- invest in processes and infrastructure to scale our business;
- support research and development to introduce new solutions;
- expand, protect and defend our intellectual property; and
- acquire complementary businesses or technologies to support the growth of our business.

Key factors affecting our results of operations and future performance

There are a number of factors that have impacted, and we believe will continue to impact, our business, results of operations and growth. Our ability to successfully address these factors is subject to various risks and uncertainties, including those described under the heading “*Risk Factors*.”

Expansion of our installed base

We are focused on increasing sales of our PhenoCycler and PhenoImager platforms to new and existing customers. Our financial performance has historically been driven by, and will continue to be impacted by, the volume of instrument sales. Additionally, instrument sales are a leading indicator of future recurring revenue from consumables and services. Our operating results and growth prospects will be dependent in part on our ability to increase our instrument installed base as we further penetrate existing markets and expand into, or offer new features and solutions that appeal to, new markets.

We believe our market is still evolving and relatively underpenetrated. As spatial biology is further validated through rapid acceleration of peer-reviewed publications and growing adoption by the life sciences research market, we believe we have an opportunity to significantly increase our installed base. In order to capitalize on this opportunity to drive adoption of our platforms across the entire market, we intend to expand our global sales and marketing organizations, increase the scale of our outbound marketing activities, invest in commercial channel infrastructure and deliver new, market-leading solutions to our customers. In addition, we regularly solicit feedback from our customers in order to enhance our solutions and their applications for life sciences research, which we believe will drive increased adoption of our platforms as they better serve our customers’ needs.

Drive incremental pull through

We believe that expansion of our installed base to new and existing customers will drive an increase in our recurring reagent and instrument service revenue. In addition, as our research and development team identifies and launches new applications and biomarker targets, we expect to increase incremental pull through on our existing and new instrument installed base. Recurring revenue was 38% and 33% for the years ended December 31, 2021 and 2020, respectively. Our recurring revenue as a percentage of total product and service revenue will vary based upon new device placements in the period. As our installed base expands, we expect recurring revenue on an absolute basis to increase and become an increasingly important contributor to our revenue.

Improve revenue mix and gross margin

Our revenue is primarily derived from sales of our platforms, consumables, software, and services. Our revenue mix will fluctuate from period-to-period, particularly revenue generated from instrument sales. As our installed base grows, we expect consumables and instrument service revenue to constitute a larger percentage of total revenue.

Our margins are higher for those instruments and consumables that we sell directly to customers compared to those sold through distributors. While we do not currently intend to terminate our distributor relationships, we plan to increase our direct sales capabilities in certain geographies which we believe will improve our gross margins.

Future instrument and consumable selling prices and gross margins may fluctuate due to a variety of factors, including the introduction by others of competing products and solutions. We aim to mitigate downward pressure on our average selling prices by increasing the value proposition offered by our instruments and consumables, primarily by expanding the applications for our devices and increasing the quantity and quality of data that can be obtained using our consumables.

COVID-19 Impact

The global spread of the COVID-19 pandemic, including the spread of recent variants, continues to evolve, and to date has led to the implementation of various containment efforts. While conditions appear to be improving, particularly as more people get vaccinated, states and counties may re-implement restrictive measures to protect against further spread of any new variants. The impact of this pandemic has been and will likely continue to be extensive in many aspects of society, which has resulted in and will likely continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world.

Impacts in 2020 and 2021 to our business as a result of COVID-19 include disruptions to our manufacturing operations and supply chain caused by facility closures, reductions in operating hours, staggered shifts and other social distancing efforts, decreased productivity and unavailability of materials or components, limitations on our employees' and customers' ability to travel, and delays in product installations, trainings or shipments to and from affected countries and within the United States. Our corporate office facility is now open for those who want to work in that space, subject to certain restrictions, but a significant number of our personnel continue to work from home. While we learned during COVID-19 that we can work very effectively in a fully-remote environment, the partial return to in-office work and the potential transition to permanent remote working arrangements for some employees may result in increased costs, decreased efficiency, deterioration of corporate culture, greater exposure to cybersecurity threats, and other operational risks.

Disruptions in our customers' operations have impacted and may continue to impact our business. For example, laboratory shutdowns and reduced capital spend by our customers have negatively impacted our instrument and reagent sales. We do not yet know the net impact that the COVID-19 pandemic and any future variants of the virus may have on our business and cannot guarantee that it will not be materially negative. Although we continue to monitor the situation and may adjust our current policies as more information and public health guidance become available, the ongoing effects of the COVID-19 pandemic and/or the precautionary measures that we have adopted may create operational and other challenges, any of which could harm our business and results of operations. While we maintain an inventory of finished products and raw materials used in our products, a prolonged pandemic could lead to shortages in the raw materials necessary to manufacture our products. If we experience a prolonged disruption in our manufacturing, supply chains or commercial operations, or if demand for our products is significantly reduced as a result of the COVID-19 pandemic, we would expect to experience a material adverse impact on our business, financial condition, results of operations and prospects.

Historically, a significant portion of our field sales, customer training events and other application services have been conducted in person, and the rollout of our new products has historically been supported by our participation at industry conferences. As a result of the COVID- 19 pandemic, and the precautionary measures that we have adopted, substantially all of our field sales and professional services activities were conducted remotely for over a year, which resulted in a decrease in our travel expenditures. However, we expect our travel expenditures to increase as COVID-19 restrictions ease, which could negatively impact our financial condition and results of operations. As of the date of this Annual Report on Form 10-K, we do not yet know the extent of the negative impact of such restrictions and precautionary measures on our ability to attract new customers or retain and expand our relationships with existing customers over the near and long term. The length of time and full extent to which the COVID-19 pandemic may directly or indirectly impact our business, results of operations and financial condition will depend on future developments that are highly uncertain, subject to change and difficult to predict.

License Agreements

In November 2015, we entered into an exclusive (equity) agreement with Stanford, pursuant to which Stanford granted us an exclusive, worldwide, sublicensable (subject to certain requirements) license under certain patent rights to make, use, import and commercialize products for diagnostic, industrial and research and development purposes. We agreed to pay annual license maintenance fees ranging from \$20 thousand to \$50 thousand for the royalty-bearing license to certain patents. We also issued a total of 91,559 shares of common stock pursuant to the agreement in 2015, which were recorded at fair value at the date of issuance. We are required to pay royalties on net sales of products that are covered by patent rights under the agreement at a rate of 2.25%, subject to reductions and offsets in certain circumstances, as well as a portion of any of our sublicensing income.

In September 2018, in connection with the acquisition of the Phenoptics (now rebranded as PhenoImager) technology from PKI, we entered into a license and royalty agreement with PKI, Cambridge Research, and VisEn Medical Inc., pursuant to which such parties granted us an exclusive, nontransferable, sublicensable (subject to certain conditions) license under certain patent rights and know-how to make, use, import and commercialize PhenoImager products and services. We are required to pay royalties on net sales of products and services that are covered by patent rights under the agreement at a rate ranging from 1.0% to 7.0%.

Key Business Metrics

We regularly review the number of instrument placements and cumulative instrument placement as key metrics to evaluate our business, measure our performance, identify trends affecting our business, develop financial projections, and make strategic decisions. We believe that these metrics are representative of our current business; however, we anticipate these will change or may be substituted for additional or different metrics as our business grows.

During the years ended December 31, 2021 and 2020, our instrument placements were as follows:

	Year ended December 31,	
	2021	2020
Instrument Placements:	147	118

Our instruments are sold globally to leading biopharma companies and top research institutions and medical centers. Our quarterly instrument placements fluctuate considerably from period-to-period due to the type and size of our customers and their procurement and budgeting cycles. We expect continued fluctuations in our quarterly period-to-period number of instrument placements.

We believe our instrument placements are important metrics to measure our business because together they are driven by our ability to secure new customers and drive adoption of our PhenoCycler and PhenoImager platforms and provide insights into anticipated recurring revenue for consumables and instrument services.

Components of results of operations

Revenue

Product Revenue

We generate product revenue from the sale of our instruments, consumables and software products. Instrument sales accounted for 65% and 71% for the years ended December 31, 2021 and 2020, respectively. Consumables revenue accounted for 32% and 26% for the years ended December 31, 2021 and 2020, respectively.

Our current instrument offerings include our PhenoCycler and PhenoImager platforms. Our sales process with customers is often long and involves multiple levels of approvals. As a result, the revenue for our platforms can vary significantly from period-to-period and has been, and may continue to be, concentrated in a small number of customers in any given period.

We sell our instruments directly to customers and through distributors. Each of our instrument sales drives various streams of recurring revenue comprised of consumable product sales and instrument services.

Service and Other Revenue

We primarily generate service and other revenue from instrument service, which generally consists of sales of extended service contracts, in addition to installation and training, as well as from our laboratory services operation, where we provide sample testing services to customers utilizing our in-house lab operation.

We offer our customers extended warranty and service plans for our platforms. Our extended warranty and service plans are offered for periods beyond the standard one-year warranty that all customers receive. These extended warranty and service plans generally have fixed fees and terms ranging from one to four additional years. We recognize revenue from the sale of extended warranty and service plans over the respective coverage period, which approximates the service effort provided by us.

We record shipping and handling billed to customers as service and other revenue and the related costs in cost of service and other revenue in the consolidated statement of operations.

During the years ended December 31, 2021 and 2020, respectively, our revenue was comprised of the following sources:

(\$ in thousands)	Year ended December 31,	
	2021	2020
Revenue:		
Product revenue	\$ 44,477	\$ 33,438
Service and other revenue	10,440	9,005
Total revenue	<u>\$ 54,917</u>	<u>\$ 42,443</u>

We sell our products globally. We sell directly to end customers in North America and EMEA and we sell through third-party distributors and dealers in the APAC region.

Cost of Goods Sold, Gross Profit and Gross Margin

Product cost of revenue primarily consists of costs for finished goods (both instruments and reagents) produced by our contract manufacturers, and associated freight, shipping and handling costs for products shipped to customers, salaries and other personnel costs, and other direct costs related to those sales recognized as product revenue in the period. Cost of goods sold for services and other revenue primarily consists of salaries and other personnel costs, travel related to services provided, costs of servicing equipment at customer sites, and all personnel and related costs for our laboratory services operation.

We expect that our cost of goods sold will increase or decrease to the extent that our revenue increases and decreases and depending on the mix of revenue in any specific period.

Gross profit is calculated as revenue less cost of goods sold. Gross margin is gross profit expressed as a percentage of revenue. Our gross profit in future periods will depend on a variety of factors, including market conditions that may impact our pricing, sales mix among instruments, sales mix changes among consumables, excess and obsolete inventories, costs we pay our contract manufacturers for their services, our cost structure for lab service operations relative to volume, and product warranty obligations. Our gross profit in future periods will also vary based upon our channel mix and may decrease based upon our distribution channels.

Gross profit was \$34.2 million compared to \$25.9 million for the years ended December 31, 2021 and 2020, respectively.

Operating expenses

Research and development. Research and development costs primarily consist of salaries, benefits, engineering/design costs, laboratory supplies, and materials expenses for employees and third parties engaged in research and product development. We expense all research and development costs in the period in which they are incurred.

We plan to continue to invest in our research and development efforts, including hiring additional employees, to enhance existing products and develop new products. As a result, we expect that our research and development expenses will continue to increase in absolute dollars in future periods. We expect these expenses to vary from period to period as a percentage of revenue.

Selling, general and administrative. Our selling, general and administrative expenses primarily consist of salaries and benefits for employees in our executive, accounting and finance, legal expenses related to intellectual property, sales and marketing, operations, and human resource functions as well as professional services fees, such as consulting, audit, tax and legal fees, general corporate costs, commercial sales functions, marketing, travel expenses, facilities, IT, and allocated overhead expenses. We expect that our sales, general and administrative expenses will continue to increase in absolute dollars, primarily due to increased headcount to support anticipated growth in the business and due to incremental costs associated with operating as a public company. Additionally, we expect an increase in absolute dollars as we expand our commercial sales, marketing and business development teams, increase our presence globally and increase marketing activities to drive awareness and adoption of our platform. We expect these expenses to vary from period to period as a percentage of revenue.

Change in fair value of contingent consideration. On September 28, 2018, the Company acquired substantially all the assets of the Quantitative Pathology Solutions (“QPS”) division of PKI. As part of the acquisition, on September 28, 2018, the Company entered into a License Agreement with PKI. Under the terms of the License Agreement, the Company agreed to pay PKI certain royalties as a percentage of future sales of products from the QPS division, in exchange for a perpetual license of the right to produce and sell QPS products. This contingent consideration is subject to remeasurement.

Depreciation and amortization. Depreciation and amortization expenses primarily consist of depreciation of property and equipment and amortization of acquired intangibles.

Other income (expense)

Interest expense. Interest expense consists primarily of interest related to borrowings under our debt obligations.

Change in fair value of warrant liability. Prior to our IPO, we classified our outstanding warrant to purchase shares of our Series D redeemable convertible preferred stock as a liability on our balance sheets at its estimated fair value since the underlying redeemable convertible preferred stock was classified as temporary equity. At the end of each reporting period, changes in the estimated fair value during the period were recorded as a component of other income (expense). In connection with our IPO, this warrant was adjusted to become a warrant to purchase shares of our common stock and met the criteria to be classified within stockholders' equity; therefore, the warrant was no longer subject to liability accounting. Accordingly, the fair value of the warrant liability was reclassified to stockholders' equity.

Gain (loss) on extinguishment of debt. Gain (loss) on extinguishment of debt relates to forgiveness of our Payroll Protection Program ("PPP") loan, as well as fees incurred to extinguish debt plus any related unamortized debt issuance costs.

Other income (expense), net. Other income (expense), net consists primarily of franchise tax and foreign currency exchange gains and losses.

Benefit (provision) for income taxes

Our benefit (provision) for income taxes consists primarily of foreign taxes and minimal state taxes in the United States. As we expand the scale and scope of our international business activities, any changes in the United States and foreign taxation of such activities may increase our overall provision for income taxes in the future.

Results of operations

The results of operations presented below should be reviewed in conjunction with the consolidated financial statements and notes included elsewhere in the Annual Report on Form 10-K. The following tables set forth our results of operations for the periods presented:

(\$ in thousands)	Year ended December 31,	
	2021	2020
Product revenue	\$ 44,477	\$ 33,438
Service and other revenue	10,440	9,005
Total revenue	54,917	42,443
Cost of goods sold:		
Cost of product revenue	14,471	12,584
Cost of service and other revenue	6,228	3,951
Total cost of goods sold	20,699	16,535
Gross profit	34,218	25,908
Operating expenses:		
Selling, general and administrative	51,016	23,982
Research and development	15,701	9,603
Change in fair value of contingent consideration	2,073	519
Depreciation and amortization	4,726	3,815
Total operating expenses	73,516	37,919
Loss from operations	(39,298)	(12,011)
Other income (expense):		
Interest expense, net	(3,115)	(2,723)
Change in fair value of warrant liability	(2,728)	(298)
Gain (loss) on extinguishment of debt	2,476	(1,671)
Other income (expense), net	(410)	39
Loss before benefit (provision) for income taxes	(43,075)	(16,664)
Benefit (provision) for income taxes	140	(42)
Net loss	\$ (42,935)	\$ (16,706)

Comparison of the years ended December 31, 2021 and 2020

Revenue

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Product revenue	\$ 44,477	\$ 33,438	11,039	33 %
Service and other revenue	10,440	9,005	1,435	16 %
Total revenue	\$ 54,917	\$ 42,443	12,474	29 %

Product revenue increased by \$11.0 million, or 33%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The increase was primarily driven by a \$5.8 million increase in consumable revenue resulting from a larger installed base of 697 systems as of December 31, 2021, as compared to 550 systems as of December 31, 2020, a \$4.9 million increase in instrument revenue resulting from 147 new system placements during the year ended December 31, 2021, compared to 118 new system placements for the year ended December 31, 2020, as well as a \$0.4 million increase in standalone software products due to incremental software sales completed during the year ended December 31, 2021.

