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, 2022
or
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission file number: 001-34180

STANDARD BIOTOOLS INC.

(Exact name of registrant as specified in its charter)

Delaware	**77-0513190**
State or other jurisdiction of incorporation or organization	I.R.S. Employer Identification No.

2 Tower Place, Suite 2000	**South San Francisco,**	**CA**	**94080**
Address of principal executive offices			Zip Code

Registrant's telephone number, including area code: **(650) 266-6000**

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, $0.001 par value per share	**LAB**	**The Nasdaq Global Select Market**

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

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

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

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

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

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

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 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. Yes ☒ No ☐

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 ☒

As of June 30, 2022, the aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was approximately $125,847,683 based on the closing sale price on that date. Shares of common stock held by each executive officer and director and by each other person who may be deemed to be an affiliate of the Registrant have been excluded from this computation. The determination of affiliate status for this purpose is not necessarily a conclusive determination for other purposes.

As of February 28, 2023, there were 79,063,928 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement in connection with the registrant's annual meeting of stockholders, scheduled to be held in June 2023, are incorporated by reference in Part III of this report. Except as expressly incorporated by reference, the registrant's Proxy Statement shall not be deemed to be part of this report.

STANDARD BIOTOOLS INC.

FISCAL YEAR 2022
FORM 10-K
ANNUAL REPORT

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Special Note Regarding Forward-looking Statements and Industry Data

This Annual Report on Form 10-K (Form 10-K) contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act), that are based on our management's beliefs and assumptions and on information currently available to our management. The forward-looking statements are contained principally in the sections entitled "Business," "Risk Factors," and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Forward-looking statements include information concerning our possible or assumed future cash flow, revenue, sources of revenue and results of operations, cost of product revenue and product margin, operating and other expenses, unit sales and the selling prices of our products, business strategies, financing plans, expansion of our business, investments to expand our customer base, plans for our products, competitive position, industry environment, potential growth opportunities, market growth expectations, the effects of competition, our planned use of the proceeds from the Bridge Loans and Private Placement Issuance described herein, cost structure optimization, acceleration of growth, potential merger and acquisition (M&A) activity and restructuring plans (including expense reduction activities involving potential subleasing and talent relocation plans, modifications to the scope of the company's proteomic and genomics businesses and discontinuing of certain product lines). Forward-looking statements include statements that are not historical facts and can be identified by terms such as "anticipates," "believes," "could," "seeks," "estimates," "expects," "intends," "may," "plans," "potential," "predicts, "projects," "should," "will," "would," or similar expressions and the negatives of those terms.

Forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements. We discuss these risks in greater detail in the section entitled "Risk Factors" and elsewhere in this Form 10-K. Given these uncertainties, you should not place undue reliance on these forward-looking statements.

Forward-looking statements represent our management's beliefs and assumptions only as of the date of this Form 10-K. Except as required by law, we assume no obligation to update these forward-looking statements, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. You should read this Form 10-K completely and with the understanding that our actual future results may be materially different from what we expect.

This Form 10-K also contains estimates, projections and other information concerning our industry, our business, and the markets for certain of our products, including data regarding the estimated size of those markets. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events, or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from reports, research surveys, studies, and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data, and similar sources.

Unless the context requires otherwise, references in this Annual Report on Form 10-K to "Standard BioTools," the "Company," "we," "us," and "our" refer to Standard BioTools Inc. and its subsidiaries.

PART I

ITEM 1. BUSINESS

Overview

Standard BioTools Inc. is driven by a bold purpose – unleashing tools to accelerate breakthroughs in human health. We develop, manufacture and sell technologies that help biomedical researchers in their search for developing medicines faster and better. Our tools provide insights in health and disease using our proprietary mass cytometry and microfluidics technologies, which serve applications in proteomics and genomics, respectively.

Within proteomics our mass cytometry technology is embodied in two analytical platforms: flow cytometry and tissue imaging or spatial biology. Our flow cytometry systems (Helios™ and CyTOF XT) deeply profile cell phenotype and function. Referenced by more than 2,200 peer-reviewed publications around the world, our CyTOF technology has set a new standard in human immune profiling with our proprietary digital readout. Our spatial biology systems (Hyperion™ Imaging System and Hyperion+™ Imaging System) enable highly multiplexed protein biomarker detection at a single cellular level in tissues and tumors while still preserving tissue architecture and cellular morphology information and without any autofluorescence artifacts by using our Imaging Mass Cytometry™ (IMC™) technology.

Within genomics, our microfluidics technology with our proprietary Integrated Fluidic Circuits (IFCs) provides high throughput and automated workflows for quantitative polymerase chain reaction (PCR), gene expression, copy number variation analysis, and next-generation sequencing (NGS) library preparation. These automated systems are used to detect somatic and genomic variations from a range of different sample types which provide cost efficiencies, flexibility and proven analytical performance that customers need to meet the increasing demands of molecular biomarker analysis for diagnostics and research applications.

Strategic Investment Transaction

On January 23, 2022, we entered into two transactions. First, we entered into (i) a Loan Agreement (the Casdin Loan Agreement) with Casdin Private Growth Equity Fund II, L.P. and Casdin Partners Master Fund, L.P. (collectively, Casdin) and (ii) a Loan Agreement (the Viking Loan Agreement, and together with the Casdin Loan Agreement, the Bridge Loan Agreements) with Viking Global Opportunities Illiquid Investments Sub-Master LP and Viking Global Opportunities Drawdown (Aggregator) LP (collectively, Viking and, together with Casdin, the Purchasers and each, a Purchaser). Each Bridge Loan Agreement provided for a $12.5 million term loan to us.

Secondly, we entered into separate Series B Convertible Preferred Stock Purchase Agreements (the Purchase Agreements), including subject to the approval of our stockholders that we issue and sell an aggregate of $225 million of convertible preferred stock, consisting of: (i) 112,500 shares of the Company's Series B-1 Convertible Preferred Stock, par value $0.001 per share (the Series B-1 Preferred Stock), at a purchase price of $1,000 per share to Casdin; and (ii) 112,500 shares of the Company's Series B-2 Convertible Preferred Stock, par value $0.001 per share (the Series B-2 Preferred Stock, and together with the Series B-1 Preferred Stock, the Series B Preferred Stock) at a purchase price of $1,000 per share to Viking (collectively, the Private Placement Issuance).

On April 1, 2022, our stockholders approved the closing of the Private Placement Issuance. On the closing date, April 4, 2022, we sold an aggregate of $225 million worth of Series B-1 Convertible Preferred Stock and Series B-2 Convertible Preferred Stock pursuant to Series B Convertible Preferred Stock Purchase Agreements. In addition, the Bridge Loans were automatically converted into shares of Series B-1 Preferred Stock and Series B-2 Preferred Stock. The $250 million proceeds from the Bridge Loans and Private Placement Issuance are being used for working capital and general corporate purposes. On the closing date, the stockholders also approved the name change of our company to "Standard BioTools Inc."

Strategy

Our new leadership team has identified three strategic priorities: revenue growth, improving operating discipline through the Standard BioTools Business Systems (SBS) and strategic capital allocation.

Revenue Growth

One of our top priorities is to grow our instrument, consumables and service revenue. We established new growth strategies for our product lines. We continue to invest in research and development (R&D) to create and launch new products and have adopted best practice approaches to improve our lead generation and funnel management growth, among other things.

Improving Operating Discipline Through SBS

Our second priority is to improve our operating discipline through the implementation of SBS. We are leveraging SBS with a set of organizing principles, rigorous standard work processes, and a continuous improvement mindset to build more efficient operations and commercial execution and reduce costs.

A phased restructuring plan, including a reduction in force, was substantially completed in 2022 to improve efficiency, reduce operating costs and better align our workforce with the current needs of our business. As part of the restructuring plan, the following actions have been taken:

- **Reducing General and Administrative Expenses.** We have significantly lowered general and administrative spend through a reduction in headcount and a decrease in office space in order to better align our spending with more streamlined operations. Specifically, we reduced our real estate footprint, including our headquarters location in South San Francisco while fostering remote work for certain employees. In August 2022, we entered into a 39-month term sublease agreement for approximately 25% of our corporate headquarters location that commenced in October 2022. We expect to recognize sublease rental income of $4.8 million over the lease term.
- **Right Sizing Our Microfluidics Business.** We have significantly reduced our expenses in microfluidics research and development and marketing while narrowing our commercial focus on high value niche markets for specialized applications.
- **Portfolio Rationalization.** We discontinued certain products including Laser Capture Microdissection (LCM), Flow Conductor, and COVID-19 diagnostic offerings.

We recognized $4.2 million in severance related restructuring expenses and $1.2 million of consulting and legal expenses for the twelve months ended December 31, 2022. Based on actions taken to date, we realized operating expense reductions of approximately $5.5 million in 2022. See Note 16 Restructuring and Other Related Costs within our consolidated financial statements for further details.

Strategic Capital Allocation

Our third priority is strategic capital allocation. We are actively pursuing business development opportunities in the life sciences industry with consolidation and synergies expected to be a key growth driver to sustain the longer-term value proposition of the Company.

Market Opportunity

We participate in growing and emerging market segments within the broader proteomics and genomics markets.

Proteomics

The market for Proteomics is broadly defined as instruments, consumables and reagents, software, and services for all technologies used in the identification of proteins. Proteins perform a vast array of functions within living organisms, including catalyzing metabolic reactions, replicating DNA, signaling response to stimuli and transporting molecules from one location to another. The proteome varies and is dynamic. Every cell in an individual organism has the same set of genes, but the set of proteins produced in different tissues differ from one another and are dependent on gene expression. Protein analysis is required to profile and understand cellular function as well as the interaction in tissues and other complex microenvironments. Within the Proteomics market, we focus on Flow Cytometry and Spatial Biology.

Flow Cytometry is a method to detect and measure physical and chemical characteristics of cells or particles. With our CyTOF technology, we focus in a smaller sub-segment of Flow Cytometry for high-parameter analysis defined as greater than 20 parameters.

- Traditional flow cytometry utilizes a suspension of cells in a stream of fluid and passes them through an electronic detection apparatus to allow simultaneous multi-parameter analysis of the physical and chemical characteristics of up to thousands of cells per second. Although traditional flow cytometry technologies are high-throughput with single-cell analysis capabilities, a key limitation is the use of fluorescent dyes to label antibodies for detection. These fluorescent labels have emission spectra that typically overlap, making it challenging to optimize reagents to analyze many protein markers at once. In general, the number of protein targets for conventional flow cytometry is less than about 10 with significant reagent optimization often involved.

- Our CyTOF technology is similar to traditional flow cytometry but is based primarily on antibodies using heavy metal isotope labels rather than fluorescent labels for detection of proteins, enabling the significant expansion of the number of parameters analyzed per individual cell versus conventional flow cytometry technologies, as well as providing superior data quality. With high-throughput, single-cell analysis capabilities and the ability to analyze more protein markers per individual cell, researchers have more granular information, which allows them to identify and characterize even finer subpopulations of cells.

Spatial Biology, which itself is a sub-segment of the broader Tissue Image Analysis market that includes immunohistochemistry and in-situ hybridization, is the study of single cells in its spatial context to understand the role of heterogeneity in cell function and assess complex phenotypes and tumor-immune interactions in the tissue and tumor microenvironment.

- Immunohistochemistry is a method by which cells in a tissue section are stained with antibodies and then imaged with a conventional or fluorescent microscope. Antibodies selected to bind to proteins of interest can be conjugated with either chromogenic or fluorescent labels, allowing cellular proteins to be visualized in spatial context. Immunohistochemistry is used broadly throughout the life sciences industry, and in clinical research to better understand the characteristics and relationship of cancerous versus normal cells in biopsy tissue. In general, the number of simultaneously imageable proteins is less than five, with researchers only able to achieve a higher-parameter resolution using serial sections (several adjacent sections of the same tissue) or other highly laborious, more serial staining methods.

- Cyclic immunofluorescence is a method using an iterative process in which tissue slides are repeatedly stained and imaged with a fluorescent microscope, and then antibody stripping using denaturants. This method allows higher parameter analysis versus immunohistochemistry.

- Imaging mass cytometry is similar to immunohistochemistry but is based primarily on antibodies using heavy metal isotope labels rather than fluorescent or chromogenic labels for detection of proteins. This method enables a significant expansion of the number of parameters simultaneously analyzed per tissue section rather than in adjacent sections or via serial staining protocols. This method also eliminates issues of using fluorescent technology to image highly auto-fluorescent tissues.

Genomics

The market for genomics is broadly defined as instruments, consumables and reagents, software, and services for all technologies used in the identification of genes (DNA, RNA) and their function. The hereditary material or nucleic acid of an organism is often referred to as its genome, the protein-encoding regions of which are commonly known as genes. Analysis of variations in genomes, genes and gene activity in and between organisms can provide insights into their health and functioning.

Within the genomics market, we focus on two sub-segments: qPCR analysis and NGS library preparation.

There are several forms of genetic analysis in use today, including genotyping, gene expression analysis and NGS:

- Genotyping involves the analysis of DNA variations across individual genomes. There are multiple forms of variants, including single nucleotide polymorphism (SNPs), insertion-deletions and copy number variation. A common application of genotyping focuses on analyzing SNPs to determine whether a SNP or group of SNPs are associated with a particular genetic trait, such as propensity for a disease.
- Gene expression analysis involves measuring the levels of particular ribonucleic acid sequences known as messenger RNAs (mRNAs), which have been transcribed from genes. Determining these levels is important because mRNAs are often translated by the cell into proteins and may affect the activity of the cell or the larger organism.
- Gene expression and genotyping are studied through a combination of various technology platforms that characterize gene function and genetic variation. These platforms often rely on PCR amplification to generate exponential copies of a DNA sample to provide sufficient signal to facilitate detection. Real-time quantitative PCR (real-time qPCR) is a more advanced form of PCR that makes it possible to quantify the number of copies of DNA present in a sample.

- NGS is a process by which researchers are able to determine the particular order of nucleotide bases that comprise all or a portion of a particular gene or genome (in the case of DNA sequencing) or gene transcript or sample transcriptome (in the case of RNA sequencing). NGS is routinely used for studies across the research continuum including basic research, biomarker discovery, translational research, and clinical research.

OEM Markets

We also utilize our proprietary microfluidics technology to collaborate with OEM providers to pursue market opportunities outside our core markets. These OEM markets are highly varied, and we believe represent significant expansion opportunities for our technology.

Products

We market life science tools, including preparatory and analytical instruments, consumables, and software for single cell proteomics analysis via mass cytometry and tissue imaging and for genomics analysis via real-time PCR and NGS library preparation. Our primary product offerings are summarized in the table below:

Product	Product Description	Applications
Single Cell Proteomics		
Analytical Systems:		
Helios™, a CyTOF System	The Helios mass cytometry system performs high-parameter (>50) single-cell analysis using antibodies conjugated to metal isotopes.	Flow Cytometry
CyTOF XT™ System	The CyTOF XT mass cytometry system performs highly automated high-parameter (>50) single-cell analysis using antibodies conjugated to metal isotopes.	Flow Cytometry
Hyperion™ Imaging System	The Hyperion Imaging System brings together imaging capability with proven high-parameter mass cytometry technology to enable the simultaneous detection of up to 40 protein markers in the spatial context of the tissue microenvironment.	Tissue Imaging
Hyperion+™ Imaging System	The Hyperion+ Imaging System provides lower limits of detection and twice the speed to results as compared to the Hyperion Imaging System.	Tissue Imaging
Hyperion™ Tissue Imager	The Hyperion Tissue Imager scans tissues at 1 micron resolution. It can be purchased as an upgrade for the Helios system to enable imaging capability, then referred to as Hyperion Imaging System.	Tissue Imaging
Hyperion+™ Tissue Imager	The Hyperion+ Tissue Imager scans tissues at twice the speed of the Hyperion. It can be purchased as an upgrade for the Helios system to enable imaging capability, then referred to as Hyperion+ Imaging System.	Tissue Imaging
Assays and Reagents:		

Product	Product Description	Applications
Maxpar® Reagents	Maxpar® reagents are included in multiple product lines addressing needs in functional and phenotypic profiling of single cells, as well as nucleic acid detection. The product lines include more than 800 pre-conjugated antibodies, application-specific kits, and custom antibody labeling services.	Flow Cytometry and Tissue Imaging
Maxpar Direct Immune Profiling Assay	The assay enables identification and characterization of 37 immune cell populations with automated software. The kit contains 30 pre-titrated antibodies provided in a dry single-tube format and is also compatible with additional expansion panels focusing on specific cell populations.	Flow Cytometry
Maxpar On Demand Reagents	Made to order conjugated antibodies, pre-verified and available with seven-day turn-around.	Flow Cytometry and Tissue Imaging
Maxpar IMC Panel Kits for Immuno-oncology	Contains a mix of non-overlapping metal-conjugated antibodies to deeply profile tumor-infiltrating lymphocytes, immune cell activation states or tissue architecture. These new panels can be easily mixed and matched or combined as an 18-marker panel to broadly profile immune infiltrates.	Tissue Imaging
Genomics		
Preparatory Instruments:		
Juno™ System	An integrated system that automates the preparation of RNA-seq and amplicon-based libraries for next-generation sequencing (NGS). Additionally, Juno automates microfluidic-based PCR workflows by processing IFCs prior to analysis on the Biomark HD System.	Library preparation for RNA-seq and targeted NGS. IFC preparation for analysis on Biomark HD System.
IFC Controllers (HX, MX, and RX)	Each controller is designed to work with specific IFC formats: (i) IFC Controller MX- for priming and loading the 48.48 Dynamic Array™ IFC, the 12.765 Digital Array™, IFC, the 48.770 Digital Array IFC, and qdPCR 37K™, (ii) IFC Controller HX- for priming and loading the Flex Six™ Gene Expression IFC and Flex Six Genotyping IFC, 96.96 Dynamic Array IFC, (iii) IFC Controller RX- for loading the 192.24 Gene Expression IFC, 192.24 Genotyping IFC, and the 24.192 Dynamic Array IFC for gene expression.	Real-time PCR analysis
Analytical Instruments:		

Product	Product Description	Applications
Biomark™ HD System	Real-time PCR analytical instrument for microfluidics-based workflows using prepared IFCs.	Real-time PCR analysis
X9™ Real-Time PCR System	Real-time PCR analytical instrument, including pre-processing steps for microfluidics-based workflows using IFCs. This system is designed to deliver the functionality of both the Juno and Biomark HD systems.	Real-time PCR analysis
Integrated Fluidic Circuits (IFCs):		
Library Preparation (LP) IFCs	LP and 48.Atlas™ IFCs for NGS LP supporting RNA-Seq and targeted amplicon-based sequencing.	Library preparation for RNA-seq and targeted NGS
Juno Genotyping IFC	IFC designed for use with Juno that incorporates preamplification for genotyping of 96 samples and 96 markers in a single run.	Genotyping, sample identification
96.96 GT Preamp IFC-X	IFC designed for use with X9 that incorporates preamplification for genotyping of 96 samples and 96 markers in single run.	Genotyping, sample identification
Dynamic Array™ IFCs	IFCs based on matrix architecture, allowing users to (i) individually assay up to 24 samples against up to 192 assays, (ii) individually assay up to 48 samples against up to 48 assays, (iii) individually assay up to 96 samples against up to 96 assays, or (iv) individually assay up to 192 samples against up to 24 assays.	Real-time and end-point PCR; Sample identification, genotyping, gene expression, copy number variation (CNV) and variant detection
Digital Array™ IFCs	IFCs based on partitioning architecture allowing users to (i) individually assay up to 12 samples or panels across 765 chambers, or to (ii) individually assay up to 48 samples across 770 chambers per IFC.	Real-time and end-point digital PCR
Flex Six™ IFC	IFC that incorporates six 12 X 12 partitions that can be organized in any configuration, in up to six separate experimental runs.	Gene Expression and SNP Genotyping
Assays and Reagents:		
Advanta™ RNA-Seq NGS Library Prep Kit	Integrated solution for automated NGS library prep. Used with the Juno system with the Advanta RNA-Seq reagents and 48.Atlas IFCs, supports simultaneous processing of up to 48 total RNA samples.	RNA-seq library preparation for NGS
Delta Gene™ and SNP Type Assays	Custom designed assays targeted to genomic regions of interest for gene expression. and genotyping.	Gene Expression, Single-Cell Targeted Gene Expression, SNP Genotyping

Product	Product Description	Applications
Access Array™ Target-Specific Primers and Targeted Sequencing Prep Primers	Custom designed assays for NGS library preparation using Access Array chemistry on the Access Array systems.	Library preparation for targeted NGS
Targeted DNA Seq Library Assays	Custom designed assays for NGS library preparation using Targeted DNA Sequencing Library Preparation chemistry on the Juno systems.	Library preparation for targeted NGS

In 2022:

- We launched two new analytical systems, the Hyperion+ Imaging System and the X9 System. The Hyperion+ Imaging System is a next generation imaging platform that brings twice the speed of its predecessor. The X9 combines the functionality of the Juno and the Biomark HD with improved workflow and performance. The Hyperion+ Imaging System is our second-generation imaging instrument, designed to clearly see the how and where of cellular interaction with fast, sample to insight from clean quality data, even when working with highly autofluorescent tissues.
- We continued to expand our Maxpar® Direct Immune Profiling Assay panels for CyTOF. Maxpar® antibodies and cell labeling reagents are available for use in flow cytometry.
- We continued to deliver the Signature Q100 microfluidics platform to our OEM collaborator, Olink Holding AB.

Technology

Integrated Fluidic Circuits

Our IFCs incorporate several different types of technology that together enable us to use multi-layer soft lithography (MSL) technology to rapidly design and deploy new microfluidic applications with state-of-the-art commercial manufacturing processes. The first level of our IFC technology is a library of components that perform basic microfluidic functions, such as pumps, mixers, single-cell capture chambers, separation columns, control logic, and reaction chambers. The second level of our IFC technology comprises the architectures we have designed to exploit our ability to conduct thousands of reactions on a single IFC. The third level of our IFC technology involves the interaction of our IFCs with the actual laboratory environment.

Instrumentation and Software

Our mass cytometry instrumentation technology includes a custom-designed inductively coupled plasma ion source, ion-optical and vacuum systems, and instrument control electronics. With our CyTOF systems, individual cells are atomized, ionized, and extracted. A time-of-flight mass analyzer separates atomic ions of different mass-to-charge ratios, providing information on temporal distribution of ions. Our Imaging Mass Cytometry systems combine mass cytometry technology with imaging capability to enable simultaneous interrogation of up to 50 protein markers in the spatial context of the tissue microenvironment. Our systems have the ability to utilize up to 135 channels to detect additional parameters to meet future market needs.

Our microfluidics-based X9 Real-Time PCR system includes our custom thermal cycler, a sophisticated fluorescence imaging system, and on-board scripting and protocol control software, and utilizes our IFC technology for a wide range automated genomics applications.

We also offer specialized software to manage and analyze the unusually large amounts of data produced by our systems. We offer Cytobank, our cloud-based platform of analytical tools, FCS Express7 Flow, and Maxpar Pathsetter data analysis packages for use with the CyTOF systems. For our Imaging Mass Cytometry platform, Hyperion, we offer various state of the art software packages to enable data analysis from basic to translational research: CyTOF Software 7.0, MCD Viewer, histoCAT, Visiopharm Phenomap and Indica Lab Halo. Our bioinformatic toolset, the Singular software, facilitates the analysis and visualization of single-cell gene expression data. More recently, we extended the scope of the toolset to include DNA analysis tools.

Assays and Reagents

We manufacture over 800 metal-conjugated antibodies for use with our mass cytometry and Imaging Mass Cytometry instruments to allow detection of up to 48 protein targets simultaneously in a single cell for a total of more than 50 detected cellular parameters. Our metal-conjugated antibodies are manufactured using metal-chelating polymers, which are produced using proprietary polymerization processes and subsequent post-polymerization modifications.

Our genotyping and single nucleotide polymorphism type (SNP Type) assay products consist of assay design and custom content delivery systems for gene expression and genotyping, respectively. These offerings provide low-cost alternatives to other available chemistries and allow customers to use IFCs in more flexible ways with validated assays for their targets of interest

Customers

We sell our instruments and consumables for research use only to leading academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, and biopharmaceutical, biotechnology, and plant and animal research companies. One customer accounted for 11% of our total revenue for the year ended December 31, 2022. No single customer represented more than 10% of our total revenue for 2021.

