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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, 2023

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	**47-5586242**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
100 Campus Drive, 6th Floor Marlborough, Massachusetts	**01752**
(Address of principal executive offices)	(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	The Nasdaq Stock Market LLC

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 ☐
Non-accelerated filer ☒
Emerging growth company ☒

Accelerated filer ☐
Smaller reporting company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 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. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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, 2023, was $186.4 million.

Number of shares of the registrant's common shares outstanding at February 27, 2024: 49,140,731

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 "Akoya," "we," "us," "our" and similar references refer to Akoya Biosciences, Inc. and its consolidated subsidiary.

This report contains references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Part I

Item 1. Business

BUSINESS

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery, clinical research and diagnostics. Our mission is to bring context to the world of biology and human health through the power of spatial phenotyping. Spatial phenotyping 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 and diagnostics.

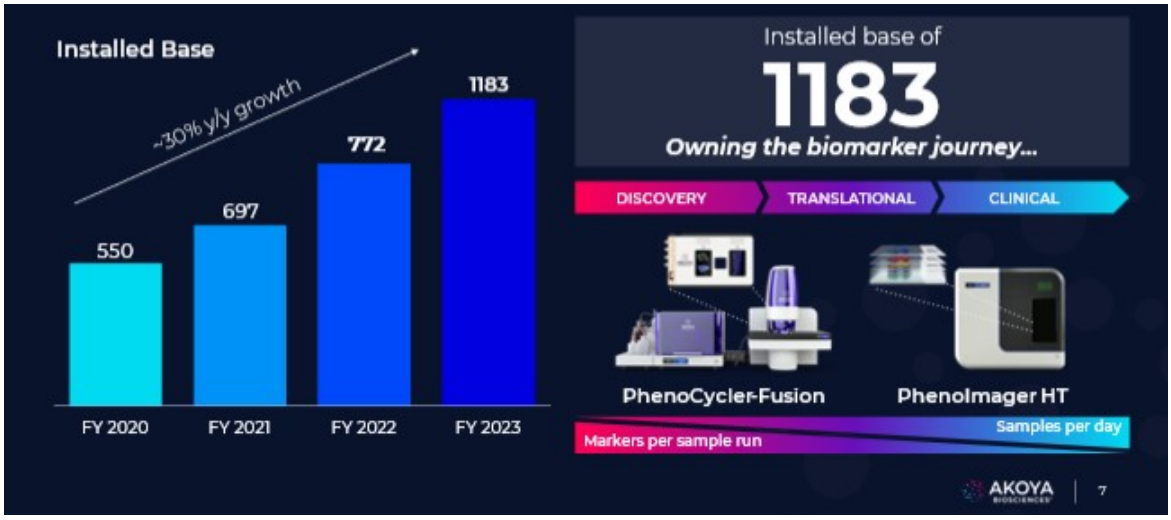
Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as next-generation 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 many 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 also believe that we are the only spatial biology business that is capable of delivering a menu of clinical IVD tests on our platform for routine diagnostic testing.

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 is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The PhenoImager platforms, which include the Fusion and HT instruments, provide high throughput scalable solutions, 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, to enable spatial discovery at scale by providing significant improvements in the speed of the workflow. Our portfolio of products offers 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.

Our co-founder, former director and chair of our scientific advisory board, 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. To expand our offerings to the translational and clinical markets, we acquired the Phenoptics (now rebranded as PhenoImager) platform in 2018 from PerkinElmer, Inc. ("PKI"), subsequently known as Revvity, Inc. ("Revvity"), from whom we license certain patents incorporated into our PhenoImager instruments.

As of December 31, 2023, we have 1,183 instruments installed across a broad group of customers throughout North America, Asia-Pacific ("APAC"), and Europe-Middle East-Africa ("EMEA"), reflecting an increase of 27% in our installed base over 2022. 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 we expect to grow as we continue to expand our instrument base and implement workflow advancements. We generated total revenue of $96.6 million in the year ended December 31, 2023, and $74.9 million in the year ended December 31, 2022. We incurred net losses of $63.3 million in the year ended December 31, 2023, and $70.6 million in the year ended December 31, 2022.

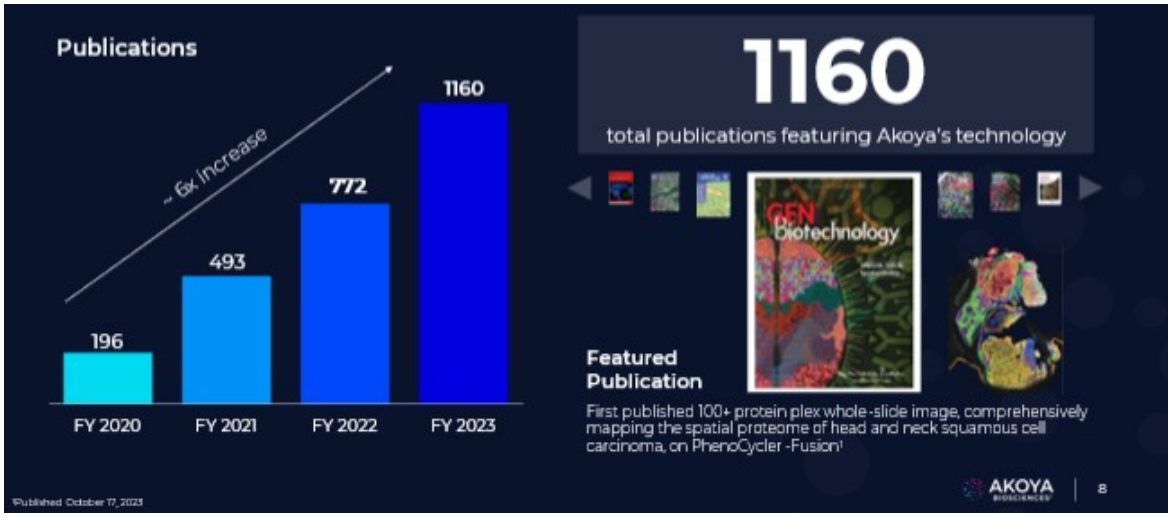


**As of Dec. 31, 2023*

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 a pioneer and leader in the spatial biology market, we view our suite of solutions as uniquely positioned to address varying customer needs across all market segments, from discovery through translational and clinical research and diagnostic testing. Our instrument base has expanded significantly over the last several years with 1,183 instruments currently in the market as of December 31, 2023, a 27% increase over 2022. The rate of publications with our technology as a centerpiece has accelerated greatly, with 1,160 peer-reviewed publications as of December 31, 2023, a 50% increase over 2022, a 135% increase over 2021 and a 492% increase over 2020 publications. 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. A Nature publication in 2021 showed that Akoya's spatial approach found topological differences in the tumor microenvironment, so that patients can be stratified correctly into cohorts for immunotherapy based on responders and non-responders while RNA-seq and other methods could not. We believe that the combination of our broad customer base, expert management team, large instrument installed base, intellectual property portfolio and extensive and accelerating publication list helps establish our leading position in spatial biology.



**As of Dec. 31, 2023*

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 and partners from discovery, through translational and clinical research, and diagnostic testing. Our PhenoCycler 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 PhenoImager 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 HT platform is ideal for translational and clinical applications 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-Fusion. Potentially predictive biomarkers of interest for translational and clinical studies are then analyzed and implemented at scale on PhenoImager HT.

Relationships with leading biopharma and life science tools companies, top research institutions and medical centers. We have relationships with thought leaders such as Stanford University, Dana Farber Cancer Institute, University of Queensland, MD Anderson, AstraZeneca, Acrivon Therapeutics, Leica Biosystems, Agilent Technologies 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 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.

- *Dana Farber Cancer Institute and Brigham Health* developed their ImmunoProfile assay on our PhenoImager HT platform to profile the tumors of immuno-therapy eligible patients.

- *University of Queensland* is a collaborative partner that has yielded multiple publications using 100+ plex protein for head and neck cancer to decipher immunotherapy response using the PhenoCycler-Fusion. Another collaboration, leveraging Akoya's technology, aims to understand spatial neighborhoods in lung cancer. These achievements have led the PhenoCycler-Fusion to becoming the core technology for the newly established Queensland Spatial Biology Center ("QSBC").

- *AstraZeneca* is a partner to advance new multiplex immunofluorescence ("mIF") workflows and spatial biomarker signatures, based on our PhenoImager HT 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, and advancement of precision medicine.

- *Thermo Fisher Scientific*, a leading provider of innovative branched DNA and RNA in-situ hybridization (ISH) technologies, has entered into a license and distribution agreement with Akoya which allows Akoya to market the combination of Akoya's spatial biology solutions with the Thermo Fisher ViewRNA *In Situ* Hybridization Assays, which will enable rapid, whole-slide imaging of RNA and protein biomarkers. This underscores our commitment to advancing research capabilities by integrating ViewRNA into Akoya's cutting-edge platforms and enables Akoya to remain at the forefront of innovation through development of multiomic workflows.

- *PathAI* is a partner to help 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 HT platform, artificial intelligence tools and algorithms to enhance PathAI's shared biopharmaceutical partners' ability to identify patients most likely to respond to drugs in clinical trials.

- *Acrivon Therapeutics* is a partner to co-develop, clinically validate, seek regulatory approval for, and commercialize Acrivon's OncoSignature® test, a first-of-its-kind companion diagnostic. Once approved and commercialized, the test will be used to identify cancer patients most likely to respond to treatment with ACR-368, a targeted DNA damage response inhibitor therapy being developed by Acrivon. ACR-368 has been cleared by the U.S. Food and Drug Administration ("FDA") to be advanced in a Phase 2 master protocol trial to treat patients with ovarian, endometrial, and urothelial cancer based on predicted sensitivity to ACR-368. The OncoSignature® test will be run on Akoya's PhenoImager HT solution. Pending regulatory approval of ACR-368 and the OncoSignature ® test, Akoya, in partnership with Acrivon, will commercialize the test as the exclusive provider of the companion diagnostic required for prescribing ACR-368.

- *Agilent Technologies* is a partner to develop multiplex-immunohistochemistry ("mIHC") diagnostic solutions for tissue analysis and to commercialize workflow solutions for multiplex assays in the clinical research market. Integrating Agilent's Dako Omnis (autostaining instrument) and Akoya's PhenoImager HT (imaging platform) for mIHC and mIF assays will create a singular end-to-end commercial workflow, including reagents, staining, imaging, and analysis. Agilent and Akoya will partner to develop chromogenic and mIF assays that include spatial analysis for biopharma companies developing precision cancer therapeutics.

- *Leica Biosystems* is a strategic partner enabling the automation of Akoya PhenoImager reagents on their advanced auto-staining platform, for multiplex immunohistochemistry and immunofluorescence. The combination of Leica's automation capabilities and PhenoImager reagents multiplexing capabilities offers a robust solution for advanced tissue analysis in various research and clinical applications, including oncology, immunology, and neuroscience.

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

We intend to pursue a growth strategy through the following key elements:

Leverage 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 platform. A 2022 Decibio report indicated that the spatial biology market is expected to grow 30% annually over the next 5 years, with translational and clinical research to make up the largest market segment while routine clinical diagnostics is expected to be the fastest growing market segment. We intend to capitalize on this market opportunity by delivering market-leading solutions to our customers. Our global team of dedicated regional instrument and reagents sales specialists, dedicated scientific pre- and post-sales applications specialists and expanded applications specialists aim to drive further platform adoption and utilization to new customers and 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.

Investments 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 and software solutions, delivering a full end-to-end workflow and expanding our menu of 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 and PhenoImager platforms. Researchers can 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, we believe that our workflow improvements and the acceleration of data analysis through continued software advancements will further increase customers' use of our platforms. We believe consumable pull-through as a result of these investments will help solidify our solutions with researchers and improve our recurring revenue base and margin profile.

Formation of analysis software partnerships to accelerate discovery by delivering cutting-edge digital pathology and bioinformatics solutions. We are focused on enabling rapid and advanced data analysis and visualization tools that accelerate the timeline from image acquisition to extracting biological meaning. Image and bioinformatics analysis needs differ across the spectrum from discovery to translational to clinical applications, and it is increasingly clear that one analysis solution may not meet the needs of our entire installed base. Therefore, we've partnered with leading digital pathology and analysis providers to create an ecosystem of leading tools for our customers. The ecosystem includes established digital pathology names like Indica Labs Inc. and Visiopharm A/S, who provide desktop image analysis tools with ML/AI capabilities for both PhenoCycler-Fusion and PhenoImager HT data. The ecosystem also includes newer providers like Enable Medicine Inc., who provides a cloud-based platform for high-parametric analysis and data sharing for our PhenoCycler-Fusion data. We believe 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. Further included in the ecosystem are Oracle Bio, PathAI, and QuPath. We believe the ecosystem of analysis providers for our solutions will help increase further incremental use of our instruments and consumables. Furthermore, we are developing clinical workflow solutions comprising algorithms, viewers and laboratory interfaces as the basis of our future IVD offerings.

Investment in clinical developments to demonstrate validity. Our collaborations with universities and large biopharma customers provide us with visibility into our platform's potential to advance from translational research to clinical use. We plan to pursue the development and publication of data on our approach, like 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, we strive to establish our platforms as the preferred clinical trial and testing biomarker solution with an aim towards the enablement of a series of companion diagnostic partnerships. The centerpiece of our biopharma partnerships is our Advanced Biopharma Solutions ("ABS") lab where we are running clinical trial tissue samples for multiple clinical trials. We continue to expand the projects within and across top biopharmaceutical companies. The ultimate goal of ABS is 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 intend to establish an ongoing cadence and pipeline to further improve our workflows and deliver clinical proof points for our sales and marketing teams to accelerate broad 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 and combination therapies 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 can achieve an understanding of how even small subpopulations of cells can play pivotal roles in disease pathology and patient outcomes. 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 and diagnostic testing, the leading applications today include:

- *Oncology:* profiling of a tumor and its microenvironment for therapy selection and precision medicine.
- *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 the larger life sciences technology market. Within this market, we currently estimate the spatial biology market 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 clinical diagnostic testing markets, with immediate applications in cancer 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, which we estimate is a $7 billion addressable market. We believe that our offerings can be readily extended to serve adjacent application areas, including immunology and neurobiology, and soon applications in clinical markets, 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 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 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 $60 billion in 2021 and over 5,600 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 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. With the rise of therapeutics including Antibody Drug Conjugates (ADCs), bi-specifics, T-cell therapies, and more, the broader field of oncology will continue to see an evolving need for more predictive biomarkers.

Market needs

While NGS and single-cell analysis have led to significant 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 diagnostic testing. 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 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 recent driver of this innovation — there remains a critical need for validated predictive biomarkers in 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 oncology, there is still an ongoing and recognized unmet need. Just as NGS and other technologies 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 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.

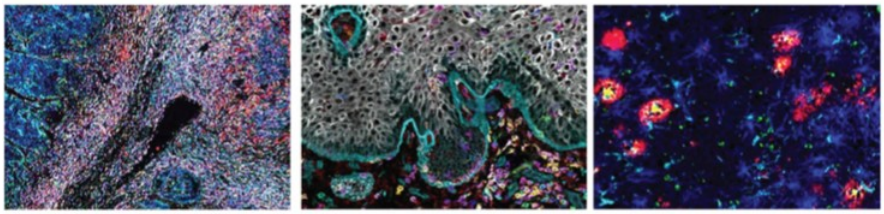
Our Platforms

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 is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The PhenoImager platforms, which include the Fusion instrument and HT instrument, 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. 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 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. With over 300 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 100 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 the PhenoCycler is summarized below.