Service and other revenue increased by \$1.4 million, or 16%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The growth was primarily due a \$1.2 increase from instrument service during the year ended December 31, 2021.

Costs of Goods Sold, Gross Profit and Gross Margin

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Cost of product revenue	\$ 14,471	\$ 12,584	\$ 1,887	15 %
Cost of service and other revenue	6,228	3,951	2,277	58 %
Total cost of goods sold	\$ 20,699	\$ 16,535	\$ 4,164	25 %
Gross profit	\$ 34,218	\$ 25,908	\$ 8,310	32 %
Gross margin	62 %	61 %		

Cost of product revenue increased by \$1.9 million, or 15%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The increase in cost of product revenue was primarily driven by costs associated with increased instrument and consumable sales, partially offset by a change of mix in instrument revenue as compared to consumables revenue. Cost of service and other revenue increased by \$2.3 million, or 58%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The increase was primarily due to increases in costs of shipping associated with higher instrument sales, as well as increases in extended warranty costs as there were higher customer renewals due to maturity of the installed base.

Gross profit increased by \$8.3 million, or 32%, and gross margin increased by 1% for the year ended December 31, 2021 as compared to the year ended December 31, 2020, primarily due to a higher mix of consumables revenue driven by a higher install base. Additionally, the Company recorded a \$0.4 million reduction to cost of goods sold in the year ended December 31, 2021, associated with the employee retention credit.

Operating Expenses

Selling, General and Administrative

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Selling, general and administrative	\$ 51,016	\$ 23,982	\$ 27,034	113 %

Selling, general and administrative expense increased by \$27.0 million, or 113%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The increase was partially due to a \$14.2 million in personnel-related expenses due to an increase in headcount to support the growth in our overall operations in anticipation of and subsequent to our IPO, net of a \$2.6 million credit associated with the employee retention credit. Additionally, there was a \$7.8 million increase in professional fees and other third-party fees, which are largely incremental costs of operating a public business, including increased marketing, legal, accounting, insurance, and other consulting costs. Remaining increases are due to higher costs in recruiting, facilities, supplies, software licenses and subscriptions, and other related costs.

Research and development

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Research and development	\$ 15,701	\$ 9,603	\$ 6,098	64 %

Research and development expense increased by \$6.1 million, or 64%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The increase was partially due to a \$3.4 million increase in personnel-

related expenses, resulting from increased headcount, net of \$1.3 million associated with the employee retention credit, and a \$2.1 million increase in lab supplies consumed as the Company ramped up its efforts in anticipation of and subsequent to our IPO.

Change in fair value of contingent consideration

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Change in fair value of contingent consideration	\$ 2,073	\$ 519	\$ 1,554	299 %

Change in fair value of contingent consideration increased by \$1.6 million, or 299%, for the year ended December 31, 2021, compared to the year ended December 31, 2020, due to current period remeasurement.

Depreciation and amortization

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Depreciation and amortization	\$ 4,726	\$ 3,815	\$ 911	24 %

The \$0.9 million increase in depreciation and amortization expense was primarily related to an increase in property and equipment as of December 31, 2021, as compared to December 31, 2020.

Interest expense

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Interest expense	\$ 3,115	\$ 2,723	\$ 392	14 %

Interest expense increased by \$0.4 million, or 14%, for the year ended December 31, 2021, compared to the year ended December 31, 2020. The increase was primarily due to increased debt levels in 2021 as compared to 2020.

Change in fair value of warrant liability

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Change in fair value of warrant liability	\$ 2,728	\$ 298	\$ 2,430	815 %

Change in fair value of warrant liability increased by \$2.4 million, or 815%, for the year ended December 31, 2021, compared to the year ended December 31, 2020 due to current period remeasurement. In connection with our IPO, this warrant was adjusted to become a warrant to purchase shares of our common stock and met the criteria to be classified within stockholders' equity; therefore, the warrant is no longer subject to liability accounting, and thus no further remeasurement.

Gain (loss) on extinguishment of debt

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Gain (loss) on extinguishment of debt	\$ 2,476	\$ (1,671)	\$ 4,147	(248)%

Gain (loss) on extinguishment of debt increased by \$4.1 million for the year ended December 31, 2021, compared to the year ended December 31, 2020, due to forgiveness of our PPP Loan in the second quarter of 2021 for \$2.5 million, as compared to a \$1.7 million loss on extinguishment of the Innovatus Term Loan (as defined below) in 2020.

Other income (expense), net

(\$ in thousands, except percentages)	Year ended December 31,		Change	
	2021	2020	Amount	%
Other income (expense), net	\$ 410	\$ (39)	\$ 449	(1,151)%

Other income (expense), net increased by \$449.0 thousand for the year ended December 31, 2021, compared to the year ended December 31, 2020.

Liquidity and Capital Resources

As of December 31, 2021, we had approximately \$113.1 million in cash and cash equivalents which were primarily held in U.S. short-term bank deposit accounts.

Since our inception, we have experienced losses and negative cash flows from operations, and as of December 31, 2021, we had a consolidated net loss of \$42.9 million and an accumulated deficit of \$96.1 million. We have primarily relied on equity and debt financings to fund our operations to date.

We expect to incur additional operating losses in the foreseeable future as we continue to invest in the research and development of our product offerings, commercialize and launch platforms, and expand into new markets. Based on our current business plan, we believe the net proceeds from our IPO, together with our existing cash and cash equivalents and anticipated cash flows from operations will be sufficient to meet our working capital and capital expenditure needs over at least the next 12 months following the date of this Annual Report on Form 10-K.

Our future capital requirements will depend on many factors, including, but not limited to our ability to successfully commercialize and launch products, and to achieve a level of sales adequate to support our cost structure. If we are unable to execute on our business plan and adequately fund operations, or if the business plan requires a level of spending in excess of cash resources, we will have to seek additional equity or debt financing. If additional financings are required from outside sources, we may not be able to raise it on terms acceptable to us or at all. If we are unable to raise additional capital when desired, our business, financial condition, results of operations and prospects could be adversely affected.

Sources of Liquidity

Since our inception, we have financed our operations primarily from the issuance and sale of our convertible preferred stock and borrowings under long-term debt agreements. In April 2021, we completed our IPO, resulting in the receipt of aggregate proceeds of \$138.6 million, net of offering costs, underwriter discounts and commissions of \$12.8 million.

Convertible preferred stock financings

Through December 31, 2021, we have raised a total of \$60.5 million from the issuance and sale of convertible preferred stock, net of costs associated with such financings. Most recently, in 2019 we issued shares of Series D convertible preferred stock for gross proceeds of \$25.0 million. All preferred stock converted to common stock immediately prior to our IPO.

Payroll Protection Program loan

During April 2020, we received a \$2.48 million small business loan under the Payroll Protection Program, part of the Coronavirus Aid, Relief and Economic Security Act, the CARES Act. The PPP Loan was forgiven in June 2021.

Midcap Trust Term Loan

In October 2020, we entered into the Midcap Trust Term Loan, for a \$37.5 million credit facility, consisting of a senior, secured term loan to refinance all existing indebtedness with Innovatus (as defined below). We realized \$32.5 million in aggregate proceeds as a result of the debt financing. The term of the Midcap Trust Term Loan is interest only for 36-months followed by 24-months of straight-line amortization with a final maturity date of October 27, 2025. Interest on the outstanding balance of the Midcap Trust Term Loan shall be payable monthly in arrears at an annual rate of one-month LIBOR plus 6.35%, subject to a LIBOR floor of 1.50%.

The Midcap Trust Term Loan is subject to a minimum revenue financial covenant measuring our last twelve months trailing revenue, tested on a monthly basis.

The Midcap Trust Term Loan is collateralized by substantially all of our assets. The agreement contains customary negative covenants that limit our ability to, among other things, incur additional indebtedness, grant liens, make investments, repurchase stock, pay dividends, transfer assets and merge or consolidate with any other entity or to acquire all or substantially all the capital stock or property of another entity. The agreement also contains customary affirmative covenants, including requirements to, among other things, deliver audited financial statements. If we default under the Midcap Trust Term Loan and if the default is not cured or waived, the lender could cause any amounts outstanding to be payable immediately. Under certain circumstances, the lender could also exercise its rights with respect to the collateral securing such loans. Moreover, any such default would limit our ability to obtain additional financing, which may have an adverse effect on our cash flow and liquidity.

We were in compliance with all covenants under the Midcap Trust Term Loan as of December 31, 2021.

Cash flows

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

(\$ in thousands)	Year ended December 31,	
	2021	2020
Net cash provided by (used in):		
Operating activities	\$ (36,068)	\$ (6,843)
Investing activities	(5,094)	6,728
Financing activities	137,035	5,486
Net increase in cash, cash equivalents, and restricted cash	<u>\$ 95,873</u>	<u>\$ 5,371</u>

Operating activities

Net cash used in operating activities increased by \$29.2 million to \$36.1 million in the year ended December 31, 2021 compared to \$6.8 million in the year ended December 31, 2020. This increase is attributable to a net loss of \$42.9 million, offset by non-cash charges of \$11.4 million. Non-cash charges primarily consisted of \$2.7 million in change in fair value of warrant liability, \$4.8 million of depreciation and amortization, \$2.1 million in change in fair value of contingent consideration, and \$0.4 million of non-cash interest expense, offset by \$2.5 million gain on extinguishment of debt.

Investing activities

Net cash provided by (used in) investing activities was (\$5.1) million in the year ended December 31, 2021 compared to \$6.7 million during the year ended December 31, 2020. The decrease was primarily driven by purchases of property and equipment of \$5.1 million.

Financing activities

Net cash provided by financing activities was \$137.0 million for the year ended December 31, 2021 compared with \$5.5 million for the year ended December 31, 2020. In April of 2021, the Company received \$138.6 million in net proceeds from our IPO, after deducting underwriting discounts and commissions and other offering expenses. During the year ended December 31, 2021, we paid out \$1.6 million in contingent consideration as compared to \$2.6 million during the year ended December 31, 2020. Remaining changes were immaterial.

Qualitative and Quantitative Disclosures About Market Risk

Interest rate risk

Customer financing exposure. We are indirectly exposed to interest rate risk because many of our customers depend on debt financings to purchase our platforms and systems. An increase in interest rates could make it challenging for our customers to obtain the capital necessary to make such purchases on favorable terms, or at all. Such factors could reduce demand or lower the price we can charge for our platforms and systems, thereby reducing our net sales and gross profit.

Fixed rate debt. In October 2020, we entered into the Midcap Trust Term Loan, which is due in October 2025, and carries a fixed interest rate of 7.85% per annum. If we refinance the Midcap Trust Term Loan or enter into new debt arrangements, interest rates could increase and thereby increase our financing costs and increase our net loss. A hypothetical 100 basis point change in interest rates would not have a material impact on interest expense for the year ended December 31, 2021.

Bank deposit, money market and note receivable exposure. As of December 31, 2021, we had cash and cash equivalents, including restricted cash, of \$113.4 million, which consisted primarily of bank deposits. The primary objective of our investment is to preserve principal and provide liquidity. These bank deposits generate interest income at variable rates below 1%. A hypothetical 100 basis point decrease in interest rates would not have a material impact on interest income or net loss.

Foreign currency risk

The majority of our revenue has been generated in the United States. As we expand our presence in international markets, to the extent we are required to enter into agreements denominated in a currency other than the U.S. dollar, our results of operations and cash flows may increasingly be subject to fluctuations due to changes in foreign currency exchange rates and may be adversely affected in the future due to changes in foreign exchange rates. To date, we have not entered into any hedging arrangements with respect to foreign currency risk. As our international operations grow, we will continue to reassess our approach to manage our risk relating to fluctuations in currency rates.

Critical accounting policies and estimates

We have prepared our consolidated financial statements in accordance with GAAP. Our preparation of these consolidated financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on 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 could therefore differ materially from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our audited consolidated financial statements, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Impairment of long-lived assets and goodwill

The Company evaluates its long-lived assets, including demo inventory, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If indications of impairment exist, projected future undiscounted cash flows associated with the asset or asset group are compared to the carrying amount to determine whether the asset's value is recoverable. During this analysis, the Company reevaluates the significant assumptions used in determining the original cost and estimated lives of long-lived assets. Although the assumptions may vary from asset to asset, they generally include operating results, changes in the use of the asset or asset group, cash flows and other indicators of value. The Company then determines whether the remaining useful life continues to be appropriate or whether there has been an impairment of long-lived assets based primarily upon whether expected future undiscounted cash flows are sufficient to support the assets' or asset groups recovery. If impairment exists, the Company would adjust the carrying value of the asset to fair value, generally determined by a discounted cash flow analysis. If the carrying value of the asset or asset group exceeds such projected undiscounted cash flows, the asset or asset group will be written down to its estimated fair value.

The Company tests goodwill for impairment annually and tests intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable (i.e., upon occurrence of a triggering event). The Company performs its annual impairment review of goodwill on November 1 of each calendar year (and if and when triggering events occur between annual impairment tests).

Revenue recognition

The Company follows ASC 606, *Revenue from Contracts with Customers* ("ASC 606").

We derive revenue from two primary sources, product revenue, which is comprised primarily of instrument sales revenue, consumables revenue, and software revenue, as well as service revenue, which is comprised of, service and warranty, and laboratory services revenue. Revenue is recognized net of applicable taxes imposed on the related transaction.

We recognize revenue when we satisfy the performance obligations under the terms of a contract and 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 contract price, allocating the contract price to the distinct performance obligations in the contract based on standalone selling price, 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.

Our agreements with customers often include multiple performance obligations, which can sometimes be included in separate contracts entered into within a reasonably short period of time. We consider an entire customer arrangement to determine if separate contracts should be considered combined for the purposes of revenue recognition.

In order to determine the stand-alone selling price, we conduct a periodic analysis to determine whether various goods or services have an observable stand-alone selling price as well as to identify significant changes to current stand-alone selling prices. If we do not have an observable stand-alone selling price for a particular good or service, then the stand-alone selling price for that particular good or service is estimated using an approach that maximizes the use of

observable inputs. Our process for determining stand-alone selling price requires judgment and considers multiple factors that are reasonably available and maximizes the use of observable inputs that may vary over time depending upon the unique facts and circumstances related to each performance obligation. We believe that this method results in an estimate that represents the price we would charge for the product offerings if they were sold separately.

Taxes, such as sales, value-added and other taxes, collected from customers concurrent with revenue generating activities and remitted to governmental authorities are not included in revenue. Shipping and handling costs associated with outbound freight are accounted for as a fulfillment cost and are included in cost of sales.

The following describes the nature of our primary types of revenue and the revenue recognition policies and significant payment terms as they pertain to the types of transactions we enter into with our customers.