Marketing, Sales, Service and Support

We distribute our systems through our direct sales force and support organizations located in North America, Europe, and Asia-Pacific, and through distributors or sales agents in European, Latin American, Middle Eastern, and Asia-Pacific countries. Our sales and marketing efforts are targeted at laboratory directors and principal investigators at leading academic, translational research, healthcare consortiums, and biopharmaceutical companies who need reliable life science automation solutions to power their disease research with the goal of providing actionable insights.

Our sales process often involves numerous interactions and demonstrations with multiple people within an organization. Some potential customers conduct in-depth evaluations of the system, including running experiments on our system and competing systems. In addition, in most countries, sales to academic or governmental institutions require participation in a tender process involving preparation of extensive documentation and a lengthy review process. As a result of these factors and the budget cycles of our customers, our sales cycle, the time from initial contact with a customer to our receipt of a purchase order, can often be 12 months or longer.

Manufacturing

Our manufacturing operations are located in Singapore and Canada. Our facility in Singapore manufactures IFCs and assemblies of microfluidics instruments. In 2022, assembly of microfluidics instruments was insourced to our Singapore facility to reduce cost and improve product quality. All of our IFCs for commercial sale and some IFCs for our research and development purposes are also fabricated at our Singapore facility. Our mass cytometry instruments and reagents for commercial sale, as well as for internal research and development purposes, are manufactured at our facility in Canada. Our genomics reagent manufacturing was transferred from South San Francisco to Markham, Canada in late 2022.

We rely on a limited number of suppliers for certain components and materials used in our products. Key components in our products that are supplied by sole or limited source suppliers. The loss of a single or sole source supplier would require significant time and effort to locate and qualify an alternative source of supply, if at all, and could adversely impact our business. For additional information, please refer to “Item 1A. Risk Factors.”

Research and Development

We have assembled experienced research and development teams at our South San Francisco, California, Markham, Ontario, Canada, and Singapore locations and have the scientific, engineering, software, bioinformatic, and process talent that we believe is required to grow our business.

The largest components of our current research and development efforts are in the areas of new products, new applications and new content. We launched our Hyperion Imaging System in October 2017. The Hyperion Imaging System provides spatial resolution of protein expression in complex tissue samples at the single-cell level, quantitative measurement using metal isotope tags, and analysis of up to 40 proteins, while having 135 channels available. We also developed metal-labeled antibodies compatible with formalin fixed paraffin embedded tissue samples, to be used with the Hyperion Imaging System. In 2022 we launched the Hyperion+ Imaging System, our second-generation imaging platform.

In 2019, we launched the Maxpar Direct Immune Profiling Assay, a sample-to-answer workflow for comprehensive human immune profiling for use with our CyTOF systems, which puts pre-titrated antibodies in dry format in a single tube, with automated software that provides data analysis in as few as five minutes. This assay is reproducible from site-to-site and lot-to-lot, which is important for translational and pharma/biotech research work. We have collaborated with industry partners to enable workflows and software for the Hyperion and CyTOF systems. Also in 2019, we added seven new metal antibody labels, becoming the first company to enable 50-plex cytometry panels, and launched three Imaging Mass Cytometry panel kits as well as CyTOF Software v7.0, an updated CyTOF software application.

In May 2021, we launched the new, fourth generation cell suspension mass cytometry system, CyTOF XT. Its main features include automation of sample introduction and acquisition, and lower cost of ownership and enhanced performance in resolution of cell populations. The system enables storage of pelleted samples in the cooled autosampler, automated resuspension of pellets, and addition of beads standards.

We also invest significantly in research and development efforts to expand our microfluidics applications. For example, we continue to develop and commercialize various panel sets for use with our systems. In 2017, we successfully launched the Advanta™ Immuno-Oncology Gene Expression Assay, which is a 170-gene expression qPCR assay that enables profiling of tumor immunobiology and new biomarker identification. In 2019, we launched the Advanta™ RNA-Seq NGS Library Prep Kit. Designed to drive significant improvement in the RNA-seq workflow, the Advanta RNA-Seq NGS Library Prep Kit together with the Juno™ system delivers an integrated solution for automated, cost-efficient NGS library prep. In 2020, we expanded our microfluidics franchise to develop products for the COVID-19 testing marketplace and we launched the AdvantaDx SARS-CoV-2 RT-PCR assay. These COVID-19 related products were discontinued in 2022.

In 2022, we launched the X9 Real Time PCR System: a next-generation system platform that integrates all the features of all our legacy platforms into one ultra-compact footprint with a simple-to-operate user interface. In addition, we secured significant development collaborations, including for development of OEM systems using our microfluidics technology.

The second component of our research and development effort is to continuously develop new manufacturing processes and test methods to drive down manufacturing costs, increase manufacturing throughput, widen fabrication process capability, and support new microfluidic devices and designs.

Competition

The life science markets are highly competitive and expected to grow more competitive with the increasing knowledge gained from ongoing research and development. We believe that the principal competitive factors in our target markets include quality of product, cost of capital equipment and supplies; reputation among customers; innovation in product offerings; flexibility and ease of use; accuracy and reproducibility of results; competition for human resources; and compatibility with existing laboratory processes, tools, and methods.

We compete with both established and development stage life science companies that design, manufacture, and market instruments for gene expression analysis, genotyping, other nucleic acid detection, protein expression analysis, imaging, and additional applications. In addition, a number of other companies and academic groups are in the process of developing novel technologies for life science markets. Many of our competitors enjoy several competitive advantages over us, including significantly greater name recognition; greater financial and human resources; broader product lines and product packages; larger sales forces and e-commerce channels; larger and more geographically dispersed customer support organizations; substantial intellectual property portfolios; larger and more established customer bases and relationships; greater resources dedicated to marketing efforts; better established and larger scale manufacturing capability; and greater resources and longer experience in research and development. For additional information, please refer to “Item 1A. Risk Factors.”

To successfully compete with existing products and future technologies, we need to demonstrate to potential customers that the performance of our technologies and products, the solutions we provide our customers, as well as our customer support capabilities, are superior to those of our competitors.

Intellectual Property

Patents

We have developed a portfolio of issued patents and patent applications directed towards commercial products and technologies in development. As of December 31, 2022, we owned or licensed more than 400 patents and had approximately 160 pending patent applications worldwide. Our utility patents have expiration dates ranging up to year 2039, and our design patents have expiration dates ranging up to year 2047.

License Agreements

We have entered into licenses for technologies from various companies and academic institutions.

Genomics Technologies. Our core Genomics technology originated at the California Institute of Technology (Caltech) in the laboratory of Professor Stephen Quake, who is a co-founder of Fluidigm (now Standard BioTools Inc.). We license genomics technology from Caltech, Harvard University, and Caliper Life Sciences, Inc. (Caliper), now a PerkinElmer company.

- We exclusively license from Caltech relevant patent filings relating to developed technologies that enable the production of specialized valves and pumps capable of controlling fluid flow at nanoliter volumes. The license agreement will terminate as to each country and licensed product upon expiration of the last-to-expire patent covering licensed products in each country. The U.S. issued patents we have licensed from Caltech expire between now and year 2025.
- We have entered into a co-exclusive license agreement with Harvard University for the license of relevant patent filings relating to genomics technology. The license agreement will terminate with the last-to-expire of the licensed patents. The U.S. issued patents we have licensed from Harvard University expire between now and year 2027.

Proteomics. Some of the intellectual property rights covering our mass cytometry products were subject to a license agreement (the Original License Agreement) between Fluidigm Canada Inc. (now Standard BioTools Canada Inc.), and PerkinElmer Health Sciences, Inc. (PerkinElmer). Under the Original License Agreement, Fluidigm Canada Inc, received an exclusive, royalty bearing, worldwide license to certain patents owned by PerkinElmer in the field of inductively coupled plasma (ICP) -based proteomics, including the analysis of elemental tagged materials in connection therewith (the Patents), and a non-exclusive license for reagents outside the field of ICP-based mass cytometry. In November 2015, we entered into a patent purchase agreement with PerkinElmer pursuant to which we purchased the Patents for a purchase price of $6.5 million and a patent assignment agreement pursuant to which PerkinElmer transferred and assigned to us all rights, title, privileges, and interest in and to the Patents and the Original License Agreement. Accordingly, we have no further financial obligations to PerkinElmer under the Original License Agreement. Contemporaneously with the purchase of the Patents, we entered into a license agreement with PerkinElmer pursuant to which we granted PerkinElmer a worldwide, non-exclusive, fully paid-up license to the Patents in fields other than (i) ICP-based mass analysis of atomic elements associated with a biological material, including any elements that are unnaturally bound, directly or indirectly, to such biological material (Mass Analysis) and (ii) the development, design, manufacture, and use of equipment or associated reagents for such Mass Analysis. The license will terminate on the last expiration date of the Patents, currently expected to be in November 2026, unless earlier terminated pursuant to the terms of the license agreement.

InstruNor AS. In January 2020, we completed the acquisition of InstruNor AS (InstruNor) for $7.2 million, including $5.2 million in cash and $2.0 million in stock. InstruNor provided automated sample preparation solutions for proteomics and flow cytometry instrument markets and became part of Standard BioTool Inc.'s proteomics business. Included in this acquisition were certain intellectual property portfolio assets comprised of patents and/or patent applications directed to various aspects of automated cell pretreatment instruments. The expiration dates for the issued patents in this patent portfolio extend to March 2033. We recognized a $3.5 million impairment charge on InstruNor's developed technology intangible asset in the second quarter of 2022 related to our discontinued Flow Conductor product line.

Any loss, termination, or adverse modification of our licensed intellectual property rights could have a material adverse effect on our business, operating results, and financial condition. For additional information, please refer to "Item 1A. Risk Factors."

Other

In addition to pursuing patents and licenses on key technologies, we have taken steps to protect our intellectual property and proprietary technology by entering into confidentiality agreements and intellectual property assignment agreements with our employees, consultants, OEM counterparties and collaborators and, when needed, our advisers.

Government Regulation

Our products are currently labeled and sold for research use only (RUO), and we sell them to academic institutions, life sciences and clinical research laboratories that conduct research, and biopharmaceutical and biotechnology companies for non-diagnostic purposes. Our products are not intended or promoted for use in clinical practice in the diagnosis of disease or other conditions. Accordingly, they are not subject to pre- and post-market controls for medical devices by the FDA. In accordance with FDA regulations, our RUO products are labeled, "For Research Use Only. Not for use in diagnostic procedures."

In November 2013, the FDA issued a final guidance document stating that merely including a labeling statement that the product is for research purposes only will not necessarily render the device exempt from the FDA's clearance, approval, or other regulatory requirements if the totality of circumstances surrounding the distribution of the product indicate that the manufacturer knows its product is being used by customers for diagnostic uses or the manufacturer intends such a use. These circumstances may include, among other things, written or verbal marketing claims regarding a product's performance in clinical diagnostic applications and a manufacturer's provision of technical support for such activities. In the future, certain of our products or related applications could become subject to regulation as medical devices by the FDA. If we are required to submit our products for pre-market review by the FDA, we may be required to delay marketing and commercialization while we obtain pre-market clearance or approval from the FDA. There would be no assurance that we could ever obtain such clearance or approval.

In some cases, our customers may use our RUO products in their own laboratory-developed tests (LDTs) or in other FDA-regulated products for clinical diagnostic use. The FDA has historically exercised enforcement discretion in not enforcing the medical device regulations against LDTs and LDT manufacturers. However, on October 3, 2014, the FDA issued two draft guidance documents that set forth the FDA's proposed risk-based framework for regulating LDTs, which are designed, manufactured, and used within a single laboratory. In January 2017, the FDA announced that it would not issue final guidance on the oversight of LDTs and LDT manufacturers but would seek further public discussion on an appropriate oversight approach and give Congress an opportunity to develop a legislative solution. More recently, the FDA has issued warning letters to genomics labs for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal "carve-out" for LDTs and retains discretion to take action when appropriate, such as when certain genomic tests raise significant public health concerns. As laboratories and manufacturers develop more complex genetic tests and diagnostic software, the FDA may increase its regulation of LDTs. Any future legislative or administrative rule making or oversight of LDTs and LDT manufacturers if and when finalized, may impact the sales of our products and how customers use our products, and may require us to change our business model in order to maintain compliance with these laws.

In February 2022, we were granted Emergency Use Authorization (EUA) for our the Advanta Dx COVID-19 EASE Assay, which was authorized for the qualitative detection of nucleic acid from SARS-CoV-2 in nasopharyngeal swab, oropharyngeal swab, mid-turbinate nasal swab, and anterior nasal swab specimens from individuals suspected of COVID-19 by their healthcare provider. Subsequently, in February 2023, the FDA granted our request to withdraw the EUA for our Advanta Dx SARS-CoV-2 RT-PCR Assay. We submitted our request to withdraw such EUA as we had discontinued commercial distribution of the product.

Other U.S. Healthcare Regulatory Requirements

Medical device companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business and may constrain the financial arrangements and relationships through which we research, as well as sell, market and distribute products for which we obtain marketing authorization. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, data privacy and security, and transparency laws and regulations related to interactions and financial arrangements with healthcare professionals and healthcare organizations, payments and other transfers of value made to physicians and other healthcare providers, among others. If our operations are found to be in violation of any of applicable laws or any other governmental regulations that apply, we may be subject to penalties, including, without limitation, administrative, civil and criminal penalties, damages, fines, disgorgement, the curtailment or restructuring of operations, integrity oversight and reporting obligations, exclusion from participation in federal and state healthcare programs and imprisonment. Changes in healthcare regulations, statutes or the interpretation of existing regulations could also impact our business in the future, expose use to increased liabilities, and increase the costs of our operations.

Environmental Matters

We are subject to many federal, state, local, and foreign environmental regulations. To comply with applicable regulations, we have and will continue to incur significant expenses and allocate internal resources to manage compliance-related issues. In addition, such regulations could restrict our ability to expand or equip our facilities or could require us to acquire costly equipment or to incur other significant expenses to comply with the regulations. For example, the Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS), the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) and the Waste Electrical and Electronic Equipment Directive (WEEE), enacted in the European Union, regulate the use of certain hazardous substances, notification of customers of the presence of any substances of very high concern in products, and require the collection, reuse, and recycling of waste from, products we manufacture. Certain products sold in these countries are subject to RoHS, REACH and WEEE requirements. If we fail to comply with any present and future regulations, we could be subject to future fines,

penalties, and restrictions, such as the suspension of manufacturing of our products or a prohibition on the sale of products we manufacture. For additional information, please refer to “Item 1A. Risk Factors.”

Our research and development and manufacturing processes also involve the controlled use of hazardous materials, including flammables, toxics, corrosives, and biologics. Our research and manufacturing operations produce hazardous biological and chemical waste products. We seek to comply with applicable laws regarding the handling and disposal of such materials. The volume of such materials used or generated at our facilities is small. However, we cannot eliminate the risk of accidental contamination or discharge and any resultant injury from these materials. We do not currently maintain separate environmental liability coverage and any such contamination or discharge could result in significant cost to us in penalties, damages, and suspension of our operations.

Geographic Area Information

During the last two years, a significant portion of our revenue was generated outside of the United States. Total revenue received from customers outside the United States was $56.9 million, or 58% of our total revenue, in 2022, compared to $70.4 million, or 54% of our total revenue, in 2021. The majority of our long-lived assets are located within the United States, Singapore and Canada. Refer to Note 6 to our consolidated financial statements for additional information regarding geographic areas.

Seasonality

Our fourth quarter revenues are often the highest, primarily due to seasonality since many of our customers tend to spend budgeted money before the end of their calendar fiscal year-end. Our revenue in the first quarter is generally sequentially lower than the prior year’s revenue in the fourth quarter.

Raw Materials

Certain raw materials used in our Delta Gene and SNP Type assays and Access Array target-specific primers are available from a limited number of sources. Additionally, certain metals used in our Maxpar reagents are available from a sole source. Currently, we do not have supply agreements with these suppliers. While we generally attempt to keep our inventory at minimal levels, we purchase incremental inventory as circumstances warrant to protect our supply chain.

Backlog

We manufacture products based on forecasts of our customers’ demand and advance non-binding commitments from customers as to future purchases. Our customers generally do not place purchase orders far in advance. A substantial portion of our products are sold on the basis of standard purchase orders that are cancellable prior to shipment without penalty. Accordingly, backlog at any given time is not a meaningful indicator of future sales.

Human Resource Capital

Our team members share our commitment to improving the human condition and, in turn, Standard BioTools strives to create an environment where our people can do their best work. We know that our employees, who supply the ideas, energy, and innovation that powers our business, are amongst some of Standard BioTools’ valued assets.

We are a values-driven organization. We believe strong shared values are essential for Standard BioTools to evolve and grow and to be successful for the long-term. Our values form our relationships with customers, suppliers, investors and each other. They help us to model respect and inclusiveness in our words and actions. Our core values conceived and developed by our employees are:

- Customer commitment
- Integrity
- Respect
- Continuous improvement

A Diverse Global Workforce

As of December 31, 2022, Standard BioTools had 523 employees worldwide, 45% of whom were female. In the United States, 35% of our employees were female as of December 31, 2022. None of our employees are represented by a labor union nor are they subject to a collective bargaining agreement.

The table below provides an overview of our employees by function, geographic location, and gender as of December 31, 2022:

	United States	Canada	Singapore	Other	Total	Male	Female	Total
Manufacturing	5	64	59	—	128	63	65	128
Research and Development	23	64	12	—	99	68	31	99
Sales and Marketing	67	27	7	89	190	107	83	190
General and Administration	38	25	37	6	106	49	57	106
Total	133	180	115	95	523	287	236	523

Compensation and Benefits

The primary goal of our compensation program is to ensure that we attract, hire, and retain talented and highly skilled team members who are motivated to achieve or exceed our corporate goals.

We offer competitive total reward packages comprising various elements including market-driven base pay, short- and long-term incentives in the form of performance-based cash and equity, as well as comprehensive health and welfare benefits that include medical, dental, vision, group life, disability, and accidental death and dismemberment insurance, as well as our 401(k) or comparable non-U.S. retirement plans, subject to applicable law. We also provide vacation and other paid holidays to all employees at levels that we believe are comparable to those provided at peer companies.

Our intention is to align our compensation practices with the changing marketplace. By doing so, we strive to provide incentives to our team members to achieve short-term and long-term business goals, ensuring they feel rewarded for their performance and contributions.

Professional Development

In addition to providing attractive and competitive total rewards packages, Standard BioTools believes in fostering individual and organizational effectiveness by offering our team members a variety of professional development programs. These programs are designed to:

- inform, educate, and inspire our people to reach their professional goals;
- provide professional growth opportunities in different, easily accessible ways to accommodate diverse learning styles, including via classroom/live instructor-led trainings, online/e-learning modules, webinar/virtual trainings, blended learning, and professional coaching;
- provide individuals and the organization with the knowledge and skills to respond effectively to customer needs as well as current and future business demands; and
- provide ongoing support to the organization’s development efforts.

Diversity and Inclusion

At Standard BioTools, our commitment to diversity, inclusion and equity is reflective of our values. We believe that we are strongest when we embrace all forms of diversity, and that it is essential to seek out diverse, innovative ideas and foster an inclusive culture where all colleagues are respected and engaged. We endeavor to apply this commitment to diversity to every aspect of the employee experience, from recruitment to development, training and advancement.

Corporate and Available Information

We were incorporated in California in May 1999 as Mycometrix Corporation, changed our name to Fluidigm Corporation in April 2001, and reincorporated in Delaware in July 2007. On April 1, 2022, the Company changed its name from Fluidigm Corporation to Standard BioTools Inc. Our principal executive offices are located at Two Tower Place, South San Francisco, California 94080. Our telephone number is (650) 266-6000. Our website address is www.standardbio.com. We make available on our website, free of charge, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission (SEC). Our SEC reports can be accessed through the investor relations page of our website located at http://investors.standardbio.com. The SEC also maintains an internet site at www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

The contents of our website are not a part of, and are not incorporated by reference into, this Annual Report on Form 10-K or any other report or document we file with the SEC. Any reference to our website is intended to be an inactive textual reference only.

We intend to use our website, www.standardbio.com as a means of disclosing material non-public information and for complying with our disclosure obligations under SEC Regulation FD. Such disclosures will be included on our website under “About> Investors.” Accordingly, investors should monitor the “Investors” section of our website, in addition to following our press releases, SEC filings, and public conference calls and webcasts.

Item 1A. Risk Factors

We operate in a rapidly changing environment that involves numerous uncertainties and risks. The following risks and uncertainties may have a material and adverse effect on our business, financial condition, or results of operations. You should consider these risks and uncertainties carefully, together with all of the other information included or incorporated by reference in this annual report on Form 10-K. The risks described below are not the only ones we face. Our business is also subject to the risks that affect many other companies, such as employment relations, general economic conditions, global sociopolitical events and international operations. Further, additional risks not currently known to us or that we currently believe are immaterial may in the future materially and adversely affect our business, operations, liquidity and stock price. If any of these risks occur, our business, results of operations, or financial condition could suffer, the trading price of our securities could decline, and you may lose all or part of your investment.

Summary of Risk Factors

Risks Related to our Business, Industry, and Strategy

- Our financial results and revenue growth rates have varied significantly from quarter-to-quarter and year-to-year, and may not be consistent with expectations.
- If we engage in future acquisitions or strategic collaborations, our capital requirements may increase, our stockholders may be diluted, we may incur debt or assume contingent liabilities, and we may be subject to other risks.
- We have incurred losses since inception, and we may continue to incur substantial losses for the foreseeable future.
- The ongoing COVID-19 pandemic, a potential domestic and global recession, and related supply chain issues may adversely affect our business operations.
- Market opportunities may not develop as we expect.
- The life science markets are highly competitive and subject to rapid technological change.
- If our research and product development efforts do not result in commercially viable products within anticipated timelines, if at all, our business and results of operations will be adversely affected.
- Our future success is dependent upon our ability to expand our customer base and introduce new applications.
- If our products fail to achieve and sustain sufficient market acceptance, our revenue will be adversely affected.
- If we fail to achieve the expected financial and operational benefits of our recently announced restructuring plan and other strategic initiatives, our business and financial results may be harmed.
- The planned implementation of a new company-wide enterprise resource planning (ERP) system could adversely affect our business.
- Our business growth strategy involves the potential for significant acquisitions, and our operating results and prospects could be harmed if we are unable to integrate future acquisitions successfully.

Risks Related to Operations and Reliance on Third Parties

- We may experience development or manufacturing problems or delays.
- Our business depends on research and development spending levels of our customers.
- Disruption of our manufacturing facilities or other operations, or in the operations of our customers or business partners, could result in cancellation of orders, delays in deliveries or other business activities, or loss of customers.
- We rely on single and sole source suppliers for some of the components and materials used in our products.
- We may not be able to convert our orders in backlog into revenue.
- Any disruption or delay in the shipping or off-loading of our products may have an adverse effect on our financial condition and results of operations.
- Our business operations depend upon the continuing efforts of our management team and other skilled and experienced personnel.
- Our distribution capabilities and direct sales, field support, and marketing forces must be sufficient to meet our customers' needs.
- To use our analytical systems, customers typically need to purchase specialized reagents.
- Security breaches, loss of data, cyberattacks, and other IT failures could adversely affect our business.

Risks Related to Quality and the Regulatory Environment

- Our products could have defects or errors.
- To the extent we elect to label and promote any of our products as medical devices, we would be required to obtain prior approval or clearance by the U.S. Food and Drug Administration (FDA) or comparable foreign regulatory authority.
- Compliance or the failure to comply with current and future regulations affecting our products and business operations worldwide could cause us significant expense and adversely impact our business.

Risks Related to Economic Conditions and Operating a Global Business

- We generate a substantial portion of our revenue internationally and our international business exposes us to additional business, regulatory, political, operational, financial, and economic risks.
- Adverse conditions in the global economy may significantly harm our revenue, profitability, and results of operations.
- We are subject to fluctuations in the exchange rate of the U.S. dollar and foreign currencies.

Financial, Tax, and Accounting Risks

- Our future capital needs are uncertain and we may need to raise additional funds in the future.
- Any failure to maintain effective internal control over financial reporting could adversely affect our business.
- We may not realize the value of our goodwill or other intangible assets.
- If we fail to comply with the covenants and other obligations under our debt facilities, the lenders may be able to accelerate amounts owed under the facilities and, in the case of our Credit Facility (as defined below), may foreclose upon the assets securing our obligations.
- We are subject to risks related to taxation in multiple jurisdictions.
- We have a significant amount of outstanding indebtedness.