Cancer
Immune cells infiltrating tumor in renal tissue

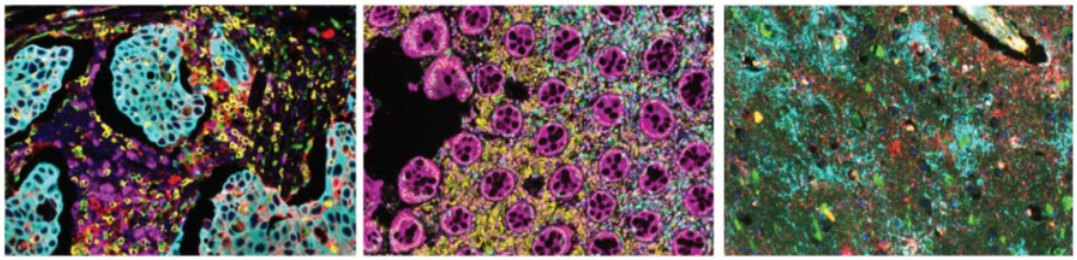
Immunology
Psoriasis skin sample showing immune cells infiltration

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 solution. Our PhenoImager platform enables researchers to visualize, analyze, quantify and phenotype cells in situ, in fresh frozen or formalin-fixed paraffin-embedded (“FFPE”) tissue sections, and tissue microarrays (“TMAs”) utilizing an automated and high-throughput workflow. Proprietary multispectral imaging removes the 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 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 two PhenoImager instruments, namely the PhenoImager Fusion and PhenoImager HT. 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

- *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 to form the PhenoCycler-Fusion System for spatial discovery at scale by providing significant improvements in the speed of the workflow.
    - *PhenoCycler-Fusion 2.0:* Launched in mid-2023, the PhenoCycler-Fusion 2.0 system is a package of enhancements to further improve the functionality, speed, and throughput of the discovery workflow. With the 2.0 system the slide capacity increases to 2 slides, effectively doubling the throughput of data processing and generation. Additionally, the 2.0 system introduces multi-omic capabilities by unlocking capabilities integral for future RNA workflows to facilitate side-by-side protein and RNA studies. Current PhenoCycler-Fusion 1.0 customers can be upgraded to 2.0 through an upgrade kit.

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

- *PhenoImager HT:* The PhenoImager HT is our premier and most highly cited digital pathology imager featuring rapid whole-slide multispectral scanning of up to 7 colors (6 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 colors (8 biomarkers). The fully automated process provides a recorded whole slide scan, meaning no re-scans and eliminating redundant work.

    - *PhenoImager HT 2.0:* Launched in mid-2023, the PhenoImager HT 2.0 upgrade sharpens a key part of the multiplexing workflow to further ease the generation of highly accurate and quantifiable data from the HT. Specifically, the 2.0 upgrade simplifies the unmixing workflow by combining a series of steps both on and off the instrument into one step on-instrument. The new workflow significantly reduces the time from image acquisition to analysis, thereby improving speed and throughput by 5-fold. The upgrade also introduces the option of 16-bit formats in addition to the existing 8-bit images, giving customers more flexibility. Current HT 1.0 customers can be upgraded to 2.0 through an upgrade package.

PhenoImager HT

Our Proprietary Reagents

PhenoCycler 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.

- *PhenoCode® Discovery Panels and Reagents:* In 2023, we launched our first set of ready-to-use panels that consist of ten to fifteen markers focused on a particular application area within oncology. PhenoCode Discovery Panels enable thorough interrogation of the tumor and the surrounding tumor microenvironment. Each panel is meticulously designed with essential markers to answer key biological questions to accelerate the path from research question to discovery.

PhenoImager Reagents

We offer several proprietary reagents required for the use of our platforms that are a key part of providing a seamless workflow solution to our customers. The PhenoImager Reagents portfolio includes the following: PhenoCode Signature Panels and Reagents, Opal and Tyramide Signal Amplification (TSA)-Based Detection Kits for Multiplexing, and Essentials for Staining.

- *PhenoCode Signature Panels and Reagents*: In 2023, we launched five pre-optimized panels that consist of a five-plex base panel and one open position to add an additional biomarker of choice to the panel. Customers can choose from our menu of stand-alone antibodies or barcode their own antibody of interest for use in the open position of a PhenoCode Signature panel. Panels are designed to be used across a wide variety of human FFPE tissue types, providing an additional layer of flexibility for customers. PhenoCode Signature antibodies are provided barcoded, utilizing Akoya's proprietary universal barcoding technology to overcome workflow hurdles associated with traditional multiplexed immunofluorescence (mIF) detection in FFPE tissue. Akoya's Opal fluorescent dyes are included in each panel kit for high sensitivity detection; panels are compatible with our PhenoImager HT and PhenoImager Fusion systems for downstream imaging.

- *Opal and TSA-Based Detection Kits:* Opal-based detection kits are optimized for reliable spectral unmixing and offer a variety of multiplexing options to anyone performing standard immunohistochemistry (IHC). Researchers using our Opal and TSA-based dyes can select antibodies at-will to develop and optimize assays for specific mIF detection needs. We provide detection reagents for both automated and manual staining, including single dye reagent packs and pre-kitted options for multiplexing. Additionally, we offer 2 Opal-based pre-optimized panels for tissue-specific biomarker detection in human FFPE lung cancer and melanoma tissues. Both the lung cancer and melanoma six-plex panels include six ready-to-use, clinically-relevant antibodies and are compatible with automated staining followed by imaging on the PhenoImager HT or PhenoImager Fusion instruments.

- *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.

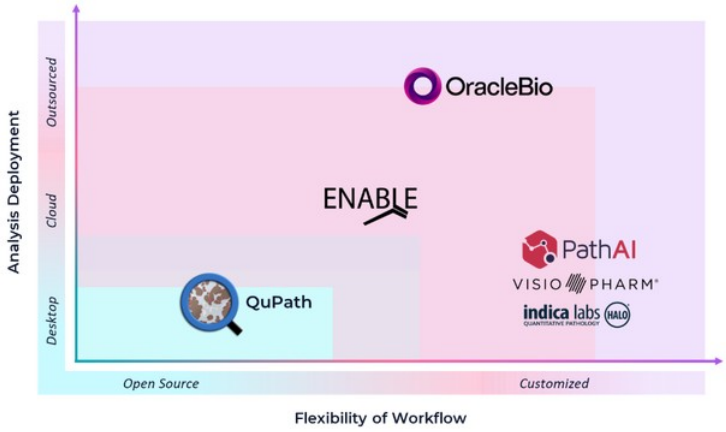
Our Software Services

We offer an ecosystem of different software options, both internal and through partnerships for our solutions to provide customers with the flexibility and ability to perform their desired work.

Analysis Software Partnerships Ecosystem

- Visiopharm A/S: A leading digital pathology analysis provider that specializes in AI deep learning tissue analysis. It is the recommended solution for users that require on-prem software deployment and high image analysis capabilities.
- Indica Labs Inc.: Indica's HALO platform is a recognized and established brand in digital pathology. HALO is Indica's on-prem analysis solution, and HALO AP is their cloud-based platform for streamlined pathology workflow and laboratory information management system integration. It is the recommended solution for PhenoImager clinical workflows.
- PathAI, Inc.: PathAI is an AI-powered, pathology analysis services provider for our PhenoImager HT data.

- Enable Medicine Inc.: The Enable Platform is a subscription cloud-based platform for high-parametric image analysis and bioinformatics. It is the recommended cloud offering for PhenoCycler workflows.
- OracleBio Limited: OracleBio is a leading analysis services provider that is well-versed with commercial solutions like Visiopharm and HALO to perform data analysis for biopharma customers for both research use only ("RUO") and clinical spaces.



Internally Developed 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 platform in a fee-for-service model to support the discovery, validation and clinical testing 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 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. We believe ongoing expansion of this business and progression of our partnerships to later stage clinical trials can lead to increased companion diagnostic partnerships with these top biopharma companies. Our ABS laboratory, based in Marlborough, Massachusetts is certified through the Clinical Laboratory Improvement Amendments ("CLIA") program. 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 and oncology clinical trials.

Suppliers and Manufacturing

We generally outsource the manufacturing and distribution of our instruments and reagents. We use one contract manufacturer to produce our PhenoImager and PhenoCycler instruments, and a second to produce the majority of our reagent kits. Additionally, we have begun to make investments in our infrastructure to support future strategic in-house manufacturing as it relates to our critical and high-complexity proprietary reagents. Our third-party 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 PhenoImager instruments in our Marlborough, MA facility. Inventory is generally held at the contract manufacturer locations, or at our warehouse in Marlborough.

Employees and Human Capital

As of December 31, 2023, we had 330 employees. 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. We strive to be a values-driven employer of choice that attracts, retains, and inspires talented professionals to achieve their full potential. We aim to create an engaging work environment that embodies our core values of leadership, customer first mindset, innovation, efficiency and graciousness. We offer competitive compensation and benefits packages and, through efforts like our regular management development trainings, seek to attract, retain and develop qualified personnel.

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, Vizgen, BioTechne, Bruker, and Standard BioTools, 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 for sale 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 to a broad range of customers in the life sciences industry. Our customers may themselves be directly regulated by the FDA, the Centers for Medicare & Medicaid Services under CLIA, or similar foreign or state regulatory authorities.

We market certain of our products under the FDA exemptions applicable to RUO 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 Quality System Regulations ("QSR") and International Standards Organization ("ISO") standards or other quality standards.

We are currently developing "companion diagnostics" under the label 'Investigational Use Only' or IUO. 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 are subject to a much more significant degree of potential FDA and CMS/CLIA and state laboratory regulation than our RUO product and service offerings.

Our ABS laboratory located in Marlborough, Massachusetts is CLIA certified. 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.

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. Our ABS laboratory holds a valid state license in Massachusetts.

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. We have not been subject to any of such enforcement actions.

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 and other competitive 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 PhenoCycler (formerly CODEX) originated in the laboratory of Professor Garry P. Nolan at Stanford, who is a former member of our board of directors and the chair of our scientific advisory board. Two patent families 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. With respect to the CODEX 1 technology, as of December 31, 2023, the first patent family exclusively licensed from Stanford includes issued patents in the U.S., Europe including Germany, France, United Kingdom and Sweden, China, Japan, and Australia. These patent rights relate to methods and compositions covering CODEX 1 technology. We expect these patents to expire in 2034-2036.

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. With respect to the CODEX 2 technology, as of December 31, 2023, the second patent family exclusively licensed from Stanford includes issued patents in the U.S., Europe including Germany, France, United Kingdom and Sweden, China, Japan, and Australia. These patent rights relate to methods and compositions covering CODEX 2 technology. We expect these patents to expire in 2037.

Our key tissue imaging technology PhenoImager (formerly Phenoptics) 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 (subsequently known as Revvity). We purchased key patent assets covering this technology from PKI, Cambridge Research and Caliper Life Sciences, and also licensed certain supplemental patents from PKI, Cambridge Research and VisEn Medical Inc. (“VisEn Medical”). 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, and the PhenoImager HT, and in the inForm Tissue software that is supplied as part of these systems and is also available independently. 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, 2023:

- 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 Revvity; 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 Revvity 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. Some of these applications are not yet open to public inspection.

As of December 31, 2023, our owned patent assets included approximately 21 issued U.S. patents, 14 pending U.S. patent applications (including one U.S. provisional patent application), 52 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), 28 pending patent applications in foreign jurisdictions and two 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, 2023, we owned approximately 14 registered trademarks in the United States, and 13 registered foreign trademarks. Our registered trademarks include The Spatial Biology Company, Motif, Akoya Biosciences, Opal, Vectra, Proxima, PhenoCycler, PhenoCode, and PhenoImager, and our logos for Akoya Biosciences 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 (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. 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.

PKI/Revvity, Cambridge Research and VisEn Medical

In September 2018, in connection with the acquisition of the Quantitative Pathology Solutions ("QPS") technology from PKI (subsequently known as Revvity), we entered into a license and royalty agreement with PKI, Cambridge Research, and VisEn Medical, or, collectively, the Licensor, pursuant to which the Licensor granted us an exclusive, nontransferable, 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 1.0% to 7.0% 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, 2023 and 2022, we incurred net losses of $63.3 million and $70.6 million, respectively. As of December 31, 2023, we had an accumulated deficit of $230.1 million. 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 and revenue derived from our PhenoCycler and PhenoImager platforms. We have devoted substantially all of our resources to the development and commercialization of our PhenoCycler and PhenoImager platforms and complementary products and services 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 improve results of operations, 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 complementary products and services 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 expand our clinical services business and increase our companion diagnostic partnerships;
- 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 (subsequently known as Revvity). 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 69% and 76% of our revenue for the years ended December 31, 2023 and 2022, 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 product and service offerings for our spatial biology platforms and increase our companion diagnostic partnerships. 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 services and new applications for existing products. As we continue to scale our business, we may find that certain of our products or services, 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, expand our clinical services business, enter into additional companion diagnostics partnerships 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 and service 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, technologies and services 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 and services, 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. 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 several 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 11% and 11% of our revenue for the years ended December 31, 2023 and 2022, 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, including inflationary pressures, 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 and services. 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. Additionally, we will need to purchase additional raw materials in order to meet demand and our third-party manufacturers will be required to accommodate larger orders from us. 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, that needed raw materials will be available in the timeframe required, that our third-party manufacturers will have sufficient manufacturing capacity or that we will have adequate space, including in our laboratory and in-house manufacturing facilities, to accommodate such increase in demand.

As we commercialize additional products, we will need to incorporate new equipment, implement new technology systems and laboratory and manufacturing 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 and services. 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 and services, 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 may need to raise additional capital to fund our existing operations, improve our platform, expand our service offerings or develop and commercialize new products and technologies, or expand our operations.

Based on our current business plan, we believe our current cash, cash equivalents, and marketable securities 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 and services 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, grow our clinical services and diagnostics business, 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;
- our success in establishing companion diagnostics partnerships and growing our clinical services business
- 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, (the "Lender") pursuant to which the Lender agreed to provide us a $37.5 million credit facility (the "Midcap Trust Term Loan").

On March 21, 2022, we entered into Amendment No. 1 to the Midcap Trust Term Loan, which amended certain provisions to permit certain additional debt and capital leases.

On June 1, 2022, we entered into Amendment No. 2 ("Amendment No. 2") to the Midcap Trust Term Loan, which permitted the draw of a second tranche of $10.0 million, which was drawn on June 1, 2022. Additionally, the amendment provided us with a new third tranche pursuant to which we were permitted to draw $10.0 million any time after September 30, 2022 until September 30, 2023. The amendment also delayed the amortization start dates for the outstanding loan amounts from November 1, 2023 until April 1, 2025, at which point we would be obligated to repay the principal amounts in seven equal monthly installments until the maturity date. Finally, Amendment No. 2 amended the interest rate payable on the term loan to apply an interest rate equal to the Secured Overnight Financing Rate ("SOFR") rate (with a floor of 1.61448%) plus 6.35%. Substantially all other terms and conditions, and covenants of the credit agreement remained unchanged. In connection with Amendment No. 2, the Company agreed to pay a $75.0 thousand commitment fee as well as a 0.25% fee upon the funding of each of the second tranche and third tranche amounts. On September 30, 2022, the Company drew the third tranche of $10.0 million related to Amendment No. 2.