Product revenue

Product revenue is comprised of three major revenue streams, instrument sales, consumables, and standalone software products. Instrument sales revenue is comprised of sales of PhenoCycler and PhenoImager platforms. Consumables revenue is comprised of reagent kits. We also sell software licenses, both internally developed as well as third-party software. Our standard arrangement with our customers is generally a purchase order or an executed contract. Revenue is recognized upon transfer of title. Payment terms are generally thirty to ninety days from the date of invoicing.

Service and other revenue

Service and other revenue primarily consists of instrument service and warranty, instrument installation and training, and revenue generated by our ABS operation, which provides sample testing services to customers. Our services are provided primarily on a fixed fee basis; from time to time these fixed fee contracts may be invoiced at the outset of the arrangements. We recognize revenue from the sale of an extended warranty, enhanced service warranty arrangements over the respective period, while revenue on installation, training and laboratory services is recognized as the services are performed. For laboratory services, we generally use the cost-to-cost approach to measure the extent of progress towards completion of the performance obligation because we believe it best depicts the transfer of assets to the customer. Under the cost-to-cost measure approach, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred. Payment terms are generally thirty to ninety days from the date of invoicing.

The Company records shipping and handling billed to customers as service and other revenue and the related costs in cost of other revenue in the consolidated statement of operations.

Contract assets and contract liabilities

The Company's contract liabilities consist of upfront payments for service-based warranties on instrument sales. The Company classifies these contract liabilities in deferred revenue as current or noncurrent based on the timing of when the Company expects to service the warranty.

Costs to obtain or fulfill a contract

Under ASC 606, the Company is required to capitalize certain costs to obtain customer contracts and costs to fulfill customer contracts. These costs are required to be amortized to expense on a systemic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates, compared to previously being expensed as incurred. As a practical expedient, the Company recognizes any incremental costs to obtain a contract as an expense when incurred if the amortization period of the asset is one year or less.

Stock-based compensation

We maintain an incentive compensation plan under which incentive stock options and nonqualified stock options are granted primarily to employees, non-employee consultants, and board members. Stock-based compensation cost is measured at the grant date, based on the fair value of the award, and is recognized as expense over the requisite service period. The fair value of stock-based awards to employees is estimated using the Black-Scholes option pricing model. We record forfeitures as they occur.

Off-balance sheet arrangements

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

Recent accounting pronouncements

For information on recently issued accounting pronouncements, see Note 2 to our consolidated financial statements in this Annual Report on Form 10-K.

JOBS Act accounting election

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to avail ourselves of this extended transition period, and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies. We intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002.

Smaller reporting company status

We are also a “smaller reporting company,” meaning that the market value of our stock held by non-affiliates is less than \$700 million as of the last trading day of our second quarter and our annual revenue is less than \$100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company if either (i) the market value of our stock held by non-affiliates is less than \$250 million or (ii) our annual revenue is less than \$100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than \$700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. For example, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We are a smaller reporting company, as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, for this reporting period and are not required to provide the information required under this item.

Item 8. Financial Statements and Supplementary Data

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Akoya Biosciences, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Akoya Biosciences, Inc. and its subsidiary (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, redeemable convertible preferred stock and stockholders' equity (deficit) and cash flows for the years then ended, and the related notes to the consolidated financial statements (collectively, 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 the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ RSM US LLP

We have served as the Company's auditor since 2019.

Boston, Massachusetts
March 14, 2022

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	December 31, 2021	December 31, 2020
Assets		
Current assets		
Cash and cash equivalents	\$ 113,079	\$ 17,006
Accounts receivable, net	9,444	6,470
Inventories, net	9,014	4,263
Prepaid expenses and other current assets	9,277	957
Total current assets	140,814	28,696
Property and equipment, net	7,487	5,528
Restricted cash – long term	302	502
Demo inventory, net	2,548	1,494
Intangible assets, net	21,150	22,714
Goodwill	18,262	18,262
Other assets	344	464
Total assets	\$ 190,907	\$ 77,660
Liabilities, Redeemable Convertible Preferred Stock, and Stockholders' Equity (Deficit)		
Current liabilities		
Accounts payable	\$ 9,435	\$ 5,074
Accrued expenses and other current liabilities	13,491	7,015
Current portion of capital lease obligations	272	197
Deferred revenue	4,484	3,844
Current portion of long-term debt	-	1,032
Total current liabilities	27,682	17,162
Deferred revenue, net of current portion	1,330	1,008
Long-term debt, net of current portion and debt discount	32,471	33,488
Deferred tax liability, net	26	170
Capital lease obligations, net of current portion	197	277
Warrant liability	-	490
Contingent consideration liability (Note 4), net of current portion	7,850	6,984
Total liabilities	69,556	59,579
Redeemable Convertible Preferred Stock:		
Series B Redeemable Convertible Preferred Stock, \$0.00001 par value; 0 shares authorized, issued and outstanding at December 31, 2021; 13,715,330 authorized, issued and outstanding at December 31, 2020 (preference in liquidation of \$0 and \$11,500 at December 31, 2021 and December 31, 2020, respectively)	-	11,500
Series C Redeemable Convertible Preferred Stock, \$0.00001 par value; 0 shares authorized, issued and outstanding at December 31, 2021; 26,732,361 shares authorized, issued and outstanding at December 31, 2020 (preference in liquidation of \$0 and \$30,107 at December 31, 2021 and December 31, 2020, respectively)	-	30,107
Series D Redeemable Convertible Preferred Stock, \$0.00001 par value; 0 shares authorized, issued, and outstanding at December 31, 2021; 16,758,996 shares authorized; 16,390,217 shares issued and outstanding at December 31, 2020 (preference in liquidation of \$0 and \$27,500 at December 31, 2021 and December 31, 2020, respectively)	-	27,500
Total redeemable convertible preferred stock	-	69,107
Stockholders' equity (deficit):		
Series A Convertible Preferred Stock, \$0.00001 par value; 0 shares authorized, issued and outstanding at December 31, 2021; 5,013,333 shares authorized, issued and outstanding at December 31, 2020 (preference in liquidation of \$0 and \$1,253 at December 31, 2021 and December 31, 2020, respectively)	-	1,253
Preferred Stock, \$0.00001 par value; 10,000,000 shares authorized; 0 shares issued and outstanding at December 31, 2021; 0 shares authorized, issued and outstanding at December 31, 2020	-	-
Class A Common Stock, \$0.00001 par value; 500,000,000 shares authorized; 37,424,101 shares issued and outstanding at December 31, 2021; 62,220,020 shares authorized; 0 shares issued and outstanding at December 31, 2020	2	-
Class B Common Stock, \$0.00001 par value; 0 shares authorized, issued, and outstanding at December 31, 2021; 16,822,202 shares authorized; 2,563,765 issued and outstanding at December 31, 2020	-	1
Additional paid in capital	217,456	-
Accumulated deficit	(96,107)	(52,280)
Total stockholders' equity (deficit)	121,351	(51,026)
Total liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)	\$ 190,907	\$ 77,660

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands except share & per share data)

	Year ended	
	December 31, 2021	December 31, 2020
Revenue:		
Product revenue	\$ 44,477	\$ 33,438
Service and other revenue	10,440	9,005
Total revenue	54,917	42,443
Cost of goods sold:		
Cost of product revenue	\$ 14,471	\$ 12,584
Cost of service and other revenue	6,228	3,951
Total cost of goods sold	\$ 20,699	\$ 16,535
Gross profit	\$ 34,218	\$ 25,908
Operating expenses:		
Selling, general and administrative	51,016	23,982
Research and development	15,701	9,603
Change in fair value of contingent consideration	2,073	519
Depreciation and amortization	4,726	3,815
Total operating expenses	73,516	37,919
Loss from operations	(39,298)	(12,011)
Other income (expense):		
Interest expense, net	(3,115)	(2,723)
Change in fair value of warrant liability	(2,728)	(298)
Gain (loss) on extinguishment of debt	2,476	(1,671)
Other income (expense), net	(410)	39
Loss before benefit (provision) for income taxes	(43,075)	(16,664)
Benefit (provision) for income taxes	140	(42)
Net loss	\$ (42,935)	\$ (16,706)
Dividends accrued on redeemable convertible preferred stock	(1,435)	(4,760)
Accretion of redeemable convertible preferred stock	—	(296)
Adjusted net loss attributable to common stockholders	(44,370)	(21,762)
Net loss per share attributable to common stockholders, basic and diluted	\$ (1.65)	\$ (9.18)
Weighted-average shares outstanding, basic and diluted	26,896,976	2,370,574

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED
STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands, except share data)

	Series B Redeemable Convertible Preferred Stock		Series C Redeemable Convertible Preferred Stock		Series D Redeemable Convertible Preferred Stock		Series A Redeemable Convertible Preferred Stock		Class A Common Stock		Class B Common Stock		Additional Paid in Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance at															
December 31, 2019	13,715,330	\$ 10,780	26,732,361	\$28,067	16,390,217	\$25,500	5,013,333	\$ 1,253	—	\$ —	2,286,872	\$ 1	\$ —	\$ (31,413)	\$ (30,159)
Exercise of stock options	—	—	—	—	—	—	—	—	—	—	276,893	—	122	—	122
Accrued dividends	—	720	—	2,040	—	2,000	—	—	—	—	—	—	(599)	(4,161)	(4,760)
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(16,706)	(16,706)
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	477	—	477
Balance at															
December 31, 2020	13,715,330	\$ 11,500	26,732,361	\$30,107	16,390,217	\$27,500	5,013,333	\$ 1,253	—	\$ —	2,563,765	\$ 1	\$ —	\$ (52,280)	\$ (51,026)
Conversion of Class B shares	—	—	—	—	—	—	—	—	2,835,099	1	(2,835,099)	(1)	—	—	—
Exercise of stock options	—	—	—	—	—	—	—	—	476,423	—	271,334	—	394	—	394
Accrued dividends	—	217	—	615	—	603	—	—	—	—	—	—	(543)	(892)	(1,435)
Initial public offering of common stock	—	—	—	—	—	—	—	—	7,567,000	—	—	—	138,553	—	138,553
Conversion of preferred stock into common stock in connection with the IPO	(13,715,330)	(11,717)	(26,732,361)	(30,722)	(16,390,217)	(28,103)	(5,013,333)	(1,253)	26,545,579	1	—	—	71,794	—	70,541
Reclassification of warrant liability to equity	—	—	—	—	—	—	—	—	—	—	—	—	3,219	—	3,219
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(42,935)	(42,935)
Stock-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	4,039	—	4,039
Balance at															
December 31, 2021	—	\$ —	—	\$ —	—	\$ —	—	\$ —	37,424,101	\$ 2	—	\$ —	\$ 217,456	\$ (96,107)	\$ 121,351

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year ended	
	December 31, 2021	December 31, 2020
Operating activities		
Net loss	\$ (42,935)	\$ (16,706)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	4,792	3,815
Non-cash interest expense	427	316
Stock-based compensation expense	4,039	477
Paid-in-kind interest	—	366
Deferred taxes	(155)	7
Change in fair value of contingent consideration	2,073	519
Change in fair value of warrant liability	2,728	298
Loss (gain) on extinguishment of debt	(2,476)	1,671
Changes in operating assets and liabilities:		
Accounts receivable, net	(2,974)	6,697
Prepaid expenses and other assets	(8,789)	56
Inventories, net	(4,628)	(684)
Accounts payable	4,361	(3,045)
Accrued expenses and other liabilities	6,507	(202)
Deferred revenue	962	(428)
Net cash used in operating activities	<u>(36,068)</u>	<u>(6,843)</u>
Investing activities		
Maturity of certificates of deposits	—	10,168
Interest income reinvested in certificates of deposit	—	(145)
Purchases of property and equipment	(5,094)	(3,295)
Net cash provided by (used in) investing activities	<u>(5,094)</u>	<u>6,728</u>
Financing activities		
Proceeds from initial public offering, net of underwriting discounts and commissions	138,553	—
Proceeds from stock option exercises	394	122
Principal payments on capital leases	(322)	(191)
Proceeds from debt	—	34,976
Principal payments of debt	—	(25,000)
Payments of debt issuance costs	—	(532)
Payments of debt extinguishment costs	—	(1,262)
Payments of contingent consideration	(1,590)	(2,627)
Net cash provided by financing activities	<u>137,035</u>	<u>5,486</u>
Net increase in cash, cash equivalents, and restricted cash	95,873	5,371
Cash, cash equivalents, and restricted cash at beginning of year	17,508	12,137
Cash, cash equivalents, and restricted cash at end of year	<u>\$ 113,381</u>	<u>\$ 17,508</u>
Supplemental disclosures of cash flow information		
Cash paid for interest	<u>\$ 2,668</u>	<u>\$ 2,246</u>
Cash paid for income taxes	<u>\$ —</u>	<u>\$ —</u>
Supplemental disclosures of non-cash activities		
Purchases of property and equipment included in accounts payable and accrued expenses	<u>\$ 1,105</u>	<u>\$ 420</u>
Accretion of dividends on Series B, C, and D Preferred Stock	<u>\$ 1,435</u>	<u>\$ 4,760</u>
Conversion of convertible preferred stock into common stock upon completion of initial public offering	<u>\$ 71,795</u>	<u>\$ —</u>
Reclassification of warrant liability to equity	<u>\$ 3,219</u>	<u>\$ —</u>

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES INC. AND SUBSIDIARY

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Amounts in thousands, except share and per share data)

(1) The company and basis of presentation

Description of business

Akoya Biosciences, Inc. (“Akoya” or the “Company”) is a life sciences technology company, founded on November 13, 2015 as a Delaware corporation with operations based in Marlborough, Massachusetts and Menlo Park, California, delivering spatial biology solutions focused on transforming discovery and clinical research. Spatial biology refers to an evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through Akoya’s PhenoCycler and PhenoImager platforms, reagents, software and services, the Company offers end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum from discovery through translational and clinical research.

On September 28, 2018, the Company acquired the commercial Phenoptics division of PerkinElmer, Inc. (“PKI”) for multiplex immunofluorescence, with the aim of providing consumers with a full suite of end-to-end solutions for high parameter tissue analysis. The Phenoptics technology offers pathology solutions for cancer immunology and immunotherapy research, including advanced multiplex immunofluorescence staining kits, multispectral imaging and whole slide scanning instruments, and image analysis software. The Company’s combined portfolio of complementary technologies aims to fuel groundbreaking advancements in cancer immunology, immunotherapy, neurology and a wide range of other applications. The Company sells into three main regions across the world: North America, Asia-Pacific (“APAC”), and Europe-Middle East-Africa (“EMEA”).

On April 8, 2021, the Board of Directors of the Company (the “Board”) approved a 1-for-2.33 reverse stock split of its issued and outstanding common stock and a proportional adjustment to the existing conversion ratios for each series of the Company’s convertible preferred stock, which was effected on April 9, 2021. The par value of the authorized stock was not adjusted as a result of the reverse stock split. Other than the par value, all issued and outstanding shares of common stock and related per share data shown in the accompanying financial statements and related notes have been retroactively revised to reflect the reverse stock split and adjustment of the Preferred Stock conversion ratios.

In April 2021, the Company completed the initial public offering of its common stock (the “IPO”). In the IPO, the Company issued and sold 7,567,000 shares of its common stock at a price to the public of \$20.00 per share, including the exercise by the underwriters of their option to purchase an additional 987,000 shares. The Company received \$138.6 million in net proceeds, after deducting underwriting discounts and commissions and other offering expenses.

Immediately prior to completing the IPO, all preferred stock converted into 26,545,579 shares of common stock, and all outstanding shares of the Company’s Class B common stock converted on a 1 for 1 basis into 2,835,099 shares of the Company’s Class A common stock.