Risks Related to Intellectual Property

- Our ability to protect our intellectual property and proprietary technology is uncertain.
- We may be involved in lawsuits to protect or enforce our patents and proprietary rights.
- We may be subject to damages resulting from claims that we or our employees have wrongfully used or disclosed alleged trade secrets.
- We depend on certain technologies that are licensed to us.
- We are subject to certain manufacturing restrictions related to licensed technologies that were developed with the financial assistance of U.S. governmental grants.
- We are subject to certain obligations and restrictions relating to technologies developed in cooperation with Canadian government agencies.

Risks Related to Our Common Stock

- Our stock price is volatile.
- Future sales of our common stock in the public market could cause our stock price to fall.
- If securities or industry analysts publish unfavorable research about us, or if they commence coverage of us and then cease to cover us, our stock price and/or trading volume could decline.
- Any conversions of our 2014 Notes or 2019 Notes (each as defined below) will dilute the ownership interest of our existing stockholders.

Risks Related to our Capital Structure

- The holders of our Series B Preferred Stock (as defined below) own a significant portion of our total outstanding voting securities and may prevent other stockholders from influencing material corporate decisions.
- The market value of our common stock could decline if the holders of our Series B Preferred Stock sell their shares.
- The holders of our Series B Preferred Stock may exercise influence over us, including through their ability to designate members of our board of directors.

RISKS RELATED TO OUR BUSINESS, INDUSTRY, AND STRATEGY

Our financial results and revenue growth rates have varied significantly from quarter-to-quarter and year-to-year due to a number of factors, and a significant variance in our operating results or rates of growth from our financial guidance or market expectations, if any, could lead to substantial volatility in our stock price.

Our revenue, results of operations, and revenue growth rates have varied in the past and may continue to vary significantly from quarter-to-quarter or year-to-year. We may experience substantial variability in our product mix from period-to-period as revenue from sales of our instruments relative to sales of our consumables may fluctuate or deviate significantly from expectations. We may be unable to achieve revenue growth in future periods similar to some past years. Variability in our quarterly or annual results of operations, mix of product revenue, or rates of revenue growth, if any, may lead to volatility in our stock price as research analysts and investors respond to these fluctuations. These fluctuations are due to numerous factors that are difficult to forecast, including:

- fluctuations in demand for our products;
- changes in customer budget cycles, capital spending, and the availability of VAT and import tax exemptions;
- seasonal variations in customer operations;
- tendencies among some customers to defer purchase decisions to the end of the quarter;
- the large unit value of our systems, particularly our proteomics systems;
- changes in our pricing and sales policies or the pricing and sales policies of our competitors;
- our ability to design, manufacture, market, sell, and deliver products to our customers in a timely and cost-effective manner;
- our ability to timely obtain adequate quantities of the materials or components used in our products, which in certain cases are purchased through sole and single source suppliers;
- staffing shortages, lack of skilled labor, increased turnover, and competitive job markets;
- fluctuations or reductions in revenue from sales of legacy instruments that may have contributed significant revenue in prior periods;
- quality control or yield problems in our manufacturing operations;
- new product introductions and enhancements by us and our competitors;
- unanticipated increases in costs or expenses;
- our complex, variable and, at times, lengthy sales cycle;
- trade restrictions and government protectionism;
- global economic conditions; and
- fluctuations in foreign currency exchange rates.

Additionally, we have certain customers who have historically placed large orders in multiple quarters during a calendar year. A significant reduction in orders from one or more of these customers could adversely affect our revenue and operating results, and if these customers defer or cancel purchases or otherwise alter their purchasing patterns, our financial results and actual results of operations could be significantly impacted. Similarly, the loss of one or more key customers, or the inability of any such customer to pay amounts owing to us, could materially and adversely affect our business, financial performance and results of operations. Other unknown or unpredictable factors also could harm our results.

In addition, inflationary pressure, including as a result of supply shortages, has adversely impacted and could continue to adversely impact our financial results. Our operating costs have increased, and may continue to increase, due to the recent growth in inflation. We may not fully offset these cost increases by raising prices for our products and services, which could result in downward pressure on our margins. Further, our customers may choose to reduce their business with us if we increase our pricing.

The foregoing factors, as well as other factors, could materially and adversely affect our quarterly and annual results of operations and rates of revenue growth, if any. We have experienced significant revenue growth in the past but we may not achieve similar growth rates in future periods. You should not rely on our operating results for any prior quarterly or annual period as an indication of our future operating performance. If we are unable to achieve adequate revenue growth, our operating results could suffer and our stock price could decline. In addition, a significant amount of our operating expenses is relatively fixed due to our manufacturing, research and development, and sales and general administrative efforts. Any

failure to adjust spending quickly enough to compensate for a shortfall relative to our anticipated revenue could magnify the adverse impact of such shortfalls on our results of operations. We expect that our sales will continue to fluctuate on an annual and quarterly basis and that our financial results for some periods may be below market expectations or projections of securities analysts, which could significantly decrease the price of our common stock.

If we engage in future acquisitions or strategic collaborations, our capital requirements may increase, our stockholders may be diluted, we may incur debt or assume contingent liabilities, and we may be subject to other risks.

We may evaluate various acquisitions and strategic collaborations, including licensing or acquiring complementary products, intellectual property rights, technologies, or businesses. Any potential acquisition or strategic collaborations may entail numerous risks, including:

- increased operating expenses and cash requirements;
- the assumption of additional indebtedness or contingent liabilities;
- the issuance of our equity securities;
- the diversion of our management's attention from our existing product programs and initiatives in pursuing such a strategic merger or acquisition;
- risks and uncertainties associated with the other party to such a transaction, including the prospects of that party, their regulatory compliance status, and their existing products or product candidates and marketing approvals; and
- our inability to generate revenue from acquired technology or products sufficient to meet our objectives in undertaking the acquisition or even to offset the associated acquisition and maintenance costs.

If we undertake acquisitions, we may issue dilutive securities, assume or incur debt obligations, incur large one-time expenses and acquire intangible assets that could result in significant future amortization expense. Moreover, we may not be able to locate suitable acquisition opportunities and this inability could impair our ability to grow or obtain access to technology or products that may be important to the development of our business. Any of the foregoing may materially harm our business, financial condition, results of operations, stock price and prospects.

We have incurred losses since inception, and we may continue to incur substantial losses for the foreseeable future.

We have incurred significant losses in each fiscal year since our inception, including net losses of $190.1 million and $59.2 million during the years 2022 and 2021, respectively. As of December 31, 2022, we had an accumulated deficit of $926.1 million. These losses have resulted principally from costs incurred in our research and development programs, and from our manufacturing costs and selling, general, and administrative expenses. To date, we have funded our operations primarily through equity offerings, the issuance of debt instruments, and from sales of our products. Until we are able to generate additional revenue to support our level of operating expenses, we will continue to incur operating and net losses and negative cash flow from operations and may have to seek additional financing.

While we plan to reduce our general and administrative spend and levels of investment in microfluidics research and development and marketing as part of the restructuring plan that we announced in August 2022, our cost restructuring efforts may not result in the anticipated savings or other economic benefits, or could result in total costs and expenses that are greater than expected, and there is no guarantee that our post-restructuring focus will be sufficient for us to achieve success. Consequently, we may incur operating losses for the foreseeable future and may never achieve profitability.

The ongoing COVID-19 pandemic has adversely impacted, and may continue to impact the global economy and disrupt our operations and related supply chain, which may have an adverse effect on our results of operations.

COVID-19 has impacted and may further impact the global economy and could have additional impacts on economic growth, the proper functioning of financial and capital markets, foreign currency exchange rates and interest rates. The pandemic has resulted in authorities around the world implementing numerous unprecedented measures such as travel restrictions, quarantines, shelter in place orders, vaccine mandates and facility shutdowns. These measures have impacted, and may continue to impact our workforce, operations and supply chains, and those of our customers, contract manufacturers and suppliers, particularly in the event of a significant global resurgence of the illness or similar global health crisis. There is considerable uncertainty regarding the duration, scope and severity of the pandemic and the impacts on our business and the global economy from the effects of the ongoing pandemic and response measures.

Market opportunities may not develop as we expect, limiting our ability to successfully sell our products, or our product development and strategic plans may change and our entry into certain markets may be delayed, if it occurs at all.

The application of our technologies to high-throughput genomics, single-cell genomics and, particularly, mass cytometry applications are in many cases emerging market opportunities. We believe these opportunities will take several years to develop or mature and we cannot be certain that these market opportunities will develop as we expect. The future growth of our markets and the success of our products depend on many factors beyond our control, including recognition and acceptance by the scientific community, and the growth, prevalence, and costs of competing methods of genetic and protein analysis. Additionally, our success depends on the ability of our sales organization to successfully sell our products into these new markets. If we are not able to successfully market and sell our products, or to achieve the revenue or margins we expect, our operating results may be harmed and we may not recover our product development and marketing expenditures. In addition, our product development and strategic plans may change, which could delay or impede our entry into these markets.

The life science markets are highly competitive and subject to rapid technological change, and we may not be able to successfully compete.

The markets for our products are characterized by rapidly changing technology, evolving industry standards, changes in customer needs, emerging competition, new product introductions, and strong price competition. We compete with both established and development stage life science research companies that design, manufacture, and market instruments and consumables for gene expression analysis, single-cell targeted gene expression and protein expression analysis, single nucleotide polymorphism (SNP) genotyping, quantitative polymerase chain reaction (qPCR), digital PCR, flow cytometry, tissue imaging, and additional applications using well established laboratory techniques, as well as newer technologies such as bead encoded arrays, microfluidics, next-generation DNA sequencing (NGS), microdroplets, spatial protein expression, and photolithographic arrays. Most of our current competitors have significantly greater name recognition, greater financial and human resources, broader product lines and product packages, larger sales forces, larger existing installed bases, larger intellectual property portfolios, and greater experience and scale in research and development, manufacturing, and marketing than we do.

We consider Agilent Technologies, Inc., Thermo Fisher Scientific Inc. (Thermo), Bio-Rad Laboratories, Inc., and Mesa Laboratories, Inc. (formerly Agena Bioscience, Inc.) to be our principal competitors in the Genomics space. We believe that Cytek Biosciences, Inc. and Becton, Dickinson and Company are currently our principal competitors in Flow Cytometry, and that Akoya Biosciences, Inc., NanoString Technologies, Inc., and 10x Genomics, Inc. are our principal competitors in Spatial Biology. While the aforementioned principal competitors are the largest and most prevalent in their representative technology areas, the combined markets in which we compete have an additional 10 to 20 smaller competitors with competing approaches and technologies that we routinely face in selling situations.

Competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards, or customer requirements. In light of these advantages, even if our technology is more effective than the product or service offerings of our competitors, current or potential customers might accept competitive products and services in lieu of purchasing our technology. We anticipate that we will continue to face increased competition in the future as existing companies and competitors develop new or improved products and as new companies enter the market with new technologies. Increased competition is likely to result in pricing pressures, which could reduce our profit margins and increase our sales and marketing expenses. In addition, mergers, consolidations, or other strategic transactions between two or more of our competitors, or between our competitor and one of our key customers, could change the competitive landscape and weaken our competitive position, adversely affecting our business.

If our research and product development efforts do not result in commercially viable products within anticipated timelines, if at all, our business and results of operations will be adversely affected.

Our business is dependent on the improvement of our existing products, our development of new products to serve existing markets, and our development of new products to create new markets and applications that were previously not practical with existing systems. We have developed design rules for the implementation of our technology that are frequently revised to reflect new insights we have gained about the technology. In addition, we have discovered that biological or chemical reactions sometimes behave differently when implemented on our systems rather than in a standard laboratory environment. Furthermore, many such reactions take place within the confines of single cells, which have also demonstrated unexpected behavior when grown and manipulated within microfluidic environments. As a result, research

and development efforts may be required to transfer certain reactions and cell handling techniques to our systems. In the past, product development projects have been significantly delayed when we encountered unanticipated difficulties in implementing a process on our systems. We may have similar delays in the future, and we may not obtain any benefits from our research and development activities. Any delay or failure by us to develop and release new products or product enhancements would have a substantial adverse effect on our business and results of operations.

Our future success is dependent upon our ability to expand our customer base and introduce new applications.

Our customer base is primarily composed of academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, biopharmaceutical, biotechnology, and plant and animal research companies, and contract research organizations that perform analyses for research and commercial purposes. Our success will depend, in part, upon our ability to increase our market share among these customers, attract additional customers outside of these markets, and market new applications to existing and new customers as we develop such applications. Attracting new customers and introducing new applications require substantial time and expense. For example, it may be difficult to identify, engage, and market to customers who are unfamiliar with the current applications of our systems. Any failure to expand our existing customer base or launch new applications would adversely affect our ability to increase our revenue.

If our products fail to achieve and sustain sufficient market acceptance, our revenue will be adversely affected.

Our success depends on our ability to develop and market products that are recognized and accepted as reliable, enabling and cost-effective. Most of our potential customers already use expensive research systems in their laboratories and may be reluctant to replace those systems. Market acceptance of our systems will depend on many factors, including our ability to convince potential customers that our systems are an attractive alternative to existing technologies. Compared to some competing technologies, our technology is relatively new, and most potential customers have limited knowledge of, or experience with, our products. Prior to adopting our systems, some potential customers may need to devote time and effort to testing and validating our systems. Any failure of our systems to meet these customer benchmarks could result in customers choosing to retain their existing systems or to purchase systems other than ours, and revenue from the sale of legacy instruments that may have contributed significant revenue in prior periods may decrease.

In addition, it is important that our systems be perceived as accurate and reliable by the scientific and medical research community as a whole. Historically, a significant part of our sales and marketing efforts has been directed at convincing industry leaders of the advantages of our systems and encouraging such leaders to publish or present the results of their evaluation of our systems. If we are unable to continue to induce leading researchers to use our systems, or if such researchers are unable to achieve and publish or present significant experimental results using our systems, acceptance and adoption of our systems will be slowed and our ability to increase our revenue would be adversely affected.

We may not be able to develop new products or enhance the capabilities of our existing systems to keep pace with rapidly changing technology and customer requirements, which could have a material adverse effect on our business, revenue, financial condition, and operating results.

Our success depends on our ability to develop new products and applications for our technology in existing and new markets, while improving the performance and cost-effectiveness of our systems. New technologies, techniques, or products could emerge that might offer better combinations of price and performance than our current or future product lines and systems. Existing markets for our products, including high-throughput genomics, single-cell genomics and mass cytometry, as well as potential markets for our products such as high-throughput NGS and molecular applications, are characterized by rapid technological change and innovation. It is critical to our success for us to anticipate changes in technology and customer requirements and to successfully introduce new, enhanced, and competitive technology to meet our customers' and prospective customers' needs on a timely and cost-effective basis. Developing and implementing new technologies typically involve substantial development costs and we may not have adequate resources available to be able to successfully introduce new applications of, or enhancements to, our systems. We cannot guarantee that we will be able to maintain technological advantages over emerging technologies in the future. While we typically plan improvements to our systems, we may not be able to successfully implement these improvements. If we fail to keep pace with emerging technologies, demand for our systems will not grow and may decline, and our business, revenue, financial condition, and operating results could suffer materially. In addition, if we introduce enhanced systems but fail to manage product transitions effectively, customers may delay or forgo purchases of our systems and our operating results may be adversely affected by product obsolescence and excess inventory. Even if we successfully implement some or all of these planned improvements, we cannot guarantee that our current and potential customers will find our enhanced systems to be an attractive alternative to existing technologies, including our current products.

If we fail to achieve the expected financial and operational benefits of our recently announced restructuring plan and other strategic initiatives, our business and financial results may be harmed.

From time to time, we have implemented efficiency and cost-savings initiatives intended to stabilize our business operations. In August 2022, we announced a restructuring plan including reduction in force. In addition to the reduction in force, we will also seek to reduce leased office space and other operating expenses. In August 2022, we entered into an operating agreement to sublease approximately 25% of our corporate headquarters location in South San Francisco. The purpose of the restructuring plan is to improve operational efficiency, reduce operating costs and better align our workforce with the current needs of our business. There is no guarantee that the restructuring plan will achieve its intended benefits and cost savings or that our post-restructuring focus will be sufficient for us to achieve success. For example, our cost restructuring efforts may not result in the anticipated savings or other economic benefits, or could result in total costs and expenses that are greater than expected, which could require us to seek potentially dilutive financing alternatives, disrupt or restrain the scope of our business activities, and would make it more difficult to attract and retain qualified personnel, each of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Similarly, changes in our commercial and strategic focus and allocation of resources contemplated by the restructuring plan, including reductions in our levels of investment in microfluidics research and development and marketing, as well as implementation of our other strategic initiatives, may be unsuccessful or result in unanticipated risks or other unintended consequences for our business, any of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks associated with implementing a company-wide enterprise resource planning (ERP) system could adversely affect our business and results of operations or the effectiveness of internal control over financial reporting.

We are preparing to implement a new company-wide ERP system in 2023 to handle the business and financial processes within our operations and corporate functions. ERP implementations are complex and time-consuming projects that involve substantial expenditures on system software and implementation activities that can continue for several years. ERP implementations also require transformation of business and financial processes in order to reap the benefits of the ERP system. Our business and results of operations may be adversely affected if we experience operating problems and/or cost overruns during the ERP implementation process, or if the ERP system and the associated process changes do not give rise to the benefits that we expect. Additionally, if we do not effectively implement the ERP system as planned or if the system does not operate as intended, our business, results of operations, and internal controls over financial reporting could be adversely affected.

Our business growth strategy involves the potential for significant acquisitions, and our operating results and prospects could be harmed if we are unable to integrate future acquisitions successfully.

We may acquire other businesses to improve our product offerings or expand into new markets. Our future acquisition strategy will depend on our ability to identify, negotiate, complete, and integrate acquisitions and, if necessary, to obtain satisfactory debt or equity financing to fund those acquisitions. Mergers and acquisitions are inherently risky, and any transaction we complete may not be successful. Any merger or acquisition we may pursue would involve numerous risks, including but not limited to the following:

- difficulties in integrating and managing the operations, technologies, and products of the companies we acquire;
- diversion of our management's attention from normal daily operation of our business;
- our inability to maintain the key business relationships and the reputations of the businesses we acquire;
- our inability to retain key personnel of the acquired company;
- uncertainty of entry into markets in which we have limited or no prior experience and in which competitors have stronger market positions;
- our dependence on unfamiliar affiliates and customers of the companies we acquire;
- insufficient revenue to offset our increased expenses associated with acquisitions;
- our responsibility for the liabilities of the businesses we acquire, including those which we may not anticipate;
- our inability to generate revenue from acquired technology or products sufficient to meet our objectives in undertaking the acquisition or even to offset the associated acquisition and maintenance costs;
- the possibility that we may not realize the value of acquired assets recorded as goodwill or intangible assets, and would be required to incur material charges relating to the impairment of those assets; and

- our inability to maintain internal standards, controls, procedures, and policies.

We may be unable to secure the equity or debt funding necessary to finance future acquisitions on terms that are acceptable to us. If we finance acquisitions by issuing equity or convertible debt securities, our existing stockholders will likely experience dilution, and if we finance future acquisitions with debt funding, we will incur interest expense and may have to comply with financial covenants and secure that debt obligation with our assets.

RISKS RELATED TO OPERATIONS AND RELIANCE ON THIRD PARTIES

We may experience development or manufacturing problems or delays that could limit the potential growth of our revenue or increase our losses.

We may encounter unforeseen situations in the manufacturing and assembly of our products that would result in delays or shortfalls in our production. For example, our production processes and assembly methods may have to change to accommodate any significant future expansion of our manufacturing capacity, which may increase our manufacturing costs, delay production of our products, reduce our product margin, and adversely impact our business. Conversely, if demand for our products shifts such that a manufacturing facility is operated below its capacity for an extended period, we may adjust our manufacturing operations to reduce fixed costs, which could lead to uncertainty and delays in manufacturing times and quality during any transition period.

Additionally, all of our integrated fluidic circuits (IFCs) for commercial sale are manufactured at our facility in Singapore. Production of the elastomeric block that is at the core of our IFCs is a complex process requiring advanced clean rooms, sophisticated equipment, and strict adherence to procedures. Any contamination of the clean room, equipment malfunction, or failure to strictly follow procedures can significantly reduce our yield in one or more batches. We have in the past experienced variations in yields due to such factors. A drop in yield can increase our cost to manufacture our IFCs or, in more severe cases, require us to halt the manufacture of our IFCs until the problem is resolved. Identifying and resolving the cause of a drop in yield can require substantial time and resources.

Furthermore, developing an IFC for a new application may require developing a specific production process for that type of IFC. While all of our IFCs are produced using the same basic processes, significant variations may be required to ensure adequate yield of any particular type of IFC. Developing such a process can be time consuming, and any unexpected difficulty in doing so can delay the introduction of a product.

If our manufacturing activities are adversely impacted, or if we are otherwise unable to keep up with demand for our products by successfully manufacturing, assembling, testing, and shipping our products in a timely manner, our revenue could be impaired, market acceptance for our products could be adversely affected and our customers might instead purchase our competitors' products.

Our business depends on research and development spending levels of our customers, a reduction in which could limit our ability to sell our products and adversely affect our business.

We expect that our revenue in the foreseeable future will continue to be derived primarily from sales of our systems, IFCs, assays, and reagents to academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, biopharmaceutical, biotechnology, and plant and animal research companies, and contract research organizations worldwide. Our success will depend upon their demand for and use of our products. Accordingly, the spending policies and practices of these customers—which have been impacted by the COVID-19 pandemic and may additionally be impacted by other factors, including a potential domestic and global recession—have had and will continue to have a significant effect on the demand for our technology. These policies may be based on a wide variety of factors, including concerns regarding any future federal government budget sequestrations, the availability of resources to make purchases, the spending priorities among various types of equipment, policies regarding spending during recessionary periods, tariffs and trade restrictions, and changes in the political climate. In addition, academic, governmental, and other research institutions that fund research and development activities may be subject to stringent budgetary constraints that could result in spending reductions, reduced allocations, or budget cutbacks, which could jeopardize the ability of these customers to purchase our products. Our operating results have fluctuated and may continue to fluctuate substantially due to reductions and delays in research and development expenditures by our customers. For example, reductions in operating expenditures by global academic research facilities have resulted in lower than expected sales of our mass cytometry instruments. Additionally, the imposition of tariffs and delays in issuing VAT and import tax exemptions have adversely

affected the sales of our products in China. Similar reductions and delays in customer spending have resulted and may continue to result from other factors that are not within our control, such as:

- changes in economic conditions;
- natural disasters or public health crises;
- changes in government programs that provide funding to research institutions and companies;
- macroeconomic conditions and the political climate;
- governmental protectionism, the escalation of tariffs and other trade barriers;
- availability of tax permits and incentives, including VAT and import tax exemptions;
- changes in the regulatory environment affecting life science and plant and animal research companies engaged in research and commercial activities;
- changes in our customers' research priorities;
- differences in budget cycles across various geographies and industries;
- personnel shortages among our customers;
- market-driven pressures on companies to consolidate operations and reduce costs;
- mergers and acquisitions in the life science and plant and animal research industries; and
- other factors affecting research and development spending.

Any decrease in our customers' budgets or expenditures or in the size, scope, or frequency of capital or operating expenditures, as well as any increase in local tariffs could materially and adversely affect our operations or financial condition.

If one or more of our manufacturing facilities become unavailable or inoperable, we will be unable to continue manufacturing our instruments, IFCs, assays and/or reagents and, as a result, our business will be harmed until we are able to secure a new facility.

We manufacture our microfluidics analytical and preparatory instruments and IFCs for commercial sale at our facility in Singapore and our mass cytometry instruments, assays, and reagents for commercial sale at our facility in Canada. No other manufacturing facilities are currently available to us, particularly facilities of the size and scope of our Singapore and Canada operations. Our facilities and the equipment we use to manufacture our instruments, IFCs, assays, and reagents would be costly to replace and could require substantial lead times to repair or replace. Our facilities may be harmed or rendered inoperable by natural or man-made disasters, which may render it difficult or impossible for us to manufacture our products for some period of time. If any of our facilities become unavailable to us, we cannot provide assurances that we will be able to secure a new manufacturing facility on acceptable terms, if at all. The inability to manufacture our products, combined with our limited inventory of manufactured supplies, may result in the loss of customers or harm our reputation, and we may be unable to reestablish relationships with those customers in the future. Although we possess insurance for damage to our property and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all. If our manufacturing capabilities are impaired, we may not be able to manufacture and ship our products in a timely manner, which would adversely impact our business.