On November 7, 2022, we entered into Amendment No. 3 ("Amendment No. 3") to the Midcap Trust Term Loan, which permits the draw of two additional tranches, each totaling $11.25 million, which were drawn on November 7, 2022 and December 22, 2023, respectively. The amendment also delays the amortization start dates for the outstanding loan amounts from April 1, 2025 until December 1, 2025 (subject to further extension upon certain conditions), at which point will be obligated to repay the principal amounts in equal monthly installments until the new maturity date of November 1, 2027, which was extended pursuant to Amendment No. 3. In addition, Amendment No. 3 amends the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 2.50%) plus 6.80%, and resets the call protection to begin as of November 7, 2025. Finally, Amendment No. 3 provided for a commitment fee of $74 thousand that was paid on November 7, 2022 on the new tranche amounts and an exit fee of 4.75%. Substantially all other terms and conditions, and covenants of the credit agreement remain unchanged.

We have drawn $75.0 million as of December 31, 2023, subject to our compliance with the covenants contained in the Midcap Trust Term Loan. Until we have repaid such indebtedness, the Midcap Trust 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.

We are permitted to make interest only payments on the Midcap Trust Term Loan through November 2025, 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, (the "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, Vizgen, BioTechne, Bruker, and Standard BioTools, 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 and complementary products and services, which could prevent us from increasing our revenue or achieving profitability.

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

We sell our products and services 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, services 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, services 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 from 2015 to date 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 services and innovating and improving our existing products and services have required us to hire and retain additional scientific, engineering, sales and marketing, legal, software, manufacturing, distribution and quality assurance personnel. As a result, we have experienced rapid headcount growth since our inception in 2015 with 330 employees as of December 31, 2023. As we have grown, our employees have become more geographically dispersed. We currently serve customers located in more than 40 countries and we may expand to new international jurisdictions as part of our growth strategy, which would 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 employee base.

We may not be able to maintain the quality, reliability or robustness of our platform, meet product demand 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 and services. We may not be able to market, sell or distribute our current products and services, or future products and services 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 or services 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 services, 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 or service 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, the synthetic biology market or the companion diagnostics 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 business activities may be jeopardized.

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 conduct our business activities for some period of time. The inability to address system issues, provide services 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 operations could be unavailable or costly and time-consuming to repair or replace. It would be difficult, time-consuming and expensive to rebuild any 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 our operational 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 product liability insurance coverage we maintain may not be sufficient to reimburse us for any expenses or losses we may suffer related to product liability claims. 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.

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 have in the past, and may in the future, experience such cybersecurity threats. 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.

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.

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

The COVID-19 pandemic created many negative headwinds that presented risks to our business and results of operations. For example, the COVID-19 pandemic generally disrupted the operations of our customers and prospective customers, and a resurgence of the COVID-19 pandemic, or a similar public health crises, may in the future 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 in the past and could in the future cause reduced capital spend by our existing customers and potential new customers, which has in the past and could in the future negatively impact our instrument and consumables sales and sales of services. Disruptions from public health crises like COVID-19 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. The future development of the COVID-19 pandemic, or similar public health crises, could also exacerbate the severity of the other risks disclosed herein.

Risks Related to Manufacturing and Supply

We outsource to a limited number of third-party manufacturers who 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. For instance, we use one contract manufacturer to produce our PhenoImager and PhenoCycler instruments, and a second to produce the majority of our reagent kits. Our third-party manufacturers are also dependent upon third-party suppliers, including in some instances single source 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 instruments and reagents unless and until new sources of supply are identified and qualified. Our reliance on these third-party manufacturers and third-party 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 and the conflict in Israel and the Gaza Strip;
- 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 engage with two different third parties to manufacture our instruments and reagents. One such third-party manufacturer manufactures PhenoCycler and 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, or we may not have sufficient infrastructure in place, 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 activities conducted by academic/research 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 and/or offer our goods and/or services. The regulatory environment related to data privacy and security is increasingly rigorous, with new and constantly changing requirements potentially applicable to our business, and some 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 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. 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.

In the United States, various federal and state regulators, including governmental agencies like the Federal Trade Commission ("FTC"), have adopted, or are considering adopting, laws and regulations regarding the processing of personal information, privacy and/or 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 FTC Act. The FTC generally 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.

On the state specific level, several state laws generally require data owners to implement reasonable security measures to protect the personal information collected from residents. These laws generally require a data owner to implement reasonable security procedures and practices appropriate to the nature of the information, and to protect the personal information from unauthorized access, destruction, use, modification, or disclosure. Although most of these state laws generally require an entity to maintain appropriate security, at least one state, Massachusetts, has adopted comprehensive data privacy requirements to protect personal information. Of the states with data security laws, Massachusetts' data security law includes the most granular obligations which apply directly to data owners who are required to flow them down service providers.

As state laws are changing rapidly, 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.

Also, 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.

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, 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 ("CPRA"), effective January 1, 2023 (collectively, the "CCPA"). Among other things, the CCPA requires covered companies to provide certain disclosures to California residents and provide such residents consumer privacy rights, including the ability to opt-out of certain sales of their personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches. 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, and in some states, to regulators and consumer reporting agencies, in the event of a data breach. Notification triggers and exceptions vary by state. Generally, all states with breach notification laws require notice if the information breached includes a state resident's name in combination with: a Social Security number, state ID or driver's license number, or financial account information. Some states include other types of personal information as a trigger, such as health information, biometrics, login credentials, tax ID or date of birth. The majority of state data security breach notification laws also provide a safe harbor from the laws' notification requirements if the personal information affected by the security breach was encrypted and the encryption key was not affected by the security breach.

International laws, regulations and standards in many jurisdictions apply to certain collection, use, retention, security, disclosure, transfer, marketing and other processing of personal information. For example, the EU General Data Protection Regulation ("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 serious 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 are 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, Maximillian 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 upon 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 ("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, technology and service offerings and the applications and uses of our products into new fields, we may become subject to additional government regulations, 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, technology and service offerings and the applications and uses of our existing products into new fields, certain of our current or future products and services could become subject to regulation by the FDA, or comparable regulatory authorities, including requirements for premarket clearance or approval of such products. Such 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. 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 or guidance, including the FDA's treatment 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 or clearance 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. For instance, the OncoSignature® test we are co-developing with Acrivon Therapeutics will require pre-market approval by the FDA prior to commercialization. Obtaining the requisite regulatory clearances or approvals can be expensive and may involve considerable delay in our ability to commercialize our products and services. For example, we may in the future perform commercial 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 current or future products are subject to regulatory clearance or premarket approval, we would be subject to a number of regulatory requirements including device establishment registration, medical device reporting ("MDR"), and quality management system regulation ("QMSR"). As a result, 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 continued 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 device regulations, 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 permits, licenses, registrations, or 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 with qualified personnel;
- 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;
- failure to comply with import or export laws that could result in delays, holds, or other administrative actions by customs;
- 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 and complementary products and services 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 life sciences 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.

Unfavorable U.S. or global economic conditions could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the global economy and financial markets. Changes in these economic conditions can arise suddenly, such as in the case of the recent rise in inflation. A rise in inflation could result in higher cost of goods sold and higher operating expenses. A severe or prolonged economic downturn, as result of a global pandemic or otherwise, could result in a variety of risks to our business, including weakened demand for our products and services and our ability to raise additional capital when needed. A weak or declining economy could strain our customers and suppliers, possibly resulting in supply disruption, or cause delays in their payments to us. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business.

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 life sciences 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, and Revvity (formerly Perkin Elmer, 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 existing or potential products. 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 products and other technology used in our PhenoCycler product. We are also a party to license agreements with the University of Washington and Revvity pursuant to 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 products 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 potential products 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, potential products, 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 potential products, or face greater risk in the development or commercialization of such technologies and potential products, 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, 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 current or potential products.

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 potential products 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 current or potential products 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 Revvity, 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 current or future product or potential products 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 Revvity, 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 current or potential products 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 potential products.

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 current or potential products. 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 potential products. 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 current or future products or potential products, or we could lose other significant rights, experience significant delays in the development and commercialization of our technology or potential products, 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 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 continue to commercialize our existing or future products, advance our potential products 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 life sciences 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 life sciences. 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 Revvity, 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 or potential products. 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 life sciences, 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 manufacturing processes, 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 14 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 life sciences 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 life sciences 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 involving us or any of our competitors, 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 potential products 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, product enhancements or services 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;
- 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. Because we became a public company relatively recently, we may be slow to attract research coverage and the analysts who publish information about our common stock may 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 Jumpstart our Business Startups Act of 2012, as amended ("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 $1.235 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 accounting principles generally accepted in the United States of America ("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 48.1% of our outstanding common stock as of December 31, 2023. 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.

As a public company, we are required to assess our internal control over financial reporting on an annual basis, and any future adverse results from such assessment could result in a loss of investor confidence in our financial reports and have an adverse effect on our stock price.

As a public company, we are required to comply with certain of the requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, regarding internal control over financial reporting, including a report of management on the Company's internal controls over financial reporting in their annual reports on Form 10-K.

For as long as we remain a smaller reporting company with less than $100 million in annual revenues, we are exempt from the requirement that our independent registered public accounting firm provide an attestation on the effectiveness of our internal control over financial reporting. If our internal control over financial reporting or our related disclosure controls and procedures are not effective, we may not be able to accurately report our financial results or file our periodic reports in a timely manner, which may cause investors to lose confidence in our reported financial information and may lead to a decline in our stock price.

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.

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 (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 1C. Cybersecurity

Risk Management and Strategy:

Our information technology ("IT") systems play a central role in running nearly all aspects of our business operations. Therefore, responding efficiently and effectively to cybersecurity incidents and threats is an important component of our enterprise risk management strategy. We have designed and implemented a cybersecurity incident response plan and related processes, overseen by our Vice President, IT and other cybersecurity professionals, which establish processes and procedures for assessing, identifying and managing material risks from cybersecurity threats.

In connection with our processes for assessing, identifying and managing risk from cybersecurity we engage various third-party cybersecurity vendors and experts to assist in managing these processes including:

- 24/7 daily monitoring of all systems including continual threat prevention, detection and response;
- providing guidance with respect to cybersecurity risk management, conducting vulnerability assessments, leading tabletop exercises and consulting on best practices;
- performing various investigation services in the event of a cyber incident including assisting in determining the type of attack and impact to our information technology network, maintaining cybersecurity vigilance and assisting with the recovery and restoration of any impacted IT system services;
- assisting with validation of the incident and assist with ransomware demands; and
- breach response services such as communications, notification of third parties and credit monitoring.

In addition to our cybersecurity incident response plan, we have also implemented processes to oversee and identify risks from cybersecurity threats associated with our use of third-party service providers. For example, where appropriate, we seek to negotiate contractual terms with certain third-party services providers that impose obligations on such services providers with the goal of protecting our confidential information. Where possible, we require service providers to maintain information technology security protections.

Although the risks from cybersecurity threats have not materially affected our business strategy, results of operations or financial condition, it is possible that a cybersecurity incident resulting in a serious compromise of our IT systems or a demand for payment to restore our IT systems, could have a material adverse effect on us by negatively impacting our ability to operate our business effectively and by diverting the attention of our management and other resources, including financial resources, to address the cybersecurity incident.

Governance:

Our Security Incident Response Team ("SIRT") has the primary responsibility of assessing and managing risks from cybersecurity threats and implementing the various stages of our cybersecurity incident response plan. The SIRT is comprised of our Vice President, IT and other IT systems management personnel.

- ***Board of Directors***

The Audit Committee of our board of directors operates under a written charter adopted by our board of directors. The Audit Committee oversees, among other things, a system of internal controls, including internal controls designed to assess, identify, and manage material risks from cybersecurity threats. The Audit Committee is also responsible for the adequacy and effectiveness of our internal controls, including those internal controls that are designed to assess, identify, and manage material risks from cybersecurity threats.

The Audit Committee is informed of material risks, if any, from cybersecurity threats pursuant to escalation criteria set forth in our disclosure controls and procedures. Further, at least once per quarter, our Vice President, IT reports material risks, if any, from cybersecurity threats to the Audit Committee and/or our board of directors. We are also developing a cybersecurity training that our board of directors will receive on an annual basis as part of our director education program.

- ***Management***

Our Vice President, IT has served in various roles in information technology and information security for over 25 years, including serving as the Vice President, IT of two public companies. He holds a Masters in Cybersecurity and Data Assurance and has attained the professional certifications of Certified Information Security Manager ("CISM") and Certified Data Privacy Solutions Engineer ("CDPSE"). Our Vice President, IT and the Company's CEO, CFO and

General Counsel each have extensive experience managing the risks associated with cybersecurity threats at the Company and at similar companies.

Our management, including members of our Disclosure Committee, and our Vice President, IT regularly assess and manage material risks, if any, from cybersecurity threats. Our Vice President, IT holds quarterly meetings with management to review security matters, including threats, vulnerabilities and risk mitigation measures.

Our senior management team and our Controller comprise our Disclosure Committee. The Disclosure Committee is responsible for establishing and monitoring the integrity and effectiveness of controls and other procedures, which are designed to ensure that (1) all information required to be disclosed is recorded, processed, summarized, and reported accurately and on a timely basis, and (2) all such information is accumulated and communicated to management and the Audit Committee, as appropriate, to allow for timely decisions regarding such disclosures. Our cybersecurity incident response plan includes processes which ensure that management, which include members of our Disclosure Committee, are apprised of cybersecurity incidents to ensure proper disclosure is made by the Company in accordance with applicable law.

Our Vice President, IT oversees the Company's cybersecurity incident response plan and related processes designed to assess and manage material risks, if any, from cybersecurity threats. Our Vice President, IT also coordinates with consultants, auditors and other third parties to assess and manage material risks from cybersecurity threats.

Our Vice President, IT is informed about and monitors the prevention, detection, mitigation, and remediation of cybersecurity incidents pursuant to criteria set forth in our cybersecurity incident response plan and related processes. Further, our Vice President, IT is informed about and monitors the prevention, detection, mitigation, and remediation of cybersecurity incidents pursuant to reports prepared by consultants, auditors, and other third parties we retain, if necessary, to investigate cybersecurity incidents. From time to time, we conduct tabletop exercises to evaluate the strength of our controls and our ability to respond to cybersecurity incidents.

In accordance with criteria set forth in our cybersecurity incident response plan, our Vice President, IT or a delegate thereof informs our General Counsel and other members of senior management of cybersecurity incidents that may be material pursuant to escalation criteria set forth in our cybersecurity incident response plan and related processes.

Item 2. Properties

Our corporate headquarters are located in Marlborough, Massachusetts, where we house administrative and R&D activities, as well as our CLIA laboratory. We have additional administrative and R&D facilities and laboratory space as well as manufacturing and distribution centers in Marlborough, Massachusetts and Menlo Park, California. As of December 31, 2023, our facilities in the aggregate consist of approximately 101,643 square feet of space under leases expiring between January 31, 2024 and March 1, 2030. We do not own any real property and believe that our current facilities are sufficient to meet our ongoing needs and that, if we require additional space, we will be able to obtain additional facilities on commercially reasonable terms.