On April 20, 2021, in connection with the closing of the IPO, the Company’s amended and restated certificate of incorporation, as filed with the Secretary of State of the State of Delaware, and the Company’s amended and restated bylaws became effective. Refer to Note 9 for further details.

Liquidity and going concern

At December 31, 2021, the Company had cash and cash equivalents of \$113,079 and an accumulated deficit of \$96,107. The future success of the Company is dependent on its ability to successfully commercialize its products, successfully launch future products, obtain additional capital and ultimately attain profitable operations. The Company has funded its operations primarily through its preferred stock issuances, debt financing arrangements, and the IPO.

The Company is subject to a number of risks similar to other newly commercial life sciences companies, including, but not limited to, development and market acceptance of the Company's product candidates, development by its competitors of new technological innovations, protection of proprietary technology, and raising additional capital.

The Company has incurred losses since its inception and has used cash from operations of \$36,068 during the year ended December 31, 2021. However, we believe that our existing cash and cash equivalents will be adequate to satisfy our current operating plans for at least the next twelve months from the issuance of these financial statements.

The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

(2) Summary of significant accounting policies

Principles of consolidation

The Company's financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB"). The Company's consolidated financial statements include the accounts of the Company and its wholly-owned subsidiary, Akoya Biosciences UK Ltd. ("Akoya UK"). All intercompany balances and transactions have been eliminated in consolidation.

Foreign currency remeasurement

Akoya UK's subsidiary's activities are recorded in British Pound Sterling and are remeasured using the United States Dollar as the functional currency. The balance sheet is remeasured into U.S. dollars at the exchange rate as of the balance sheet date. Revenues, expenses, and cash flows are remeasured at average rates during each reporting period. Net exchange gains and losses resulting from the remeasurement of the United Kingdom subsidiary balances are charged directly to operations and are included in other income (expense), net and were determined to be immaterial for the years ended December 31, 2021 and 2020.

Foreign exchange transaction gains and losses are included in other income (expense), net in the accompanying consolidated statements of operations and were determined to be immaterial for the years ended December 31, 2021 and 2020.

Use of estimates

The preparation of the Company's consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. The Company utilizes certain estimates in the determination of the fair value of its stock options and warrant, the useful lives of property and equipment, revenue recognition, determining the fair value of intangible assets, accrued expenses, income tax accounting, the value of purchase consideration paid and identifiable assets acquired and assumed in acquisitions, contingent consideration, goodwill and intangible asset impairment review, and other contingencies. The Company bases its estimates on historical experience and other market-specific or other relevant assumptions that it believes to be reasonable under the circumstances. Actual results could differ from such estimates.

Segment information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision-maker in deciding how to allocate resources and assess

performance. The Company's chief operating decision-maker, the Company's chief executive officer, views the Company's operations and manages its business as a single operating segment.

Concentrations of credit risk

Cash and cash equivalents are financial instruments that potentially subject the Company to concentrations of credit risk. The Company maintains its cash deposits, which at times may exceed federally insured limits, with large financial institutions and, accordingly, the Company believes their cash and cash equivalents are subject to minimal credit risk.

Cash and cash equivalents and restricted cash

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

The Company records cash and cash equivalents as restricted when it is unable to freely use such cash and cash equivalents for general operating purposes. As of December 31, 2021 and 2020, restricted cash is recorded as long term and consists of a security deposit in a financial institution that is restricted from use as collateral for our letter of credit associated with our office and laboratory space in Marlborough, MA (Note 13), as well as cash restricted from use for the Company's corporate credit card program.

Accounts receivable

The Company's accounts receivable consists of amounts due from sales to commercial customers. At each reporting period, management reviews all outstanding balances to determine if the facts and circumstances of each customer relationship indicate the need for a reserve. The Company does not require collateral and had an allowance for doubtful accounts of \$45 and \$103 at December 31, 2021 and 2020, respectively.

Inventory

Inventories are stated at the lower of cost or net realizable value. The Company determines the cost of its inventories, which includes amounts related to materials, direct labor and manufacturing overhead, using the average cost method. The Company performs an assessment of the recoverability of capitalized inventory during each reporting period and writes down any excess and obsolete inventories to their realizable value in the period in which the impairment is first identified. Shipping and handling costs incurred for inventory purchases are capitalized and recorded upon sale within the cost of goods sold in the consolidated statements of operations. Inventory is primarily raw materials as the Company utilizes contract manufacturers to produce the final products, which are typically drop-shipped directly to customers.

Fair value measurements

Certain assets and liabilities are reported on a recurring basis at fair value. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. ASC 820, Fair Value Measurements ("ASC 820"), establishes a hierarchy of inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the observable inputs be used when available.

Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The hierarchy defines three levels of valuation inputs:

Level 1 — Quoted unadjusted prices for identical instruments in active markets.

Level 2 — Quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-derived valuations in which all observable inputs and significant value drivers are observable in active markets.

Level 3 — Model derived valuations in which one or more significant inputs or significant value drivers are unobservable, including assumptions developed by the Company.

The fair value hierarchy prioritizes valuation inputs based on the observable nature of those inputs. Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability (Note 4).

For certain financial instruments, including accounts receivable, prepaid expenses and other current assets, accounts payable, and accrued expenses, the carrying amounts approximate their fair values as of December 31, 2021 and 2020 because of their short-term nature. At December 31, 2021 and 2020, the carrying value of the Company's debt approximated fair value, which was determined using Level 3 inputs, using market quotes from brokers and is based on current rates offered for similar debt (Note 8).

Property and equipment

Property and equipment are recorded at cost and depreciated over their estimated useful lives using the straight-line method. Repairs and maintenance costs are expensed as incurred, whereas major improvements are capitalized as additions to property and equipment.

Demo inventory

Demo inventory is considered a hybrid between fixed asset and regular inventory as the Company occasionally sells the demo product to customers upon request. Potential customers and key opinion leaders use demo inventory in the field for a trial period and on occasion purchase the inventory within a few months of usage. Demo inventory that is not purchased by the potential customer or key opinion leader is returned to the Company. Demo inventory is recorded at cost and depreciated over their estimated useful lives using the straight-line method. Repairs and maintenance costs are expensed as incurred, whereas major improvements are capitalized as additions to demo inventory. Upon sale, Demo inventory, if and when sold, is recorded as product revenue and the remaining carrying value is booked through cost of goods sold.

Business combinations – intangible assets and contingent consideration

The Company bases the fair value of identifiable intangible assets acquired in a business combination on detailed valuations that use information and assumptions provided by management, which consider management's best estimates of inputs and assumptions that a market participant would use. The Company's intangible assets are amortized on a straight-line basis over their estimated useful lives ranging from 4 to 15 years.

For those arrangements which arise from a business combination that involve potential future contingent consideration, the Company records on the date of acquisition a liability equal to the fair value of the estimated additional consideration the Company may be obligated to make in the future. The Company re-measures this liability each reporting period and records changes in the fair value through changes in fair value of contingent consideration within the Company's consolidated statements of operations. The Company records amounts currently due as it relates to contingent consideration within accrued expenses. Increases or decreases in the fair value of the contingent consideration liability can result from changes in discount rates, periods, timing and amount of projected revenue or timing or likelihood of achieving regulatory, revenue or commercialization-based milestones. The use of alternative valuation assumptions, including estimated revenue projections, growth rates, cash flows, discount rates, useful life or probability of achieving regulatory or revenue-based milestones could result in different purchase price allocations and recognized amortization expense and contingent consideration expense or benefit in current and future periods.

Impairment of long-lived assets and goodwill

The Company evaluates its long-lived assets, including demo inventory, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If indications of impairment exist, projected future undiscounted cash flows associated with the asset or asset group are compared to the carrying amount to determine whether the asset's value is recoverable. During this analysis, the Company reevaluates the significant assumptions used in determining the original cost and estimated lives of long-lived assets. Although the assumptions may vary from asset to asset, they generally include operating results, changes in the use of the asset or asset group, cash flows and other indicators of value. The Company then determines whether the remaining useful life continues to be appropriate or whether there has been an impairment of long-lived assets based primarily upon whether expected future undiscounted cash flows are sufficient to support the assets' or asset groups recovery. If the carrying value of the asset or asset group exceeds such projected undiscounted cash flows, the asset or asset group will be written down to its estimated fair value.

The Company tests goodwill for impairment annually and tests intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable (i.e., upon occurrence of a triggering event). The Company performs its annual impairment review of goodwill at November 1 (and if and when triggering events occur between annual impairment tests). Upon completion of its quantitative assessment as of November 1, 2021, the Company has concluded that goodwill is not impaired. No events or changes in circumstances have indicated that the Company's intangible assets with useful lives are impaired as of December 31, 2021.

Debt issuance costs

Debt issuance costs represent fees paid to or on behalf of the Company's lenders to obtain debt financing. Debt issuance costs are recorded as a discount of the related debt. The costs are accreted over the term of the debt through interest expense using the straight line method which approximates the effective interest method.

Revenue recognition

The Company follows ASC 606, *Revenue from Contracts with Customers* ("ASC 606").

The Company generates revenue from the sale and installation of instruments, related warranty services, reagents and software (both company-owned and with third parties). Pursuant to ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration the Company expects to be entitled to receive in exchange for these goods and services.

To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of Topic 606, the Company performs the following five steps: (i) identification of the customer contract; (ii) identification of the performance obligations; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. The Company only applies the five-step model to contracts when it is probable that the Company will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer.

The Company evaluates all promised goods and services within a customer contract and determines which of those are separate performance obligations. This evaluation includes an assessment of whether the good or service is capable of being distinct and whether the good or service is separable from other promises in the contract. Promised goods or services are considered distinct when (i) the customer can benefit from the good or service on its own or together with other readily available resources and (ii) the promised good or service is separately identifiable from other promises in the contract.

Most of the Company's contracts with customers contain multiple performance obligations (i.e., sale of an instrument and warranty services). For these contracts, the Company accounts for individual performance obligations separately if they are distinct (i.e. capable of being distinct and separable from other promises in the contract). The

transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Excluded from the transaction price are sales tax and other similar taxes which are presented on a net basis.

Product Revenue

Product revenue is generated by the sale of instruments and consumable reagents predominantly through the Company's direct sales force in the United States and in geographic regions outside the United States such as APAC and EMEA. The Company does not offer product return or exchange rights (other than those relating to defective goods under warranty) or price protection allowances to its customers. When an instrument is purchased by a customer, the Company recognizes revenue when the related performance obligation is satisfied (i.e. when the control of an instrument has passed to the customer). Revenue from the sale of consumables is recognized upon shipment to the customer. The Company's perpetual software licenses generally have significant stand-alone functionality to the customer upon delivery and are considered to be functional intellectual property. The Company's perpetual software licenses are considered distinct performance obligations, and revenue allocated to the software license is typically recognized upon provision of the license/software code to the customer (i.e., when the software is available for access and download by the customer).

Service and Other Revenue

Product sales of instruments include a service-based warranty typically for one year following the installation of the purchased instrument, with an extended warranty for an additional year sold in many cases. These are separate performance obligations as they are service-based warranties and are recognized on a straight-line basis over the service delivery period. After completion of the service period, customers have an option to renew or extend the warranty services, typically for additional one-year periods in exchange for additional consideration. The extended warranties are also service-based warranties that represent separate purchasing decisions. The Company recognizes revenue allocated to the extended warranty performance obligation on a straight-line basis over the service delivery period. Revenue from separately charged installation services is recognized upon completion of the installation process. Additionally, the Company provides laboratory services, in which revenue is recognized as services are performed. For laboratory services, we generally use the cost-to-cost approach to measure the extent of progress towards completion of the performance obligation because we believe it best depicts the transfer of assets to the customer. Under the cost-to-cost measure approach, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred. The Company records shipping and handling billed to customers as service and other revenue and the related costs in cost of service and other revenue in the consolidated statements of operations.

Disaggregation of Revenue

The Company disaggregates revenue from contracts with customers by type of products, and between service and other revenue, as it best depicts how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors. The following table disaggregates the Company's revenue by major source:

Revenue	Year ended	
	December 31, 2021	December 31, 2020
Product revenue		
Instruments	\$ 28,692	\$ 23,772
Consumables	14,298	8,535
Standalone software products	1,487	1,131
Total product revenue	\$ 44,477	\$ 33,438
Service and other revenue	\$ 10,440	\$ 9,005
Total revenue	\$ 54,917	\$ 42,443

Significant Judgments

The Company's contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together requires significant judgment. Once the Company determines the performance obligations, the Company determines the transaction price, which includes estimating the amount of variable consideration, based on the most likely amount, to be included in the transaction price, if any. The Company then allocates the transaction price to each performance obligation in the contract based on a relative standalone selling price method. The corresponding revenue is recognized as the related performance obligations are satisfied as discussed in the revenue categories above.

Judgment is required to determine the standalone selling price for each distinct performance obligation. The Company determines standalone selling price based on the price at which the performance obligation in the contract (i.e. instrument, service warranty, installation) would be sold separately. As the first-year warranty for each instrument is embedded in the instrument price, the amount allocated to the first-year warranty has been determined based on the separately identifiable price of the Company's extended warranty offering when it is sold on a renewal basis.

If the standalone selling price is not observable through past transactions, the Company estimates the standalone selling price taking into account available information such as market conditions and the expected costs and margin related to the performance obligations. Contracts in which only one performance obligation is identified (i.e., consumables and standalone software products) do not require allocation of the transaction price.

Contract Assets and Liabilities

The Company did not record any contract assets at December 31, 2021 or December 31, 2020.

The Company's contract liabilities consist of upfront payments for service-based warranties on instrument sales. The Company classifies these contract liabilities in deferred revenue as current or noncurrent based on the timing of when the Company expects to service the warranty.

Cost to Obtain and Fulfill a Contract

Under ASC 606, the Company is required to capitalize certain costs to obtain customer contracts and costs to fulfill customer contracts. These costs are required to be amortized to expense on a systemic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates, compared to previously being expensed as incurred. As a practical expedient, the Company recognizes any incremental costs to obtain a contract as an expense when incurred if the amortization period of the asset is one year or less. Capitalizable costs to obtain contracts, such as commissions, and costs to fulfill customer contracts were determined to be immaterial for the years ended December 31, 2021 and 2020.

Cost of goods sold

Cost of product revenue includes the cost of materials, direct labor, and manufacturing overhead costs used in the manufacture of products sold to customers.

Cost of service and other revenue consists of personnel, facility costs associated with operating our laboratory testing on behalf of the customers, costs related to instrument maintenance, servicing equipment, training customers at customer sites, freight, other direct costs, and overhead.

Redeemable convertible preferred stock

The Company has classified redeemable convertible preferred stock as temporary equity on the accompanying consolidated balance sheets because it becomes redeemable due to the passage of time or could become redeemable due to certain change in control clauses that are outside of the Company's control. The redeemable convertible preferred

stock is adjusted to the redemption value over time through the date of the earliest redemption date. These increases are recorded as charges against retained earnings, if any, and then to additional paid-in capital. Then, in the absence of additional paid-in capital, the accretion is charged to the accumulated deficit.

Research and development costs

Costs incurred in the research and development of the Company's product candidates are expensed as incurred. Research and development expenses consist of costs incurred in performing research and development activities, including activities associated with performing services under research revenue arrangements, costs associated with the manufacture of developing products and include salaries and benefits, stock compensation, research related facility and overhead costs, laboratory supplies, equipment and contract services.