Disruption of our manufacturing facilities or other operations, or in the operations of our customers or business partners, due to earthquake, flood, other natural catastrophic events, public health crises, or terrorism could result in cancellation of orders, delays in deliveries or other business activities, or loss of customers and could seriously harm our business.

We have significant manufacturing operations in Singapore and Canada and operations in the United States. In addition, our business is international in nature, with our sales, service and administrative personnel and our customers located in numerous countries throughout the world. Operations at our manufacturing facilities and our subcontractors, as well as our other operations and those of our customers, are subject to disruption for a variety of reasons, including work stoppages, acts of war, terrorism, public health crises, fire, earthquake, volcanic eruptions, energy shortages, flooding, or other natural disasters. Such disruption could cause delays in, among other things, shipments of products to our customers, our ability to perform services requested by our customers, or the installation of our products at customer sites.

We cannot provide any assurance that alternate means of conducting our operations (whether through alternate production capacity or service providers or otherwise) would be available if a major disruption were to occur or that, if such alternate means were available, they could be obtained on favorable terms.

We rely on a limited number of third-party suppliers for some of the components and materials used in our products, and the loss of any of these suppliers, or delays or problems in the supply of components and materials could harm our business.

We rely on a limited number of third-party suppliers for certain components and materials used in our products, including single and sole source suppliers. Additionally, certain of our instruments are assembled at the facilities of contract manufacturers in Singapore. We do not have long-term contracts with our suppliers of these components and materials or our assembly service providers. The loss of a single or sole source supplier of any of the following components and/or materials would require significant time and effort to locate and qualify an alternative source of supply, if at all:

- The IFCs used in our microfluidic systems are fabricated using a specialized polymer, and other specialized materials, that are available from a limited number of sources. In the past, we have encountered quality issues that have reduced our manufacturing yield or required the use of additional manufacturing processes.
- The electron multiplier detector included in the Hyperion/Hyperion+/CyTOF/CyTOF XT systems and certain metal isotopes used with the Hyperion/Hyperion+/CyTOF/CyTOF XT systems are purchased from sole source suppliers.
- The raw materials for our Delta Gene and SNP Type assays and Access Array target-specific primers are available from a limited number of sources.

Our reliance on single and sole source suppliers and assembly service providers also subjects us to other risks that could harm our business, including the following:

- we may be subject to increased component or assembly costs; and
- we may not be able to obtain adequate supply or services in a timely manner or on commercially reasonable terms, if at all.

If, as a result of global economic or political instability, such as the ongoing escalation of the situation in Ukraine, or health pandemics, our suppliers experience shortages or delays for materials sourced or manufactured in the affected countries, their ability to supply us with instruments or product components may be affected. If any of these events occur, our business and operating results could be harmed. In connection with the global supply chain disruptions following the onset of the COVID-19 pandemic, we have experienced and are continuing to experience problems with some of our suppliers. In the third quarter of 2021, shortages of certain components caused a backlog and we were unable to fulfill all of the demand for our products during the quarter. We have in the past experienced supply issues, as well as quality control problems such as manufacturing errors, with some of our suppliers, and may again experience problems in the future. We may not be able to quickly establish additional or replacement suppliers, particularly for our single source components, or assembly service providers. Any continued or future interruption or delay in the supply of components or materials or assembly of our instruments, or our inability to obtain components, materials, or assembly services from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers and cause them to cancel orders or switch to competitive products, which would harm our business. Additionally, in response to a surge in COVID-19 infections in the first half of 2022, the Chinese government imposed lockdowns in certain parts of the country that have negatively impacted and continue to negatively impact manufacturing and/or supply chains.

We may not be able to convert our orders in backlog into revenue.

Our backlog represents product orders from our customers that we have confirmed but have not been able to fulfill, and, accordingly, for which we have not yet recognized revenue. We may not receive revenue from these orders, and any order backlog we report may not be indicative of our future revenue.

Many events can cause an order to be delayed or not completed at all, some of which may be out of our control, including the potential impacts from the COVID-19 pandemic and our suppliers not being able to provide us with products or components. If we delay fulfilling customer orders or if customers reconsider their orders, those customers may seek to cancel or modify their orders with us. Customers may otherwise seek to cancel or delay their orders even if we are prepared to fulfill them. If our orders in backlog do not result in sales, our operating results may suffer.

Any disruption or delay in the shipping or off-loading of our products, whether domestically or internationally, may have an adverse effect on our financial condition and results of operations.

We rely on shipping providers to deliver products to our customers globally. Labor, tariff, or World Trade Organization-related disputes, piracy, physical damage to shipping facilities or equipment caused by severe weather or terrorist incidents, congestion at shipping facilities, complications related to public health crises (including the ongoing COVID-19 pandemic), inadequate equipment to load, dock, and offload our products, energy-related tie-ups, or other factors could disrupt or delay shipping or off-loading of our products domestically and internationally. Such disruptions or delays may have an adverse effect on our financial condition and results of operations.

Our business operations depend upon the continuing efforts of our management team and other skilled and experienced personnel, and if we are unable to retain them or to recruit and train new key executives, scientists, and technical support personnel, we may be unable to achieve our goals.

Our success depends largely on the skills, experience, and performance of our management team and scientific and technical support personnel. The loss of the services of certain members of our management team or our scientific or technical support staff might significantly delay or prevent the development of our products or achievement of other business objectives by diverting management's attention to transition matters and identification of suitable replacements, and staffing shortages could also negatively impact our ability to expand and scale functions that are needed to support the development of our products and the growth of our business. Our research and product development efforts could also be delayed or curtailed if we are unable to attract, train, and retain highly skilled employees, particularly senior scientists and engineers. Competition for qualified senior management and key employees in our industry is intense. We have experienced increased turnover at all levels since the start of the COVID-19 pandemic and general labor shortages in various areas of our business, all of which could have a material adverse impact on our business. We may need to increase employee wages and benefits in order to attract and retain the personnel necessary to achieve our goals, and our business, operations, and financial results may suffer if we are unable to do so. Attrition and workforce reductions included in the August 2022 restructuring plan could adversely affect our reputation among job seekers. It may also cause our existing employees to experience distractions or a decrease in employee morale. It could result in a loss of institutional know-how, reduced productivity, slower customer service response, reduced effectiveness of internal compliance and risk-mitigation programs, and cancellations of or delays in completing new product developments and other strategic projects. We do not currently maintain key person life insurance covering any of our employees and all our employees, including our management team, may terminate employment without notice and without cause or good reason.

Additionally, in connection with our research and product development efforts, we need to retain and recruit scientists skilled in areas such as molecular and cellular biology, assay development, engineering physics, and manufacturing. We also need highly trained technical support personnel with the necessary scientific background and ability to understand our systems at a technical level to effectively support potential new customers and the expanding needs of current customers. Competition for these people is intense and we may face challenges in retaining and recruiting such individuals if, for example, our stock price declines, thereby reducing the retention value of equity awards, or our business or technology is no longer perceived as leading in our field. Because of the complex and technical nature of our systems and the dynamic market in which we compete, any failure to attract and retain a sufficient number of qualified employees could materially harm our ability to develop and commercialize our technology.

If our direct sales, field support, and marketing forces and distribution capabilities are not sufficient to adequately address our customers' needs, our business will be adversely affected.

We may not be able to market, sell, and distribute our products effectively enough to support our planned growth. We sell our products primarily through our own sales force and through distributors in certain territories. Our future sales will depend on a number of factors including our ability to execute with our existing team, the scope of our marketing efforts and development of our direct sales force, field application specialists and service engineer teams. Our products are technically complex and used for highly specialized applications. As a result, we believe it is necessary to continue to develop a direct sales force that includes people with specific scientific backgrounds and expertise, and a marketing group with technical sophistication.

In the past year, we have experienced significant changes and increased turnover in our sales and marketing organizations, and we face considerable challenges in recruiting and training qualified replacements. Our future success will depend largely on our ability to recruit, retain, and motivate the skilled sales and marketing force necessary to support our business activities, and any failure to maintain competitive levels of compensation will negatively impact our ability to so.

Because competition for such employees is intense, we can provide no assurance that we will be able to retain them on favorable or commercially reasonable terms, if at all. Failure to attract and retain our current personnel or to build an efficient and effective sales and marketing force would negatively impact sales of our products and reduce our revenue and profitability.

In addition, we may continue to enlist one or more sales representatives and distributors to assist with sales, distribution, and customer support globally or in certain regions of the world. If we do seek to enter into such arrangements, we may not be successful in attracting desirable sales representatives and distributors, or we may not be able to enter into such arrangements on favorable terms. If our sales and marketing efforts, or those of any third-party sales representatives and distributors, are not successful, our technologies and products may not gain market acceptance, which would materially and adversely impact our business operations.

To use our products—our X9, CyTOF, and Hyperion systems in particular—customers typically need to purchase specialized reagents. Any interruption in the availability of these reagents for use in our products could limit our ability to market them.

Our products, and our X9, CyTOF, and Hyperion systems in particular, must be used in conjunction with one or more reagents designed to produce or facilitate the particular biological or chemical reaction desired by the user. Many of these reagents are highly specialized and available to the user only from a single supplier or a limited number of suppliers. Although we sell reagents for use with certain of our products, our customers may purchase these reagents directly from third-party suppliers, and we have no control over the supply of those materials. In addition, our products are designed to work with these reagents as they are currently formulated. We have no control over the formulation of reagents sold by third-party suppliers, and the performance of our products might be adversely affected if the formulation of these reagents is changed. If one or more of these reagents were to become unavailable or were reformulated, our ability to market and sell our products could be materially and adversely affected.

In addition, the use of a reagent for a particular process may be covered by one or more patents relating to the reagent itself, the use of the reagent for the particular process, the performance of that process, or the equipment required to perform the process. Typically, reagent suppliers, who are either the patent holders or their authorized licensees, sell the reagents along with a license or covenant not to sue with respect to such patents. The license accompanying the sale of a reagent often purports to restrict the purposes for which the reagent may be used. If a patent holder or authorized licensee were to assert against us or our customers that the license or covenant relating to a reagent precluded its use with our systems, our ability to sell and market our products could be materially and adversely affected. For example, our X9 system involves real-time quantitative polymerase chain reaction (qPCR) technology. Leading suppliers of reagents for real-time qPCR reactions include Life Technologies Corporation (now part of Thermo) and Roche Diagnostics Corporation, who are our direct competitors, and their licensees. These real-time qPCR reagents are typically sold pursuant to limited licenses or covenants not to sue with respect to patents held by these companies. We do not have any contractual supply agreements for these real-time qPCR reagents, and we cannot assure you that these reagents will continue to be available to our customers for use with our systems, or that these patent holders will not seek to enforce their patents against us, our customers, or suppliers.

Security breaches, loss of data, cyberattacks, and other information technology failures could disrupt our operations, damage our reputation, and adversely affect our business, operations, and financial results.

We are dependent upon our data and information technology systems for the effective operation of our business and for the secure maintenance and storage of confidential data relating to our business and third-party businesses. Our information technology systems may be damaged, disrupted or shut down due to attacks by experienced programmers or hackers who may be able to penetrate our security controls and deploy computer viruses, cyberattacks, phishing schemes, or other malicious software programs, or due to employee error or malfeasance, power outages, hardware failures, telecommunication or utility failures, catastrophes or other unforeseen events, and our system redundancy and other disaster recovery planning may be ineffective or inadequate in preventing or responding to any of these circumstances. Furthermore, there may be a heightened risk of potential cyberattacks by state actors or others since the escalation of the war in Ukraine. Any such compromise of our information technology systems could result in the unauthorized publication of our confidential business or proprietary information and unauthorized release of customer, supplier or employee data, any of which could expose us to a risk of legal claims or proceedings, liability under privacy or other laws, disruption of our operations and damage to our reputation, which could divert our management's attention from the operation of our business and materially and adversely affect our business, revenues and competitive position. In addition, our liability insurance may not be sufficient in type or amount to cover us against claims related to security breaches, cyberattacks and other related breaches. The cost and operational consequences of implementing further data protection measures, either as a response to

specific breaches or as a result of evolving risks, could be significant. In addition, our inability to use or access our information systems at critical points in time could adversely affect the timely and efficient operation of our business. Any delayed sales, significant costs or lost customers resulting from these technology failures could adversely affect our business, operations, and financial results.

We have implemented security controls to protect our information technology infrastructure but, due to the ever-evolving nature of information security threats, we are not fully insulated from technology disruptions that could adversely impact us. For example, in early 2019, we experienced a ransomware attack that infiltrated and encrypted certain of our information technology systems, including systems containing critical business data. Immediately following the attack, actions were taken to recover the compromised systems and we were able to restore their operation without significant loss of business data within weeks. Based on the nature of the attack and its impact on our systems, we believe no confidential data was lost or disclosed. If, however, confidential data were determined to have been released in the course of any future event, it is possible that we could be the subject of actions by governmental authorities or claims from persons alleging they suffered damages from such a release. We believe our mitigation measures and expanded information security program have reduced, but cannot eliminate, the risk of a similar attack, and we anticipate additional work and expense in the future as we continuously improve our security processes and initiatives in response to ever-changing information security challenges.

In addition to risks affecting our own systems, we could also be negatively impacted by a data breach or cyber incident happening to a third party's network and affecting us. Third parties with which we conduct business have access to certain portions of our sensitive data, including information pertaining to our customers and employees. In the event that these third parties do not adequately safeguard our data, security breaches could result and negatively impact our business, operations, and financial results.

Since the beginning of the COVID-19 pandemic, a significant percentage of our employees has been working remotely. As a result, we may have increased cyber security and data security risks, due to increased use of home wi-fi networks and virtual private networks, as well as increased disbursement of physical machines. While we have implemented security controls, updated our policies, and augmented our information security training program to reduce the risk of cyberattacks and security breaches, there is no guarantee that these measures will be adequate to safeguard all systems with the increased number of employees working remotely.

RISKS RELATED TO QUALITY AND THE REGULATORY ENVIRONMENT

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

Our systems utilize novel and complex technology and such systems may develop or contain undetected defects or errors. We cannot assure you that material performance problems, defects, or errors will not arise, and as we increase the density and integration of our systems, these risks may increase. We generally provide warranties that our systems will meet performance expectations and will be free from defects. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins. For example, we have experienced a performance issue with respect to certain IFCs used in our C1 systems due to the presence of more than one cell in an IFC chamber. Although we have redesigned such C1 IFCs, we may experience additional unexpected product defects or errors that could affect our ability to adequately address these performance issues.

In manufacturing our products, including our systems, IFCs, and assays, we depend upon third parties for the supply of various components, many of which require a significant degree of technical expertise to produce. In addition, we purchase certain products from third-party suppliers for resale. If our suppliers fail to produce components to specification or provide defective products to us for resale and our quality control tests and procedures fail to detect such errors or defects, or if we or our suppliers use defective materials or workmanship in the manufacturing process, the reliability and performance of our products will be compromised.

If our products contain defects, we may experience:

- a failure to achieve market acceptance or expansion of our product sales;
- loss of customer orders and delay in order fulfillment;
- damage to our brand reputation;
- increased cost of our warranty program due to product repair or replacement;

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

In addition, certain of our products are marketed for use with products sold by third parties. For example, certain of our systems are marketed as compatible with major NGS instruments. If such third-party products are not produced to specification, are produced in accordance with modified specifications, or are defective, they may not be compatible with our products. In such case, the reliability and performance of our products may be compromised.

The occurrence of any one or more of the foregoing could negatively affect our business, financial condition, and results of operations.

The healthcare industry is highly regulated and if we fail to comply with applicable healthcare laws and regulations, we could suffer fines and penalties or be required to make significant changes to our operations which could have a significant adverse effect on the results of our business operations.

We compete in markets in which we or our customers must comply with federal, state, local and foreign regulations, such as healthcare fraud and abuse, data privacy and medical product laws and regulations. The healthcare industry is subject to extensive and frequently changing international and United States federal, state and local laws and regulations. In addition, federal and state enforcement agencies have substantial powers and remedies to pursue suspected violations under broad laws and regulations relating to healthcare fraud and abuse, interactions and financial arrangements with healthcare professionals or entities, data privacy and misconduct involving government programs or contracts. If we, our employees, collaborators or contractors fail to comply with applicable laws and regulations, we could suffer civil and criminal damages, fines and penalties, exclusion from participation in governmental healthcare programs, and the loss of various licenses and authorizations necessary to operate our business, as well as incur liabilities from third-party claims, all of which could have a significant adverse effect on our business.

To the extent we elect to label and promote any of our non-EUA products as medical devices, we would be required to obtain prior approval or clearance by the FDA or comparable foreign regulatory authority, which could take significant time and expense and could fail to result in a marketing authorization for the intended uses we believe are commercially attractive. Obtaining marketing authorization in one jurisdiction does not mean that we will be successful in obtaining marketing authorization in other jurisdictions where we conduct business.

The products we currently sell are labeled, promoted and sold to academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, contract research organizations, and biopharmaceutical, biotechnology, and plant and animal research companies as “research use only” (RUO), and are not designed, or intended to be used, for clinical diagnostic tests or as medical devices as currently marketed. If we elect to label and market our products for use as, or in the performance of, clinical diagnostics in the United States, thereby subjecting them to FDA regulation as medical devices, we would be required to obtain premarket 510(k) clearance or premarket approval from the FDA, unless an exception applies.

We may in the future list some of our products with the FDA pursuant to an FDA Class I listing for general purpose laboratory equipment if we pursue clinical applications for such equipment. While this regulatory classification is generally exempt from certain FDA requirements, such as the need to submit a premarket notification commonly known as a 510(k), and some of the requirements of the FDA’s Quality System Regulations (QSRs), we would be subject to ongoing FDA “general controls,” which include compliance with FDA regulations for labeling, inspections by the FDA, complaint evaluation, corrections and removals reporting, promotional restrictions, reporting adverse events or malfunctions for our products, and general prohibitions against misbranding and adulteration. Compliance with additional or changing regulatory requirements can be time-consuming and costly.

In addition, we may in the future submit 510(k) premarket notifications to the FDA to obtain FDA clearance of certain of our products on a selected basis. It is possible, in the event we elect to submit 510(k) applications for certain of our products, that the FDA would take the position that a more burdensome premarket application, such as a premarket approval application or a de novo application is required for some of our products. If such applications were required, greater time

and investment would be required to obtain FDA approval. Even if the FDA agreed that a 510(k) was appropriate, FDA clearance can be expensive and time consuming. It generally takes a significant amount of time to prepare a 510(k), including conducting appropriate testing on our products, and several months to years for the FDA to review a submission. Notwithstanding the effort and expense, FDA clearance or approval could be denied for some or all of our products. Even if we were to seek and obtain regulatory approval or clearance, it may not be for the intended uses we believe are important or commercially attractive.

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

In addition, to the extent we decide to seek regulatory marketing authorization for certain of our products in countries outside of the United States, we or our partners, or collaborators, will need to obtain regulatory marketing authorization for our products for the intended use in the jurisdiction where such products will be marketed. Regulatory clearance or approval in one jurisdiction does not mean that we will be successful in obtaining regulatory marketing authorization in other jurisdictions where we conduct business. Sales of such products outside the United States will likely be subject to foreign regulatory requirements, which can vary greatly from country to country. As a result, the time required to obtain clearances or approvals outside the United States may differ from that required to obtain FDA clearance or approval and we may not be able to obtain foreign regulatory approvals on a timely basis or at all. In addition, the FDA regulates exports of medical devices. Failure to comply with these regulatory requirements or obtain and maintain required approvals, clearances and certifications could impair our ability to commercialize our products for diagnostic use outside of the United States.

Our products could become subject to regulation as medical devices by the FDA or other regulatory agencies even if we do not elect to seek regulatory clearance or approval to market our products for diagnostic purposes, which would adversely impact our ability to market and sell our products and harm our business.

As products that are currently labeled, promoted and intended as RUO, our products are not currently subject to regulation as medical devices by the FDA or comparable agencies of other countries. However, the FDA or comparable agencies of other countries could disagree with our conclusion that our products are currently intended for research use only or deem our current sales, marketing and promotional efforts as being inconsistent with research use only products. For example, our customers may independently elect to use our research use only labeled products in their own laboratory developed tests (LDTs) for clinical diagnostic use. The FDA has historically exercised enforcement discretion in not enforcing the medical device regulations against laboratories offering LDTs. However, on October 3, 2014, the FDA issued two draft guidance documents that set forth the FDA's proposed risk-based framework for regulating LDTs, which are designed, manufactured, and used within a single laboratory. The draft guidance documents provide the anticipated details through which the FDA would propose to establish an LDT oversight framework, including premarket review for higher-risk LDTs, such as those that have the same intended use as FDA-approved or cleared companion diagnostic tests currently on the market. In January 2017, the FDA announced that it would not issue final guidance on the oversight of LDTs and manufacturers of products used for LDTs, but would seek further public discussion on an appropriate oversight approach, and give Congress an opportunity to develop a legislative solution. More recently, the FDA has issued warning letters to certain genomics labs for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal "carve-out" for LDTs and retains discretion to take action when appropriate, such as when certain genomic tests raise significant public health concerns. As manufacturers develop more complex genetic tests and diagnostic software, the FDA may increase its regulation of LDTs. Any future legislative or administrative rule making or oversight of LDTs, if and when finalized, may impact the sales of our products and how customers use our products, and may require us to change our business model in order to maintain compliance with these laws. We cannot predict how these various efforts will be resolved, how Congress or the FDA will regulate LDTs in the future, or how that regulatory system will impact our business.

Additionally, on November 25, 2013, the FDA issued Final Guidance "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only." The guidance emphasizes that the FDA will review the totality of the circumstances when

it comes to evaluating whether equipment and testing components are properly labeled as RUO. The final guidance states that merely including a labeling statement that the product is for research purposes only will not necessarily render the device exempt from the FDA's clearance, approval, and other regulatory requirements if the circumstances surrounding the distribution, marketing and promotional practices indicate that the manufacturer knows its products are, or intends for its products to be, used for clinical diagnostic purposes. These circumstances may include written or verbal sales and marketing claims or links to articles regarding a product's performance in clinical applications and a manufacturer's provision of technical support for clinical applications.

In August 2020, as part of the U.S. government's efforts to combat COVID-19 and consistent with the direction in Executive Orders 13771 and 13924, the Department of Health and Human Services (HHS) announced rescission of guidances and other informal issuances of the FDA regarding premarket review of LDTs absent notice-and-comment rulemaking, stating that, absent notice-and-comment rulemaking, those seeking approval or clearance of, or an emergency use authorization, for an LDT may nonetheless voluntarily submit a premarket approval application, premarket notification or an EUA request, respectively, but are not required to do so. However, laboratories opting to use LDTs without FDA premarket review or authorization would not be eligible for liability protection under the Public Readiness and Emergency Preparedness Act (PREP Act). In November 2021, HHS under the Biden administration issued a statement that withdrew the August 2020 policy announcement, stating that HHS does not have a policy on LDTs that is separate from FDA's longstanding approach. The FDA also issued a revised version of its COVID-19 test policy that states the FDA expects newly offered COVID-19 tests, including LDTs, to have an EUA, or traditional marketing authorization such as a granted De Novo or cleared 510(k), prior to clinical use. Further, in June 2021, Congress introduced an updated legislation called the Verifying Accurate, Leading-edge IVCT Development Act (VALID Act), which, if enacted, will establish a new risk-based regulatory framework for in vitro clinical tests (IVCTs), which include IVDs, LDTs, collection devices, and instruments used with such tests, and a technology certification program, among other proposals. The adoption of new restrictions on IVDs, LDTs, or RUOs, whether by the FDA or Congress, could adversely affect our ability to commercialize our products and the demand for our specialized reagents and instruments. Further, we could be required to obtain premarket clearance or approval from the FDA before we can sell our products to certain customers.

If the FDA determines our products or related applications should be subject to additional regulation as in vitro diagnostic devices based upon customers' use of our products for clinical diagnostic or therapeutic decision-making purposes, our ability to market and sell our products could be impeded and our business, prospects, results of operations and financial condition may be adversely affected. In addition, the FDA could consider our products to be misbranded or adulterated under the FD&C Act and subject to recall and/or other enforcement action.

Compliance or the failure to comply with current and future regulations affecting our products and business operations worldwide, such as environmental regulations enacted in the European Union, could cause us significant expense and adversely impact our business.