Item 3. Legal Proceedings

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 IPO. Prior to that time, there was no established public market for our common stock.

Holders of Our Common Stock

As of February 27, 2024, there were approximately 28 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 2024 Annual Meeting of Stockholders ("2024 Proxy Statement") and is incorporated herein by reference.

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 bring context to the world of biology and human health through the power of spatial phenotyping. Spatial phenotyping 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 and PhenoImager 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 and diagnostics.

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 also believe that we are the only spatial biology business that is capable of delivering a menu of clinical IVD tests on our platform for routine diagnostic testing.

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, is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The PhenoImager platforms, which includes the Fusion instrument and HT instrument, provide high-throughput scalable solutions 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, to enable spatial discovery at scale by providing significant improvements in the speed of the workflow. Our portfolio of products 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, 2023 and 2022, revenue from North America accounted for approximately 60% and 56% of our revenue, respectively.

We generally outsource our production manufacturing and distribution of our instruments and reagents. Design work and prototyping are performed in-house before pilot manufacturing and production are outsourced to third-party contract manufacturers. We use one contract manufacturer to produce our PhenoImager and PhenoCycler instruments, and a second to produce the majority of our reagent kits. Additionally, we have begun to make investments in our infrastructure to support future strategic in-house manufacturing as it relates to our critical and high-complexity proprietary reagents. 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.

As of the date of this Annual Report on Form 10-K, we have financed our operations primarily from the issuance and sale of our equity securities, borrowings under our long-term debt agreement, and revenue from our commercial

operations. We have incurred net losses in each year since our inception in 2015. Our net losses were $63.3 million and $70.6 million for the years ended December 31, 2023 and 2022, respectively. We expect to continue to incur operating losses for the foreseeable future. However, we plan to continue to grow our business while improving results of operations in an effort to achieve cash flow positivity, as we:

- attract, hire and retain qualified personnel, including in connection with our investments in our infrastructure to support future in-house manufacturing;
- 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 (Fusion and HT) 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. 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 36% and 35% for the years ended December 31, 2023 and 2022, 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.

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, optimizing the performance of our products, introducing feature enhancements and increasing the quantity and quality of data that can be obtained using our consumables.

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, 2023 and 2022, our instrument placements were as follows:

	Year ended December 31,	
	2023	2022
Instrument Placements:	249	237

Our instruments are sold globally to leading biopharma companies and top research institutions and medical centers. Our quarterly instrument placements fluctuate 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 is an important metric to measure our business because the number of new placements is driven by our ability to secure new customers and to increase adoption of our PhenoCycler and PhenoImager platforms and because it provides 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 62% and 67% of product revenue for the years ended December 31, 2023 and 2022, respectively. Consumables revenue accounted for 36% and 32% of product revenue for the years ended December 31, 2023 and 2022, 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 operations, where we provide sample testing services to customers utilizing our in-house lab operation, and revenue generated from companion diagnostic development.

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.

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

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, product warranty obligations, and inflationary cost pressures. 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 $56.3 million compared to $43.4 million for the years ended December 31, 2023 and 2022, 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 to enhance existing products and develop new products. 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, sales and marketing, operations, legal and human resource functions as well as professional services fees, such as consulting, audit, tax and legal fees, legal expenses related to intellectual property, general corporate costs, commercial sales functions, marketing, travel expenses, facilities, and IT. 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 QPS division of PKI (subsequently known as Revvity). 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 net sales of products and services that are covered by patent rights under the agreement, in exchange for a perpetual license of the right to produce and sell QPS products. As of the acquisition date, the Company accounted for the future potential royalty payments as contingent consideration. 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.

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

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

Provision for income taxes

Our 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:

	Year ended December 31,	
($ in thousands)	2023	2022
Product revenue	$ 67,410	$ 57,650
Service and other revenue	29,223	17,209
Total revenue	96,633	74,859
Cost of goods sold:		
Cost of product revenue	25,778	20,947
Cost of service and other revenue	14,550	10,522
Total cost of goods sold	40,328	31,469
Gross profit	56,305	43,390
Operating expenses:		
Selling, general and administrative	82,381	79,653
Research and development	21,889	23,211
Change in fair value of contingent consideration	1,636	(102)
Depreciation and amortization	8,067	6,734
Total operating expenses	113,973	109,496
Loss from operations	(57,668)	(66,106)
Other income (expense):		
Interest expense	(8,761)	(4,554)
Interest income	3,489	777
Other expense, net	(343)	(635)
Loss before provision for income taxes	(63,283)	(70,518)
Provision for income taxes	(40)	(123)
Net loss	$ (63,323)	$ (70,641)

Comparison of the years ended December 31, 2023 and 2022

Revenue

	Year ended December 31,		Change	
($ in thousands, except percentages)	2023	2022	Amount	%
Product revenue	$ 67,410	$ 57,650	$ 9,760	17 %
Service and other revenue	29,223	17,209	12,014	70 %
Total revenue	$ 96,633	$ 74,859	$ 21,774	29 %

Product revenue increased by $9.8 million, or 17%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The increase was primarily driven by a $5.8 million increase in consumable revenue resulting from a larger installed base of 1,183 systems as of December 31, 2023, as compared to 934 systems as of December 31, 2022, and a $3.5 million increase in instrument revenue resulting from 249 new system placements during the year ended December 31, 2023, compared to 237 new system placements for the year ended December 31, 2022.

Service and other revenue increased by $12.0 million, or 70%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The increase was primarily due to an increase relating to lab services operations, revenue generated from companion diagnostic development, and other immaterial changes.

Cost of Goods Sold, Gross Profit and Gross Margin

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Cost of product revenue	$ 25,778	$ 20,947	$ 4,831	23 %
Cost of service and other revenue	14,550	10,522	4,028	38 %
Total cost of goods sold	$ 40,328	$ 31,469	$ 8,859	28 %
Gross profit	$ 56,305	$ 43,390	$ 12,915	30 %
Gross margin	58 %	58 %		

Cost of product revenue increased by $4.8 million, or 23%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The increase in cost of product revenue was primarily driven by a $2.0 million charge in the second quarter of 2023 for expired inventory and inventory expected to expire before use, and costs associated with increased instrument and consumable sales. Cost of service and other revenue increased by $4.0 million, or 38%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The increase was primarily due to increases in costs for lab services driven by an increase in activity, as well as an increase in extended warranty costs as there were higher customer renewals due to the maturity of the installed base.

Gross profit increased by $12.9 million, or 30%, and gross margin remained consistent for the year ended December 31, 2023, as compared to the year ended December 31, 2022. The increase in gross profit was primarily due to an overall increase in revenue, net of the charge for expired inventory and inventory expected to expire before use noted above. Gross margin remained consistent for the full year due to the margin contribution from revenue generated through companion diagnostic development, offset by the charge for expired inventory and inventory expected to expire before use.

Operating Expenses

Selling, General and Administrative

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Selling, general and administrative	$ 82,381	$ 79,653	$ 2,728	3 %

Selling, general and administrative expense increased by $2.7 million, or 3%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The increase was partially due to a $5.2 million increase in personnel-related expenses, inclusive of $1.7 million related to our June 2023 reduction in force, offset by a $2.6 million decrease in professional fees, and other related fees such as legal, consulting, recruiting, and IT, and other immaterial changes.

Research and development

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Research and development	$ 21,889	$ 23,211	$ (1,322)	(6)%

Research and development expense decreased by $1.3 million, or 6%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The decrease was primarily due to a $1.6 million decrease in third-party consulting and research costs, offset by a $0.6 million increase in personnel-related expenses, inclusive of $0.3 million related to our June 2023 reduction in force, and other immaterial changes.

Change in fair value of contingent consideration

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Change in fair value of contingent consideration	$ 1,636	$ (102)	$ 1,738	(1,704)%

Change in fair value of contingent consideration increased by $1.7 million, or 1,704%, for the year ended December 31, 2023, compared to the year ended December 31, 2022, due to current period remeasurement.

Depreciation and amortization

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Depreciation and amortization	$ 8,067	$ 6,734	$ 1,333	20 %

The $1.3 million increase in depreciation and amortization expense was primarily related to an increase in property and equipment as of December 31, 2023, as compared to December 31, 2022.

Interest expense

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Interest expense	$ 8,761	$ 4,554	$ 4,207	92 %

Interest expense increased by $4.2 million, or 92%, for the year ended December 31, 2023, compared to the year ended December 31, 2022. The increase was primarily due to increased debt levels as of December 31, 2023 as compared to December 31, 2022, as well as an increase in interest rates.

Interest income

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Interest income	$ 3,489	$ 777	$ 2,712	349 %

Interest income increased by $2.7 million, or 349%, for the year ended December 31, 2023, compared to the year ended December 31, 2022, due to higher interest rates earned on cash, cash equivalents, and marketable securities.

Other expense, net

($ in thousands, except percentages)	Year ended December 31, 2023	2022	Change Amount	%
Other expense, net	$ 343	$ 635	$ (292)	(46)%

Other expense, net decreased by $292 thousand for the year ended December 31, 2023, compared to the year ended December 31, 2022.

Liquidity and Capital Resources

As of December 31, 2023, we had approximately $83.1 million in cash and cash equivalents.

Since our inception, we have experienced losses and negative cash flows from operations, and we incurred a consolidated net loss of $63.3 million for the year ended December 31, 2023 and had an accumulated deficit of $230.1 million as of December 31, 2023. We have historically relied on equity and debt financings to fund our operations to date. We may in the future sell shares of our common stock, including pursuant to the Equity Distribution Agreement to help fund our operations.

We expect to continue to incur operating losses in the foreseeable future. However, we plan to improve results of operations in an effort to achieve cash flow positivity. Based on our current business plan, we believe 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 the filing 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 equity securities, borrowings under long-term debt agreements, and revenue from our commercial operations. In April 2021, we raised $138.6 million in net proceeds through the sale of common stock from our IPO, after deducting the underwriter discounts and commissions and offering expenses of $12.8 million. As described further in Note 9 to our consolidated financial statements in this Annual Report on Form 10-K, in June 2023, we completed a follow-on public offering of our common stock pursuant to which we raised approximately $47.8 million in net proceeds, after deducting the underwriting discounts and commissions and offering expenses payable by the Company.

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. We received $32.5 million in aggregate proceeds as a result of the debt financing. On March 21, 2022, we entered into Amendment No. 1 to the Midcap Trust Term Loan, which amended certain provisions to permit certain additional debt and capital leases.

On June 1, 2022, we entered into Amendment No. 2, which permitted the draw of a second and third tranche of $10.0 million each, which were drawn on June 1, 2022, and September 30, 2022, respectively. Amendment No. 2 also delayed the amortization start dates for the outstanding loan amounts from November 1, 2023 until April 1, 2025, at which point we would be required to repay the principal amounts in seven equal monthly installments until the maturity date. Finally, Amendment No. 2 amended the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 1.61448%) plus 6.35%.

On November 7, 2022, we entered into Amendment No. 3 to the Midcap Trust Term Loan, which permits the draw of two additional tranches, each totaling $11,250, which were drawn on November 7, 2022, and December 22, 2023, respectively. Amendment No. 3 also delays the amortization start dates for the outstanding loan amounts from April 1, 2025 until December 1, 2025 (subject to further extension upon certain conditions), at which point we will repay the principal amounts in equal monthly installments until the new maturity date of November 1, 2027. In addition, Amendment No. 3 amends the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 2.50%) plus 6.80%, and resets the call protection to begin as of November 7, 2025. Finally, Amendment No. 3 provides for a commitment fee of $74 that was paid on November 7, 2022 on the new tranche amounts and an exit fee of 4.75%. Substantially all other terms and conditions, and covenants of the credit agreement remain unchanged.

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, 2023.

At-the-Market Offering

On November 7, 2022, we entered into an Equity Distribution Agreement (the "Equity Distribution Agreement") with Piper Sandler & Co. ("Piper Sandler") with respect to an at-the-market ("ATM") offering program under which we may offer and sell, from time to time at our sole discretion, shares of our common stock, having an aggregate offering price of up to $50.0 million through Piper Sandler as our sales agent. As of December 31, 2023 and 2022, we have not sold any shares of common stock under the ATM program.

Cash flows

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

	Year ended December 31,	
($ in thousands)	**2023**	**2022**
Net cash provided by (used in):		
Operating activities	$ (50,899)	$ (53,496)
Investing activities	3,347	(14,079)
Financing activities	56,844	28,726
Net increase (decrease) in cash, cash equivalents, and restricted cash	$ 9,292	$ (38,849)

Operating activities

Net cash used in operating activities decreased by $2.6 million to $50.9 million in the year ended December 31, 2023 compared to $53.5 million in the year ended December 31, 2022.

Net cash used in operating activities during the year ended December 31, 2023 consisted of a net loss of $63.3 million and a change in our net operating assets and liabilities of $14.5 million, offset by non-cash charges of $26.9 million. The change in our net operating assets and liabilities was due to increases in accounts receivable of $7.3 million, increased inventory levels of $6.3 million, decreases in operating lease liabilities of $2.3 million, and decreases in accounts payable, accrued expenses and other liabilities of $2.3 million, offset by decreases in prepaid expenses and other assets of $2.3 million, and increases in deferred revenue of $1.5 million. Non-cash charges primarily consisted of $10.4 million of stock-based compensation expense, $8.9 million of depreciation and amortization, a $2.8 million adjustment for excess and obsolete inventories, decreases in operating lease right of use assets of $2.4 million, a $1.6 million change in fair value of contingent consideration, and $0.7 million of non-cash interest expense.

Net cash used in operating activities during the year ended December 31, 2022 consisted of a net loss of $70.6 million, offset by non-cash charges of $17.0 million and a change in our net operating assets and liabilities of $0.1 million. Non-cash charges primarily consisted of $7.4 million of stock-based compensation expense, $7.1 million of

depreciation and amortization, decreases in operating lease right of use assets of $2.0 million, and $0.6 million of non-cash interest expense, offset by $0.2 million in net accretion of marketable securities, and $0.1 million in change in fair value of contingent consideration. The change in our net operating assets and liabilities was due to increases in accounts payable, accrued expenses and other liabilities of $4.0 million, increases in deferred revenue of $2.6 million, and decreases in prepaid expenses and other assets of $0.8 million, offset by increased inventory levels of $5.4 million, decreases in operating lease liabilities of $1.6 million, and increases in accounts receivable of $0.3 million.

Investing activities

Net cash provided by investing activities was $3.3 million in the year ended December 31, 2023 compared to $14.1 million used in investing activities during the year ended December 31, 2022.

Net cash provided by investing activities during the year ended December 31, 2023 was driven by $7.0 million in maturities of marketable securities, offset by purchases of property and equipment of $3.7 million.

Net cash used in investing activities during the year ended December 31, 2022 was driven by purchases of marketable securities of $40.8 million and purchases of property and equipment of $7.4 million, offset by $34.0 million in maturities of marketable securities.

Financing activities

Net cash provided by financing activities was $56.8 million for the year ended December 31, 2023 compared to $28.7 million for the year ended December 31, 2022.

Net cash provided by financing activities for the year ended December 31, 2023 was primarily driven by $48.0 million in net proceeds received from our June 2023 follow-on offering, after deducting the underwriting discounts and commissions and offering expenses paid by the Company, $11.3 million in debt proceeds, and $0.3 million in proceeds from stock option exercises, partially offset by $1.7 million in payments of contingent consideration, $0.7 million in principal payments on financing leases, $0.2 million in payments of deferred offering costs, and $0.1 million in settlement of restricted stock units for tax withholding obligations.