Capitalized software development costs

Since the Company sells standalone licensed software products to its customers, the Company applies guidance related to accounting for the costs of such software to be sold, leased or otherwise marketed in accordance with ASC 985-20, Costs of Software to be Sold, Leased, or Marketed, or ASC 985-20. Such guidance requires capitalization of certain software development costs subsequent to the establishment of technological feasibility. Costs eligible for capitalization under ASC 985-20 during the year ended December 31, 2021 were \$600 and recorded as an intangible asset on our December 31, 2021 consolidated balance sheet. The Company has determined that costs eligible for capitalization under ASC 985-20 during the year ended December 31, 2020 were immaterial.

We account for costs to develop or obtain internal-use software in accordance with ASC 350-40, Internal-Use Software, or ASC 350-40. We also account for costs of significant upgrades and enhancements resulting in additional functionality under ASC 350-40. Costs incurred for maintenance, training, and minor modifications or enhancements are expensed as incurred. Internal-use software is amortized on a straight-line basis over its estimated useful life. Management evaluates the useful lives of these assets on an annual basis and tests for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets. Development costs related to internal-use software were immaterial in 2021. Development costs related to internal-use software were \$659 in 2020 and recorded as an intangible asset on our December 31, 2020 consolidated balance sheet.

Advertising expenses

The cost of advertising, marketing and media is expensed as incurred. For the years ended December 31, 2021 and 2020, advertising costs totaled \$3.4 million and \$0.8 million, respectively.

Comprehensive loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. Comprehensive loss consists of net loss and other comprehensive loss, which includes certain changes in equity that are excluded from net loss. The Company's comprehensive loss equals reported net loss for all periods presented.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation these costs are recorded in stockholders' equity (deficit) as a reduction of additional paid in capital generated as a result of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed as a charge to operating expenses. There were no deferred offering costs at December 31, 2021. As of December 31, 2020, \$269 of deferred offering costs were included in other assets in the accompanying consolidated balance sheets.

Stock-based compensation

The Company records stock-based compensation for options granted to employees, non-employees, and to members of the Board for their services on the Board based on the grant date fair value of awards issued, and the expense is recorded on a straight-line basis over the requisite service period, which is generally four years.

The Company uses the Black-Scholes-Merton option pricing model to determine the fair value of stock options. The use of the Black-Scholes-Merton option-pricing model requires management to make assumptions with respect to the expected term of the option, the expected volatility of the common stock consistent with the expected life of the option, risk-free interest rates and expected dividend yields of the common stock. The expected term was determined according to the simplified method, which is the average of the vesting tranche dates and the contractual term. Due to the lack of company-specific historical and implied volatility, the Company bases its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. For these analyses, companies with comparable characteristics are selected, including enterprise value and position within the industry, and with historical price information sufficient to meet the expected life of the stock-based awards. The Company computes the historical volatility data using the daily closing prices for the selected companies' shares during the equivalent period of the calculated expected term of its stock-based awards. The risk-free interest rate is determined by reference to the U.S. Treasury zero-coupon issues with remaining maturities similar to the expected term of the options. The Company has not paid, and does not anticipate paying, cash dividends on shares of common stock; therefore, the expected dividend yield is assumed to be zero. The Company has elected to account for forfeitures as they occur; any compensation cost previously recognized for an award that is forfeited because of a failure to satisfy a service or performance condition will be reversed in the period of the forfeiture. Refer to Note 10 for further details on the Company's stock-based compensation plans.

Warrant to purchase common stock

Prior to completion of the IPO in April 2021, the Company had an outstanding warrant to purchase shares of its Series D redeemable convertible preferred stock. Since the underlying Series D redeemable convertible preferred stock was classified outside of permanent equity, the preferred stock warrant was classified as other long-term liabilities in the accompanying balance sheet. The preferred stock warrant liability was recorded at fair value utilizing the Black-Scholes model. The Black Scholes option pricing model is based on the estimated market value of the underlying redeemable convertible preferred stock at the valuation measurement date, the remaining contractual term of the warrant, risk-free interest rates, expected dividends, and expected volatility of the price of the underlying redeemable convertible preferred stock. The Company adjusted the carrying value of the preferred stock warrant to its estimated fair value at each reporting date, with any related increase or decrease in the fair value recorded as an increase or decrease to other income (expense) in the statements of operations. In connection with the IPO, the preferred stock warrant was converted to a warrant to purchase shares of the Company's common stock, pursuant to its preexisting terms. As such, the Company assessed the classification of the common stock warrant and determined it met the criteria to be classified within stockholders' equity. Accordingly, the fair value of the warrant liability was reclassified to stockholders' equity.

Income taxes

The Company provides for income taxes using the liability method. The Company provides deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the Company's financial statement carrying amounts and the tax basis of assets and liabilities using enacted tax rates expected to be in effect in the years in which the differences are expected to reverse. Deferred tax assets and liabilities are recorded net as long term. A valuation allowance is provided to reduce the deferred tax assets to the amount that will more likely than not be realized.

The Company applies ASC 740 Income Taxes ("ASC 740") in accounting for uncertainty in income taxes. The Company has identified an uncertain tax position, however this uncertain tax position has not created a liability for the years ending December 31, 2021 and 2020 as the reserve has been applied against the asset. The Company will recognize interest and penalties related to uncertain tax positions, if any, in income tax expense.

Commitments and contingencies

Indemnification obligations

The Company has entered into indemnification agreements with its officers and directors that require the Company to indemnify such individuals for certain events or occurrences while each such officer or director is, or was, serving at the Company's request in such capacity. The maximum potential amount of future payments the Company could be required to make is, in many cases, unlimited. The Company has directors' and officers' liability insurance coverage that limits its exposure and enables the Company to recover a portion of any future amounts paid.

The Company leases office and laboratory space under operating leases. The Company has standard indemnification arrangements under the leases that require it to indemnify the landlords against all costs, expenses, fines, suits, claims, demands, liabilities, and actions directly resulting from any breach, violation or nonperformance of any covenant or condition of the Company's leases.

In the ordinary course of business, the Company enters into indemnification agreements with certain suppliers and business partners where the Company has certain indemnification obligations limited to the costs, expenses, fines, suits, claims, demands, liabilities and actions directly resulting from the Company's gross negligence or willful misconduct, and in certain instances, breaches, violations or nonperformance of covenants or conditions under the agreements.

As of December 31, 2021 and 2020, the Company had not experienced any material losses related to these indemnification obligations, and no material claims with respect thereto were outstanding. The Company does not expect significant claims related to these indemnification obligations and, consequently, concluded that the fair value of these obligations is negligible, and no related reserves were established.

The Company is subject to the possibility of loss contingencies arising in the ordinary course of business. Management considers the likelihood of loss related to an asset, or the incurrence of a liability, as well as its ability to reasonably estimate the amount of the loss, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that an asset has been impaired, or a liability has been incurred and the amount of loss can be reasonably estimated. The Company regularly evaluates current information available to determine whether such accruals should be adjusted and whether new accruals are required. Refer to Note 13 for the details of the Company's contingencies.

Legal proceedings

From time to time, the Company may become involved in litigation relating to claims arising from the ordinary course of business. Management believes that there are no claims or actions pending against the Company currently, the ultimate disposition of which would have a material adverse effect on the Company's consolidated results of operation, financial condition or cash flows.

Net loss per share attributable to common stockholders

Basic and diluted net loss per common share outstanding is determined by dividing net loss, as adjusted for accretion and accrued dividends on redeemable convertible preferred stock, by the weighted average common shares outstanding during the period. Diluted net loss per share reflects the potential dilution that would occur if securities or other contracts to issue common stock were exercised or converted into common stock; however, potential common equivalent shares are excluded if their effect is anti-dilutive. In computing diluted net loss per share, the Company utilizes the treasury stock method.

The Company applies the two-class method to compute basic and diluted net loss or income per share when it has issued shares that meet the definition of participating securities. The two-class method determines net (loss) or income per share for each class of common and participating securities according to dividends declared or accumulated and participation rights in undistributed earnings. The two-class method requires net (loss) income available to common stockholders for the period to be allocated between common and participating securities based upon their respective rights to share in the earnings as if all net (loss) income for the period had been distributed. The Company's convertible preferred stock participates in any dividends declared by the Company and are therefore considered to be participating securities. The participating securities are not required to participate in the losses of the Company, and therefore during periods of loss there is no allocation required under the two-class method.

Recent Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. The Company is considered to be an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (Jobs Act). The Jobs Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

Recently issued but not yet adopted accounting standards

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* in order to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet for those leases classified as operating leases under previous generally accepted accounting principles. ASU 2016-02 requires a lessee to recognize a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term on the balance sheet. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018 (including interim periods within those periods) and early adoption is permitted. In August 2018, the FASB issued ASU 2018-11, *Targeted Improvements to ASC 842*, which provides a new transition option in which an entity initially applies ASU 2016-02 at the adoption date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. In June 2020, the FASB issued an extension in the effective date for all non-public companies. This extended the effective date to annual periods beginning after December 15, 2021 (i.e. calendar year periods beginning on January 1, 2022) and interim periods within fiscal years beginning after December 15, 2022. Early adoption is permitted. Prior period comparative balances will not be adjusted. The Company expects to use the new transition option and will expect to utilize the package of practical expedients that allows it to not reassess: (1) whether any expired or existing contracts are or contain leases, (2) lease classification for any expired or existing leases, and (3) initial direct costs for any existing leases. The Company expects to use the short-term lease

exception for leases with a term of twelve months or less. Additionally, the Company expects to use the practical expedient that allows it to treat each separate lease component of a contract and its associated non-lease components as a single lease component. The Company is continuing to finalize its assessment, however we expect the standard will result in the recognition of right-of-use assets of \$10.1 million to \$11.1 million and lease liabilities of \$10.4 million to \$11.4 million as of January 1, 2022.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments — Credit Losses (Topic 326) — Measurement of Credit Losses on Financial Instruments*, which has been subsequently amended by ASU No. 2018-19, ASU No. 2019-04, ASU No. 2019-05, ASU No. 2019-10, ASU No. 2019-11 and ASU No. 2020-03 (“ASU 2016-13”). The provisions of ASU 2016-13 modify the impairment model to utilize an expected loss methodology in place of the currently used incurred loss methodology and require a consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASU 2016-13 is effective for the Company on January 1, 2023, with early adoption permitted. The Company is currently evaluating the potential impact that ASU 2016-13 may have on its consolidated financial statements and related disclosures.

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, which simplifies the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. Instead of determining a hypothetical purchase price allocation to measure goodwill impairment, the Company will compare the fair value of a reporting unit with its carrying amount. The update also includes a new requirement to disclose the amount of goodwill allocated to reporting units with zero or negative carrying amounts. ASU 2017-04 is effective for the Company on January 1, 2023, with early adoption permitted. The Company is currently evaluating the potential impact that ASU 2017-04 may have on its consolidated financial statements and related disclosures.

(3) Significant risks and uncertainties including business and credit concentrations

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash equivalents and receivables. The Company’s cash equivalents are held by large, credit worthy financial institutions. The Company has established guidelines relative to credit ratings, diversification and maturities that seek to maintain safety and liquidity. Deposits in these banks may exceed the amounts of insurance provided on such deposits. To date, the Company has not experienced any losses on its deposits of cash and cash equivalents.

The Company controls credit risk through credit approvals, credit limits, and monitoring procedures. The Company performs periodic credit evaluations of its customers and generally does not require collateral. Accounts receivable are recorded net of an allowance for doubtful accounts. The allowance for doubtful accounts is based on management’s assessment of the collectability of specific customer accounts and the aging of the related invoices and represents the Company’s best estimate of probable credit losses in its existing accounts receivable. The Company does not require collateral and had an allowance for doubtful accounts of \$45 and \$103 at December 31, 2021 and December 31, 2020, respectively.

For the years ended December 31, 2021 and 2020, no customers accounted for greater than 10% of revenue. No customers accounted for greater than 10% of accounts receivable at December 31, 2021 and 2020.

(4) Fair value of financial instruments

The Company measures the following financial liabilities at fair value on a recurring basis. There were no transfers between levels of the fair value hierarchy during any of the periods presented.

The following tables set forth the Company's financial assets and liabilities carried at fair value categorized using the lowest level of input applicable to each financial instrument as of December 31, 2021 and December 31, 2020:

	Balance at December 31, 2021	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Contingent consideration – Long term portion	\$ 7,850	\$ —	\$ —	\$ 7,850
	<u>\$ 7,850</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 7,850</u>

	Balance at December 31, 2020	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Warrant liability	\$ 490	\$ —	\$ —	\$ 490
Contingent consideration – Long term portion	\$ 6,984	\$ —	\$ —	\$ 6,984
	<u>\$ 7,474</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 7,474</u>

The Company's recurring fair value measurements using Level 3 inputs relate to the Company's contingent consideration liability and warrant liability. In those circumstances where an acquisition involves a contingent consideration arrangement, the Company recognizes a liability equal to the fair value of the contingent payments the Company expects to make as of the acquisition date. The Company re-measures this liability each reporting period and records changes in the fair value through changes in fair value of Contingent consideration on the Company's consolidated statements of operations. Increases or decreases in the fair value of the contingent consideration liability can result from changes in discount rates, periods, timing and amount of projected revenue.

Prior to completion of the IPO in April 2021, the Company had an outstanding warrant to purchase shares of its Series D redeemable convertible preferred stock. Since the underlying Series D redeemable convertible preferred stock was classified outside of permanent equity, the preferred stock warrant was classified as other long-term liabilities in the accompanying balance sheet. The preferred stock warrant liability was recorded at fair value utilizing the Black-Scholes model. The Black Scholes option pricing model is based on the estimated market value of the underlying redeemable convertible preferred stock at the valuation measurement date, the remaining contractual term of the warrant, risk-free interest rates, expected dividends, and expected volatility of the price of the underlying redeemable convertible preferred stock. The Company adjusted the carrying value of the preferred stock warrant to its estimated fair value at each reporting date, with any related increase or decrease in the fair value recorded as an increase or decrease to other income (expense) in the statements of operations. In connection with the IPO, the preferred stock warrant was converted to a warrant to purchase shares of the Company's common stock, pursuant to its preexisting terms. As such, the Company

assessed the classification of the common stock warrant and determined it met the criteria to be classified within stockholders' equity. Accordingly, the fair value of the warrant liability was reclassified to stockholders' equity.

Changes in the fair value of the Company's long-term portion of the contingent consideration liability during the years ended December 31, 2021 and 2020 were as follows:

Balance as of December 31, 2019	\$ 8,139
Contingent consideration paid	(171)
Reclassification of FY 2020 payment to accrued expenses	(1,590)
Change in contingent consideration value	606
Balance as of December 31, 2020	<u>\$ 6,984</u>
Balance as of December 31, 2020	\$ 6,984
Reclassification of FY 2021 payment to accrued expenses	(1,207)
Change in contingent consideration value	2,073
Balance as of December 31, 2021	<u>\$ 7,850</u>

The difference between the amount paid in 2020 and the amount included in accrued expenses at December 31, 2019 is \$87 and is included in the change in fair value of contingent consideration in the year ended December 31, 2020 consolidated statement of operations.