We are subject to many federal, state, local, and foreign regulations relating to various aspects of our business operations. Governmental entities at all levels are continuously enacting new regulations, and it is difficult to identify all applicable regulations and anticipate how such regulations will be implemented and enforced. We continue to evaluate the necessary steps for compliance with applicable regulations. To comply with applicable regulations, we have and will continue to incur significant expense and allocate valuable internal resources to manage compliance-related issues. In addition, such regulations could restrict our ability to expand or equip our facilities, or could require us to acquire costly equipment or to incur other significant expenses to comply with the regulations. For example, the Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS) and the Waste Electrical and Electronic Equipment Directive (WEEE), both enacted in the European Union, regulate the use of certain hazardous substances in, and require the collection, reuse, and recycling of waste from, products we manufacture. Certain of our products sold in these countries are subject to WEEE and RoHS. These and similar regulations that have been or are in the process of being enacted in other countries may require us to redesign our products, use different types of materials in certain components, or source alternative components to ensure compliance with applicable standards, and may reduce the availability of parts and components used in our products by negatively impacting our suppliers' ability to source parts and components in a timely and cost-effective manner.

The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation (EC) No. 1907/206 is the European Union's regulation on chemicals and their safe use. The list of chemicals has been updated and some of the updates affect chemicals used in our products. We will request a research exception, but if not granted, we will need to reduce the concentration of some of the chemicals in our products, which will require significant research and development and operations efforts.

Any such redesigns, required use of alternative materials, or limited availability of parts and components used in our products may detrimentally impact the performance of our products, add greater testing lead times for product introductions, reduce our product margins, or limit the markets for our products, and if we fail to comply with any present and future regulations, we could be subject to future fines, penalties, and restrictions, such as the suspension of manufacturing of our products or a prohibition on the sale of products we manufacture. Any of the foregoing could adversely affect our business, financial condition, or results of operations.

RISKS RELATED TO ECONOMIC CONDITIONS AND OPERATING A GLOBAL BUSINESS

We generate a substantial portion of our revenue internationally and our international business exposes us to business, regulatory, political, operational, financial, and economic risks associated with doing business outside of the United States.

During the years 2022 and 2021 approximately 59% and 56%, respectively, of our product and service revenue was generated from sales to customers located outside of the United States. We believe that a significant percentage of our future revenue will continue to come from international sources as we expand our international operations and develop opportunities in other countries. Engaging in international business inherently involves a number of difficulties and risks, including:

- required compliance with existing and changing foreign regulatory requirements and laws that are or may be applicable to our business in the future, such as the European Union's General Data Protection Regulation, the California Consumer Privacy Act, and other data privacy requirements, labor and employment regulations, anticompetition regulations, the U.K. Bribery Act of 2010 and other anticorruption laws, and the RoHS and WEEE directives and REACH regulation, which regulate the use and importation of certain hazardous substances in, and require the collection, reuse, and recycling of waste from, products we manufacture;
- required compliance with U.S. laws such as the Foreign Corrupt Practices Act, and other U.S. federal laws and regulations established by the Office of Foreign Assets Control;
- export requirements and import or trade restrictions;
- laws and business practices favoring local companies;
- longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- changes in social, economic, and political conditions or in laws, regulations and policies governing foreign trade, manufacturing, development, and investment both domestically as well as in the other countries and jurisdictions in which we operate and into which we sell our products, including as a result of the separation of the United Kingdom from the European Union (Brexit) or the Russian invasion of Ukraine;
- business interruptions and travel restrictions resulting from global sociopolitical events, including war and terrorism, public health crises (including the ongoing COVID-19 pandemic), and natural disasters including earthquakes, typhoons, floods and fires;
- potentially adverse tax consequences, tariffs, customs charges, bureaucratic requirements, and other trade barriers;
- difficulties and costs of staffing and managing foreign operations; and
- difficulties protecting or procuring intellectual property rights.

During much of the COVID-19 pandemic, travel restrictions have caused significant slowdowns in China, Japan, and other parts of the Asia-Pacific region. These slowdowns, in addition to shipment delays in China due to delays in obtaining VAT and import tax exemptions for our products, have caused our financial results to suffer. If these situations continue, or if other risks occur, we could be forced to dedicate significant resources to their resolution, and if we are unsuccessful in finding a solution, our financial condition and results will suffer.

In addition, political instability, civil unrest, the deterioration of the political situation in a country in which we have significant sales or operations, or the breakdown of trade relations between the United States and a foreign country in which we have significant operations, could adversely affect our business, financial condition, and results of operations. For example, a change in trade status between the United States and a foreign country could result in a substantial increase in the import duty applicable to products manufactured in that foreign country and imported into the United States. The United

States has commenced certain trade actions, including imposing increased tariffs on certain goods imported into the United States from China, which has resulted in retaliatory tariffs by China. In addition, the United States has commenced certain trade actions as a result of the Russian invasion of Ukraine, which has resulted in retaliatory measures by Russia. Any increased trade barriers or restrictions on global trade imposed by the United States, or further retaliatory trade measures taken by China, Russia, or other countries in response, could adversely affect our business, financial condition, and results of operations.

Our business is subject to a variety of new U.S. and foreign export controls and economic sanctions regulations that were issued in response to Russia's invasion of Ukraine; our failure to comply with these laws and regulations could harm our business.

Due to recent regulations, U.S. companies can no longer provide or receive services or conduct any business with, including selling, shipping, or otherwise transferring any U.S.-controlled products to, the Donetsk People's Republic (DNR) and Luhansk People's Republic (LNR) regions of Ukraine. Additionally, existing U.S. sanctions continue to extend these prohibitions to the Crimea region of Ukraine. Our business is also subject to the expansion of previously existing sanctions imposed by the Treasury Department's Office of Foreign Assets Controls that now cover a significant number of individuals and entities located in Russia, Belarus, and surrounding regions as well as new U.S. export controls imposed by the U.S. Department of Commerce's Export Administration Regulations on exports to Russia. These laws and regulations cover U.S. persons as well as U.S.-controlled products, software, and technologies wherever located. Failure to comply with U.S. and foreign export control and economic sanctions laws and regulations can result in criminal sanctions, civil fines, debarment from government contracting, the loss of export privileges, and, in some cases, imprisonment.

Any additional changes in export control laws, sanctions requirements, or our operations in the affected regions may require us to expend additional resources or to discontinue certain products or services, which would negatively affect our business, financial condition, and operating results. In addition, the increased attention focused upon liability issues as a result of lawsuits, regulatory proceedings, and legislative proposals could damage our brand or otherwise impact the growth of our business. Finally, our ability to receive payment from these regions has been significantly impacted. Any costs incurred or loss of business that occurs as a result of compliance or other liabilities under these laws or regulations could harm our business and operating results.

Adverse conditions in the domestic and global economy and disruption of financial markets may significantly harm our revenue, profitability, and results of operations.

Adverse economic conditions in the U.S. and international markets, including any worldwide economic disruption related to another or worsening global pandemic or a recession, could negatively impact our revenues and results of operations. The global credit and financial markets continue to experience volatility and disruptions, including diminished liquidity and credit availability, increased concerns about inflation, and uncertainty about economic stability. Geopolitical events including a potential recession, the Russian invasion of Ukraine, including any resulting adoption and expansion of trade restrictions by the United States, Russia, and/or China, and Brexit have caused significant economic, market, political and regulatory uncertainty in some of our markets. Volatility and disruption of financial markets could limit our customers' ability to obtain adequate financing or credit to purchase and pay for our products in a timely manner or to maintain operations, which could result in a decrease in sales volume that could harm our results of operations. General concerns about the fundamental soundness of domestic and international economies may also cause our customers to reduce their purchases. Changes in governmental banking, monetary, and fiscal policies to address liquidity and increase credit availability may not be effective. Significant government investment and allocation of resources to assist the economic recovery of sectors that do not include our customers may reduce the resources available for government grants and related funding for life science, plant and animal research, and clinical research and development. Continuation or further deterioration of these financial and macroeconomic conditions could significantly harm our sales, profitability, and results of operations.

We are subject to fluctuations in the exchange rate of the U.S. dollar and foreign currencies.

Our revenue is generally denominated in the local currency of the contracting party. Historically, the majority of our revenue has been denominated in U.S. dollars and fluctuations in the value of the U.S. dollar relative to foreign currencies could decrease demand for our products and adversely impact our financial performance. For example, if the value of the U.S. dollar increases relative to foreign currencies, our products could become more costly to the international consumer and therefore less competitive in international markets, or if the value of the U.S. dollar decreases relative to the Singapore dollar or the Canadian dollar, it would become more costly in U.S. dollars for us to manufacture our products in Singapore

and/or in Canada. Additionally, our expenses are generally denominated in the currencies where our operations are located, which is primarily in the United States, with a portion of expenses incurred in Singapore and Canada where our manufacturing facilities are located. Our results of operations and cash flows are, therefore, subject to fluctuations due to changes in foreign currency exchange rates. The volatility of exchange rates depends on many factors that we cannot forecast with reliable accuracy. We have experienced and will continue to experience fluctuations in our net income or loss as a result of transaction gains or losses related to revaluing certain current asset and current liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. Fluctuations in currency exchange rates could have an adverse impact on our financial results in the future.

FINANCIAL, TAX, AND ACCOUNTING RISKS

Our future capital needs are uncertain and we may need to raise additional funds in the future, which may cause dilution to stockholders or may be upon terms that are not favorable to us.

We continue to experience losses and, if that trend continues, we may need to seek additional sources of financing. In addition, we may need to raise substantial additional capital for various purposes, including:

- funding our operations;
- debt repayments;
- acquiring other businesses or assets and licensing technologies;
- expanding the commercialization of our products; and
- furthering our research and development.

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

- market acceptance of our products;
- the cost of our research and development activities;
- the cost of filing and prosecuting patent applications;
- the cost of defending any litigation including intellectual property, employment, contractual or other litigation;
- the cost and timing of regulatory clearances or approvals, if any;
- the cost and timing of establishing additional sales, marketing, and distribution capabilities;
- the cost and timing of establishing additional technical support capabilities;
- fluctuations in cash demands (e.g., due to interest or principal payments or payouts under existing cash compensation plans);
- variability in sales and timing of related cash collections;
- the effectiveness of our efficiency, cost-savings and other strategic initiatives (including those contemplated by the restructuring plan that we announced in August 2022);
- the impact of any natural disasters or public health crises (including the COVID-19 pandemic);
- the effect of competing technological and market developments; and
- the extent to which we acquire, license or otherwise invest in businesses, products, and technologies.

To the extent we draw on our Revolving Credit Facility or otherwise incur additional indebtedness, the risks described above could increase. Further, if we increase our indebtedness, our actual cash requirements in the future may be greater than expected. Our cash flow from operations may not be sufficient to repay all of the outstanding debt as it becomes due, and we cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all. In recent years, there has been significant volatility in the global capital markets, increasing the cost of—and adversely impacting access to—capital. If we raise additional funds by issuing equity securities, our stockholders will experience dilution. Debt financing in addition to the Credit Facility (as defined below), if available, may involve covenants restricting our operations or our ability to incur additional debt. Any additional debt or equity financing that we raise may contain terms that are not favorable to us or our stockholders, and our ability to raise additional capital may be adversely impacted by the impact of the COVID-19 pandemic on the economy.

If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. If we do not have or are unable to raise adequate funds, we may have to liquidate some or all of our assets, delay development or commercialization of our products, or license to third parties the rights to commercialize products or technologies that we would otherwise seek to commercialize. We also may have to reduce marketing, customer support, research and

development, or other resources devoted to our products, or cease operations. Any of these factors could harm our operating results.

If we fail to maintain effective internal control over financial reporting in the future, the accuracy and timing of our financial reporting may be impaired, which could adversely affect our business and our stock price.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. Our testing may reveal deficiencies in our internal control over financial reporting that are deemed to be material weaknesses.

Our compliance with Section 404 requires that we incur substantial accounting expense and expend significant management time on compliance-related issues. We currently do not have an internal audit group, and we continue to evaluate our need for additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. We also monitor our ability to retain and motivate our key existing workers with highly trained accounting and finance skills in a competitive market. Our restructuring activities could diminish our resource capacity and impact our control processes with changes implemented. Our planned enterprise resource planning (ERP) upgrade in 2023 will also result in changes to our processes and control procedures. If we do not comply with the requirements of Section 404, or if we or our independent registered public accounting firm identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by The Nasdaq Stock Market LLC, the Securities and Exchange Commission (SEC), or other regulatory authorities, which would require additional financial and management resources.

We may not realize the value of our goodwill or other intangible assets, which would be reflected in an impairment charge.

Our business acquisitions typically result in goodwill and other intangible assets, which affect the amount of future period amortization expense and possible impairment expense. We make estimates and assumptions in valuing such intangible assets that affect our consolidated financial statements. As of December 31, 2022, we had approximately $119.4 million of goodwill and net intangible assets, including approximately $106.3 million of goodwill and $13.2 million of net intangible assets. These assets represent a significant portion of the assets recorded on our consolidated balance sheet and relate primarily to our acquisition of DVS Sciences, Inc. in February 2014 and InstruNor AS in 2020. In addition, if in the future we acquire additional businesses, technologies, or other intangible assets, a substantial portion of the value of such assets may be recorded as goodwill or intangible assets.

We assess the realizability of goodwill and indefinite-lived intangible assets annually as well as whenever events or changes in circumstances indicate that these assets may be impaired. We also assess the realizability of definite-lived intangible assets whenever events or changes in circumstances indicate that these assets may be impaired. These events or circumstances may include a significant deterioration in overall economic conditions, a decline in our market capitalization, reorganizations of our business, the disposal of all or a portion of a reporting unit, operating losses or a significant decline in earnings associated with the acquired business or asset. Our ability to realize the value of the goodwill and intangible assets will depend on the future cash flows of these businesses, including our ability to realize revenue growth, cost savings, and other macro factors which impact the enterprise value. These cash flows in turn depend in part on how well we have integrated these businesses. If we are not able to realize the value of the goodwill and intangible assets, we may be required to incur material charges relating to the impairment of those assets.

As a result of our operating and reporting segment change and the significant decline in our share price during the three months ended September 30, 2022, we performed quantitative impairment tests on goodwill as of August 31, 2022 and September 30, 2022 and on long-lived intangibles as of August 31, 2022 and concluded there was no impairment. In determining the fair value of our two operating segments, significant assumptions including forecasted cash flows (revenue growth rates), discount rates, earnings multiples and an implied control premium were utilized. As these assumptions are inherently judgmental and subject to uncertainty, future impairments that cannot be reasonably estimated, but could be material, may occur. We performed our annual goodwill assessment as of December 31, 2022 and concluded that we did not have a goodwill impairment as of December 31, 2022.

If we fail to comply with the covenants and other obligations under our Credit Facility, the lending bank may be able to accelerate amounts owed under the facilities and may foreclose upon the assets securing our obligations.

In August 2018, we entered into a revolving credit facility with Silicon Valley Bank (as amended, the Revolving Credit Facility) in an aggregate principal amount of up to the lesser of (i) $15.0 million or (ii) the sum of (a) 85% of our eligible receivables and (b) 50% of our eligible inventory, in each case, subject to certain limitations (Borrowing Base), provided that the amount of eligible inventory that may be counted towards the Borrowing Base shall be subject to a cap as set forth in the Revolving Credit Facility. In August 2021, we amended our Revolving Credit Facility to extend the maturity date to August 2, 2023 and to provide for a new $10.0 million term loan facility (the Term Loan Facility and, together with the Revolving Credit Facility, the Credit Facility). The stated maturity of the Term Loan Facility is July 1, 2025. However, if the principal amount of our convertible debt exceeds $0.6 million as of June 1, 2024 or if the maturity of our 2019 Notes has not been extended beyond January 1, 2026 by June 1, 2024, then the maturity date of the Term Loan Facility will be June 1, 2024. The interest rate on the Term Loan Facility is the greater of 4.0% or a floating per annum rate equal to three quarters of one percentage point (0.75%) above the prime rate. Interest on any outstanding term loan advances is due and payable monthly. In addition to the monthly interest payments, a final payment equal to 6.5% of the original principal amount of each advance is due on the earlier of the maturity date or the date the advance is repaid. Principal balances are required to be repaid in twenty-four equal installments beginning on August 1, 2023. The Credit Facility is secured by substantially all of our assets, other than intellectual property. The Credit Facility contains customary affirmative and negative covenants which, unless waived by the bank, limit our ability to, among other things, incur additional indebtedness, grant liens, make investments, repurchase stock, pay dividends, transfer assets, enter into affiliate transactions, undergo a change of control, or engage in merger and acquisition activity, including merging or consolidating with a third party. Additionally, we are required to maintain a minimum Adjusted Quick Ratio (as defined in the Credit Facility) of at least 1.25 to 1.00. If we fail to comply with the covenants and our other obligations under the Credit Facility, the lending bank would be able to accelerate the required repayment of amounts due under the Credit Facility and, if they are not repaid, could foreclose upon the assets securing our obligations under the Credit Facility. On March 10, 2023, Silicon Valley Bank was announced as closed by the California Department of Financial Protection and Innovation, and the Federal Deposit Insurance Corporation has been appointed as a receiver. As a result, we no longer expect to be able to draw on the Revolving Credit Facility.

Our ability to use net operating loss carryforwards to offset future taxable income for U.S. federal income tax purposes and other tax benefits may be limited.

Section 382 of the Internal Revenue Code of 1986, as amended (the Code), imposes an annual limitation on the amount of taxable income that may be offset by net operating loss carryforwards (NOLs) if a corporation experiences an “ownership change.” As provided in Section 382 of the Code, an “ownership change” occurs when a company’s “five-percent shareholders” collectively increase their ownership in the company by more than 50 percentage points (by value) over a rolling three-year period. Various states also have limitations on the use of state NOLs following an ownership change.

Future changes in our stock ownership, some of which are outside our control, could result in an ownership change under Section 382 of the Code. In 2022, we experienced an ownership change, which substantially limited our ability to use our NOLs. There is no assurance that we will be able to fully utilize our future NOLs or other tax benefits, which could adversely impact our results of operations.

We believe that these tax benefits are a valuable asset for us and we monitor our stock ownership to determine whether our NOLs are at material risk of limitation based on an ownership change pursuant to Section 382. If our board of directors determines a potential risk exists that our NOLs could be limited, it could elect to adopt a tax benefit preservation plan in an effort to protect our tax benefits. Adoption of a tax benefit preservation plan could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, us or a large block of our common stock.

We are subject to risks related to taxation in multiple jurisdictions and our effective income tax rate could be adversely affected and we could have additional tax liability if existing tax laws or regulations change or if taxing authorities disagree with our interpretations of tax laws or regulations.

We are subject to income taxes in both the United States and certain foreign jurisdictions. Significant judgments based on interpretations of existing tax laws or regulations are required in determining the provision for income taxes. For example, we have made certain interpretations of existing tax laws or regulations based upon the operations of our business internationally and we have implemented intercompany agreements based upon these interpretations and related transfer pricing analyses. If the U.S. Internal Revenue Service or other taxing authorities disagree with the positions, our effective income tax rate could be adversely affected and we could have additional tax liability, including interest and penalties. From

time to time, we may review our corporate structure and tax positions in the various international jurisdictions in which we operate and such review may result in changes to how we structure our international business operations, which may adversely impact our effective income tax rate. Our effective income tax rate could also be adversely affected by changes in the mix of earnings in tax jurisdictions with different statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in existing tax laws or tax rates, changes in the level of non-deductible expenses (including share-based compensation), changes in our future levels of research and development spending, mergers and acquisitions, or the result of examinations by various tax authorities. Payment of additional amounts as a result of changes in applicable tax law or upon final adjudication of any disputes could have a material impact on our results of operations and financial position.

Changes in accounting principles, or interpretations thereof, could have a significant impact on our financial position and results of operations.

We prepare our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). These principles are subject to interpretation by the SEC and various bodies formed to interpret and create appropriate accounting principles. A change in these principles can have a significant effect on our reported results and may even retroactively affect previously reported transactions. Additionally, the adoption of new or revised accounting principles may require that we make significant changes to our systems, processes and controls.

It is not clear if or when potential changes in accounting principles may become effective, whether we have the proper systems and controls in place to accommodate such changes and the impact that any such changes may have on our financial position and results of operations.

We have a significant amount of outstanding indebtedness, and our financial condition and results of operations could be adversely affected if we do not efficiently manage our liabilities.

We have significant outstanding convertible debt. As of December 31, 2022, we had outstanding $0.6 million aggregate principal amount of our 2.75% Convertible Senior Notes due 2034 that were issued in February 2014 (2014 Notes) and $55.0 million aggregate principal amount of our 5.25% Convertible Senior Notes due 2024 that were issued in November 2019 (2019 Notes and, together with the 2014 Notes, the Convertible Notes). The 2014 Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the 2014 Notes. Pursuant to the terms of the indenture governing the 2014 Notes, holders of the 2014 Notes may require us to repurchase all or a portion of their 2014 Notes at a repurchase price in cash equal to 100% of the principal amount of such 2014 Notes plus accrued and unpaid interest thereon, on each of February 6, 2024 and February 6, 2029. The 2019 Notes will mature on December 1, 2024, unless earlier converted or repurchased in accordance with the terms of the 2019 Notes.

If we undergo a fundamental change (as defined in the indenture governing the 2014 Notes or the 2019 Notes, as applicable), holders of the applicable series of Convertible Notes may require us to repurchase such Convertible Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the applicable series of Convertible Notes plus accrued and unpaid interest. If we refinance all or any portion of the Convertible Notes, we may issue additional convertible notes or other debt, which could include additional company obligations and represent more dilution to existing stockholders and noteholders.

This significant amount of debt has important risks to us and our investors, including:

- requiring a portion of our cash flow from operations to make interest payments on this debt;
- increasing our vulnerability to general adverse economic and industry conditions;
- reducing the cash flow available to fund capital expenditures and other corporate purposes and to grow our business;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry; and
- limiting our ability to borrow additional funds as needed or take advantage of business opportunities as they arise.

In addition, to the extent we draw on our Revolving Credit Facility or otherwise incur additional indebtedness, the risks described above could increase. Further, if we increase our indebtedness, our actual cash requirements in the future may be greater than expected. Our cash flow from operations may not be sufficient to repay all of the outstanding debt as it becomes due, and we may not be able to borrow money, sell assets or otherwise raise funds on acceptable terms, or at all, to refinance our debt.

RISKS RELATED TO INTELLECTUAL PROPERTY

Our ability to protect our intellectual property and proprietary technology through patents and other means is uncertain.

Our commercial success depends in part on our ability to protect our intellectual property and proprietary technologies. We rely on patent protection, where appropriate and available, as well as a combination of copyright, trade secret, and trademark laws, and nondisclosure, confidentiality, and other contractual restrictions to protect our proprietary technology. However, these legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We apply for patents covering our products and technologies and uses thereof, as we deem appropriate. However, we may fail to apply for patents on important products and technologies in a timely fashion or at all. Our pending U.S. and foreign patent applications may not issue as patents or may not issue in a form that will be sufficient to protect our proprietary technology and gain or keep our competitive advantage. Any patents we have obtained or do obtain may be subject to re-examination, reissue, opposition, or other administrative proceeding, or may be challenged in litigation, and such challenges could result in a determination that the patent is invalid or unenforceable. In addition, competitors may be able to design alternative methods or devices that avoid infringement of our patents. Both the patent application process and the process of managing patent disputes can be time consuming and expensive.

Furthermore, the laws of some foreign countries may not protect our intellectual property rights to the same extent as do the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. 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. Changes in either the patent laws or in interpretations of patent laws in the United States or other countries 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. For example:

- we might not have been the first to make the inventions covered by each of our pending patent applications;
- we might not have been the first to file patent applications for these inventions;
- the patents of others may have an adverse effect on our business; and
- others may independently develop similar or alternative products and technologies or duplicate any of our products and technologies.

To the extent our intellectual property, including licensed intellectual property, offers inadequate protection, or is found to be invalid or unenforceable, our competitive position and our business could be adversely affected.

We may be involved in lawsuits to protect or enforce our patents and proprietary rights, to determine the scope, coverage and validity of others' proprietary rights, or to defend against third-party claims of intellectual property infringement, any of which could be time-intensive and costly and may adversely impact our business or stock price.

Litigation may be necessary for us to enforce our patent and proprietary rights, determine the scope, coverage, and validity of others' proprietary rights, and/or defend against third-party claims of intellectual property infringement against us as well as against our suppliers, distributors, customers, and other entities with which we do business. Litigation could result in substantial legal fees and could adversely affect the scope of our patent protection. The outcome of any litigation or other proceeding is inherently uncertain and might not be favorable to us, and we might not be able to obtain licenses to technology that we require. Even if such licenses are obtainable, they may not be available at a reasonable cost. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our product margins or financial position. Further, we could encounter delays in product introductions, or interruptions in product sales, as we develop alternative methods or products.