Net cash provided by financing activities for the year ended December 31, 2022 was driven by $31.3 million in debt proceeds and $0.4 million in proceeds from stock option exercises, partially offset by $1.2 million in payments of contingent consideration, $0.6 million in principal payments on financing leases, $0.8 million in payment of accrued final fee, $0.2 million in payments of debt issuance costs, and $0.1 million in payments of deferred offering costs.

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

We evaluate our long-lived assets, including finite-lived intangibles, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Examples of such triggering

events applicable to our assets include, but are not limited to, a significant decrease in the market price of a long-lived asset or asset group, a current-period operating or cash flow loss combined with a history of operating or cash flow losses, a projection or forecast that demonstrates continuing losses associated with the use of a long-lived asset or asset group, or adverse industry or economic trends. If any indicator of impairment exists, we assess the recoverability of the affected long-lived assets by determining whether the carrying value of the asset group can be recovered through undiscounted future operating cash flows. If impairment is indicated, we estimate the asset group's fair value using future discounted cash flows associated with the use of the asset group and adjust the carrying value of the asset group accordingly.

We test goodwill for impairment annually and test intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable. Events or changes in circumstances that could affect the likelihood that we will be required to recognize an impairment charge include, but are not limited to, declines in our stock price or market capitalization, economic downturns and other macroeconomic events, declines in our market share or revenues, or significant litigation. We perform our annual impairment review of goodwill on November 1 of each calendar year (and if and when triggering events occur between annual impairment tests).

In evaluating our goodwill for indications of impairment, we first conduct an assessment of qualitative factors to determine whether it is more likely than not that the fair value of each of our reporting units is less than its carrying amount. If we determine that it is more likely than not that the fair value of each of our reporting units is less than its carrying amount, we compare the fair value of each of our reporting units to its carrying value. If the fair value of each of our reporting units exceeds its carrying value, goodwill is not considered impaired, and no further analysis is required. If the carrying value of each of our reporting units exceeds its fair value, then an impairment loss equal to the difference would be recorded to goodwill.

Revenue recognition

We follow 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, revenue generated by our ABS operation, which provides sample testing services to customers, and revenue generated from companion diagnostic development. 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 output method to measure the extent of progress towards completion of the performance obligation. For companion diagnostic development, 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 output method, the extent of progress towards completion is measured based on the value of the services transferred to date relative to the remaining services promised under the contract. 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.

When we enter into companion diagnostic development contracts, we assess whether any obligations within the contract have a contingency with significant uncertainty, which may be considered an option.

Payment terms are generally thirty to ninety days from the date of invoicing.

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

Contract assets and contract liabilities

Our contract assets consistent of revenues recognized, but not yet invoiced to customers for lab services and companion diagnostic development. We classify contract assets in accounts receivable. Contract assets are classified as current or noncurrent based on timing of when we expect to invoice the customer. Our contract liabilities consist of

upfront payments for service-based warranties on instrument sales, as well as lab services. We classify contract liabilities associated with service-based warranties in deferred revenue, and contract liabilities associated with lab services in accrued expenses. Contract liabilities are classified as current or noncurrent based on the timing of when we expect to service the warranty, or complete the lab services contract.

Costs to obtain or fulfill a contract

Under ASC 606, we are 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, we recognize 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 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 as of the last trading day of our second quarter 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 as of the last trading day of our second quarter. 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

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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, 2023 and 2022, the related consolidated statements of operations, comprehensive loss, stockholders' equity 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, 2023 and 2022, 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 4, 2024

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	December 31, 2023	December 31, 2022
Assets		
Current assets		
Cash and cash equivalents	$ 83,125	$ 74,229
Marketable securities	—	6,989
Accounts receivable, net	16,994	9,729
Inventories, net	17,877	14,486
Prepaid expenses and other current assets	3,794	6,764
Total current assets	121,790	112,197
Property and equipment, net	10,729	10,174
Restricted cash	699	303
Demo inventory, net	893	2,084
Intangible assets, net	17,412	20,048
Goodwill	18,262	18,262
Operating lease right of use assets, net	8,365	10,785
Financing lease right of use assets, net	1,562	1,490
Other assets	657	688
Total assets	$ 180,369	$ 176,031
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 11,776	$ 10,628
Accrued expenses and other current liabilities	13,433	16,519
Current portion of operating lease liabilities	2,681	3,009
Current portion of financing lease liabilities	767	620
Deferred revenue	6,688	6,279
Total current liabilities	35,345	37,055
Deferred revenue, net of current portion	3,193	2,114
Long-term debt, net of debt discount	75,254	63,277
Deferred tax liability, net	38	87
Operating lease liabilities, net of current portion	6,238	8,203
Financing lease liabilities, net of current portion	766	675
Contingent consideration liability (Note 4), net of current portion	5,765	6,039
Total liabilities	126,599	117,450
Stockholders' equity:		
Preferred Stock, $0.00001 par value; 10,000,000 shares authorized; 0 shares issued and outstanding at December 31, 2023 and December 31, 2022, respectively	—	—
Common Stock, $0.00001 par value; 500,000,000 shares authorized at December 31, 2023 and December 31, 2022; 49,117,738 and 38,288,188 shares issued and outstanding at December 31, 2023 and December 31, 2022, respectively	2	2
Additional paid in capital	283,839	225,333
Accumulated deficit	(230,071)	(166,748)
Accumulated other comprehensive loss	—	(6)
Total stockholders' equity	53,770	58,581
Total liabilities and stockholders' equity	$ 180,369	$ 176,031

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, 2023	December 31, 2022
Revenue:		
Product revenue	$ 67,410	$ 57,650
Service and other revenue	29,223	17,209
Total revenue	96,633	74,859
Cost of goods sold:		
Cost of product revenue	25,778	20,947
Cost of service and other revenue	14,550	10,522
Total cost of goods sold	40,328	31,469
Gross profit	56,305	43,390
Operating expenses:		
Selling, general and administrative	82,381	79,653
Research and development	21,889	23,211
Change in fair value of contingent consideration	1,636	(102)
Depreciation and amortization	8,067	6,734
Total operating expenses	113,973	109,496
Loss from operations	(57,668)	(66,106)
Other income (expense):		
Interest expense	(8,761)	(4,554)
Interest income	3,489	777
Other expense, net	(343)	(635)
Loss before provision for income taxes	(63,283)	(70,518)
Provision for income taxes	(40)	(123)
Net loss	$ (63,323)	$ (70,641)
Net loss per share attributable to common stockholders, basic and diluted	$ (1.43)	$ (1.87)
Weighted-average shares outstanding, basic and diluted	44,434,570	37,746,915

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Year ended	
	December 31, 2023	December 31, 2022
Net loss	$ (63,323)	$ (70,641)
Other comprehensive income (loss):		
Unrealized gain (loss) on marketable securities	6	(6)
Total other comprehensive income (loss)	6	(6)
Comprehensive loss	$ (63,317)	$ (70,647)

See accompanying notes to consolidated financial statements.

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

	Common Stock		Additional Paid in Capital	Accumulated Deficit	Accumulated other comprehensive income (loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2021	**37,424,101**	**$ 2**	**$ 217,456**	**$ (96,107)**	**$ —**	**$ 121,351**
Exercise of stock options	745,991	—	447	—	—	447
Exercise of stock warrant	118,096	—	—	—	—	—
Net loss	—	—	—	(70,641)	—	(70,641)
Other comprehensive loss	—	—	—	—	(6)	(6)
Stock-based compensation	—	—	7,430	—	—	7,430
Balance at December 31, 2022	**38,288,188**	**$ 2**	**$ 225,333**	**$ (166,748)**	**$ (6)**	**$ 58,581**
Exercise of stock options	694,626	—	346	—	—	346
Vesting of restricted stock units	129,924	—	(94)	—	—	(94)
Sale of common stock in underwritten offering, net of costs	10,005,000	—	47,817	—	—	47,817
Net loss	—	—	—	(63,323)	—	(63,323)
Other comprehensive income	—	—	—	—	6	6
Stock-based compensation	—	—	10,437	—	—	10,437
Balance at December 31, 2023	**49,117,738**	**$ 2**	**$ 283,839**	**$ (230,071)**	**$ —**	**$ 53,770**

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES INC. AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year ended	
	December 31, 2023	December 31, 2022
Operating activities		
Net loss	$ (63,323)	$ (70,641)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	8,890	7,149
Non-cash interest expense	727	608
Stock-based compensation expense	10,437	7,430
Deferred taxes	(51)	35
Change in fair value of contingent consideration	1,636	(102)
Net accretion of marketable securities	(5)	(221)
Loss on sale of property and equipment	—	82
Operating lease right of use assets	2,420	2,011
Adjustment for excess and obsolete inventories	2,848	—
Changes in operating assets and liabilities:		
Accounts receivable, net	(7,265)	(285)
Prepaid expenses and other assets	2,257	798
Inventories, net	(6,332)	(5,374)
Accounts payable	1,148	1,193
Accrued expenses and other liabilities	(3,481)	2,826
Operating lease liabilities	(2,293)	(1,584)
Deferred revenue	1,488	2,579
Net cash used in operating activities	(50,899)	(53,496)
Investing activities		
Purchases of property and equipment	(3,653)	(7,360)
Proceeds from sale of property and equipment	—	55
Purchase of marketable securities	—	(40,774)
Maturities of marketable securities	7,000	34,000
Net cash provided by (used in) investing activities	3,347	(14,079)
Financing activities		
Proceeds from debt	11,250	31,250
Payment of accrued final fee	—	(779)
Payments of debt issuance costs	(33)	(240)
Sale of common stock in underwritten offering, net of costs	47,967	—
Proceeds from stock option exercises	346	447
Settlement of restricted stock units for tax withholding obligations	(94)	—
Payments of deferred at-the-market offering costs	(207)	(124)
Principal payments on financing leases	(676)	(621)
Payments of contingent consideration	(1,709)	(1,207)
Net cash provided by financing activities	56,844	28,726
Net increase (decrease) in cash, cash equivalents, and restricted cash	9,292	(38,849)
Cash, cash equivalents, and restricted cash at beginning of year	74,532	113,381
Cash, cash equivalents, and restricted cash at end of year	$ 83,824	$ 74,532
Supplemental disclosures of cash flow information		
Cash paid for interest	$ 7,650	$ 3,477
Cash paid for income taxes	$ 56	$ —
Supplemental disclosures of non-cash activities		
Right-of-use asset obtained in exchange for lease liabilities	$ 914	$ —
Unpaid offering costs related to sale of common stock in underwritten offering	$ 150	$ —
Purchases of property and equipment included in accounts payable and accrued expenses	$ 697	$ 229

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, clinical research and diagnostics. 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 Akoya's PhenoCycler (formerly CODEX) and PhenoImager (formerly Phenoptics) 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 and diagnostics.

On September 28, 2018, the Company acquired the commercial QPS division of Perkin Elmer, Inc. ("PKI"), subsequently known as Revvity, Inc. ("Revvity"), for multiplex immunofluorescence, with the aim of providing consumers with a full suite of end-to-end solutions for high parameter tissue analysis. The QPS technology offers pathology solutions for cancer immunology and immunotherapy research, including advanced multiplex immunochemistry staining kits, multispectral imaging and whole side 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, APAC, and EMEA.

Liquidity and going concern

At December 31, 2023, the Company had cash and cash equivalents of $83,125 and an accumulated deficit of $230,071. The future success of the Company is dependent on its ability to successfully commercialize its products, successfully launch future products, obtain additional capital, if necessary, and ultimately attain profitable operations. The Company has funded its operations primarily through its preferred stock issuances, debt financing arrangements, and through the sale of shares of our common stock. The Company completed its initial public offering of the Company's common stock in April of 2021 (the "IPO") and completed a follow-on public offering of the Company's common stock in June of 2023, as further described in Note 10. In January 2024, the Company recorded a charge of approximately $1,265 for costs related to a reduction in workforce.

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 products and potential products, 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 $50,899 during the year ended December 31, 2023. However, the Company believes that its existing cash and cash equivalents will be adequate to satisfy its 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 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, 2023 and 2022.

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, 2023 and 2022.

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, the useful lives of property and equipment, revenue recognition, determining the fair value of intangible assets, marketable securities, 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.

Reclassifications

Certain amounts in the prior years' consolidated financial statements have been reclassified to conform to the current year's presentation.

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 generally 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, 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, 2023 and 2022, 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 17), 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. The Company is exposed to credit losses primarily through sales of products and services. The Company's expected loss allowance methodology for accounts receivable is developed using historical collection experience, current and future economic and market conditions, and a review of the current status of customers' trade accounts receivable. Due to the short-term nature of such receivables, the estimated accounts receivable that may not be collected is based on aging of the accounts receivable balances.

The Company evaluates contract terms and conditions, country, and political risk, and may require prepayment to mitigate risk of loss. Specific allowance amounts are established to record the appropriate provision for customers that have a higher probability of default. The Company monitors changes to the receivables balance on a timely basis, and balances are written off as they are determined to be uncollectable after all collection efforts have been exhausted.

The Company does not require collateral. As of December 31, 2023, the Company's accounts receivable balance was $16,994, net of $45 of allowance for credit losses. The following table provides a roll-forward of the allowance for credit losses for the year ended December 31, 2023 that is deducted from the amortized cost basis of accounts receivable to present the net amount expected to be collected.

Balance at January 1, 2023	$	45
Change in provision		—
Balance at December 31, 2023	$	45

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.

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, 2023 and 2022 because of their short-term nature. At December 31, 2023 and 2022, the carrying value of the Company's debt approximated fair value.

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 5 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 finite-lived intangibles, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Examples of such triggering events applicable to the Company's assets include, but are not limited to, a significant decrease in the market price of a long-lived asset or asset group, a current-period operating or cash flow loss combined with a history of operating or cash flow losses, a projection or forecast that demonstrates continuing losses associated with the use of a long-lived asset or asset group, or adverse industry or economic trends. If any indicator of impairment exists, the Company would then assess the recoverability of the affected long-lived assets by determining whether the carrying value of the asset group can be recovered through undiscounted future operating cash flows. If impairment is indicated, the Company would estimate the asset group's fair value using future discounted cash flows associated with the use of the asset group and adjust the carrying value of the asset group accordingly. Given the Company's history of negative operating losses and negative operating cash flows, the Company performed a quantitative test of its long-lived assets. Upon completion of its quantitative assessment as of December 31, 2023, the Company has concluded its long-lived assets are not impaired.

The Company tests goodwill for impairment annually and whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable. Events or changes in circumstances that could affect the likelihood that the Company will be required to recognize an impairment charge include, but are not limited to, declines in the Company's stock price or market capitalization, economic downturns and other macroeconomic events, declines in the Company's market share or revenues, or significant litigation. 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, 2023, the Company has concluded that goodwill is not impaired.

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 software (both company-owned and with third parties), and laboratory services. 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.

In order to determine the stand-alone selling price, the Company conducts 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 the Company does 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. The Company's 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. The Company believes that this method results in an estimate that represents the price the Company 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.