The recurring Level 3 fair value measurements of the Company's contingent consideration liability include the following significant unobservable inputs:

<u>Contingent Consideration Liability</u>	<u>Fair Value as of December 31, 2021</u>	<u>Valuation Technique</u>	<u>Unobservable Inputs</u>
Revenue-based Payments	\$ 7,850	Discounted Cash Flow Analysis under the Income Approach	Revenue discount factor, discount rate

Changes in the fair value of the Company's warrant liability during the years ended December 31, 2021 and 2020 were as follows:

Balance as of December 31, 2019	\$ 192
Change in fair value of warrant liability	298
Balance as of December 31, 2020	<u>\$ 490</u>
Balance as of December 31, 2020	\$ 490
Change in fair value of warrant liability	2,728
Reclassification of warrant liability to stockholders' equity	(3,218)
Balance as of December 31, 2021	<u>\$ —</u>

(5) Property and equipment, net

Property and equipment consists of the following:

	Estimated Useful Life (Years)	December 31, 2021	December 31, 2020
Furniture and fixtures	7	\$ 488	\$ 358
Computers, laptop and peripherals	5	3,590	2,367
Laboratory equipment	5	5,906	3,806
Leasehold improvements	Shorter of the lease life or 7	1,571	1,261
Total property and equipment		11,555	7,792
Less: Accumulated depreciation		(4,068)	(2,264)
Property and equipment, net		<u>\$ 7,487</u>	<u>\$ 5,528</u>

Total depreciation expense relating to property and equipment charged to operations for the year ended December 31, 2021 was \$1,804. Total depreciation expense relating to property and equipment charged to operations for the year ended December 31, 2020 was \$1,398.

Demo inventory consists of the following:

	Estimated Life (Years)	December 31, 2021	December 31, 2020
Demo inventory – gross	3	\$ 3,733	\$ 2,010
Less: Accumulated depreciation		(1,185)	(516)
Demo inventory, net		<u>\$ 2,548</u>	<u>\$ 1,494</u>

Total depreciation expense relating to demo equipment charged to operations for the year ended December 31, 2021 was \$824. Total depreciation expense relating to demo equipment charged to operations for the year ended December 31, 2020 was \$335.

(6) Intangible assets and goodwill

Intangible assets as of December 31, 2021 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	\$ 11,800	\$ (2,561)	\$ 9,239	15
Developed technology	8,300	(2,252)	6,048	12
Licenses	63	(25)	38	15
Trade names and trademarks	6,300	(1,722)	4,578	12
Capitalized software	1,259	(68)	1,191	5
Non-compete agreements	300	(244)	56	4
Total intangible assets	<u>\$ 28,022</u>	<u>\$ (6,872)</u>	<u>\$ 21,150</u>	

Intangible assets as of December 31, 2020 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	\$ 11,800	\$ (1,774)	\$ 10,026	15
Developed technology	8,300	(1,560)	6,740	12
Licenses	63	(20)	43	15
Trade names and trademarks	6,300	(1,184)	5,116	12
Capitalized software	659	—	659	5
Non-compete agreements	300	(170)	130	4
Total intangible assets	\$ 27,422	\$ (4,708)	\$ 22,714	

Total amortization expense charged to operations for the year ended December 31, 2021 was \$2,098. Total amortization expense charge to cost of sales for the year ended December 31, 2021 was \$66. Total amortization expense charged to operations for the year ended December 31, 2020 was \$2,082.

In November 2015, the Company entered into a license agreement with The Board of Trustees of the Leland Stanford Junior University (“Stanford”), pursuant to which Stanford granted the Company an exclusive, worldwide, sublicensable license under certain patent rights to make, use, import and commercialize products for diagnostic, industrial and research and development purposes. In accordance with the agreement, the Company capitalized non-refundable royalties paid to Stanford totaling \$63, subject to straight-line amortization over a period of 15 years, or the term of the related agreement.

In conjunction with rebranding our PhenoOptics portfolio to PhenoImager in the fourth quarter of 2021, the Company shortened its remaining useful life estimates from 9 years to 5 years for the related acquired trademark assets, of which the impact to 2021 was immaterial.

As of December 31, 2021, the amortization expense related to identifiable intangible assets in future periods is expected to be as follows:

2022	\$ 2,372
2023	2,430
2024	2,549
2025	2,549
2026	2,520
Thereafter	8,730
Total	\$ 21,150

As of December 31, 2021 and December 31, 2020, the goodwill balance is \$18,262.

(7) Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consist of the following:

	December 31, 2021	December 31, 2020
Payroll and compensation	\$ 6,502	\$ 2,225
Current portion of contingent consideration	1,207	1,590
Inventory purchases	1,877	478
Other accrued expenses	3,905	2,722
Total accrued expenses and other current liabilities	\$ 13,491	\$ 7,015

(8) Debt and capital lease obligations

Term Loan Agreements

In September 2019, the Company entered into a Loan and Security Agreement with Innovatus Life Sciences Lending Fund I, LP (“Innovatus”), under which Innovatus agreed to make a term loan to the Company in an aggregate principal amount of \$25,000 (the “Innovatus Term Loan”). Amounts borrowed under the Innovatus Term Loan have an initial maturity date of September 1, 2024 and accrue interest at a floating annual rate equal to the sum of (a) the greater of 5.25% or the prime rate and (b) 3.75%. For each of the first 24 months, the Company will be paying 7.25% as cash interest and deferring 1.75% of interest until October 1, 2022. Principal payments (including the amortization of the accrued interest) of \$1,079 per month commence on October 1, 2022. A final payment fee of \$750 is due upon the earlier to occur of the maturity date or prepayment of such borrowings. For the year ended December 31, 2020, the Company recorded \$123 related to the amortization of the final payment fee associated with the Innovatus Term Loan.

In October 2020, the Company entered into a new debt financing arrangement with Midcap Financial Trust (the “Midcap Trust Term Loan”), for a \$37,500 credit facility, consisting of a senior, secured term loan to refinance all existing indebtedness with Innovatus. The Company received \$32,500 in aggregate proceeds as a result of the debt financing. In connection with its entry into the Midcap Trust Term Loan, in October 2020, the Company paid off the full balance of the Innovatus Term Loan of \$26,882, including the principal, accrued interest, prepayment fee, and final fee.

The term of the Midcap Trust Term Loan is interest only for 36 months followed by 24 months of straight-line amortization. Interest on the outstanding balance of the Midcap Trust Term Loan shall be payable monthly in arrears at an annual rate of one-month LIBOR plus 6.35%, subject to a LIBOR floor of 1.50%. The interest rate was 7.85% at December 31, 2021. At the time of final payment under the Midcap Trust Term Loan, the Company is required to pay Midcap Financial Trust a final payment fee of 5.00% of the amount borrowed under the Midcap Trust Term Loan. If the Midcap Trust Term Loan is prepaid prior to the end of the term, the Company shall pay to Midcap Financial Trust a fee as compensation for the costs of being prepared to make funds available in an amount determined by multiplying the amount being prepaid by (i) three percent (3.00%) in the first year, two percent, (2.00%) in the second year and one percent (1.00%) in the third year and thereafter. A final payment fee of \$1,625 is due upon the earlier to occur of the maturity date or prepayment of such borrowings. For the year ended December 31, 2021, the Company recorded \$325 related to the amortization of the final payment fee associated with the Midcap Trust Term Loan.

Paycheck Protection Program Loan (“PPP”)

In April 2020, the Company received a \$2,476 small business loan under the PPP, part of the Coronavirus Aid, Relief and Economic Security Act (“CARES Act”). In December 2020, we applied for forgiveness of the full loan amount. Any such forgiveness of indebtedness, in accordance with the CARES Act, does not give rise to federal taxable income. If not forgiven, the note bears interest at a rate of 1.00% and payments are scheduled to begin the latter of March 2021, or upon response by the Small Business Association (the “SBA”) regarding our forgiveness application.

The PPP, established as part of the CARES Act, provides for loans to qualifying businesses for amounts up to 2.5 times of the average monthly payroll expenses of the qualifying business. Such loan provides for customary events of default, including, among others, those relating to failure to make payment when due and breaches of representations. The Company may prepay the principal of the loan at any time without incurring any prepayment charges. The loan is subject to all the terms and conditions applicable under the PPP and is subject to review by the SBA for compliance with program requirements, including the Company’s certification that the current economic uncertainty made the PPP loan request necessary to support ongoing operations.

In June 2020, the Payroll Protection Program Flexibility Act (“PPPPFA”) was signed into law adjusting certain key terms of loans issued under the PPP. In accordance with the PPPFA, the initial deferral period may be extended from six to up to ten months and the loan maturity may be extended from two to five years. The PPPFA also provided for certain other changes, including the extent to which the loan may be forgiven.

The loan's principal and accrued interest are forgivable to the extent that the proceeds are used for eligible purposes, subject to certain limitations, and that the Company maintains its payroll levels over a twenty-four-week period following the loan date. The Company believes that it has used the proceeds for eligible purposes consistent with the provisions of the PPPFA.

As the legal form of the PPP loan is a debt obligation, the Company initially accounted for it as debt under ASC 470, *Debt* and recorded a debt obligation of \$2,476. The Company received forgiveness on the PPP Loan in June 2021 and therefore has recorded the \$2,476 forgiveness of the loan within Other income (expense) on the consolidated statements of operations for the year ending December 31, 2021. The forgiveness qualifies as a gain upon debt extinguishment and the related liability was removed from the consolidated balance sheet in the second quarter of 2021.

Debt consists of the following:

	December 31, 2021	December 31, 2020
Midcap Trust Term Loan	\$ 32,500	\$ 32,500
PPP Loan	—	2,476
Total debt	32,500	34,976
Unamortized debt discount	(413)	(515)
Accretion of final fee	384	59
Total debt, net	32,471	34,520
Less amount included as short-term	—	(1,032)
Long-term debt, net	<u>\$ 32,471</u>	<u>\$ 33,488</u>

As of December 31, 2021, future principal payments due under the Midcap Trust Term Loan, excluding the \$1,625 final payment fee, are as follows:

Year ended:	Midcap Trust Term Loan
December 31, 2022	\$ —
December 31, 2023	—
December 31, 2024	2,708
December 31, 2025	16,250
December 31, 2026	13,542
Total minimum principal payments	<u>\$ 32,500</u>

As a condition precedent to the Innovatus Term Loan, the Company also sold shares of Series D Preferred Stock at the same terms provided to the other investors for an aggregate amount of \$2,000 to the Lender as part of the Series D Financing. Additionally, as a condition precedent to the Innovatus Term Loan, the Company agreed to receive at least \$25,000 in net proceeds from the Series D Financing by December 2019, which the Company completed on September 27, 2019, as discussed below. In connection with the Loan and Security Agreement, the Company also issued the lender a warrant to purchase 368,779 additional shares of Series D Preferred Stock, which converted to a warrant to purchase common stock upon the IPO as discussed in Note 4, at a purchase price of \$1.53 per share. The expiration date of the warrant is September 27, 2029. The holder may at any time and from time to time exercise this warrant, in whole or in part, and on any exercise of the warrant, the holder may elect to receive shares equal to the value of the warrant or portion. The initial warrant value of \$192 was recorded as a debt discount and was amortized over the term of the Innovatus Term Loan. See Note 4 for valuation of warrant.

For the year ended December 31, 2021, the Company entered into two leases for staining equipment, computer equipment and furniture which are classified as capital lease obligations in the consolidated balance sheets as of December 31, 2021. In 2020, the Company entered into a lease for staining equipment which is classified as a capital lease in the consolidated balance sheets. As of December 31, 2021, and December 31, 2020, the current portion of the lease obligations totaled \$272 and \$197, respectively, and the long-term portion totaled \$197 and \$277, respectively.

(9) Stockholder's equity (deficit)

In February 2021, the Board approved and in April 2021, the Company's stockholders approved the number of shares of common stock authorized for issuance under the 2015 Plan (as defined below) to be increased from 4,947,214 shares to 6,020,175 shares (an increase by 1,072,961 shares).

The Company's Amended and Restated Certificate of Incorporation authorizes it to issue 500,000,000 shares of common stock, \$0.00001 par value per share, and 10,000,000 shares of preferred stock, par value \$0.00001 per share. Each share of Class A common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board, subject to the prior rights of holders of all classes of stock outstanding. As of December 31, 2021 and December 31, 2020, a total of 37,424,101 and 2,563,765 shares of common stock were issued and outstanding, respectively, and 6,709,218 and 4,932,952 shares of common stock were reserved for issuance upon the exercise of stock options, respectively.

(10) Stock compensation plans

2021 Equity Incentive Plan

On March 24, 2021, the Board and on April 8, 2021, its stockholders approved and adopted the 2021 Equity Incentive Award Plan (the "2021 Plan"). The 2021 Plan became effective immediately prior to the closing of the IPO. Under the 2021 Plan, the Company may grant stock options, stock appreciation rights, restricted stock, restricted stock units, and other stock or cash-based awards to individuals who are then employees, officers, directors or consultants of the Company. A total of 1,727,953 shares of common stock were approved to be initially reserved for issuance under the 2021 Plan. The number of shares under the 2015 Plan (as defined below) subject to outstanding awards as of the effective date of the 2021 Plan that are subsequently canceled, forfeited or repurchased by the Company were added to the shares reserved under the 2021 Plan. In addition, the number of shares of common stock available for issuance under the 2021 Plan will be automatically increased on the first day of each calendar year during the ten-year term of the 2021 Plan, beginning with January 1, 2022 and ending with January 1, 2030, by an amount equal to 5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Board.

2015 Equity Incentive Plan

The Company's 2015 Equity Incentive Plan (the "2015 Plan") was established for granting stock incentive awards to directors, officers, employees and consultants to the Company. The 2015 Plan provided for the grant of incentive and non-qualified stock options, stock appreciation rights, restricted stock and restricted stock units as determined by the Board. Under the 2015 Plan, stock options were generally granted with exercise prices equal to or greater than the fair value of the common stock as determined by the Board, expired no later than 10 years from the date of grant, and vested over various periods not exceeding four years. While no shares are available for future issuance under the 2015 Plan, it continues to govern outstanding equity awards granted thereunder.

Stock Options

During the years ended December 31, 2021 and 2020, the Company granted options with an aggregate fair value of \$21,224 and \$587, respectively, which are being recorded as compensation expense over the requisite service period. The Company uses the Black-Scholes option pricing model to determine the fair value of stock options. The valuation model for stock compensation expense requires the Company to make assumptions and judgments about the variables used in the calculation including the expected term (weighted-average period of time that the options granted are expected to be outstanding), volatility of the Company's common stock and an assumed-risk-free interest rate.

Expected Volatility. The Company uses an average historical stock price volatility of comparable public companies within a group of similar entities that were deemed to be representative of future stock price trends as the Company does not have sufficient trading history for its common stock. The Company will continue to apply this process until a sufficient amount of historical information regarding volatility of its own stock price options becomes available.

Expected Term. The Company derived the expected term using the “simplified” method (the expected term is determined as the average of the time-to-vesting and the contractual life of the options), as the Company had limited historical information to develop expectations about future exercise patterns and post vesting employment termination behavior.

Risk-Free Interest Rate. The risk-free interest rate is based on U.S. Treasury zero-coupon issues with remaining terms similar to the expected term on the options.

Dividend Yield. The Company has never paid any dividends and does not plan to pay dividends in the foreseeable future, and, therefore, used an expected dividend yield of zero in the valuation model.