As we move into new markets and applications for our products, incumbent participants in such markets may assert their patents and other proprietary rights against us as a means of impeding our entry into such markets or as a means to extract substantial license and royalty payments from us. Our commercial success may depend in part on our non-infringement of the patents or proprietary rights of third parties. Numerous significant intellectual property issues have been litigated, and will likely continue to be litigated, between existing and new participants in our existing and targeted markets. For example, some of our products provide for the testing and analysis of genetic material, and patent rights relating to genetic materials remain a developing area of patent law. A recent U.S. Supreme Court decision held, among other things, that claims to isolated genomic DNA occurring in nature are not patent eligible, while claims relating to synthetic DNA may be patent eligible. We expect the ruling will result in additional litigation in our industry. In addition, third parties may assert

that we are employing their proprietary technology without authorization, and if they are successful in making such claims, we may be forced to enter into license agreements, pay additional royalties or license fees, or enter into settlements that include monetary obligations or restrictions on our business.

Our customers have been sued for various claims of intellectual property infringement in the past, and we expect that our customers will be involved in additional litigation in the future. In particular, our customers may become subject to lawsuits claiming that their use of our products infringes third-party patent rights, and we could become subject to claims that we contributed to or induced our customer's infringement. In addition, our agreements with some of our suppliers, distributors, customers, and other entities with which we do business may require us to defend or indemnify these parties to the extent they become involved in infringement claims against us, including the 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 any of these third parties in connection with any infringement claims, we could incur significant costs and expenses that could adversely affect our business, operating results, or financial condition.

We may be subject to damages resulting from claims that we or our employees have wrongfully used or disclosed alleged trade secrets of our employees' former employers or other institutions or third parties with which such employees may have been previously affiliated.

Many of our employees were previously employed at universities or other life science or plant and animal research companies, including our competitors or potential competitors. In the future, we may become subject to claims that our employees, or we, have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers or other third parties or institutions with which our employees may have been previously affiliated. Litigation may be necessary to defend against these claims. A resulting loss of key research personnel work product could hamper or prevent our ability to commercialize certain potential products or a loss of or inability to hire key marketing, sales or research and development personnel could adversely affect our future product development, sales and revenues, any of which could severely harm our business. Even if we are successful in defending against any such claims, litigation could result in substantial costs and be a distraction to management.

We depend on certain technologies that are licensed to us. We do not control these technologies and any loss of our rights to them could prevent us from selling our products, which would have an adverse effect on our business.

We rely on licenses in order to be able to use various proprietary technologies that are material to our business, including our core IFC, multi-layer soft lithography, and mass cytometry technologies. In some cases, we do not control the prosecution, maintenance, or filing of the patents to which we hold licenses, or the enforcement of these patents against third parties. Additionally, our business and product development plans anticipate and may substantially depend on future in-license agreements with additional third parties, some of which are currently in the early discussion phase. For example, our Canadian subsidiary (SB Canada) was party to an interim license agreement, now expired, under which the licensor granted SB Canada a worldwide, non-exclusive, research use only, royalty bearing license to certain cytometric reagents, instruments, and other products. While we were able to secure a license under a new license agreement with the licensor, we cannot provide assurances that we will always be able to obtain suitable license rights to technologies or intellectual property of other third parties on acceptable terms, if at all.

In-licensed intellectual property rights that are fundamental to our business being operated present numerous risks and limitations. For example, all or a portion of the license rights granted may be limited for research use only, and in the event we attempt to expand into diagnostic applications, we would be required to negotiate additional rights, which may not be available to us on commercially reasonable terms, if at all.

Our rights to use the technology we license are also subject to the negotiation and continuation of those licenses. Certain of our licenses contain provisions that allow the licensor to terminate the license upon specific conditions. Our rights under the licenses are subject to our continued compliance with the terms of the license, including the payment of royalties due under the license. Because of the complexity of our products and the patents we have licensed, determining the scope of the license and related royalty obligation can be difficult and can lead to disputes between us and the licensor. An unfavorable resolution of such a dispute could lead to an increase in the royalties payable pursuant to the license. If a licensor believed we were not paying the royalties due under the license or were otherwise not in compliance with the terms of the license, the licensor might attempt to revoke the license. If such an attempt were successful and the license is terminated, we might be barred from marketing, producing, and selling some or all of our products, which would have an adverse effect on our business. Potential disputes between us and one of our existing licensors concerning the terms or

conditions of the applicable license agreement could result, among other risks, in substantial management distraction; increased expenses associated with litigation or efforts to resolve disputes; substantial customer uncertainty concerning the direction of our product lines; potential infringement claims against us and/or our customers, which could include efforts by a licensor to enjoin sales of our products; customer requests for indemnification by us; and, in the event of an adverse determination, our inability to operate our business as currently operated. Termination of material license agreements could prevent us from manufacturing and selling our products unless we can negotiate new license terms or develop or acquire alternative intellectual property rights that cover or enable similar functionality. Any of these factors would be expected to have a material adverse effect on our business, operating results, and financial condition and could result in a substantial decline in our stock price.

We are subject to certain manufacturing restrictions related to licensed technologies that were developed with the financial assistance of U.S. governmental grants.

We are subject to certain U.S. government regulations because we have licensed technologies that were developed with U.S. government grants. In accordance with these regulations, these licenses provide that products embodying the technologies are subject to domestic manufacturing requirements. If this domestic manufacturing requirement is not met, the government agency that funded the relevant grant is entitled to exercise specified rights, referred to as "march-in rights," which if exercised would allow the government agency to require the licensors or us to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a third party designated by such agency. All of our microfluidic systems revenue is dependent upon the availability of our IFCs, which incorporate technology developed with U.S. government grants. Our genomics instruments, including microfluidic systems and IFCs, are manufactured at our facility in Singapore. The federal regulations allow the funding government agency to grant, at the request of the licensors of such technology, a waiver of the domestic manufacturing requirement. Waivers may be requested prior to any government notification. We are not currently manufacturing instruments and IFCs in the United States that incorporate the relevant licensed technology. If our lack of compliance with any such provisions constituted a material breach of the license agreement, the license of the relevant patents could be terminated or we could be compelled to relocate our manufacturing of microfluidic systems and IFCs to the United States to avoid or cure a material breach of the license agreement. Any of the exercise of march-in rights, the termination of our license of the relevant patents or the relocation of our manufacturing of microfluidic systems and IFCs to the United States could materially adversely affect our business, operations and financial condition.

We are subject to certain obligations and restrictions relating to technologies developed in cooperation with Canadian government agencies.

Some of our Canadian research and development is funded in part through government grants and by government agencies. The intellectual property developed through these projects is subject to rights and restrictions in favor of government agencies and Canadians generally. In most cases the government agency retains the right to use intellectual property developed through the project for non-commercial purposes and to publish the results of research conducted in connection with the project. This may increase the risk of public disclosure of information relating to our intellectual property, including confidential information, and may reduce its competitive advantage in commercializing intellectual property developed through these projects. In certain projects, we have also agreed to use commercially reasonable efforts to commercialize intellectual property in Canada, or more specifically in the province of Ontario, for the economic benefit of Canada and the province of Ontario. These restrictions will limit our choice of business and manufacturing locations, business partners and corporate structure and may, in certain circumstances, restrict our ability to achieve maximum profitability and cost efficiency from the intellectual property generated by these projects. In one instance, a dispute with the applicable government funded entity may require mediation, which could lead to unanticipated delays in our commercialization efforts to that project. One of our Canadian government funded projects is also subject to certain limited "march-in" rights in favor of the government of the Province of Ontario, under which we may be required to grant a license to our intellectual property, including background intellectual property developed outside the scope of the project, to a responsible applicant on reasonable terms in circumstances where the government determines that such a license is necessary in order to alleviate emergency or extraordinary health or safety needs or for public use. In addition, we must provide reasonable assistance to the government in obtaining similar licenses from third parties required in connection with the use of its intellectual property. Instances in which the government of the Province of Ontario has exercised similar "march-in" rights are rare; however, the exercise of such rights could materially adversely affect our business, operations and financial condition.

RISKS RELATED TO OUR COMMON STOCK

Our stock price is volatile.

Our stock is currently traded on the Nasdaq Global Select Market (Nasdaq), but we can provide no assurance that we will be able to maintain an active trading market on Nasdaq or any other exchange in the future. The trading volume of our stock tends to be low relative to our total outstanding shares, and we have several stockholders who hold substantial blocks of our stock. As of December 31, 2022, we had 79,481,514 shares of common stock outstanding, and stockholders holding at least 5% of our stock, individually or with affiliated persons or entities, collectively beneficially owned or controlled approximately 51% of such shares. Sales of large numbers of shares by any of our large stockholders could adversely affect our trading price, particularly given our relatively small historic trading volumes. If stockholders holding shares of our common stock sell, indicate an intention to sell, or if it is perceived that they will sell, substantial amounts of their common stock in the public market, the trading price of our common stock could decline. Moreover, if there is no active trading market or if the volume of trading is limited, holders of our common stock may have difficulty selling their shares. In addition, the concentration of ownership of our outstanding common stock (approximately 51% held by our top seven stockholders as of December 31, 2022) means that a relatively small number of stockholders have significant control over the outcomes of stockholder voting.

The trading price of our common stock is highly volatile and subject to wide fluctuations in response to various factors, some of which are beyond our control. These factors include:

- actual or anticipated quarterly variation in our results of operations or the results of our competitors;
- our failure to achieve performance consistent with our financial guidance and/or market expectations;
- announcements or communications by us or our competitors relating to, among other things, new commercial products, technological advances, significant contracts, commercial relationships, capital commitments, acquisitions or sales of businesses, and/or misperceptions in or speculation by the market regarding such announcements or communications;
- issuance of new or changed securities analysts' reports or recommendations for our stock;
- developments or disputes concerning our intellectual property or other proprietary rights;
- commencement of, or our involvement in, litigation;
- market conditions in the life science, plant and animal research, and contract research organization sectors;
- failure to complete significant sales;
- manufacturing disruptions that could occur if we are unable to successfully expand our production in our current or alternative facilities;
- supply chain disruptions;
- the impact of public health crises, including the COVID-19 pandemic, on global financial markets;
- any future sales of our common stock or other securities in connection with raising additional capital or otherwise;
- any major change to the composition of our board of directors or management;
- general market conditions and other factors unrelated to our operating performance or the operating performance of our competitors, including deteriorating market conditions due to investor concerns regarding inflation and hostilities between Russia and Ukraine; and
- general economic conditions, including current macroeconomic trends and geopolitical events, and slow or negative growth of our markets.

The stock market in general, and market prices for the securities of technology-based companies like ours in particular, have from time to time experienced volatility that often has been unrelated to the operating performance of the underlying companies. These broad market and industry fluctuations may adversely affect the market price of our common stock regardless of our operating performance.

In several recent situations where the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. Such actions can be costly, divert the time and attention of our management and could negatively impact our operating results.

Future sales of our common stock in the public market could cause our stock price to fall.

Our stock price could decline as a result of sales of a large number of shares of our common stock or the perception that these sales could occur. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

In addition, in the future, we may issue additional shares of common stock or other equity or debt securities convertible into common stock in connection with a financing, acquisition, litigation settlement, employee arrangements or otherwise. Any such future issuance could result in substantial dilution to our existing stockholders and could cause our stock price to decline.

If securities or industry analysts publish unfavorable research about us, or if they commence coverage of us and then cease to cover us, our stock price and/or trading volume could decline.

The trading market for our common stock may rely, in part, on the research and reports that equity research analysts publish about us and our business. We do not have any control of the analysts or the content and opinions included in their reports. The price of our stock could decline if one or more equity research analysts downgrade our stock or issue other unfavorable commentary or research. If one or more equity research analysts commence coverage of us and then cease coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which in turn could cause our stock price or trading volume to decline.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management and limit the market price of our common stock.

Provisions in our certificate of incorporation and bylaws may have the effect of delaying or preventing a change of control or changes in our management, including provisions that:

- authorize our board of directors to issue, without further action by the stockholders, up to 10,000,000 shares of undesignated preferred stock;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our board of directors, the chairman of the board, the chief executive officer or the president;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- establish that our board of directors is divided into three classes, Class I, Class II, and Class III, with each class serving staggered three-year terms;
- provide that our directors may be removed only for cause;
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum;
- specify that no stockholder is permitted to cumulate votes at any election of directors; and
- require a super-majority of votes to amend certain of the above-mentioned provisions.

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, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law (DGCL), which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us.

The forum selection provision in our bylaws could limit the ability of our stockholders to bring a claim in a judicial forum viewed by the stockholders as more favorable for disputes with us or our directors, officers or other employees.

Our bylaws provide that the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, another State court in Delaware or the federal district court for the District of Delaware) is the exclusive forum for the following (except for any claim as to which such court determines that there is an indispensable party not subject to

the jurisdiction of such court (and the indispensable party does not consent to the personal jurisdiction of such court within 10 days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than such court or for which such court does not have subject matter jurisdiction):

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of fiduciary duty;
- any action asserting a claim against us arising under the DGCL, our certificate of incorporation or our bylaws; and
- any action asserting a claim against us that is governed by the internal-affairs doctrine.

This provision does not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction.

Our bylaws further provide that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

These exclusive-forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage lawsuits against us and our directors, officers and other employees. Any person or entity purchasing or otherwise acquiring any interest in any of our securities shall be deemed to have notice of and consented to these provisions. 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.

It is possible that a court could find these types of provisions to be inapplicable or unenforceable, and if a court were to find either exclusive-forum provision in our bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could seriously harm our business.

Any conversions of the 2014 Notes or 2019 Notes will dilute the ownership interest of our existing stockholders and may otherwise depress the price of our common stock.

Any conversion of some or all of the 2014 Notes or 2019 Notes will dilute the ownership interests of our existing stockholders. Any sales in the public market of our common stock issuable upon such conversion could also adversely affect prevailing market prices of our common stock. In addition, holders of the 2014 Notes or 2019 Notes may hedge their position in such Convertible Notes by entering into short positions with respect to the underlying common stock. As a result, any anticipated conversion of the 2014 Notes or 2019 Notes could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities.

As a result of the Private Placement Issuance (as defined below), the Purchasers (as defined below) own a significant portion of our total outstanding voting securities and may prevent other stockholders from influencing material corporate decisions, and the Purchasers' interests may conflict with those of our other stockholders.

In April 2022, (i) we issued and sold to (a) Casdin Private Growth Equity Fund II, L.P. and Casdin Partners Master Fund, L.P. (collectively, Casdin) an aggregate of 112,500 shares of our Series B-1 Convertible Preferred Stock, par value $0.001 per share (Series B-1 Preferred Stock) and (b) Viking Global Opportunities Illiquid Investments Sub-Master LP and Viking Global Opportunities Drawdown (Aggregator) LP (collectively, Viking and, together with Casdin, the Purchasers) an aggregate of 112,500 shares of our Series B-2 Convertible Preferred Stock, par value $0.001 per share (Series B-2 Preferred Stock and, together with the Series B-1 Preferred Stock, the Series B Preferred Stock) and (ii) in connection therewith, bridge loans previously provided to us by the Purchasers were automatically converted into an aggregate of 30,559 shares of Series B Preferred Stock (such transactions, collectively, the Private Placement Issuance).

The Series B Preferred Stock is initially convertible into up to approximately 75,164,397 shares of our common stock (without giving effect to limitations associated with any conversion cap). On an as-converted basis, this collectively represents approximately 48.6% of our issued and outstanding common stock (equating to approximately 24.3% per Purchaser) based on the number of shares of common stock outstanding as of December 31, 2022, but assuming full conversion of all Series B Preferred Stock (without giving effect to limitations associated with any conversion cap). As a result, the Purchasers are our largest stockholders on an as-converted to common basis. This concentration of ownership, together with the voting rights, director designation rights and consent rights granted to the Purchasers as part of the Private Placement Issuance, may adversely affect the market price of our common stock. The Purchasers, if they acted together, could significantly influence all matters requiring approval by our stockholders, including the election of directors and the

approval of mergers or other business combination transactions. The interests of the Purchasers may not always coincide with our interests or the interests of other stockholders.

RISKS RELATED TO OUR CAPITAL STRUCTURE

The market value of our common stock could decline if the Purchasers sell their Series B Preferred Stock or common stock.

Pursuant to the Registration Rights Agreement that we entered into on January 23, 2022 with the Purchasers, we registered the resale of the shares of common stock issuable upon conversion of the Series B Preferred Stock with the SEC, which means that such shares would become eligible for resale in the public markets, subject to any applicable transfer restrictions. Any sale of such shares, or the anticipation of the possibility of such sales, could create downward pressure on the market price of our common stock.

Our Series B Preferred Stock has rights, preferences and privileges that are not held by, and are preferential to, the rights of our common stockholders, which could adversely affect our liquidity and financial condition, result in the interests of holders of our Series B Preferred Stock differing from those of our common stockholders and make an acquisition of us more difficult.

Holders of our Series B Preferred Stock have (i) a liquidation preference, (ii) rights to dividends, which are senior to all of our other equity securities, (iii) the right to require us to repurchase any or all of their Series B Preferred Stock in connection with certain change of control events, and (iv) conversion price adjustments upon the occurrence of certain events, each subject to the terms, conditions and exceptions contained in the applicable Certificate of Designations. These dividend and other rights and obligations could impact our liquidity and reduce the amount of cash flows available for working capital, capital expenditures, growth opportunities, acquisitions, and other general corporate purposes.

The terms of our Series B Preferred Stock could also limit our ability to obtain additional financing or increase our borrowing costs, which could have an adverse effect on our financial condition. The preferential rights could also result in divergent interests between the Purchasers and holders of our common stock. Furthermore, a sale of our Company, as a change of control event, may require us to repurchase the Series B Preferred Stock, which could have the effect of making an acquisition of our Company more expensive and potentially deterring proposed transactions that may otherwise be beneficial to our stockholders.

The holders of our Series B Preferred Stock are entitled to vote with the holders of our common stock with voting power measured in a manner related to the conversion ratio of the shares of Series B Preferred Stock, and the holders of our Series B Preferred Stock have rights to approve certain actions. The holders of our Series B Preferred Stock may exercise influence over us, including through the ability of the holders of the Series B-1 Preferred Stock and the holders of the Series B-2 Preferred Stock to each designate a member of our board of directors.

The holders of our Series B Preferred Stock are generally entitled to vote with the holders of our common stock on all matters submitted for a vote of holders of our common stock (voting together with the holders of common stock as one class) with voting power measured in a manner related to the conversion ratio of the shares of Series B Preferred Stock, subject to certain voting limitations as described in the applicable Certificate of Designations. Additionally, the consent of the holders of at least 60% of the shares of Series B Preferred Stock is required for, among other things, (i) amendments to our certificate of incorporation or bylaws that have an adverse effect on the rights, preferences, privileges or voting powers of the Series B Preferred Stock and (ii) issuances by us of securities that are senior to, or equal in priority with, the Series B Preferred Stock.

Additionally, pursuant to the Certificates of Designations for the Series B Preferred Stock, the holders of a majority of the outstanding Series B-1 Preferred Stock and the holders of a majority of the outstanding Series B-2 Preferred Stock each have the right to nominate and elect one member to our board of directors at each annual meeting of the stockholders of the Company or at any special meeting called for the purpose of electing directors, for so long as the Casdin Preferred Percentage or Viking Preferred Percentage (each as defined in the applicable Certificate of Designations), as applicable, is equal to or greater than 7.5%. Such directors are not subject to the classified board of directors provisions of our certificate of incorporation, and are entitled to serve on committees of our board of directors, subject to applicable law and Nasdaq rules. Notwithstanding the fact that all directors will be subject to fiduciary duties to us and to applicable law, the interests of the directors designated by the holders of Series B Preferred Stock may differ from the interests of our security holders as a whole or of our other directors.

These significant stockholders may be able to determine or significantly influence matters requiring stockholder approval. The interests of significant stockholders may not always coincide with our interests or the interests of other stockholders. The Certificates of Designations for the Series B Preferred Stock also provide that for so long as the Casdin Preferred Percentage or Viking Preferred Percentage, as applicable, is equal to or greater than 7.5%, the director designated by the holders of the Series B-1 Preferred Stock or the Series B-2 Preferred Stock, as applicable, will have certain consent rights over, among other things: (i) any increase in the number of directors on our board of directors beyond seven; (ii) the hiring, promotion, demotion, or termination of the Company's Chief Executive Officer; (iii) entering into or modifying (including by waiver) any transaction, agreement or arrangement with any Related Person (as defined in the Certificates of Designations for the Series B Preferred Stock), subject to certain exceptions; (iv) any voluntary petition under any applicable federal or state bankruptcy or insolvency law effected by the Company; (v) any change in the principal business of the Company or entry by the Company into any material new line of business; and (vi) for a period of three years after the closing date of the Private Placement Issuance, (A) any acquisition (including by merger, consolidation or acquisition of stock or assets) of any assets, securities or property of any other person or (B) any sale, lease, license, transfer or other disposition of any assets of the Company or any of its subsidiaries, in each case, other than acquisitions or dispositions of inventory or equipment in the ordinary course of business consistent with past practice, for consideration in excess of $50,000,000 in the aggregate in any six month period.

As a result, the holders of our Series B Preferred Stock have the ability to influence the outcome of certain matters affecting our governance and capitalization. Our obligations to the holders of our Series B Preferred Stock could also limit our ability to obtain additional financing or increase our borrowing costs, which could have an adverse effect on our financial condition.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease approximately 78,000 square feet of office and laboratory space at our headquarters in South San Francisco, California under a 10 year operating lease that commenced in March 2020. In Singapore, we lease approximately 40,000 square feet of office, laboratory and manufacturing space that expires in June 2027 and 5,000 square feet of similar mixed use space that expires at the end of March 2023. In Ontario, Canada, we lease a 9,000 square foot property that expires in February 2025, a 44,500 square feet property that that expires in March 2026 and a 19,000 square feet property that expires in March 2027. As of December 31, 2022, we also lease office space in Japan, China, and France under short-term arrangements that expire through February 2026.

In August 2022, we entered into an operating agreement to sublease approximately 25% of our corporate headquarters facility in South San Francisco, California for $4.8 million over a 39 month term. On February 28, 2023, we entered into a separate agreement with an unrelated party to sublease an additional 25% of the headquarters facility. We expect to recognize $9.1 million in sublease income over the 77-month term of the agreement, which commences in December 2023 and expires concurrent with the expiration of the head-lease in April 2030.

We believe that all of our leased properties are in good condition and are adequate and suitable to use for their intended purpose. Refer to Note 10 of our consolidated financial statements for additional information about leased properties in this Form 10-K.

ITEM 3. LEGAL PROCEEDINGS

In September 2020, a putative class action complaint alleging violations of the federal securities laws was filed against the Company (also naming our Chief Financial Officer and our former Chief Executive Officer as defendants) in the U.S. District Court for the Northern District of California (Reena Saintjermain, et al. v. Fluidigm Corporation, et al). The Court appointed a lead plaintiff and lead counsel in December 2020, and an amended complaint was filed on February 19, 2021. The complaint, as amended, seeks unspecified damages on behalf of a purported class of persons and entities who acquired our common stock between February 7, 2019 and November 5, 2019 and alleges securities laws violations based on statements and alleged omissions made by the Company during such period. The Company filed a motion to dismiss the complaint on April 5, 2021 and, on August 4, 2021, the Court granted defendants' motion to dismiss with leave to amend. A second amended complaint was filed on September 14, 2021. The Company filed a motion to dismiss the second amended complaint on October 29, 2021 and, on February 14, 2022, the Court granted defendants' motion and dismissed the second amended complaint with prejudice. On March 15, 2022, the lead plaintiff filed a notice of appeal of the District Court's decision. Following the Circuit Court appellate hearing on February 6, 2023, the Circuit Court granted defendants' motion to dismiss on February 21, 2023.

In the normal course of business, we are from time to time involved in legal proceedings or potential legal proceedings, including matters involving employment, intellectual property, or others. Although the results of litigation and claims cannot be predicted with certainty, we currently believe that the final outcome of any currently pending matters would not have a material adverse effect on our business, operating results, financial condition, 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 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

Market for Our Common Stock; Dividends

Our common stock began trading on the Nasdaq Global Select Market under the symbol "FLDM" on February 10, 2011. As of April 2022, in connection with the closing of the Private Placement Issuance and the approval of our Eighth Amended and Restated Certificate of Incorporation, our common stock is listed on the Nasdaq Global Select Market under the symbol "LAB".