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. The Company generally 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, the Company generally uses the output method to measure the extent of progress towards completion of the

performance obligation. For companion diagnostic development, the Company generally uses the cost-to-cost approach to measure the extent of progress towards completion of the performance obligation because the Company believes it best depicts the transfer of assets to the customer. Under the output method, the extent of progress towards completion is measured based on the value of the services transferred to date relative to the remaining services promised under the contract. 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.

In June 2022, the Company entered into a Companion Diagnostic Agreement with Acrivon Therapeutics, Inc. (the "Acrivon Agreement") to co-develop, validate, and commercialize Acrivon's OncoSignature® test. On December 4, 2023, the Company amended the Acrivon Agreement, which expanded the scope of work and increased total development milestone payments to an aggregate of $17,250. Such amendment was accounted for as a modification to the existing contract. The Company is entitled to be paid through an upfront payment and at the achievement of certain developmental, commercial, and FDA milestones during the development, that could aggregate to $17,850. A portion of these payments have been received from June 2022 through December 31, 2023.

The Acrivon Agreement is in the scope of ASC 606, *Revenue from Contracts with Customers.* The Company concluded that the Acrivon Agreement contains one performance obligation for certain development services, since the underlying elements are inputs to a single development service and are not distinct within the context of the contract. Additional development services in the Acrivon Agreement were deemed to be an option, due to certain contingencies with significant uncertainty. The Company will recognize revenue over time for the transaction price in an amount proportional to the expenses incurred and the total estimated expenses to satisfy its performance obligation.

The costs incurred by the Company under this arrangement are included as research and development expenses in the Company's Consolidated Statements of Operations as these costs are related to the development of new services and technology to be owned and offered by the Company.

Disaggregation of Revenue

The Company disaggregates revenue from contracts with customers by type of products, and between instrument warranty and 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:

	Year ended	
	December 31, 2023	December 31, 2022
Revenue		
Product revenue		
Instruments	$ 42,095	$ 38,635
Consumables	24,134	18,379
Standalone software products	1,181	636
Total product revenue	$ 67,410	$ 57,650
Service and other revenue		
Service and other revenue	$ 18,929	$ 9,159
Instrument warranty	10,294	8,050
Total service and other revenue	$ 29,223	$ 17,209
Total revenue	$ 96,633	$ 74,859

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's contract assets consistent of revenues recognized, but not yet invoiced to customers for lab services, companion diagnostic development, and instruments. The Company classifies contract assets in accounts receivable. Contract assets are classified as current or noncurrent based on timing of when the Company expects to invoice the customer. The Company recorded $1,276 in contract assets at December 31, 2023. The Company did not record any contract assets at December 31, 2022.

The Company's contract liabilities consist of upfront payments for service-based warranties on instrument sales, as well as lab services. The Company classifies contract liabilities associated with service-based warranties in deferred revenue, and contract liabilities associated with lab services in accrued expenses. Contract liabilities are classified as current or noncurrent based on the timing of when the Company expects to service the warranty, or complete the lab services contract.

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, 2023 and 2022.

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.

Research and development costs

Costs incurred in the research and development of the Company's potential products 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 years ended December 31, 2023 and 2022 were $746 and $1,372, respectively, and were recorded as an intangible asset on our December 31, 2023 and 2022 consolidated balance sheets.

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 during the years ended December 31, 2023 and 2022.

Advertising expenses

The cost of advertising, marketing and media is expensed as incurred. For the years ended December 31, 2023 and 2022, advertising costs totaled $2,334 and $4,638, respectively.

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 ratably 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. As of December 31, 2023 and 2022, $331 and $326, respectively, 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 awards 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 Company will continue to apply this process until a sufficient amount of historical information regarding volatility of its own stock price becomes available. 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.

For restricted stock units ("RSUs") issued under the Company's stock-based compensation plans, the fair value of each grant is calculated based on the Company's stock price on the date of grant.

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.

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, 2023 and 2022 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 agreements with certain customers, 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, infringement by the Company of third-party intellectual property and/or breaches, violations or nonperformance by the Company of covenants or conditions under the agreements.

As of December 31, 2023 and 2022, 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 by the weighted average common shares outstanding during the period. For purposes of the diluted net loss per share calculations, stock options, and unvested restricted stock units, are considered to be potentially dilutive securities, but are excluded from the diluted net loss per share because their effect would be anti-dilutive and therefore basic and diluted net loss per share were the same for all periods presented.

Comprehensive income (loss)

Components of comprehensive income (loss), including net loss, are reported in the financial statements in the period in which they are recognized. Other comprehensive income (loss) is defined as the change in equity during a period from transactions and other events and circumstances from non-owner sources. Net loss and other comprehensive income (loss) are reported net of any related tax effect to arrive at comprehensive income (loss). Comprehensive income (loss) includes net loss as well as other changes in stockholders' equity that result from transactions and economic events other than those with stockholders which for the years ended December 31, 2023 and 2022 consist of unrealized gain (loss) on marketable securities.

Marketable securities

Marketable securities represent holdings of available-for-sale marketable debt securities in accordance with the Company's investment policy. Short-term marketable securities mature within one year from the balance sheet date while long-term marketable securities mature after one year. Investments in marketable securities are recorded at fair value, with any unrealized gains and losses reported within accumulated other comprehensive income as a separate component of stockholders' equity until realized or until a determination is made that an other-than-temporary decline in market value has occurred. The amortized cost of debt securities is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization and accretion are reflected as a component of other expense. Interest on securities sold is determined based on the specific identification method and reflected as interest income. Any realized gains or losses on the sale of investment are reflected as realized (loss) gain on investments.

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. The Company has elected to avail itself of this extended transition period and, as a result, the Company 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 adopted accounting standards

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. The Company adopted ASU 2016-13 on January 1, 2023 using the modified retrospective approach. The Company's consolidated financial statements for prior-year periods have not been revised and are reflective of the credit loss requirements which were in effect for that period. The adoption of ASU 2016-13 did not have a material impact on the Company's 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. The Company adopted ASU 2017-04 on January 1, 2023. The adoption of ASU 2017-04 did not have a material impact on the Company's 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, marketable securities, and receivables. The Company's cash equivalents are held by large, credit worthy financial institutions. Marketable securities consist of short-term investments. The Company has established guidelines relative to credit ratings, diversification and maturities that seek to maintain safety and liquidity. Deposits in these banks generally exceed federally insured limits. 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 credit losses. The allowance for credit loss is developed using historical collection experience, current and future economic and market conditions, and a review of the status of customers' accounts receivable. The Company had an allowance for credit loss of $45 and $45 at December 31, 2023 and 2022, respectively.

For the years ended December 31, 2023 and 2022, no single customer accounted for more than 10% of revenue. One customer accounted for 12% of accounts receivable at December 31, 2023. No single customer accounted for more than 10% of accounts receivable at December 31, 2022.

(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, 2023 and 2022:

	Balance at December 31, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 76,844	$ 76,844	$ —	$ —
Total Assets	$ 76,844	$ 76,844	$ —	$ —
Liabilities:				
Contingent consideration – Short term portion	$ 1,911	$ —	$ —	$ 1,911
Contingent consideration – Long term portion	5,765	—	—	5,765
Total Liabilities	$ 7,676	$ —	$ —	$ 7,676

	Balance at December 31, 2022	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 256	$ 256	$ —	$ —
U.S. Treasury securities	6,989	—	6,989	—
Total Assets	$ 7,245	$ 256	$ 6,989	$ —
Liabilities:				
Contingent consideration – Short term portion	$ 1,709	$ —	$ —	$ 1,709
Contingent consideration – Long term portion	6,039	—	—	6,039
Total Liabilities	$ 7,748	$ —	$ —	$ 7,748

The following is a summary of cash equivalents, and marketable securities as of December 31, 2023 and 2022:

	December 31, 2023			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash equivalents	$ 76,844	$ —	$ —	$ 76,844
Total cash equivalents	$ 76,844	$ —	$ —	$ 76,844

	December 31, 2022			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash equivalents	$ 256	$ —	$ —	$ 256
Marketable securities:				
U.S. Treasury securities due in one year or less	6,995	—	(6)	6,989
Total marketable securities	6,995	—	(6)	6,989
Total cash equivalents and marketable securities	$ 7,251	$ —	$ (6)	$ 7,245

The Company had no material realized gains or losses on its available-for-sale securities for the years ended December 31, 2023 and 2022. There were no other-than-temporary impairments recognized for the years ended December 31, 2023 and 2022.

The Company's recurring fair value measurements using Level 3 inputs relate to the Company's contingent consideration 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.

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

Contingent Consideration Liability	Fair Value as of December 31, 2023	Valuation Technique	Unobservable Inputs
Revenue-based Payments	$ 5,765	Discounted Cash Flow Analysis under the Income Approach	Revenue discount factor, discount rate

(5) Property and equipment, net

Property and equipment consists of the following:

	Estimated Useful Life (Years)	December 31, 2023	December 31, 2022
Furniture and fixtures	7	$ 474	$ 452
Computers, laptop and peripherals	5	5,173	4,762
Laboratory equipment	5	8,869	7,302
Leasehold improvements	Shorter of the lease life or 7	5,876	3,983
Total property and equipment		20,392	16,499
Less: Accumulated depreciation		(9,663)	(6,325)
Property and equipment, net		$ 10,729	$ 10,174

Depreciation expense relating to property and equipment charged to operations was $2,894 and $2,372 for the years ended December 31, 2023 and 2022, respectively. Depreciation expense relating to property and equipment charged to cost of sales was $486 and $232 for the years ended December 31, 2023 and 2022, respectively.

Demo inventory consists of the following:

	Estimated Life (Years)	December 31, 2023	December 31, 2022
Demo inventory – gross	3	$ 4,284	$ 4,453
Less: Accumulated depreciation		(3,391)	(2,369)
Demo inventory, net		$ 893	$ 2,084

Depreciation expense relating to demo equipment charged to operations was $1,286 and $1,223 for the years ended December 31, 2023 and 2022, respectively.

(6) Intangible assets

Intangible assets as of December 31, 2023 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	$ 11,800	$ (4,134)	$ 7,666	15
Developed technology	8,300	(3,635)	4,665	12
Licenses	213	(183)	30	15
Trade names and trademarks	6,300	(3,378)	2,922	12
Capitalized software	3,377	(1,248)	2,129	5
Total intangible assets	$ 29,990	$ (12,578)	$ 17,412	

Intangible assets as of December 31, 2022 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	$ 11,800	$ (3,348)	$ 8,452	15
Developed technology	8,300	(2,943)	5,357	12
Licenses	213	(36)	177	15
Trade names and trademarks	6,300	(2,550)	3,750	12
Capitalized software	2,631	(319)	2,312	5
Total intangible assets	$ 29,244	$ (9,196)	$ 20,048	

Total amortization expense was $3,382 and $2,624 for the years ended December 31, 2023 and 2022, respectively.

As of December 31, 2023, the amortization expense related to identifiable intangible assets in future periods is expected to be as follows:

2024	$ 2,853
2025	2,853
2026	2,822
2027	1,956
2028	1,761
Thereafter	5,167
Total	$ 17,412

(7) Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consist of the following:

	December 31, 2023	December 31, 2022
Payroll and compensation	$ 7,074	$ 8,288
Current portion of contingent consideration	1,911	1,709
Inventory purchases	609	488
Customer deposits	1,096	3,652
Other accrued expenses	2,743	2,382
Total accrued expenses and other current liabilities	$ 13,433	$ 16,519

(8) Debt

Term Loan Agreements

In October 2020, the Company entered into a 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. The Company received $32,500 in aggregate proceeds as a result of the debt financing.

The Midcap Trust Term Loan initially provided for an interest only term for 36 months followed by 24 months of straight-line amortization. Interest on the outstanding balance of the Midcap Trust Term Loan was originally to be payable monthly in arrears at an annual rate of one-month LIBOR plus 6.35%, subject to a LIBOR floor of 1.50%. Under the original terms of the loan, at the time of final payment, the Company would be required to pay Midcap Financial Trust a final payment fee of 5.00% of the amount borrowed under the Midcap Trust Term Loan. Additionally, the original terms of the Midcap Trust Term Loan provided that if the loan was prepaid prior to the end of the term, the Company would be required to 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.

On March 21, 2022, the Company entered into Amendment No. 1 to the Midcap Trust Term Loan, which amended certain provisions to permit certain additional debt and capital leases.

On June 1, 2022, the Company entered into Amendment No. 2 ("Amendment No. 2") to the Midcap Trust Term Loan, which permitted the draw of a second tranche of $10,000, and a third tranche of $10,000, which were drawn on June 1, 2022, and September 30, 2022, respectively. The amendment also delayed the amortization start dates for the outstanding loan amounts from November 1, 2023 until April 1, 2025, at which point the Company would be required to repay the principal amounts in seven equal monthly installments until the maturity date. Finally, Amendment No. 2 amended the interest rate payable on the term loan to apply an interest rate equal to the Secured Overnight Financing Rate ("SOFR") rate (with a floor of 1.61448%) plus 6.35%. Substantially all other terms and conditions, and covenants of the credit agreement remained unchanged. In connection with Amendment No. 2, the Company agreed to pay a $75 commitment fee as well as a 0.25% fee upon the funding of each of the second tranche and third tranche amounts. The Company accounted for Amendment No. 2 as a modification pursuant to ASC 470-50.

On November 7, 2022, the Company entered into Amendment No. 3 ("Amendment No. 3") to the Midcap Trust Term Loan, which permits the draw of two additional tranches, each totaling $11,250, which were drawn on November 7, 2022, and December 22, 2023, respectively. Amendment No. 3 also delays the amortization start dates for the outstanding loan amounts from April 1, 2025 until December 1, 2025 (subject to further extension upon certain conditions), at which point the Company will repay the principal amounts in equal monthly installments until the new maturity date of November 1, 2027, which was extended pursuant to Amendment No. 3. In addition, Amendment No. 3 amends the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 2.50%) plus 6.80%, and resets the call protection to begin as of November 7, 2025. Finally, Amendment No. 3 provides for a commitment fee of $74 that was paid on November 7, 2022 on the new tranche amounts and an exit fee of 4.75%. As

part of Amendment No. 3, the Company paid $779 for the accrued amount of the final payment fee. Substantially all other terms and conditions, and covenants of the credit agreement remain unchanged. The Company accounted for Amendment No. 3 as a modification pursuant to ASC 470-50.

The interest rate was 12.26% at December 31, 2023. A final payment fee of $3,563 is due upon the earlier to occur of the maturity date or prepayment of such borrowings. For the years ended December 31, 2023 and 2022, the Company recorded $610 and $487, respectively, related to the amortization of the final payment fee associated with the Midcap Trust Term Loan.

Debt consists of the following:

	December 31, 2023	December 31, 2022
Midcap Trust Term Loan	$ 75,000	$ 63,750
Unamortized debt discount	(448)	(565)
Accretion of final fee	702	92
Total long term debt, net	$ 75,254	$ 63,277

As of December 31, 2023, future principal payments due under the Midcap Trust Term Loan, excluding the $3,563 final payment fee, are as follows:

Year ended:	Midcap Trust Term Loan
December 31, 2024	$ —
December 31, 2025	3,125
December 31, 2026	37,500
December 31, 2027	34,375
Total minimum principal payments	$ 75,000

(9) Stockholder's equity

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, 2023 and 2022, a total of 49,117,738 and 38,288,188 shares of common stock were issued and outstanding, respectively. As of December 31, 2023 and 2022, 8,912,043 and 7,834,432 shares of common stock were reserved for issuance upon the exercise of stock options and vesting of restricted stock, respectively, including 1,811,017 and 1,243,707, respectively, of shares available for issuance under the 2021 Equity Incentive Plan.