The following is a summary of option activity:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2020	3,920,487	\$ 0.51	8.2	\$ 13,882
Granted	2,852,252	15.05		
Exercised	(747,758)	0.52		
Canceled	(297,234)	9.44		
Outstanding at December 31, 2021	<u>5,727,747</u>	<u>7.29</u>	<u>8.1</u>	<u>\$ 48,447</u>
Exercisable at December 31, 2021	<u>2,248,051</u>	<u>\$ 0.66</u>	<u>6.8</u>	<u>\$ 32,931</u>

The table above includes 21,459 of performance-based option shares issued to an employee in 2020, with an exercise price of \$0.84 per share, which was shown as granted in 2021. As of the original issuance date, the performance conditions were not established, and therefore there was no grant date as prescribed by ASC 718. In 2021, the options vested as performance conditions were established and determined to have been achieved. We recorded \$454 of stock-based compensation expense for such award in 2021.

The weighted-average grant date fair value of options granted in the years ended December 31, 2021 and 2020 was \$7.45 and \$0.45 per share, respectively, and was calculated using the Black-Scholes valuation model based on the following weighted-average assumptions:

	Year ended December 31, 2021	Year ended December 31, 2020
Weighted-average risk-free interest rate	1.1 %	0.8 %
Expected dividend yield	0 %	0 %
Expected volatility	50.9 %	46.6 %
Expected term	6.0 years	5.4 years

Stock-based compensation related to the Company’s stock-based awards was recorded as an expense and allocated as follows:

	Year ended December 31,	
	2021	2020
Cost of goods sold	\$ 118	\$ 7
Selling, general and administrative	3,339	347
Research and development	582	123
Total stock-based compensation	<u>\$ 4,039</u>	<u>\$ 477</u>

As of December 31, 2021, and 2020, there was \$16,355 and \$478, respectively, of total unrecognized compensation cost related to non-vested stock options. The Company expects to recognize that cost over a remaining weighted-average period of 3.3 and 2.8 years as of December 31, 2021 and 2020, respectively.

(11) Employee stock purchase plan

On March 24, 2021, the Board and on April 8, 2021, its stockholders approved and adopted the 2021 Employee Stock Purchase Plan (the "ESPP"). The ESPP became effective in connection with the closing of the Company's IPO. The ESPP permits participants to purchase common stock through payroll deductions of up to 15% of their eligible compensation. A total of 172,795 shares of common stock were approved to be initially reserved for issuance under the ESPP. In addition, the number of shares of common stock available for issuance under the ESPP will be automatically increased on the first day of each calendar year during the first ten-years of the term of the ESPP, beginning with January 1, 2022 and ending with January 1, 2030, by an amount equal to 0.5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Board. No shares have been issued under the ESPP at December 31, 2021.

(12) Income taxes

The components of net income (loss) before income taxes for the years ending December 31, 2021 and 2020 is as follows:

	December 31, 2021	December 31, 2020
Domestic	(43,241)	(16,781)
Foreign	166	117
Total	<u>\$ (43,075)</u>	<u>\$ (16,664)</u>

The Company's income tax provision for the years ending December 31, 2021 and 2020 is as follows:

	December 31, 2021	December 31, 2020
Federal	—	—
State	5	5
Foreign	10	30
Total current tax provision	<u>\$ 15</u>	<u>\$ 35</u>
Federal	(58)	2
State	(86)	5
Foreign	(11)	—
Total deferred tax provision	<u>\$ (155)</u>	<u>\$ 7</u>
Total tax provision	<u>\$ (140)</u>	<u>\$ 42</u>

A reconciliation between income tax benefit and the expected tax benefit at the statutory rate for the years ended December 31, 2021 and 2020 is as follows:

	2021		2020	
Federal statutory rate	21.00	%	21.00	%
State rate, net of federal benefit	3.60	%	4.09	%
Permanent differences	0.25	%	(1.23)	%
Tax credits generated	3.80	%	7.01	%
Non-deductible financing costs	(1.33)	%	—	%
Change in valuation allowance	(23.22)	%	(24.49)	%
Uncertain tax positions	(3.80)	%	(5.91)	%
Foreign rate differential	0.00	%	0.02	%
Other items	0.03	%	(0.74)	%
Effective tax rate	<u>0.32</u>	%	<u>(0.25)</u>	%

The significant components of the Company's net deferred tax liability consist of the following at December 31, 2021 and 2020:

	December 31,	
	2021	2020
Deferred tax assets (liabilities):		
<i>Deferred tax assets</i>		
Net operating losses	\$ 18,105	\$ 10,397
Accruals & reserves	1,127	379
Intangibles	358	291
Interest	723	—
Stock	466	—
Other	385	186
Gross deferred tax assets	<u>21,164</u>	<u>11,253</u>
Valuation Allowance	<u>(20,754)</u>	<u>(10,750)</u>
Net deferred tax assets	410	503
<i>Deferred tax liabilities</i>		
Depreciation	(327)	(237)
Goodwill	(98)	(436)
Net deferred tax liability	<u>\$ (15)</u>	<u>\$ (170)</u>

ASC 740 requires a valuation allowance to reduce the deferred tax assets reported if, based on the weight of available evidence, it is more likely than not that some portion or all the deferred tax assets will not be realized. Based upon the level of historical U.S. losses and future projections over the period in which the net deferred tax assets are deductible, at this time, management believes it is more likely than not that the Company will not realize the benefits of these deductible differences, and as a result the Company continues to maintain a valuation allowance for the full amount of the 2021 deferred tax assets. The increase in the 2021 valuation allowance is primarily attributable to the current year loss.

As of December 31, 2021 and 2020, for federal income tax purposes the Company had total net operating loss carryforwards of approximately \$72,454 and \$41,315, respectively. As of December 31, 2021, approximately \$2,567 will begin to expire in 2036 and approximately \$69,887 of the net operating losses will have an indefinite carryforward as a result of the Tax Cuts and Jobs Act. For state income tax purposes, as of December 31, 2021 and December 31, 2020 the Company had net operating loss carryforwards of approximately \$44,360 and \$26,161, respectively, which begin to expire in 2036.

As of December 31, 2021 and 2020, the Company has available federal research development tax credit carryforwards of approximately \$2,272 and \$1,544, respectively. The federal research credits will begin to expire in

2036. As of December 31, 2021 and December 31, 2020, the Company has available state research development tax credit carryforwards of approximately \$1,955 and \$1,220, respectively. The state tax credit carryforwards consist of credits with both a limited carryforward period and unlimited carryforward period. Unused credits with a limited carryforward period will begin to expire in 2032.

Under the provisions of the Internal Revenue Code, the net operating loss and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities. Net operating loss and tax credit carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant shareholders over a three-year period in excess of 50%, as defined under Sections 382 and 383 of the Internal Revenue Code, respectively, as well as similar state provisions. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. The amount of the annual limitation is determined based on the value of the Company immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years. The Company has completed equity financings transactions which may have resulted in a change in control as defined by Sections 382 and 383 of the Internal Revenue Code, or could result in a change in control in the future. The Company does not believe the impact of any limitation on the use of its net operating loss or credit carryforwards will have a material impact on the Company's consolidated financial statements since the Company has a full valuation allowance against its deferred tax assets due to the uncertainty regarding future taxable income for the foreseeable future.

The Company has not yet completed a study of its research and development credit carryforwards. Once completed, this study may result in an adjustment to the research and development credit carryforwards claimed on the tax returns. Until such time a research credit study is completed, the Company will not record an asset for research credits claimed on the tax returns. If an adjustment is required at the time the study is completed, this adjustment would be recorded as an adjustment to the deferred tax asset for the research and development credit carryforward and the valuation allowance.

A rollforward of the uncertain tax position that was primarily related to our research and development tax credits is as follows (in thousands):

Uncertain tax positions at December 31, 2019	\$	1,677
Increase in uncertain tax positions		1,086
Uncertain tax positions at December 31, 2020		<u>2,763</u>
Increase in uncertain tax positions		1,463
Uncertain tax positions at December 31, 2021		<u><u>4,226</u></u>

Uncertain tax positions of \$4.2 million will impact our tax rate if realized.

Interest and penalty charges, if any, related to uncertain tax positions would be classified as income tax expenses in the accompanying Consolidated statements of operations. At December 31, 2021 and 2020, the Company had no accrued interest or penalties related to uncertain tax positions.

The Company files income tax returns in the U.S. federal tax jurisdiction and various state jurisdictions. Since the Company is in a loss carryforward position, the Company is generally subject to examination by the U.S. federal, state and local income tax authorities for all years in which a loss carryforward is available. The statute of limitations for assessment by federal and state tax jurisdictions in which the Company has business operations is open for tax years ending December 31, 2017 and after. The tax years subject to examination vary by jurisdiction.

In response to the COVID-19 pandemic, the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act") was signed into law on March 27, 2020. The CARES Act included several provisions that provide economic relief for individuals and businesses. The CARES Act, among other things, included tax provisions relating to refundable payroll tax credits, the deferral of employer's social security payments, and modifications to net operating loss carryback provisions. On December 27, 2020, the Consolidated Appropriations Act of 2021 (the "CAA"), which includes the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act and the American Rescue Plan Act of 2021,

was signed into law and provided further COVID-19 economic relief with an expansion of the employee retention credit. In March 2021, the Internal Revenue Service (“IRS”) released Notice 2021-20, which retroactively eliminated the restriction that prevented employers who received a PPP loan from qualifying for the Employee Retention Credit (“ERC”), which is a refundable tax credit against certain employment taxes. Upon determination that the employer has complied with all of the conditions required to receive the credit, a receivable is recognized and the credit reduces salaries and wages. In connection with the CARES Act, the Company adopted a policy to recognize the employee retention credit when earned. For the year ended December 31, 2021, we determined that we qualify for the employee retention credit as it relates to wages paid during the twelve months ended December 31, 2020, as well as wages paid during the first, second, and third fiscal quarters of 2021. As a result, we recorded a net benefit of \$4,321 related to the employee retention credit as a reduction to payroll expense for the year ended December 31, 2021 and recorded a gross receivable of \$5,093 within Prepaid expenses and other current assets as of December 31, 2021.

(13) Commitments and contingencies

Operating Leases

In July 2019, the Company entered into a seven-year office lease agreement for office and laboratory space in Marlborough, MA. In connection with this agreement, the Company paid a security deposit totaling \$450 in the form of a letter of credit. On June 18, 2021, the Company entered into an amendment to reduce its letter of credit to \$300. The Company’s letter of credit is recorded as restricted cash in the Consolidated Balance Sheet.

In July 2019, the Company signed a seven-year lease agreement for office and laboratory space in Menlo Park, CA. In connection with this agreement, the Company paid a security deposit totaling \$181, which is recorded as a component of long-term assets in the Consolidated Balance Sheet; the lease commencement date was May 2020. In July of 2021, the Company signed a 70-month amendment to its lease in Menlo Park, CA to expand its existing space. In connection with this agreement, the Company paid a security deposit totaling \$92, in addition to the existing security deposit, which is recorded as a component of long-term assets in the Consolidated Balance Sheet; the lease commencement date was August 2021.

In August of 2021, the Company signed a 30-month lease with MTP Equity Partners, LLC for office space in Marlborough, MA. In connection with this agreement, the Company paid a security deposit totaling \$43, which is recorded as a component of long-term assets in the Consolidated Balance Sheet; The lease commencement date is August 2021.

Contractual cash payments for the Company’s operating leases as of December 31, 2021 by fiscal year are as follows:

2022	\$ 2,596
2023	2,561
2024	2,175
2025	2,204
2026	2,106
Thereafter	682
Total	<u>\$ 12,324</u>

Total rent expense for the year ended December 31, 2021 was \$1,810. Total rent expense for the year ended December 31, 2020 was \$1,169.

License Agreements

In November 2015, the Company entered into a license agreement with Stanford, pursuant to which Stanford granted the Company an exclusive, worldwide, sublicensable license under certain patent rights to make, use, import and commercialize products for diagnostic, industrial and research and development purposes. The Company agreed to pay annual license maintenance fees ranging from \$20 to \$50 for the royalty-bearing license to certain patents. The Company

also issued a total of 91,559 shares of Class B common stock pursuant to the agreement in 2015, which converted to Class A common stock on April 8, 2021. Such shares were recorded at fair value at the date of issuance. The Company is required to pay royalties on net sales of products that are covered by patent rights under the agreement at a rate of 2.25%, subject to reductions and offsets in certain circumstances.

In September 2018, in connection with the acquisition of the QPS division of PKI, the Company entered into a License Agreement with PKI, pursuant to which PKI granted the Company an exclusive, nontransferable, sublicensable license under certain patent rights to make, use, import and commercialize QPS products and services. The Company is required to pay royalties on net sales of products and services that are covered by patent rights under the agreement at a rate ranging from 1.0% to 7.0%. The Company recorded approximately \$1,207 and \$1,590 of accrued royalties in connection with this agreement as of December 31, 2021 and December 31, 2020, respectively, payable in the first quarter of 2022 and 2021, respectively.

Research Agreements

In 2019 the Company entered into a research arrangement with an unrelated third-party. Under this arrangement, we are obligated to pay such third-party \$415, and \$120 in 2022 and 2023, respectively.

(14) Net loss per share attributable to common stockholders

Potentially issuable shares of common stock include shares issuable upon the exercise of outstanding employee stock option awards. Awards granted with performance conditions are excluded from the shares used to compute diluted earnings per share until the performance conditions associated with the awards are met.

The following table sets forth the computation of basic and diluted earnings per common share:

	Year ended December 31,	
	2021	2020
Net loss	\$ (42,935)	\$ (16,706)
Dividends accrued on redeemable convertible preferred stock	(1,435)	(4,760)
Accretion of redeemable convertible preferred stock	—	(296)
Adjusted net loss attributable to common stockholders	<u>\$ (44,370)</u>	<u>\$ (21,762)</u>
Weighted average common shares used in net loss per share attributable to common stockholders, basic and diluted	26,896,976	2,370,574
Basic and diluted net loss per common share outstanding	<u>\$ (1.65)</u>	<u>\$ (9.18)</u>

The Company's potential dilutive securities, which include stock options, convertible preferred stock, and warrant, have been excluded from the computation of diluted net loss per share attributable to common stockholders whenever the effect of including them would be to reduce the net loss per share. In periods where there is a net loss, the weighted average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The following potential common shares, presented based on amounts outstanding at

each period end, were excluded from the calculation of diluted net loss per share attributable to common stockholders for the periods indicated because including them would have had an anti-dilutive effect:

	December 31,	
	2021	2020
Series A Convertible Preferred Stock (as converted to common stock)	—	2,151,641
Series B Redeemable Convertible Preferred Stock (as converted to common stock)	—	5,886,405
Series C Redeemable Convertible Preferred Stock (as converted to common stock)	—	11,473,110
Series D Redeemable Convertible Preferred Stock (as converted to common stock)	—	7,034,423
Outstanding stock options	5,727,747	3,920,487
Performance-based stock options	—	21,459
Warrant to purchase Series D convertible preferred stock (as converted to common stock)	—	158,274
Warrant to purchase common stock	158,274	—
Total	5,886,021	30,645,799

(15) Segments

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company's chief operating decision maker is its Chief Executive Officer. The Company has one business activity and there are no segment managers who are held accountable for operations. Accordingly, the Company has a single reportable segment structure. The Company's principal operations and decision-making functions are located in the United States.