We had 79 stockholders of record as of January 31, 2023; however, because many of our outstanding shares are held by brokers or other institutions on behalf of stockholders, we are unable to estimate the total number of beneficial owners represented by the holders of record.

We have never declared or paid cash dividends on our common stock and do not expect to pay dividends on our common stock for the foreseeable future. Instead, we anticipate that all of our earnings in the foreseeable future will be used for the operation and growth of our business.

Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

On November 23, 2022, our Board of Directors authorized a share repurchase program (the 2022 Share Repurchase Program) pursuant to which the Company may repurchase up to $20.0 million of the Company's common stock through open market or privately negotiated transactions until December 31, 2023. The repurchases are contingent upon favorable market and business conditions and are funded by cash on hand. The program does not obligate the Company to acquire any specific number of shares.

The following table provides information with respect to the shares of common stock repurchased by us during the three months ended December 31, 2022:

Period	Total Number of Shares Purchased	Average Price Paid Per Share (1)	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Program
October 1 - 31, 2022		$—		$—
November 1 - 30, 2022		$—		$—
December 1 - 31, 2022	422,309	$1.33	422,309	$19.4 million

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[1] Average price paid per share includes related expenses.

ITEM 6. RESERVED

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is intended to help the reader understand the results of operations and financial condition of Standard BioTools Inc. MD&A is provided as a supplement to, and should be read together with our consolidated financial statements and the notes to those statements included elsewhere in this Form 10-K. This discussion contains forward-looking statements based on our current expectations, assumptions, estimates and projections about Standard BioTools Inc. and our industry. These forward-looking statements involve risks and uncertainties. Our actual results could differ materially from those indicated in these forward-looking statements as a result of certain factors, as more fully described in "Risk Factors" in Item 1A of this Form 10-K, in this Item 7, and elsewhere in this Form 10-K. Except as may be required by law, we undertake no obligation to update publicly any forward-looking statements for any reason, even if new information becomes available or other events occur in the future.

Unless the context requires otherwise, references in this Form 10-K to "Standard BioTools" the "Company," "we," "us," and "our" refer to Standard BioTools Inc. and its subsidiaries.

Our MD&A is organized in the following sections:

- *Overview*
- *Fiscal 2022 Highlights*
- *Critical Accounting Estimates*
- *Recent Accounting Changes and Accounting Pronouncements*
- *Results of Operations*
- *Liquidity and Capital Resources*

Overview

Standard BioTools Inc. is driven by a bold purpose – unleashing tools to accelerate breakthroughs in human health. We have an established portfolio of essential, standardized next-generation high resolution technologies that help biomedical researchers develop medicines faster and better. Our tools are designed to provide reliable and repeatable insights in health and disease using our proprietary mass cytometry and microfluidics technologies, which serve applications in proteomics and genomics that help transform scientific discoveries into better patient outcomes. We work with leading academic, government, pharmaceutical, biotechnology, plant and animal research, and clinical laboratories worldwide, focusing on the most pressing needs in translational and clinical research, including oncology, immunology, and immunotherapy.

We distribute our systems through our direct sales force and support organizations located in North America, Europe, and Asia-Pacific, and through distributors or sales agents in several European, Latin American, Middle Eastern, and Asia-Pacific countries. Our manufacturing operations are located in Singapore and Canada.

Our total revenue was $97.9 million in 2022 compared to $130.6 million in 2021. We have incurred significant net losses since our inception in 1999 and our accumulated deficit was $926.1 million as of December 31, 2022.

Fiscal 2022 Highlights

- Received $250 million in cash proceeds from the issuance of convertible preferred stock in a private placement transaction
- Following the private placement, changed our name to Standard BioTools Inc. and our stock trading symbol to LAB
- Made significant changes to our leadership team, including the appointment of Dr. Michael Egholm as Chief Executive Officer in April 2022
- Launched a new corporate business strategy based upon three pillars: 1) revenue growth, 2) improving operating discipline through Standard BioTools Business Systems (SBS), and 3) strategic capital allocation
- Implemented a phased restructuring program aimed at improving efficiency, reducing operating costs, and aligning our workforce with the current needs of our business
- Reduced headcount by 15%

- Signed a 39-month sublease agreement for 25% of our corporate headquarters in South San Francisco, California
- Began operating under two reportable segments: Proteomics and Genomics. Each segment is identified by its unique portfolio of products
- Rationalized our product portfolio by discontinuing our laser capture microdissection (LCM), Flow Conductor and COVID-19 products
- Optimized our Genomics manufacturing operations by returning instrument manufacturing to our own facility in Singapore and relocating reagent manufacturing from South San Francisco, California to our facility in Canada
- Announced a $20 million Share Repurchase Program in November 2022 and repurchased 422,309 shares of common stock for $0.6 million at an average cost per share of $1.33

Critical Accounting Estimates

The consolidated financial statements and related notes included in this Form 10-K are prepared in accordance with generally accepted accounting principles in the United States (U.S. GAAP). Preparing U.S. GAAP financial statements requires the use of estimates and assumptions to determine the value of the assets, liabilities, revenues and expenses reported on the consolidated balance sheets and statements of operations. We develop these estimates after considering historical transactions, the current economic environment and various other assumptions considered reasonable under the circumstances. Actual results may differ materially from these estimates and judgments. Accounts that rely heavily on estimated information to determine their values include revenue, trade receivables, inventories, right-of-use assets, goodwill, long-lived intangible assets, lease liabilities, and preferred equity. Refer to Note 2 to our consolidated financial statements for further information on our most significant accounting policies.

Revenue

We recognize revenue based on the amount of consideration we expect to receive in exchange for the goods and services we transfer to the customer. Our commercial arrangements typically include multiple, distinct products and services, and we allocate purchase consideration to the products and services based on each item's relative standalone selling price. Standalone selling prices (SSP) are generally determined using observable data from recent transactions. In cases where sufficient data is not available, we estimate a product's SSP using a cost plus margin approach or by applying a discount to the product's list price.

We have entered and may continue to enter into development agreements with customers that require us to recognize revenue using an input method that determines the extent of our progress toward completion by comparing the actual costs incurred to the total expected cost. As part of the accounting for these arrangements, we develop estimates and assumptions that require judgment to determine the transaction price and progress towards completion. We review these estimates at the end of each reporting period using the best available information, revise the estimates as necessary, and recognize revenue commensurate with our progress toward completion.

Trade Receivables

Trade accounts receivable are recorded at net invoice value. We review our exposure to accounts receivable and provide allowances for uncollectible specific amounts if collectability is no longer reasonably assured. We evaluate such allowances on a regular basis and adjust them as needed. Significant judgment is required in determining the amounts of any such allowances.

Inventories

Inventories are stated at the lower of cost (on a first-in, first-out basis) or net realizable value. Inventory costs include direct materials, direct labor, and normal manufacturing overhead. We regularly review inventory for excess and obsolete products and components. Significant judgment is required in determining provisions for slow-moving, excess, and obsolete inventories which are recorded when required to reduce inventory values to their estimated net realizable values based on product life cycle, development plans, product expiration, and quality issues.

Right-of-Use Assets and Lease Liabilities

We determine if an arrangement is a lease, or contains a lease, at inception. Operating leases are included in operating lease right-of-use (ROU) assets, and operating lease liabilities in our consolidated balance sheets. ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the

lease. Operating lease ROU assets and liabilities are recognized at the commencement date of the lease based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we generally use our incremental borrowing rate based on the estimated rate of interest for collateralized borrowing over a similar term of the lease payments at commencement date. Significant judgment is required in determining the incremental collateralized borrowing rate. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

Goodwill and Long-Lived Assets

Assessing goodwill and long-lived assets for impairment requires significant judgment as it involves selecting an appropriate valuation method, identifying reporting units, assigning assets and liabilities to the reporting units, and estimating future cash flows, remaining service lives, revenue growth rates, terminal values and discount rates.

Series B Redeemable Preferred Stock

The Purchase Agreements (as defined in Note 3 to the consolidated financial statements) for the issuance of shares of Series B Preferred Stock were accounted for as forward sales contracts at fair value in accordance with ASC 480, *Distinguishing Liabilities from Equities*. The Series B Preferred Stock was treated as mezzanine equity and recorded at its fair value upon issuance, net of issuance costs due to its redemption features, such as change of control and liquidation preference, which are outside of the Company's control. Subsequent remeasurement of the Series B Redeemable Preferred Stock amount presented within mezzanine equity to its redemption amount is not required since it is not probable that the instrument will become redeemable. Mezzanine equity which has characteristics of both liabilities and shareholders' equity (deficit) is presented separately on the consolidated balance sheets between these two items because it has some characteristics of both. Refer to Note 3 to the consolidated financial statements for additional information.

Recent Accounting Changes and Accounting Pronouncements

Adoption of New Accounting Guidance

In August 2020, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2020-06 Debt-Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging-Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity. The amendment to this ASU reduces the number of accounting models for convertible instruments and allows more contracts to qualify for equity classification, which is expected to result in more convertible instruments being accounted for as a single unit, rather than being bifurcated between debt and equity. The new guidance was effective for fiscal years beginning after December 15, 2021. We adopted ASU 2020-06 effective January 1, 2022. The adoption of ASU 2020-06 did not have an impact on our financial results.

In November 2021, the FASB issued ASU 2021-10 Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance. The amendment was effective for annual periods beginning after December 15, 2021. The amendment established financial disclosure requirements for business entities that receive government assistance they account for by analogizing to a grant or contribution model due to a lack of specific GAAP guidance for such transactions. Entities that receive this type of assistance are required to include the following information in the notes to their financial statements: (1) the nature of the transaction, (2) the significant terms and conditions, (3) the accounting treatment, (4) the line items on the balance sheet and income statement that are affected along with (5) the respective amounts that have been recorded. We adopted ASU 2021-10 effective January 1, 2022.

Recent Accounting Pronouncements

None.

Results of Operations

The following table presents our historical consolidated statements of operations for the years ended December 31, 2022 and 2021, and as a percentage of total revenue for the respective years (in thousands):

	Year Ended December 31,			
	2022		2021	
Revenue:				
Total revenue	$ 97,948	100 %	$ 130,581	100 %
Costs and expenses:				
Cost of product revenue	52,555	54	53,315	41
Cost of service revenue	8,342	9	7,893	6
Research and development	38,498	39	37,944	29
Selling, general and administrative	114,758	117	98,888	76
Total costs and expenses	214,153	219	198,040	152
Loss from operations	(116,205)	(119)	(67,459)	(52)
Interest expense	(4,331)	(4)	(3,823)	(3)
Loss on forward sale of Series B Preferred Stock	(60,081)	(61)	—	—
Loss on bridge loans	(13,719)	(14)	—	—
Surplus funding from NIH Contract	153	—	7,140	7
Other income, net	1,255	1	482	—
Loss before income taxes	(192,928)	(197)	(63,660)	(48)
Income tax benefit	2,830	3	4,423	3
Net loss	$ (190,098)	(194)%	$ (59,237)	(45)%

Strategic Financing and Business Improvement Actions

Our operating results for the year ended December 31, 2022 include certain items related to the strategic financing transaction and subsequent business improvement actions taken by the new management team, including the rationalization of our product portfolio and the restructuring plan announced in August 2022. These items increased our loss from operations by $29.8 million for the year ended December 31, 2022 as shown below (in thousands):

	Year Ended December 31, 2022
Revenue:	
Portfolio rationalization (1)	$ (1,588)
Cost of product and service revenue:	
Portfolio rationalization (1)	3,350
Business improvement initiatives (2)	2,183
Retention bonuses	84
Restructuring (see Note 16)	63
Total cost of product and service revenue items	5,680
Research and development:	
Portfolio rationalization (1)	3,526
Restructuring (Note 16)	1,116
Retention bonuses	756
Total research and development items	5,398
Selling, general and administrative:	
Restructuring and other related costs (4) (see Note 16)	4,229
Retention bonuses	3,830
Strategic financing support (3)	3,800
Severance costs (4)	2,733
Business improvement initiatives (2)	2,197
Enterprise resource planning upgrade	391
Total selling, general and administrative items	17,180
Total	$ 29,846

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(1) Costs related to the exit/de-emphasis of the LCM, Flow Conductor and COVID-19 product lines, including $3.5 million impairment of intangible assets

(2) Costs related to returning instrument manufacturing to our Singapore facility; also includes strategic advisory and consulting expenses in support of our restructuring plan

(3) Costs to prepare the Private Placement Issuance, including legal and consulting expenses

(4) Termination benefits for members of the former management team, including the former CEO

Revenue

We generate revenue primarily from sales of our products and services. Our product revenue consists of sales of instruments and consumables. Consumables revenue is largely driven by the size of our active installed base and the level of usage per instrument. Service revenue is also linked to the size of our active installed base as it is primarily comprised of post-warranty service contracts for instruments.

Revenue by product type and as a percentage of total revenue are as follows ($ in thousands):

	Year Ended December 31,				Change
	2022		2021		2022
Revenue:					
Instruments	$ 25,664	26 %	$ 42,498	33 %	(40)%
Consumables	46,790	48	57,878	44	(19)%
Product revenue	72,454	74	100,376	77	(28)%
Service revenue	23,712	24	25,917	20	(9)%
Product and service revenue	96,166	98	126,293	97	(24)%
Development revenue	818	1	2,559	2	(68)%
Grant revenue	—	—	1,582	1	(100)%
License revenue	964	1	147	—	556 %
Total revenue	$ 97,948	100 %	$ 130,581	100 %	(25)%

Revenue by the geographic location of our customers and as a percentage of total revenue are as follows ($ in thousands):

	Year Ended December 31,				Change
	2022		2021		2022
Americas	$ 43,982	45 %	$ 63,877	49 %	(31)%
EMEA	33,136	34	42,722	33	(22)%
Asia-Pacific	20,830	21	23,982	18	(13)%
Total revenue	$ 97,948	100 %	$130,581	100 %	(25)%

Americas revenue includes United States revenue of $41.0 million and $60.2 million for the years ended December 31, 2022, and 2021, respectively. Asia-Pacific includes revenue generated in China of $11.3 million and $12.5 million for 2022 and 2021, respectively. With the exception of China, no foreign country had revenue that exceeded of 10% of total revenues in 2022 or 2021.

One genomics customer accounted for 11% of total revenue for the year ended December 31, 2022. No customer represented more than 10% of total revenue for the year ended December 31, 2021.

Revenue from our five largest customers represented 19% of total revenues for the year ended December 31, 2022 and 23% for the year ended December 31, 2021.

Total Revenue. Total revenue decreased by $32.6 million, or 25%, for the year ended December 31, 2022, compared to the year ended December 31, 2021, driven primarily by a $27.9 million, or 28%, decline in product revenue and a $2.2 million, or 9%, decline in service revenue. A stronger U.S. dollar negatively impacted the Company's total revenue by $3.6 million, or 2.8 percent.

Americas revenue declined by $19.9 million, or 31%, for the year ended December 31, 2022, compared to the year ended December 31, 2021, primarily due to a reduction in product revenue from discontinued product lines, including our COVID-19 test products, and from lower unit sales of proteomics instruments. EMEA revenue decreased by $9.6 million, or 22%, primarily driven by a decline in proteomics instrument revenue. A stronger U.S. dollar negatively impacted EMEA revenue by approximately 4.7 percent. In Asia-Pacific, revenue decreased by $3.2 million, or 13%, primarily due to a decline in proteomics revenue. A stronger U.S. dollar negatively impacted Asia-Pacific revenues by approximately 5.8 percent.

Segment Product and Service Revenue

Segment product and service revenue and as a percentage of the respective segment's total revenue are as follows ($ in thousands):

	Year Ended December 31,				Change
	2022		2021		2022
Proteomics:					
Instruments	$ 16,923	33 %	$ 29,964	44 %	(44)%
Consumables	17,839	35	18,960	28	(6)%
Product revenue	34,762	68	48,924	72	(29)%
Service revenue	16,891	32	18,733	28	(10)%
Product and service revenue	$ 51,653	100 %	$ 67,657	100 %	(24)%

	Year Ended December 31,				Change
	2022		2021		2022
Genomics:					
Instruments	$ 8,741	20 %	$ 12,534	21 %	(30)%
Consumables	28,951	65	38,918	67	(26)%
Product revenue	37,692	85	51,452	88	(27)%
Service revenue	6,821	15	7,184	12	(5)%
Product and service revenue	$ 44,513	100 %	$ 58,636	100 %	(24)%

Proteomics. Proteomics product and service revenue declined by $16.0 million, or 24%, for the year ended December 31, 2022, compared to the year ended December 31, 2021. The year-over-year decline is primarily attributable to lower unit sales of instruments.

Genomics. Genomics product and service revenue declined by $14.1 million, or 24%, during the year ended December 31, 2022 compared to the year ended December 31, 2021. The year-over-year decline is primarily attributable to the reduced demand for COVID-19 test kits and other products that were discontinued in 2022. An increase in OEM revenue was offset by a decline in sales to other customers.

We expect the average selling prices of our products to fluctuate over time based on market conditions, product mix, and currency fluctuations.

Product and Service Cost, Product and Service Gross Profit, and Product and Service Margin

Cost of product revenue includes manufacturing costs incurred in the production process, including component materials, labor and overhead, installation, packaging, and delivery costs. In addition, cost of product revenue includes amortization of developed technology and intangibles, royalty costs for licensed technologies included in our products, warranty, provisions for slow-moving and obsolete inventory, and stock-based compensation expense. Our cost of product revenue and related product margin may fluctuate depending on the capacity utilization of our manufacturing facilities in response to market conditions and the demand for our products.

Cost of service revenue includes direct labor hours, overhead, and instrument parts. Our cost of service revenue and related service margin may fluctuate depending on the variability in material and labor costs of servicing instruments.

Product and service cost, product and service gross profit, and product and service margin are as follows ($ in thousands):

	Year Ended December 31,		Change
	2022	2021	2022
Cost of product revenue	$ 52,555	$ 53,315	(1)%
Cost of service revenue	8,342	7,893	6 %
Cost of product and service revenue	$ 60,897	$ 61,208	(1)%
Product and service gross profit	$ 35,268	$ 65,085	(46)%
Product and service margin	36.7 %	51.5 %	(14.8) ppts.

Product and service margin decreased by 14.8 percentage points for the year ended December 31, 2022 compared to the year ended December 31, 2021. Increased provisions for excess and obsolete inventory accounted for 6.4 percentage points of the decline in the product and service margin. Provisions for excess and obsolete inventory were $7.9 million, or 8.2%, of product and service revenue for the twelve months ended December 31, 2022 compared to $2.3 million, or 1.8%, of product and service revenue for the twelve months ended December 31, 2021. The increase in these provisions primarily reflects the impact of our portfolio rationalization initiatives. Fixed depreciation and amortization costs on a lower revenue base contributed 2.9 percentage points to the decline in product and service margin, while other factors, including an unfavorable product mix and higher service costs contributed 2.9 and 2.4 percentage points, respectively.

Operating Expenses

($ in thousands):	Year Ended December 31,		Change
	2022	2021	2022
Research and development	$ 38,498	$ 37,944	1 %
Selling, general and administrative	114,758	98,888	16 %
Total operating expenses	$ 153,256	$ 136,832	12 %

Research and Development

Research and development expense consists primarily of compensation-related costs, product development and material expenses, and other allocated facilities and information technology expenses. Our research and development efforts have focused primarily on enhancing our technologies and supporting the development and commercialization of new and existing products and services. Research and development expense also includes costs incurred in conjunction with research grants and development arrangements.

Research and development expense increased by $0.6 million, or 1%, to $38.5 million in 2022 compared to $37.9 million in 2021. The increase is primarily attributable to a $3.5 million non-cash impairment charge to write off long-lived intangible assets associated with discontinued products and $1.1 million of restructuring expenses. These expenses were mostly offset by a $2.3 million reduction in laboratory supplies, a $1.4 million reduction in consulting fees, and a $0.4 million reduction in stock-based compensation expense, each of which reflect reduced and refocused program activity.

Selling, General and Administrative

Selling, general and administrative (SG&A) expense consists primarily of personnel costs for, sales, marketing, business development, finance, legal, human resources, information technology, and general management, as well as professional services, including legal and accounting.

SG&A expense increased by $15.9 million, or 16%, to $114.8 million in 2022 compared to $98.9 million in 2021. The strategic financing and business improvement initiatives launched in 2022 increased SG&A expenses by $17.2 million. The total includes $4.2 million of restructuring and other related costs involving former executives, $3.8 million for retention bonuses to retain key employees, $3.8 million for legal and consulting fees in support of the private placement issuance, Company name change, and rebranding activities, $2.7 million for severance, $2.2 million in business improvement initiatives for strategic advisory and business consulting expenses, and $0.4 million to upgrade the ERP system. There was also a $2.0 million increase in travel expenses, as COVID-19 travel-related restrictions were relaxed. These cost increases were partially offset by a $1.7 million decrease in compensation expense and a $0.8 million decrease in stock-based compensation expense

resulting from the headcount reductions, and a $0.4 million decrease in commissions related a decline in revenues and a reduced sales force in 2022.

Segment Loss from Operations

($ in thousands):	Year Ended December 31, 2022	Year Ended December 31, 2021	Change 2022
Loss from operations:			
Proteomics	$ (28,751)	$ (10,917)	163 %
Genomics	(26,885)	(10,198)	164 %
Corporate expenses	(60,569)	(46,344)	31 %
Total loss from operations	$ (116,205)	$ (67,459)	72 %

Proteomics. Proteomics loss from operations increased by $17.8 million, or 163%, for the year ended December 31, 2022 compared to the year ended December 31, 2021. The year over year increase in operating loss was primarily attributable to an $11.8 million reduction in gross profit driven by lower unit sales of instruments, a $3.5 million non-cash impairment charge to write-off the developed technology acquired from InstruNor and a $2.5 million increase in operating expenses.

Genomics. Genomics loss from operations increased by $16.7 million, or 164%, for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to a $20.5 million reduction in gross profit driven by lower revenues and lower product and service margins. The unfavorable impact of these items was partially offset by a $4.8 million reduction in operating expense, which was primarily attributable to a $3.6 million reduction in R&D-related expense as a result of targeted program reductions.

Corporate expenses. Corporate expenses include general and administrative expenses for functions shared by both operating segments such as executive management, human resources, and finance.

Interest Expense and Other Non-Operating Items

($ in thousands):	Year Ended December 31, 2022	Year Ended December 31, 2021	Change 2022
Interest expense	$ (4,331)	$ (3,823)	(13)%
Loss on forward sale of Series B Preferred Stock	(60,081)	—	NA
Loss on bridge loans	(13,719)	—	NA
Surplus funding from NIH Contract	153	7,140	98 %
Other income, net	1,255	482	(160)%
Total	$ (76,723)	$ 3,799	NA

Interest expense increased by $0.5 million, or 13%, for the year ended December 31, 2022 compared to the year ended December 31, 2021, principally due to the $10.0 million Term Loan, which originated on August 1, 2021 and remained fully drawn throughout 2022, as well as the Bridge Loans, which originated in January 2022 and accrued interest until converted into Series B Redeemable Preferred Stock in April 2022 as discussed below.

The Purchase Agreements for the issuance of 225,000 shares of Series B Redeemable Preferred Stock for $225 million were accounted for as forward sales contracts and recorded at fair value in accordance with ASC 480, *Distinguishing Liabilities from Equities*. The fair value of the payable portion of the Purchase Agreements was determined to be $285.1 million on April 4, 2022, the closing date of the Private Placement Issuance. The $60.1 million loss on the forward sales of Series B Preferred Stock for the twelve months ended December 31, 2022 reflects the increase in the share price of our common stock from $2.84 per share at the inception of the Agreements to $3.99 per share on April 4, 2022.

Applying the guidance in ASC 825, *Financial Instruments*, we elected to record the Bridge Loans, which commenced on January 4, 2022 at their fair value. The change in fair value of the Bridge Loans from inception to their conversion on April 4, 2022 was recorded as a loss on Bridge Loans. The fair value of the Bridge Loans was largely driven by the value of our common stock and the value of the Series B Preferred Stock into which they were converted. The loss on Bridge Loans of $13.7 million in 2022 was largely driven by the increase in the price of our common stock from inception to the conversion date.

Refer to Note 3 within our consolidated financial statements for additional details relating to the Series B Redeemable Preferred Stock and the Bridge Loans.