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"), which was repaid in October 2020. 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, at a purchase price of $1.53 per share. The warrant was to have expired on September 27, 2029. The terms of the warrant provided that the holder may at any time and from time to time exercise the warrant, in whole or in part, and on any exercise of the warrant, the holder may elect to receive shares equal to the full value of the warrant or a portion of its full value. Prior to the IPO, 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. 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. In the third quarter of 2022, Innovatus exercised its warrant to purchase the Company's common stock.

On November 7, 2022, the Company entered into an Equity Distribution Agreement (the "Equity Distribution Agreement") with Piper Sandler & Co. ("Piper Sandler") with respect to an at-the-market offering program under which the Company may offer and sell, from time to time at its sole discretion, shares of its common stock, par value $0.00001 per share (the "Common Stock"), having an aggregate offering price of up to $50,000 (the "Placement Shares") through Piper Sandler as its sales agent. Subject to the terms and conditions of the Equity Distribution Agreement, Piper Sandler may sell the shares by methods deemed to be an "at the market offering" as defined in Rule 415 promulgated under the Securities Act, including sales made through The Nasdaq Global Select Market, on any other existing trading market for the Common Stock, to or through a market maker, or, if expressly authorized by the Company, in privately negotiated transactions. The Company or Piper Sandler may terminate the Equity Distribution Agreement upon notice to the other party and subject to other conditions. The Company will pay Piper Sandler a commission equal to 3.0% of the gross proceeds of any Common Stock sold through Piper Sandler under the Equity Distribution Agreement and has provided Piper Sandler with customary indemnification rights. As of December 31, 2023 and 2022, we have not sold any shares of common stock under the ATM program.

Issuance costs incurred related to the Equity Distribution Agreement are classified as long-term assets on the balance sheet at December 31, 2023 and 2022.

On June 7, 2023, the Company entered into an underwriting agreement (the "Underwriting Agreement") with Morgan Stanley & Co. LLC and Piper Sandler & Co. (collectively, the "Underwriters"), pursuant to which the Company agreed to issue and sell up to 10,005,000 shares of common stock (the "Shares"), which included 1,305,000 shares (the "Optional Shares") subject to a 30-day option to purchase additional shares granted to the Underwriters (the "Offering"). The Shares were offered and sold in the Offering at the public offering price of $5.00 per share and were purchased by the Underwriters from the Company at a price of $4.70 per share, except for 3,509,718 shares purchased by entities affiliated with Telegraph Hill Partners, entities affiliated with PSC Capital Partners LLC and certain of our directors, executive officers and other insiders, all considered related parties, which were purchased by the Underwriters at the public offering price.

On June 8, 2023, the Underwriters exercised their option to purchase the Optional Shares in full.

The Company received approximately $47,817 in net proceeds from the Offering, after deducting the underwriting discounts and commissions and offering expenses payable by the Company. The Offering closed on June 12, 2023.

(10) Stock compensation plans

2021 Equity Incentive Plan

On March 24, 2021, the Board and on April 8, 2021, the Company's 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 Company's 2015 Equity Incentive Plan (the "2015 Plan") 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 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 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, 2023 and 2022, the Company granted options with an aggregate fair value of $7,447 and $9,978, 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.

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, 2022	6,211,220	$ 8.71	7.80	$ 20,228
Granted	1,518,154	9.01		
Exercised	(694,626)	0.50		
Canceled	(1,229,275)	11.60		
Outstanding at December 31, 2023	5,805,473	9.16	7.36	$ 6,588
Exercisable at December 31, 2023	3,280,340	$ 8.11	6.41	$ 6,365

The weighted-average grant date fair value of options granted in the years ended December 31, 2023 and 2022 was $4.91 and $5.39 per share, respectively, and was calculated using the Black-Scholes valuation model based on the following weighted-average assumptions:

	Year ended December 31, 2023	Year ended December 31, 2022
Weighted-average risk-free interest rate	3.8 %	2.6 %
Expected dividend yield	0 %	0 %
Expected volatility	53.5 %	50.4 %
Expected term	5.9 years	6.0 years

The aggregate intrinsic value of options exercised was $4,330 and $7,617 for the years ended December 31, 2023 and 2022, respectively.

Restricted Stock Units

During the years ended December 31, 2023 and 2022, the Company granted RSUs with an aggregate fair value of $13,057 and $4,339, respectively, which are being recorded as compensation expense over the requisite service period. The fair value of each grant is calculated based on the Company's stock price on the date of grant.

The following is a summary of RSU activity:

	Number of Shares	Weighted-Average Grant Date Fair Value Per Share	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Unvested RSUs at December 31, 2022	379,505	$ 10.99	1.91	$ 3,632
Granted	1,343,842	9.72		
Vested	(142,172)	9.07		
Canceled	(285,621)	11.70		
Unvested RSUs at December 31, 2023	1,295,554	9.72	1.69	$ 6,322

The fair value of vested RSUs was $950 and $0 for the years ended December 31, 2023 and 2022, respectively.

Stock-Based Compensation

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

	Year ended December 31,	
	2023	2022
Cost of goods sold	$ 350	$ 233
Selling, general and administrative	8,621	5,934
Research and development	1,466	1,263
Total stock-based compensation	$ 10,437	$ 7,430

As of December 31, 2023 and 2022, there was $11,730 and $16,509, 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 2.2 and 2.7 years as of December 31, 2023 and 2022, respectively.

As of December 31, 2023 and 2022 there was $10,129 and $3,551, respectively, of total unrecognized compensation cost related to non-vested RSUs. The Company expects to recognize that cost over a remaining weighted-average period of 3.0 and 3.4 years as of December 31, 2023 and 2022, respectively.

(11) Employee stock purchase plan

On March 24, 2021, the Board and on April 8, 2021, the Company's 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, 2023 and 2022, respectively.

(12) Income taxes

The components of net income (loss) before income taxes for the years ending December 31, 2023 and 2022 is as follows:

	December 31, 2023	December 31, 2022
Domestic	$ (63,520)	$ (70,736)
Foreign	237	218
Total	$ (63,283)	$ (70,518)

The Company's income tax provision for the years ending December 31, 2023 and 2022 is as follows:

	December 31, 2023	December 31, 2022
Federal	$ —	$ —
State	1	4
Foreign	90	84
Total current tax provision	$ 91	$ 88
Federal	(20)	30
State	(30)	32
Foreign	(1)	(27)
Total deferred tax (benefit) provision	$ (51)	$ 35
Total tax provision	$ 40	$ 123

A reconciliation between income tax benefit and the expected tax benefit at the statutory rate for the years ended December 31, 2023 and 2022 is as follows:

	2023		2022	
Federal statutory rate	21.00	%	21.00	%
State rate, net of federal benefit	1.54		3.54	
Permanent differences	(1.34)		(0.62)	
Tax credits generated	2.50		3.86	
Change in valuation allowance	(21.31)		(24.28)	
Uncertain tax positions	(2.50)		(3.86)	
Foreign rate differential	(0.02)		(0.02)	
Other items	0.07		0.21	
Effective tax rate	(0.06)	%	(0.17)	%

The significant components of the Company's net deferred tax liability consist of the following at December 31, 2023 and 2022:

Deferred tax assets (liabilities):	December 31, 2023	December 31, 2022
Deferred tax assets		
Net operating losses	$ 31,442	$ 26,854
Capitalized R&D costs	7,985	5,122
Accruals & reserves	934	1,033
Intangibles	817	528
Interest	2,788	1,653
Stock compensation	2,272	1,522
Inventory	4,061	1,164
Lease liabilities	2,107	2,776
Depreciation	312	—
Other	778	431
Gross deferred tax assets	53,496	41,083
Valuation Allowance	(51,359)	(37,873)
Net deferred tax assets	2,137	3,210
Deferred tax liabilities		
Depreciation	—	(261)
Goodwill	(160)	(329)
Right of use asset	(1,976)	(2,670)
Net deferred tax asset (liability)	$ 1	$ (50)

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 2022 U.S. deferred tax assets. The increase in the 2023 valuation allowance is primarily attributable to the current year loss.

As of December 31, 2023 and 2022, the consolidated net deferred tax asset (liability) includes a foreign net deferred tax asset of $39 and $37, respectively, which are recorded within other assets in the accompanying consolidated balance sheets.

As of December 31, 2023 and 2022, for federal income tax purposes the Company had total net operating loss carryforwards of approximately $126,870 and $107,446, respectively. As of December 31, 2023, approximately $2,567 will begin to expire in 2036 and approximately $124,303 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, 2023 and 2022 the Company had net operating loss carryforwards of approximately $74,939 and $67,173, respectively, which begin to expire in 2036.

As of December 31, 2023 and 2022, the Company has available federal research development tax credit carryforwards of approximately $4,882 and $3,998, respectively. The federal research credits will begin to expire in 2036. As of December 31, 2023 and 2022, the Company has available state research development tax credit carryforwards of approximately $2,165 and $3,457, 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 2034.

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 conducted a study of its research and development credit carryforwards. Once conducted, 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:

Uncertain tax positions at December 31, 2021	$	4,226
Increase in uncertain tax positions		3,228
Uncertain tax positions at December 31, 2022		7,454
Increase in uncertain tax positions		1,687
Uncertain tax positions at December 31, 2023	$	9,141

Uncertain tax positions of $9,141 as of December 31, 2023 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, 2023 and 2022, 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, 2019 and after. The tax years subject to examination vary by jurisdiction.

(13) Commitments and contingencies

License Agreements

In September 2018, in connection with the acquisition of the QPS division of PKI (subsequently known as Revvity), 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%. As of the acquisition date, the Company accounted for the future potential royalty payments as contingent consideration. This contingent consideration is subject to remeasurement. The Company recorded approximately $1,911 and $1,709 of accrued royalties for actual net sales in 2023 and 2022, for the years ended December 31, 2023 and 2022, respectively. Such amounts are payable in the first quarter of 2024 and 2023, respectively.

Changes in the fair value of the Company's long-term portion of the contingent consideration liability during the years ended December 31, 2023 and 2022 were as follows:

Balance as of December 31, 2021	$ 7,850
Reclassification of FY 2022 payment to accrued expenses	(1,709)
Change in contingent consideration value	(102)
Balance as of December 31, 2022	$ 6,039

Balance as of December 31, 2022	$ 6,039
Reclassification of FY 2023 payment to accrued expenses	(1,910)
Change in contingent consideration value	1,636
Balance as of December 31, 2023	$ 5,765

(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,	
	2023	2022
Net loss	$ (63,323)	$ (70,641)
Weighted average common shares used in net loss per share attributable to common stockholders, basic and diluted	44,434,570	37,746,915
Basic and diluted net loss per common share outstanding	$ (1.43)	$ (1.87)

The Company's potential dilutive securities, which include stock options and unvested restricted stock units, 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,	
	2023	2022
Outstanding stock options	5,805,473	6,211,220
Unvested restricted stock units	1,295,554	379,505
Total	7,101,027	6,590,725

(15) Segments

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. 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,	
	2023	2022
North America	$ 58,284	$ 42,046
APAC	16,553	15,058
EMEA	21,796	17,755
Total Revenue	$ 96,633	$ 74,859

	Year ended December 31,	
	2023	2022
North America	60 %	56 %
APAC	17 %	20 %
EMEA	23 %	24 %
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, 2023, the Company had no countries outside of the United States with more than 10% of total revenue. For the year ended December 31, 2022, the Company had one country outside of the United States with 11% of total revenue.

As of December 31, 2023 and 2022, 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 the Company's total outstanding shares. During the years ended December 31, 2023 and 2022, the Company incurred costs of goods sold of approximately $7,581 and $5,684, respectively, related to sales of consumables manufactured by AMS. As of December 31, 2023 and 2022, $3,110 and $5,678, respectively, is included in inventories, net, related to consumables manufactured by AMS. As of December 31, 2023 and 2022, the Company had $2,618 and $1,271 in accounts payable, respectively, due to AMS.

(17) Leases

On January 1, 2022, the Company adopted ASU No. 2016-02, Leases (Topic 842), (ASC 842), using the modified retrospective method.

Adoption of the new standard resulted in the recording of $10,409 of operating lease right of use assets, $673 of financing lease right of use assets, $2,741 of short-term operating lease liabilities, $272 of short-term financing operating lease liabilities, $7,968 of long-term operating lease liabilities, and $197 of long-term financing lease liabilities. The difference between the operating lease liabilities and operating right of use assets is associated with existing deferred rent under ASC 840.

The Company considers a lease to be a contract, or part of a contract, that conveys the right to control the use of identified property or equipment (an identified asset) for a period of time in exchange for consideration. The Company leases office, lab, and warehouse spaces as follows:

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. In June 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 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 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 was August 2021.

In March 2022, the Company signed a 96-month lease with Atlantic-Fulcrum Realty LLC for warehouse space in Marlborough, MA. The lease commencement date was April 2022.

The Company holds various auto leases which have an initial term of 48 months.

The Company holds financing leases for staining equipment, computer equipment, and furniture.

Leases with an initial term of 12 months or less are not recorded on the balance sheet; the Company recognizes lease expense for these leases on a straight-line basis over the lease term. For these lease agreements, the Company has elected the practical expedient to not separate non-lease and lease components and instead to account for them as a single lease component.

Under Topic 842, lease payments include: fixed payments, including in-substance fixed payments, less any lease incentives paid or payable to the lessee; variable lease payments that depend on an index or a rate; exercise price of a purchase option reasonably certain to be exercised; penalties for terminating a lease; and amounts where it is probable that the Company will owe under a residual value guarantee. Refundable deposits are not considered to be a fixed payment. Variable lease costs that are not based on an index or a rate are recorded to expenses in the period incurred. Lease term is determined at lease commencement. The initial determination of a lease liability is calculated as the net present value of the lease payments not yet paid.

Some leases include an option to renew, with renewal terms that can extend the lease term by five years. The exercise of lease renewal options is at the Company's sole discretion. None of these options to renew are recognized as part of the Company's right-to-use asset or lease liability as of December 31, 2023 and 2022, as renewal was determined to not be reasonably assured. The depreciable life of assets and leasehold improvements are limited by the expected lease term. The Company recognizes lease expense for operating leases on a straight-line basis over the lease term. The Company recognizes amortization expense for finance leases over the lease term based on the terms of the lease agreement.

The Company's lease agreements do not contain any material residual value guarantees or material restrictive covenants.

As most of the Company's leases do not provide an implicit rate, the Company used its incremental borrowing rate based on the information available at the adoption or commencement date, in determining the present value of lease payments.