The following table provides the Company's revenues by geographical market based on the location where the services were provided or to which product was shipped:

	Year ended December 31,	
	2021	2020
North America	\$ 28,028	\$ 20,178
APAC	12,530	10,409
EMEA	14,359	11,856
Total Revenue	\$ 54,917	\$ 42,443

	Year ended December 31,	
	2021	2020
North America	51 %	47 %
APAC	23 %	25 %
EMEA	26 %	28 %
Total Revenue	100 %	100 %

North America includes the United States and related territories, as well as Canada. APAC also includes Australia. For the year ended December 31, 2021, we had one country outside of the United States with 14% of total revenue. For the year ended December 31, 2020, we had one country outside of the United States with 11% of total revenue.

As of December 31, 2021 and December 31, 2020, substantially all of the Company's long-lived assets are located in the United States.

(16) Related party transactions

Argonaut Manufacturing Services Inc. (“AMS”) is a portfolio company of Telegraph Hill Partners, which holds greater than 5% of our total outstanding shares. During the years ended December 31, 2021, the Company incurred costs of goods sold of approximately \$3,433 related to sales of consumables manufactured by AMS. During the year ended December 31, 2020, the Company incurred costs of goods sold of approximately \$1,475 related to sales of consumables manufactured by AMS. As of December 31, 2021 and December 31, 2020, \$4,263 and \$1,300, respectively, is included in inventory related to consumables manufactured by AMS. As of December 31, 2021 and December 31, 2020, the Company had \$1,700 and \$569 in accounts payable, respectively, due to AMS.

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

None.

Item 9A. Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15 under the Exchange Act as of the end of the period covered by this report. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of December 31, 2021. There was not any change in our internal control over financial reporting (as such term is defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

Part III

Item 10. Directors, Executive Officers, and Corporate Governance

The information required by this Item 10 of Form 10-K will be included in our 2022 Proxy Statement and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this Item 11 of Form 10-K will be set forth in our 2022 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 12 of Form 10-K will be set forth in our 2022 Proxy Statement and is incorporated herein by reference.

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

The information required by this Item 13 of Form 10-K will be set forth in our 2022 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant's Fees and Services

The information required by this Item 14 will be set forth in our 2022 Proxy Statement and is incorporated herein by reference.

Part IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) All Financial Statements

See Index to Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

(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 exhibits listed in the following Exhibit Index are filed, furnished or incorporated by reference as part of this Annual Report on Form 10-K

Exhibit Index

Exhibit Number	Exhibit Title	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation	S-1	333-254760	3.3	3/26/2021	
3.2	Amended and Restated Bylaws	S-1	333-254760	3.4	3/26/2021	
4.1	Amended and Restated Investors' Rights Agreement, dated September 27, 2019, by and among the Registrant and certain of its stockholders	S-1	333-254760	10.15	3/26/2021	
10.1+	Akoya Biosciences, Inc. 2015 Equity Incentive Plan, as amended, and form of stock option agreement thereunder	S-1	333-254760	10.1	3/26/2021	
10.2+	Akoya Biosciences, Inc. 2021 Equity Incentive Plan and form of stock option agreement thereunder	S-1/A	333-254760	10.2	4/12/2021	
10.3+	Akoya Biosciences, Inc. 2021 Employee Stock Purchase Plan	S-1/A	333-254760	10.3	4/12/2021	
10.4+	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers	S-1	333-254760	10.4	3/26/2021	
10.5+	Offer Letter, dated June 28, 2017, by and between the Registrant and Brian McKelligon	S-1	333-254760	10.5	3/26/2021	
10.6+	Letter Amendment, dated October 8, 2018, by and between the Registrant and Brian McKelligon	S-1	333-254760	10.6	3/26/2021	
10.7+	Offer Letter, dated January 28, 2019, by and between the Registrant and Joseph Driscoll	S-1	333-254760	10.7	3/26/2021	
10.8+	Offer Letter, dated July 14, 2020, by and between the Registrant and Niroshan Ramachandran	S-1	333-254760	10.8	3/26/2021	
10.9†	Exclusivity (Equity) Agreement, dated November 17, 2015, by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University	S-1	333-254760	10.9	3/26/2021	
10.10†	Amendment No. 1 to the License Agreement, dated November 18, 2016, by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University	S-1	333-254760	10.10	3/26/2021	
10.11†	License and Royalty Agreement, dated September 28, 2018, by and among the Registrant, PerkinElmer Health Sciences, Inc., Cambridge Research & Instrumentation, Inc. and VisEn Medical Inc.	S-1	333-254760	10.11	3/26/2021	
10.12†	Transition Services Agreement, dated September 28, 2018, by and between the Registrant and PerkinElmer Health Sciences, Inc., as amended by First Amendment to the Transition Services Agreement, dated September 27, 2019	S-1	333-254760	10.12	3/26/2021	
10.13†	Exclusive Patent License Agreement, dated June 26, 2018, by and between the Registrant and the University of Washington	S-1	333-254760	10.13	3/26/2021	
10.14	Credit and Security Agreement, dated October 27, 2020, by and between the Registrant and Midcap Financial Trust	S-1	333-254760	10.14	3/26/2021	
10.15	Amended and Restated Investors' Rights Agreement, dated September 27, 2019, by and among the Registrant and certain of its stockholders	S-1	333-254760	10.15	3/26/2021	
10.16+	Offer Letter, dated March 2, 2021, by and between Registrant and Frederic Pla	S-1/A	333-254760	10.16	4/12/2021	

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10.17+	Offer Letter, dated December 2, 2021, by and between the Registrant and Marilee Moy	X
23.1	Consent of Independent Registered Public Accounting Firm	X
31.1	Certification of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	X
31.2	Certification of Principal Financial and Accounting Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	X
32.1 *	Certification of Principal Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X
32.2 *	Certification of Principal Financial and Accounting Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)	X
101.SCH	Inline XBRL Taxonomy Extension Schema Document	X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)	X

+ Management contract or compensatory plan or arrangement.

† Portions of this exhibit have been omitted pursuant to Item 601 of Regulation S-K promulgated under the Securities Act because the information is not material and would be competitively harmful if publicly disclosed.

* This certification is deemed not filed for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

Item 16. Form 10-K Summary

Not applicable.

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Akoya Biosciences, Inc.

Date: March 14, 2022

By: /s/ Brian McKelligon
Brian McKelligon
President and Chief Executive Officer
(Principal Executive Officer)

Date: March 14, 2022

By: /s/ Joseph Driscoll
Joseph Driscoll
Chief Financial Officer
(Principal Financial and Accounting Officer)

December 2, 2021

Marilee Moy
[***]
[***]

Issued via DocuSign:
Email: [***]

Dear Marilee,

We are very excited about the prospects of your joining Akoya Biosciences, Inc. Should you accept this offer and upon successful completion of a pre-employment background check and drug screen we look forward to having you join the company in January 2022. This letter confirms the terms of your employment.

Position and Duties:

You shall serve in the position of **Chief Human Resources Officer** with Akoya Biosciences, Inc. (the "Company") reporting to Brian McKelligon, Chief Executive Officer.

Your position, job description, manager, salary, duties, and responsibilities may be modified from time to time at the sole discretion of Akoya Biosciences, Inc. You agree to strictly adhere to all of the rules and regulations of Akoya Biosciences, Inc. as may be set forth in any Employee Handbook or published policies of Akoya Biosciences, Inc. now or in the future, including all amendments to the Handbook which may be made in the future in Akoya Biosciences, Inc.'s sole discretion (as published or amended from time to time, the "Manual").

Compensation:

- (a) **Salary:** Akoya Biosciences, Inc. shall pay you, and you agree to accept from Akoya Biosciences, Inc. in payment for your services to Akoya Biosciences, Inc., a salary of **\$340,000.00** per year (the "Yearly Salary"), payable in 24 equal installments of **\$14,166.67** on regular semi-monthly dates established by Akoya Biosciences, Inc., subject to applicable tax withholding requirements. Any proposed increase of your salary, compensation or benefits must be approved by Akoya's CEO, Brian McKelligon.
- (b) **Signing Bonus:** The Company will provide you with a one-time signing bonus of **\$30,000**. The sign-on bonus will be issued within the first month of your employment with Akoya. The signing bonus is repayable to the Company on a pro-rata basis should you voluntarily resign your position before your first service anniversary with Akoya.
- (c) **Annual Bonus:** The Company has created an incentive pay plan under which you may be eligible for an **annual cash incentive bonus** (the "Bonus"). Your target cash bonus opportunity (the "Bonus") will be equal to **40%** of your gross earnings in the calendar year. Any bonus will be based on a combination of your personal achievement as well as the Company's ability to meet its financial and operational performance objectives. The payment of any Bonus shall be subject to your continued employment through the date of payment by the Company.
- (d) **Incentive Stock Options:** The Company will offer you participation in an **Equity Incentive Program**. Subject to approval by the Board of Directors of the Company (the "Board"), you will be provided an Option to acquire **120,000 shares** of the Company's common stock under the Company's stock option plan (the "Option"). 25% of the shares subject to the Option will vest on the first anniversary of your date of employment, with the remaining 75% of the shares subject to the Option vesting in equal monthly installments over the subsequent 36 months on the same day of the month as your date of employment,



subject to your continued service to the Company through each applicable vesting date. The exercise price per share of the Option will be equal to the fair market value per share of the Company's common stock on the date the Option is granted, as determined by the Board in good faith. There is no guarantee that the Internal Revenue Service will agree with this value. You should consult with your own tax advisor concerning the tax consequences associated with accepting the Option.

- (e) **Severance and Change of Control:** The company agrees amend your employment agreement prior to the end of March 2022 to include severance and change of control provisions consistent with other members of the executive team.

No Other Employment:

You agree to devote your full business time, attention, and best efforts to the business of Akoya Biosciences, Inc. during the employment relationship. Akoya Biosciences, Inc.'s normal business hours are from 8:30 a.m. to 5:30 p.m., Monday through Friday. However, you may be required to work additional hours depending on the nature of your work assignments.

Time Off:

Employees at this compensation band are afforded unlimited PTO under the Akoya PTO policy as stated in the Employee Handbook.

Company Holidays:

The Company offers 10 paid Holidays per calendar year. The company holidays are listed in the benefits guide.

Benefit Plans:

You shall be entitled to participate in any standard health and other benefit plans established by Akoya Biosciences, Inc. on terms as may be established by Akoya Biosciences, Inc. in its sole discretion. Although you may be eligible for such benefits if they become available in the future, Akoya Biosciences, Inc. does not promise or represent that such benefits will in fact become available or that once made available they will be continued.

Employee Expenses:

Akoya Biosciences, Inc. will reimburse you for pre-approved business expenses, including those associated with business travel and lodging, (approved by the CEO), as provided within the guidelines of Akoya Biosciences, Inc.'s expense policy. All expenses shall be subject to review and approval by your direct report and the CFO and shall require reasonable documentation.

Confidential Information and Invention Assignment Agreement:

As a condition of your employment with Akoya Biosciences, Inc., you acknowledge that you have executed and delivered a copy of Akoya Biosciences, Inc.'s Proprietary Information and Inventions Agreement and will abide by its terms. You acknowledge that a remedy at law for any breach or threatened breach by you of the provisions of the Proprietary Information and Inventions Agreement would be inadequate, and you therefore agree that Akoya Biosciences, Inc. shall be entitled to injunctive relief in case of any such breach or threatened breach.

Current or Previous Confidentiality / Non-Disclosure Agreements:

Akoya reminds you of your obligations, if any, to adhere to confidentiality / non-disclosure agreements previously signed with your current and / or previous employers. It is up to you, the employee, to abide by the obligations of such agreements in terms of the use and disclosure of any company confidential information in any form.

At-Will Employment:

Employment with Akoya Biosciences, Inc. is employment at-will. Employment at-will may be terminated with or without cause and with or without notice at any time at the will of either you or Akoya Biosciences, Inc. The terms and conditions of employment with Akoya Biosciences, Inc. may be modified at the sole discretion of Akoya Biosciences, Inc. with or without cause and with or without notice. Other than the Chief Executive Officer ("CEO"), no one has the authority to make any agreement for employment other than for employment at-will or to make any agreement limiting Akoya Biosciences, Inc.'s discretion to modify the terms and conditions of employment. Only the CEO has the authority to make



any such agreement and then only in writing and signed by each of the CEO and the respective employee. No implied contract concerning any employment-related decision or term, or condition of employment can be established by any other statement, conduct, policy, or practice.

Governing Law:

This Agreement is made and shall be construed and enforced in accordance with the laws of the State of California. This Agreement and the Exhibits supersede and replace all prior agreements or understandings, oral or written, between Akoya Biosciences, Inc., and you, except for prior confidentiality agreements, if any. This Agreement may not be modified except by a writing signed both by the CEO and by you.

Arbitration:

In the event of any dispute in connection with this Agreement or the Exhibits, the parties agree to resolve the dispute by binding arbitration in San Francisco, California, under the Commercial Arbitration Rules of the American Arbitration Association ("AAA"), with a single arbitrator familiar with employment and technology agreements appointed by AAA. In the event of any dispute, the prevailing party shall be entitled to its reasonable attorneys' fees and costs from the other party, whether the matter is litigated or arbitrated to a final judgment or award. The arbitrator's decision shall be final and binding on all parties and may be entered in any court having competent jurisdiction.

Severability:

If any provision of this Agreement or the Exhibits is determined to be invalid or unenforceable, the remainder shall be unaffected and shall be enforceable against both Akoya Biosciences, Inc., and you.

This offer is contingent upon a background check clearance, reference check, drug test, and satisfactory proof of the employee's right to work in the US, as required by law.

Employee Review and Receipt of Agreement:

You acknowledge that you have carefully read and considered all provisions of this Agreement and the Exhibits and agree that all of the restrictions set forth herein are fair and reasonably required to protect Akoya Biosciences, Inc.'s interests. You acknowledge that you have received a copy of this Agreement and the Exhibits as signed by you. **You acknowledge that, prior to signing this Agreement, you have had an opportunity to seek the advice of independent counsel of your choice relating to the terms of this Agreement.**

Sincerely,
Akoya Biosciences, Inc.

By: /s/ Brian McKelligon

Its: CEO

Date: 12/2/2021

Agreed to and Accepted:

/s/ Marilee Moy 12/2/2021

Marilee Moy / Date

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (No. 333-255468) on Form S-8 of Akoya Biosciences, Inc. of our report dated March 14, 2022, relating to the consolidated financial statements of Akoya Biosciences, Inc. and its subsidiary, appearing in this Annual Report on Form 10-K of Akoya Biosciences, Inc. for the year ended December 31, 2021.

/s/ RSM US LLP

Boston, Massachusetts
March 14, 2022

**CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Brian McKelligon, certify that:

1. I have reviewed this Annual Report on Form 10-K of Akoya Biosciences, 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(s) 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)) 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) 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
 - c) 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(s) 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 14, 2022

By: _____
/s/ Brian McKelligon
Brian McKelligon
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Joseph Driscoll, certify that:

1. I have reviewed this Annual Report on Form 10-K of Akoya Biosciences, 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(s) 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)) 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) 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
 - c) 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(s) 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 14, 2022

By: _____
/s/ Joseph Driscoll
Joseph Driscoll
Chief Financial Officer
(Principal Financial Officer and
Principal Accounting Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Akoya Biosciences, Inc. (the "Company") on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: March 14, 2022

By: _____
/s/ Brian McKelligon
Brian McKelligon
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Akoya Biosciences, Inc. (the "Company") on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: March 14, 2022

By: _____
/s/ Joseph Driscoll
Joseph Driscoll
Chief Financial Officer
(Principal Financial Officer and
Principal Accounting Officer)