The table below summarizes the Company's lease costs for the years ended December 31, 2023 and 2022:

Lease Costs	Classification	Year Ended December 31, 2023	Year Ended December 31, 2022
Finance lease cost:			
Amortization of right-of-use assets	Cost of service and other revenue	$ 337	$ 183
Amortization of right-of-use assets	Depreciation and amortization	505	515
Interest on lease liabilities	Interest expense, net	142	60
Operating lease cost:	Selling, general and administrative		
Rent expense	Cost of product revenue	113	—
Rent expense	Selling, general and administrative	3,144	3,163
Total lease cost		$ 4,241	$ 3,921

As of December 31, 2023, future minimum commitments under ASC 842 under the Company's operating leases were as follows:

Maturity of operating lease liabilities	As of December 31, 2023
2024	$ 2,777
2025	2,839
2026	2,636
2027	1,104
2028	436
Thereafter	562
Total lease payments	$ 10,354
Less: discount to lease payments	(1,435)
Total operating lease liabilities	$ 8,919

As of December 31, 2023, future minimum commitments under ASC 842 under the Company's financing leases were as follows:

Maturity of financing lease liabilities	As of December 31, 2023
2024	$ 798
2025	444
2026	239
2027	239
2028	60
Thereafter	—
Total lease payments	$ 1,780
Less: discount to lease payments	(247)
Total financing lease liabilities	$ 1,533

The table below summarizes the weighted-average remaining lease term (in years), the weighted-average incremental borrowing rate (in percentages), as well as supplemental cash flow information related to leases for the years ended December 31, 2023 and 2022:

	Year Ended December 31,	
Lease Term, Discount Rates, and Other	**2023**	**2022**
Weighted average remaining lease term		
Operating leases	3.8 years	4.6 years
Financing leases	2.9 years	2.3 years
Weighted average incremental borrowing rate		
Operating leases	7.85 %	7.85 %
Financing leases	9.58 %	6.73 %
Cash payments of amounts included in lease liabilities		
Operating cash flows from operating leases	$ 3,130	$ 3,009
Operating cash flows from finance leases	142	60
Financing cash flows from finance leases	664	621

(18) Reduction in force

On June 7, 2023, the Company executed a reduction in force in connection with certain operating expense cost savings initiatives. In connection with the reduction in force, each of the Company's Chief Medical Officer ("CMO") and the Company's Chief People Officer ("CPO") were terminated, along with other non-executive employees.

On June 27, 2023, the Company entered into a Separation Agreement and Release with its former CMO in connection with his termination of employment on June 7, 2023. Under such agreement, in consideration for his release of claims relating thereto, the former executive was entitled to the severance payments and benefits set forth in the Company's Executive Severance Plan, dated March 23, 2022 (the "Executive Severance Plan").

On July 3, 2023, the Company entered into a Separation Agreement and Release with its former CPO, in connection with her termination of employment on June 7, 2023. Under such agreement, in consideration for her release of claims relating thereto and in lieu of any severance payments and benefits set forth in the Executive Severance Plan to which she may otherwise have been entitled, the former executive was entitled to (i) an award of 53,652 RSU's under the Company's 2021 Equity Incentive Plan, each representing a right to receive an issuance of one share of the Company's common stock and (ii) payment by the Company of the applicable premiums for continuing health care coverage for the former executive and her eligible dependents for a period of nine months commencing July 2023. Such RSUs vested fully on the eighth day following the date of execution of her Separation Agreement and Release.

During the year ended December 31, 2023, the Company recorded $2,056 for charges related to the reduction in force, of which $650 was related to the Company's former CMO and the Company's former CPO. As of December 31, 2023, $15 of such charges remain unpaid, and are recorded within accrued expenses.

(19) Subsequent events

The Company has evaluated subsequent events from the consolidated balance sheet date through March 4, 2024, which is the date the consolidated financial statements were issued.

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

None.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures. Our principal executive officer and principal financial officer, after evaluating the effectiveness of our disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of the end of the period covered by this Form 10-K, have concluded that, based on such evaluation, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and is accumulated and communicated to our management, including our principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

(b) Changes in Internal Controls. There were no changes in our internal control over financial reporting, identified in connection with the evaluation of such internal control that occurred during the fourth quarter of our last fiscal year that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

(c) Management's Annual Report on Internal Control Over Financial Reporting. Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, as a process designed by, or under the supervision of, our principal executive officer and principal financial officer and effected by our board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of management and our directors; and

- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the 2013 framework in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under that framework, our management concluded that our internal controls over financial reporting were effective as of December 31, 2023.

Item 9B. Other Information

Rule 10b5-1 Trading Plans

During the fourth quarter of 2023, no directors or officers adopted or terminated any Rule 10b5-1 trading arrangements or non-Rule 10b5-1 trading arrangements (in each case, as defined in Item 408(a) of Regulation S-K).

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 2024 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 2024 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 2024 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 2024 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 2024 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	8-K	001-40344	3.1	9/6/2023	
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	
4.2	Description of the Registrant's capital stock	10-K	001-40344	4.2	3/7/2023	
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 July 14, 2020, by and between the Registrant and Niroshan Ramachandran	S-1	333-254760	10.8	3/26/2021	
10.8†	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	
10.9†	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	
10.10†	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	
10.11†	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	
10.12	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	
10.13	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	
10.14+	Offer Letter, dated March 2, 2021, by and between Registrant and Frederic Pla	S-1/A	333-254760	10.16	4/12/2021	
10.15	Amendment No. 1 to Credit and Security Agreement, dated March 21, 2022, by and between the Registrant and Midcap Financial Trust	10-Q	001-40344	10.1	8/9/2022	
10.16	Amendment No. 2 to Credit and Security Agreement, dated June 1, 2022, by and between the Registrant and Midcap Financial Trust	8-K	001-40344	10.1	6/2/2022	

10.17	Equity Distribution Agreement dated November 7, 2022, by and between the Registrant and Piper Sandler & Co.	S-3	333-268214	1.2	11/7/2022	
10.18	Amendment No. 3 to Credit and Security Agreement, dated November 7, 2022, by and between the Registrant and Midcap Financial Trust	10-K	001-40344	10.22	3/6/2023	
10.19+	Executive Severance Plan, effective March 23, 2022.	8-K	001-40344	10.1	3/29/2022	
10.20+	Offer Letter, dated January 30, 2023, by and between the Registrant and Johnny Ek	10-Q	001-40344	10.1	5/9/2023	
10.21+	Offer Letter, dated January 31, 2023, by and between the Registrant and Jennifer Kamocsay	10-Q	001-40344	10.2	5/9/2023	
10.22+	Separation Agreement and Release, dated June 27, 2023, by and between the Company and Dr. Ehab El-Gabry	8-K	001-40344	10.1	6/28/2023	
10.23+	Separation Agreement and Release, dated July 3, 2023, by and between the Company and Ms. Moy	8-K	001-40344	10.1	7/5/2023	
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 *	Certifications of the Principal Chief Executive Officer and Chief Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
97.1	Clawback Policy, adopted August 31, 2023					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 With Embedded Linkbase Documents					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 4, 2024

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

Date: March 4, 2024

By: /s/ Johnny Ek
Johnny Ek
Chief Financial Officer
(Principal Financial and Accounting Officer)

Power of Attorney

KNOW BY ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Brian McKelligon and Johnny Ek, and each of them, as such person's true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for such person and in such person's name, place and stead, in any and all capacities, to sign any and all Amendments hereto, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, this report has been signed by the following persons in the capacities and on the dates indicated.

Name	Title	Date
/s/ Brian McKelligon Brian McKelligon	President, Chief Executive Officer and Director (Principal Executive Officer)	March 4, 2024
/s/ Johnny Ek Johnny Ek	Chief Financial Officer	March 4, 2024
/s/ Robert G. Shepler Robert G. Shepler	Chair of the Board	March 4, 2024
/s/ Thomas Raffin, MD Thomas Raffin, MD	Director	March 4, 2024
/s/ Thomas P. Schnettler Thomas P. Schnettler	Director	March 4, 2024

Name	Title	Date
/s/ Scott Mendel Scott Mendel	Director	March 4, 2024
/s/ Matthew Winkler, PhD Matthew Winkler, PhD	Director	March 4, 2024
/s/ Myla Lai-Goldman, MD Myla Lai-Goldman, MD	Director	March 4, 2024

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements (Nos. 333-255468, 333-263548, and 333-270312) on Form S-8 and the Registration Statement (No. 333-268214) on Form S-3 of Akoya Biosciences, Inc. of our report dated March 4, 2024, 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, 2023.

/s/ RSM US LLP

Boston, Massachusetts
March 4, 2024

Exhibit 31.1

CERTIFICATIONS UNDER SECTION 302

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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer(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 4, 2024

/s/ Brian McKelligon
Brian McKelligon
Chief Executive Officer (principal executive officer)

Exhibit 31.2

CERTIFICATIONS UNDER SECTION 302

I, Johnny Ek, 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer(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 4, 2024

/s/ Johnny Ek
Johnny Ek
Chief Financial Officer
(principal financial officer and principal accounting officer)

Exhibit 32.1

CERTIFICATIONS UNDER SECTION 906

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Akoya Biosciences, Inc. (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report for the year ended December 31, 2023 (the "Form 10-K") of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 4, 2024

/s/ Brian McKelligon
Brian McKelligon
Chief Executive Officer

Dated: March 4, 2024

/s/ Johnny Ek
Johnny Ek
Chief Financial Officer

Exhibit 97.1

AKOYA BIOSCIENCES, INC.

POLICY FOR RECOVERY OF ERRONEOUSLY AWARDED INCENTIVE COMPENSATION

(Adopted August 31, 2023)

1. INTRODUCTION

Akoya Biosciences, Inc. (the "***Company***") is adopting this policy (this "***Policy***") to provide for the Company's recovery of certain Incentive Compensation (as defined below) erroneously awarded to Affected Officers (as defined below) under certain circumstances. This Policy is effective as of October 2, 2023 (the "***Effective Date***").

This Policy is administered by the Compensation Committee (the "***Committee***") of the Company's Board of Directors (the "***Board***"). The Committee shall have full and final authority to make any and all determinations required or permitted under this Policy. Any determination by the Committee with respect to this Policy shall be final, conclusive and binding on all parties. The Board may amend or terminate this Policy at any time.

This Policy is intended to comply with Section 10D of the Securities and Exchange Act of 1934, as amended (the "***Exchange Act***"), Rule 10D-1 thereunder and the applicable rules of any national securities exchange on which the Company's securities are then listed (the "***Exchange***") and will be interpreted and administered consistent with that intent.

2. EFFECTIVE DATE

This Policy shall apply to all Incentive Compensation received by an Affected Officer on or after the Effective Date to the extent permitted or required by applicable law or the rules of the Exchange.

3. DEFINITIONS

For purposes of this Policy, the following terms shall have the meanings set forth below:

"***Affected Officer***" means any current or former "officer" as defined in Exchange Act Rule 16a-1.

"***Erroneously Awarded Compensation***" means the amount of Incentive Compensation received that exceeds the amount of Incentive Compensation that otherwise would have been received had it been determined based on the Restatement, computed without regard to any taxes paid. In the case of Incentive Compensation based on stock price or total shareholder return, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in the Restatement, the amount shall reflect a reasonable estimate of the effect of the Restatement on the stock price or total shareholder return upon which the Incentive Compensation was received, as determined by the Committee in its sole discretion. The Committee may determine the form and amount of Erroneously Awarded Compensation in its sole discretion.

"***Financial Reporting Measure***" means any measure that is determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures that are derived wholly or in part from such measures, whether or not such measure is presented within the financial statements or included in a filing with the Securities and Exchange Commission. Stock price and total shareholder return are also Financial Reporting Measures.

"***Incentive Compensation***" means any compensation that is granted, earned or vested based in whole or in part on the attainment of a Financial Reporting Measure. For purposes of clarity, base salaries, bonuses or equity awards paid solely upon satisfying one or more subjective standards, strategic or operational measures, or continued employment are not considered Incentive Compensation, unless such awards were granted, paid or vested based in part on a Financial Reporting Measure.

"***Restatement***" means an accounting restatement due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements (i.e., a "Big R" restatement), or that would result in a material misstatement if the error was corrected in the current period or left uncorrected in the current period (i.e., a "little r" restatement).

4. RECOVERY

If the Company is required to prepare a Restatement, the Company shall seek to recover and claw back reasonably promptly all Erroneously Awarded Compensation that is received by an Affected Officer:

(i) on and after the Effective Date;

(ii) after the person begins service as an Affected Officer;

(iii) who served as an Affected Officer at any time during the performance period for that Incentive Compensation;

(iv) while the Company has a class of securities listed on the Exchange; and

(v) during the three completed fiscal years immediately preceding the date on which the Company was required to prepare the Restatement (including any transition period within or immediately following those years that results from a change in the Company's fiscal year, provided that a transition period of nine to 12 months will be deemed to be a completed fiscal year).

For purposes of this Policy:

- Erroneously Awarded Compensation is deemed to be received in the Company's fiscal year during which the Financial Reporting Measure specified in the Incentive Compensation is attained, even if the payment or grant of the Incentive Compensation occurs after the end of that period; and

- the date the Company is required to prepare a Restatement is the earlier of (x) the date the Board, the Committee or any officer of the Company authorized to take such action concludes, or reasonably should have concluded, that the Company is required to prepare the Restatement, or (y) the date a court, regulator, or other legally authorized body directs the Company to prepare the Restatement.

To the extent required by applicable law or the rules of the Exchange, any profits realized from the sale of securities of the Company are subject to recoupment under this Policy.

For purposes of clarity, in no event shall the Company be required to award any Affected Officers an additional payment or other compensation if the Restatement would have resulted in the grant, payment or vesting of Incentive Compensation that is greater than the Incentive Compensation actually received by the Affected Officer. The recovery of Erroneously Awarded Compensation is not dependent on if or when the Restatement is filed.

5. SOURCES OF RECOUPMENT

To the extent permitted by applicable law, the Committee may, in its discretion, seek recoupment from the Affected Officer(s) through any means it determines, which may include any of the following sources: (i) prior Incentive Compensation payments; (ii) future payments of Incentive Compensation; (iii) cancellation of outstanding Incentive Compensation; (iv) direct repayment; and (v) non-Incentive Compensation or securities held by the Affected Officer. To the extent permitted by applicable law, the Company may offset such amount against any compensation or other amounts owed by the Company to the Affected Officer.

6. LIMITED EXCEPTIONS TO RECOVERY

Notwithstanding the foregoing, the Committee, in its discretion, may choose to forgo recovery of Erroneously Awarded Compensation under the following circumstances, provided that the Committee (or a majority of the independent members of the Board) has made a determination that recovery would be impracticable because:

(i) The direct expense paid to a third party to assist in enforcing this Policy would exceed the recoverable amounts; provided that the Company has made a reasonable attempt to recover such Erroneously Awarded Compensation, has documented such attempt and has (to the extent required) provided that documentation to the Exchange;

(ii) Recovery would violate home country law where the law was adopted prior to November 28, 2022, and the Company provides an opinion of home country counsel to that effect to the Exchange that is acceptable to the Exchange; or

(iii) Recovery would likely cause an otherwise tax-qualified retirement plan to fail to meet the requirements of the Internal Revenue Code of 1986, as amended.

7. NO INDEMNIFICATION OR INSURANCE

The Company will not indemnify, insure or otherwise reimburse any Affected Officer against the recovery of Erroneously Awarded Compensation.

8. NO IMPAIRMENT OF OTHER REMEDIES

This Policy does not preclude the Company from taking any other action to enforce an Affected Officer's obligations to the Company, including termination of employment, institution of civil proceedings, or reporting of any misconduct to appropriate government authorities. This Policy is in addition to the requirements of Section 304 of the Sarbanes-Oxley Act of 2002 that are applicable to the Company's Chief Executive Officer and Chief Financial Officer.