In 2022, we recognized the final $0.2 million of income under the NIH Contract from amounts received in excess of amounts spent on capital expenditures and operating expenses. The $0.2 million recognized in 2022 increased the amount of cumulative income recognized under the agreement to $7.3 million.

Income Tax Benefit

Our tax provision is generally driven by our foreign operations and by discrete items, such as changes in our valuation allowances or adjustments made when finalizing our tax returns. Depending on the relative value of these items, we can either have either a tax benefit or expense in any given period.

We recorded a tax benefit of $2.8 million, or an effective tax rate benefit of 1.5%, for the year ended December 31, 2022 compared to a tax benefit of $4.4 million, or an effective tax rate benefit of 6.9%, for the year ended December 31, 2021. The reduced tax benefit in 2022 compared to 2021 was primarily the result of changes in the deferred tax expense related to foreign operations, which generated significant tax benefit in prior years.

Liquidity and Capital Resources

Sources of Liquidity

As of December 31, 2022, our principal sources of liquidity consisted of $165.8 million of cash and cash equivalents, and short-term investments. We expect these sources will be sufficient to support the operations of our business and any debt maturities for at least the next 12 months from the date of filing this Annual Report. Our future capital needs will depend upon many factors, including the market acceptance of our products and services; the effectiveness of our business improvement initiatives and restructuring program launched in August 2022; the costs and pace of developing new products; the costs of supporting sales growth; product quality; and the costs and timing of acquiring other businesses, assets or technologies.

The following table presents our cash flow summary for each year presented (in thousands):

	Year Ended December 31,	
	2022	2021
Cash flow summary:		
Net cash used in operating activities	$ (89,370)	$ (44,061)
Net cash used in investing activities	(88,127)	(11,946)
Net cash provided by financing activities	230,758	15,959
Effect of foreign exchange rate fluctuations on cash and cash equivalents	(404)	(21)
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 52,857	$ (40,069)

Net Cash Used in Operating Activities. We derive cash flows from operations primarily by collecting amounts due from sales of our products and services, and from fees earned under product development, license and grant agreements. Our cash flows from operating activities are also significantly influenced by our use of cash for operating expenses and working capital to support the business. We have historically experienced negative cash flows from operating activities as we have expanded our business and built our infrastructure domestically and internationally.

Net cash used in operating activities in 2022 was $89.4 million. and consisted of a net loss of $190.1 million partially offset by non-cash items of $116.2 million and cash used in assets and liabilities of $15.5 million. Non-cash items included a $60.1 million loss on forward sale of Series B Preferred Stock, depreciation and amortization of $15.0 million, stock-based compensation expense of $14.9 million, a $13.7 million loss on Bridge Loans, a $7.9 million provision for excess and obsolete inventory, and a $3.5 million impairment charge for InstruNor development technology. The net cash used in assets and liabilities was primarily due to a $8.5 million increase in inventory, a $6.0 million decrease in other current liabilities, a $3.5 million decrease in deferred revenues, and a $2.8 million decrease of accounts payable. This is partially offset by increased accrued compensation and benefits of $4.1 million including accruals for restructuring expenses, and a $1.1 million reduction of accounts receivable.

Net Cash Used in Investing Activities. Our primary investing activities consist of purchases, sales, and maturities of our short-term investments and capital expenditures for manufacturing, laboratory, and computer equipment and software to support our infrastructure and workforce. We expect to continue to incur costs for capital expenditures to improve manufacturing efficiencies and strengthen our information technology and network security. However, we may choose to decrease or defer certain capital expenditures and development activities, while further optimizing our organization.

Net cash used in investing activities in 2022 was $88.1 million, which primarily consists of $137.3 million for the purchase of investments in short-term securities, partially offset by $53.0 million of cash receipts from maturities of such securities.

Net Cash Provided by Financing Activities. Net cash provided by financing activities totaled $230.8 million in 2022. The principal sources of cash were $25.0 million of proceeds from the receipt of the Bridge Loans in January 2022 and $225 million of proceeds from the issuance of Series B Preferred Stock in April 2022. The Bridge Loans automatically converted into Series B Preferred Stock upon the completion of the preferred stock financing.

The principal uses of cash were $12.5 million for equity issuance costs related to the Series B Preferred Stock and $6.8 million for the repayment of advances under the Revolving Credit Facility.

Purchase Obligations and Commitments

Purchase obligations consist of contractual and legally binding commitments to purchase goods and services. Our purchase obligations with suppliers specify all significant terms, including fixed, minimum or variable price provisions , and the approximate timing of the transaction The majority of our contracts are cancellable with little or no notice or penalty. However, once a vendor has incurred costs to fulfill a contract with us, and which costs cannot be otherwise deployed, we are liable for those costs upon cancellation. For example, if a supplier has purchased raw materials to produce a good for us, and those goods cannot be returned or otherwise used by our vendor, we are obligated to reimburse them for the costs they incurred. As of December 31, 2022, these purchase commitments totaled $13.5 million. Capital expenditure commitments as of December 31, 2022 were immaterial. In addition, we have certain non-cancellable commitments with service providers that are not material in the aggregate.

We have additional obligations beyond the purchase of goods and services, including the following:

- Contingent obligations to our Series B Redeemable Preferred Stockholders. See Note 3 Private Placement Issuance- Series B Preferred Stock- Change of Control Provisions and Liquidation Rights.

- Principal amounts due under our debt obligations, including end-of-term fees, totaled $66.2 million at December 31, 2022, of which $2.1 million is due and payable in 2023. See Note 9 Debt for additional information.

- Future payments for operating lease obligations at December 31, 2022 totaled $37.8 million, of which $3.7 million is expected to be paid in 2023. See Note 10 Leases for additional information.

- Additional information on our obligations under license and patent agreements, and indemnification agreements entered into in the ordinary course of business is provided in Note 17 Commitments and Contingencies.

The expected timing of payments of our obligations is estimated based on current information. Timing of payments and actual amounts paid may be different, depending on the timing of receipt of goods or services, or changes to agreed-upon amounts for some obligations. In addition, some of our future purchasing needs are not current contractual obligations and are therefore not included in the commitment amounts above because they are not handled through binding contracts or are not fulfilled by vendors on a purchase order basis within short time horizons.

Capital Resources

At December 31, 2022 and December 31, 2021, our working capital, excluding deferred revenues, deferred grant income, and restricted cash, was $179.8 million and $38.0 million, respectively, including cash, cash equivalents and short-term investments of $165.8 million and $28.5 million, respectively.

Repurchase of Common Shares

On November 23 2022, our board of directors authorized the repurchase of up to $20.0 million of shares of the Company’s common stock in the open market or in negotiated transactions through December 31, 2023. The repurchases are expected to be funded by cash on hand. We repurchased a total of 422,309 shares of common stock under this program at a total cost of $0.6 million, or an average of $1.33 per share in 2022. As of December 31, 2022, the Company had a remaining authorization to repurchase up to $19.4 million of shares under this program. The timing and amount of future repurchases will depend upon

several factors, including market and business conditions, the daily trading volume of our stock and applicable SEC regulations. Repurchases may be suspended or discontinued at any time.

2014 Notes and 2019 Notes

In February 2014, we closed an underwritten public offering of our 2014 Notes. Pursuant to the Indenture governing the 2014 Notes, holders of the 2014 Notes have the right, subject to certain conditions specified in such indenture, to require the Company to repurchase all or a portion of their 2014 Notes on each of February 6, 2021, February 6, 2024, and February 6, 2029, at a repurchase price in cash equal to 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest. On February 6, 2021, holders of $0.5 million of the 2014 Notes exercised their right for us to repurchase their notes in accordance with this provision leaving $0.6 million of 2014 Notes outstanding at December 31, 2022.

In November 2019, we closed a private placement of $55.0 million aggregate principal amount of our 2019 Notes. The 2019 Notes bear interest at 5.25% per annum, payable semiannually on June 1 and December 1 of each year, beginning on June 1, 2020. The Notes mature on December 1, 2024, unless earlier repurchased or converted pursuant to their terms. The 2019 Notes will be convertible at the option of the holder at any point prior to close of business on the second scheduled trading day preceding the maturity date. The initial conversion rate of the 2019 Notes is 344.8276 shares of the Company's common stock per $1,000 principal amount of 2019 Notes (which is equivalent to an initial conversion price of $2.90 per share). The conversion rate will be subject to adjustment upon the occurrence of certain specified events but will not be adjusted for any accrued and unpaid interest.

The 2019 Notes will also be convertible at our option upon certain conditions in accordance with the terms of the indenture governing the 2019 Notes. On or after December 1, 2021 to December 1, 2022, if the price of the Company's common stock has equaled or exceeded 150% of the Conversion Price (as defined in the indenture, currently $2.90 per share, subject to adjustment) for a specified number of days (Issuer's Conversion Option), we may, at our option, elect to convert the 2019 Notes in whole but not in part into shares of the Company. On or after December 1, 2022, if the price of the Company's common stock has equaled or exceeded 130% of the Conversion Price then in effect for a specified number of days, we may, at our option, elect to convert the 2019 Notes in whole but not in part into shares of the Company. The aggregate net carrying value of the 2014 and 2019 Notes was $54.6 million at December 31, 2022.

The foregoing summaries of the 2014 Notes and the 2019 Notes are not complete and are qualified in their entirety by the applicable indentures, forms of global notes, and other agreements and documents filed with the SEC.

Revolving Credit Facility

On August 2, 2018, we entered into a Loan and Security Agreement with Silicon Valley Bank (as amended the Revolving Credit Facility), which provides for secured revolving loans in an aggregate principal amount of up to the lesser of (i) $15.0 million or (ii) the sum of (a) 85% of our eligible receivables and (b) 50% of our eligible inventory, in each case, subject to certain limitations (Borrowing Base), provided that the amount of eligible inventory that may be counted towards the Borrowing Base shall be subject to a cap as set forth in the Revolving Credit Facility.

In August 2021, we amended our Revolving Credit Facility to extend the maturity date to August 2, 2023 and to provide for a new $10.0 million Term Loan Facility (the Term Loan Facility and, together with the Revolving Credit Facility, the Credit Facility). The Credit Facility is collateralized by substantially all our property, other than intellectual property. The maturity date of the Term Loan Facility is July 1, 2025, subject to the following condition: in the event the principal amount of our convertible debt exceeds $0.6 million as of June 1, 2024 or if the maturity date of our 2019 Notes has not been extended beyond January 1, 2026 by that date, then the maturity date of the Term Loan Facility will be June 1, 2024.The Amendment also added a financial covenant to the Credit Facility, requiring us to maintain a minimum Adjusted Quick Ratio of at least 1.25 to 1.00 and a Liquidity requirement greater than $20.0 million.

The interest rate on advances made under the Revolving Credit Facility is the greater of (i) prime rate plus 0.50% or (ii) 5.25% per annum. Interest on any outstanding advances is due and payable monthly and the principal balance is due at maturity though loans can be prepaid at any time without penalty. Fees for Revolving Credit Facility include an annual commitment fee of $112,500 and a quarterly unused line fee based on the Borrowing Base. As of December 31, 2022, there were no borrowings under the Revolving Credit Facility and the total availability was $9.2 million. We are in compliance with all the terms and conditions of the Revolving Credit Agreement as of December 31, 2022.

On March 10, 2023, Silicon Valley Bank was announced as closed by the California Department of Financial Protection and Innovation, and the Federal Deposit Insurance Corporation has been appointed as a receiver. As a result, we no longer expect to be able to draw on the Revolving Credit Facility.

Term Loan

As of December 31, 2022, the carrying value of the Term Loan Facility was $10.3 million and it was fully drawn. Interest on the term loan accrues on the outstanding principal amount thereof at the greater of (i) a floating per annum rate equal to three quarters of one percentage point (0.75%) above the prime rate (as customarily defined), or 4% with a final payment equal to 6.5% of the aggregate original principal amounts of each term loan advance due on the earlier of the maturity date of the Term Loan Facility, the acceleration of the term loan advances or any prepayment of a term loan advance. Interest is payable monthly. The principal amount of the term loan advances is repayable beginning on August 1, 2023, in twenty-four equal monthly installments. The $2.1 million current portion of the term-loan represents principal repayments that will be made in 2023. The effective interest rate on the Term Loan Facility, reflecting the impact of debt issuance costs, the end-of-term fee and expected timing of principal repayment was 9.3% per annum as of December 31, 2022.

Series B Preferred Stock

On April 4, 2022, we completed the Private Placement Issuance, issuing 255,559 shares of Series B Preferred Stock. The rights, preferences and privileges of the Series B Preferred Stock are set forth in the Series B-1 Certificate of Designations and Series B-2 Certificate of Designations (collectively, the Series B Certificates of Designations). The Series B Preferred Stock ranks senior to our common stock with respect to dividend rights, redemption rights and rights on the distribution of assets on any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company. The holders of Series B Preferred Stock are entitled to participate in all dividends declared on our common stock on an as-converted basis, on the terms and subject to the conditions set forth in the Series B Certificates of Designations.

The following is a brief summary of the conversion rights and other key provisions of the Series B Preferred Stock:

Holder Voluntary Conversion Rights

The Series B Preferred Stock is convertible at the option of the holders thereof at any time into a number of shares of common stock equal to the Conversion Rate (as defined in the Series B Certificates of Designations), which is initially 294.1176 shares of common stock per share of Series B Preferred Stock, in each case subject to certain adjustments and certain limitations on conversion.

Issuer Call Provision

At any time after the fifth anniversary of the closing of the Private Placement Issuance, if the last reported sale price of the common stock is greater than 250% of the Conversion Price (as defined in the Series B Certificates of Designations) as of such time for at least 20 consecutive trading days, we may elect to convert all of the outstanding shares of Series B Preferred Stock into shares of common stock.

Issuer Redemption Provision

After the seventh anniversary of the closing of the Private Placement Issuance, subject to certain conditions, we may, at our option, redeem all of the outstanding shares of Series B Preferred Stock at a redemption price per share of Series B Preferred Stock, payable in cash, equal to the Liquidation Preference (as defined in the Series B Certificates of Designations).

Change of Control Provisions

If we undergo certain change of control transactions, each holder of outstanding shares of Series B Preferred Stock will have the option, subject to the holder’s right to convert all or a portion of the shares of Series B Preferred Stock held by such holder into common stock, to require us to purchase all or a portion of such holder’s outstanding shares of Series B Preferred Stock that have not been converted into common stock at a purchase price per share of Series B Preferred Stock, payable in cash, equal to the greater of (A) the Liquidation Preference of such share of Series B Preferred Stock, and (B) the amount of cash and/or other assets that such holder would have been entitled to receive if such holder had converted such share of Series B Preferred Stock into common stock immediately prior to the change of control transaction (Change of Control Put).

In the event of a change of control in which we are not expected to be the surviving corporation or if our common stock will no longer be listed on a U.S. national securities exchange, we will have a right to redeem, subject to the holder’s right to convert into common stock prior to such redemption, all of such holder’s shares of Series B Preferred Stock, or if a holder exercises the Change of Control Put in part, the remainder of such holder’s shares of Series B Preferred Stock, at a redemption price per share payable in cash, equal to the greater of (A) the Liquidation Preference of such share of Series B Preferred Stock, and (B) the amount of cash and/or other assets that the holder would have received if such holder had converted such share of Series B Preferred Stock into common stock immediately prior to the change of control transaction.

Liquidation Rights

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company, the Series B Preferred Stock has a liquidation preference equal to the greater of (i) the Liquidation Preference (as defined in the Series B Certificates of Designations, currently $3.40) and (ii) the amount per share of Series B Preferred Stock that such holder would have received had all holders of Series B Preferred Stock, immediately prior to such voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company, converted all shares of Series B Preferred Stock into common stock pursuant to the terms of the Series B Certificates of Designations (without regard to any limitations on conversion contained therein).

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Standard BioTools Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the consolidated financial statements, including the related notes, of Standard BioTools Inc. and its subsidiaries (the "Company") as listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, 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. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

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

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

Critical Audit Matters

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

Series B Redeemable Preferred Stock

As described in Note 3 to the consolidated financial statements, as of December 31, 2022 the Company has recorded $311.3 million in Series B Preferred Stock, classified as mezzanine equity, at its fair value upon issuance, net of any issuance costs. The fair value of the Series B Redeemable Preferred Stock, which included a $60.1 million and $13.7 million loss on forward sale of preferred stock and loss on bridge loans, respectively, was determined by management using a Monte Carlo Simulation which relies on significant assumptions regarding the Company's estimated yield and estimated term.

The principal considerations for our determination that performing procedures relating to the Series B Redeemable Preferred Stock is a critical audit matter are (i) the significant judgment by management in determining the mezzanine equity accounting classification and in developing the fair value estimate of these shares; (ii) a high degree of auditor judgment, subjectivity and effort in performing procedures and evaluating management's determination of the mezzanine equity accounting classification and significant assumptions related to estimated yield and estimated term; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls over management's determination of the mezzanine equity accounting classification and controls relating to the valuation of Series B Redeemable Preferred Stock, including controls over the Company's methods, significant assumptions, and data. These procedures also included, among others, (i) evaluating management's determination of the mezzanine equity accounting classification, (ii) the involvement of professionals with specialized skill and knowledge to assist in developing an independent range of fair value outcomes for a Monte Carlo Simulation, and (iii) comparing the independent range of fair value outcomes to management's estimate to evaluate the reasonableness of management's estimate. Developing the independent range of fair value outcomes involved (i) testing the completeness and accuracy of data used in the Monte Carlo Simulation by comparing the data to an independent third-party source, and (ii) professionals with specialized skill and knowledge were used to assist in evaluating the reasonableness of significant assumptions related to estimated yield and estimated term.

/s/ PricewaterhouseCoopers LLP

San Jose, California
March 14, 2023

We have served as the Company's auditor since 2015.

STANDARD BIOTOOLS INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)

	December 31, 2022	December 31, 2021
ASSETS		
Current assets:		
Cash and cash equivalents	$ 81,309	$ 28,451
Short-term investments	84,475	—
Accounts receivable (net of allowances of $592 and $356 at December 31, 2022 and 2021, respectively)	17,280	18,320
Inventories, net	21,473	20,825
Prepaid expenses and other current assets	4,278	4,470
Total current assets	208,815	72,066
Property and equipment, net	25,652	28,034
Operating lease right-of-use asset, net	33,883	37,119
Other non-current assets	3,109	3,689
Developed technology, net	12,600	27,927
Goodwill	106,251	106,379
Total assets	$ 390,310	$ 275,214
LIABILITIES, MEZZANINE EQUITY AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable	$ 7,914	$ 10,602
Accrued compensation and related benefits	9,153	4,920
Operating lease liabilities, current	3,682	3,053
Deferred revenue, current	10,792	11,947
Deferred grant income, current	3,644	3,535
Other accrued liabilities	6,175	8,673
Advances under revolving credit agreement, current	—	6,838
Term loan, current	2,083	—
Total current liabilities	43,443	49,568
Convertible notes, net	54,615	54,160
Term loan, non-current	8,194	10,049
Deferred tax liability	1,055	4,329
Operating lease liabilities, non-current	34,081	37,548
Deferred revenue, non-current	3,816	5,966
Deferred grant income, non-current	14,359	18,116
Other non-current liabilities	961	882
Total liabilities	160,524	180,618
Commitments and contingencies (Note 17)		
Mezzanine equity:		
Redeemable preferred stock: $0.001 par value; 256 and no shares authorized, issued, and outstanding at December 31, 2022 and 2021, respectively; aggregate liquidation preference of $255,559 and $— as of December 31, 2022 and 2021, respectively	311,253	—
Stockholders' equity (deficit):		
Preferred stock: $0.001 par value, 9,744 and 10,000 shares authorized at December 31, 2022, and 2021, respectively; no shares issued and outstanding at either December 31, 2022 or 2021, respectively	—	—

Common stock: $0.001 par value, 400,000 and 200,000 shares authorized at December 31, 2022 and 2021, respectively; 79,904 and 76,919 shares issued at December 31, 2022 and 2021, respectively; 79,482 and 76,919 shares outstanding at December 31, 2022 and 2021, respectively	80	77
Additional paid-in capital	847,008	831,424
Accumulated other comprehensive loss	(1,896)	(907)
Accumulated deficit	(926,096)	(735,998)
Treasury stock at cost: 422 and no shares at December 31, 2022 and 2021, respectively	(563)	—
Total stockholders' equity (deficit)	(81,467)	94,596
Total liabilities, mezzanine equity, and stockholders' equity (deficit)	$ 390,310	$ 275,214

See accompanying notes

STANDARD BIOTOOLS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Year Ended December 31,	
	2022	2021
Revenue:		
Product revenue	$ 72,454	$ 100,376
Service revenue	23,712	25,917
Development revenue	818	2,559
Other revenue	964	1,729
Total revenue	97,948	130,581
Costs and expenses:		
Cost of product revenue	52,555	53,315
Cost of service revenue	8,342	7,893
Research and development	38,498	37,944
Selling, general and administrative	114,758	98,888
Total costs and expenses	214,153	198,040
Loss from operations	(116,205)	(67,459)
Interest expense	(4,331)	(3,823)
Loss on forward sale of Series B Preferred Stock	(60,081)	—
Loss on bridge loans	(13,719)	—
Surplus funding from NIH Contract	153	7,140
Other income, net	1,255	482
Loss before income taxes	(192,928)	(63,660)
Income tax benefit	2,830	4,423
Net loss	$ (190,098)	$ (59,237)
Net loss per share, basic and diluted	$ (2.43)	$ (0.78)
Shares used in computing net loss per share, basic and diluted	78,305	75,786

See accompanying notes

STANDARD BIOTOOLS INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31,	
	2022	2021
Net loss	$ (190,098)	$ (59,237)
Other comprehensive loss, net of tax		
Foreign currency translation adjustment	(487)	(1,019)
Net change in unrealized loss on investments	(502)	—
Other comprehensive loss, net of tax	(989)	(1,019)
Comprehensive loss	$ (191,087)	$ (60,256)

See accompanying notes

STANDARD BIOTOOLS INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)
(In thousands)

	Common Stock		Additional Paid-in Capital	Accum. Other Comp. Inc. (Loss)	Accum. Deficit	Treasury Stock		Total Stock-holders' Equity (Deficit)
	Shares	Amount				Shares	Amount	
Balance as of December 31, 2020	74,543	$ 75	$ 815,624	$ 112	$ (676,761)	—	$ —	$ 139,050
Issuance of restricted stock, net of shares withheld for taxes	2,047	2	(1,795)	—	—	—	—	(1,793)
Issuance of common stock under ESPP	292	—	1,285	—	—	—	—	1,285
Issuance of common stock from option exercises	37	—	209	—	—	—	—	209
Stock-based compensation expense	—	—	16,101	—	—	—	—	16,101
Net loss	—	—	—	—	(59,237)	—	—	(59,237)
Other comprehensive loss, net of taxes	—	—	—	(1,019)	—	—	—	(1,019)
Balance as of December 31, 2021	76,919	77	831,424	(907)	(735,998)	—	—	94,596
Issuance of restricted stock, net of shares withheld for taxes	2,373	2	(213)	—	—	—	—	(211)
Issuance of common stock under ESPP	583	1	819	—	—	—	—	820
Issuance of common stock from option exercises	29	—	98	—	—	—	—	98
Stock-based compensation expense	—	—	14,880	—	—	—	—	14,880
Repurchase of common stock	—	—	—	—	—	(422)	(563)	(563)
Net loss	—	—	—	—	(190,098)	—	—	(190,098)
Other comprehensive loss, net of tax	—	—	—	(989)	—	—	—	(989)
Balance as of December 31, 2022	79,904	$ 80	$ 847,008	$ (1,896)	$ (926,096)	(422)	$ (563)	$ (81,467)

See accompanying notes

STANDARD BIOTOOLS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,	
	2022	**2021**
Operating activities		
Net loss	$ (190,098)	$ (59,237)
Adjustments to reconcile net loss to net cash used in operating activities:		
Loss on forward sale of Series B Preferred Stock	60,081	—
Loss on bridge loans	13,719	—
Stock-based compensation expense	14,880	16,101
Amortization of developed technology	11,528	11,918
Depreciation and amortization	3,499	3,653
Provision for excess and obsolete inventory	7,874	2,293
Impairment of InstruNor developed technology intangible	3,526	—
Amortization of debt discounts, premiums and issuance costs	830	624
Other non-cash items	273	520
Changes in assets and liabilities:		
Accounts receivable, net	1,063	6,729
Inventories	(8,470)	(4,782)
Prepaid expenses and other assets	33	(436)
Accounts payable	(2,776)	1,281
Accrued compensation and related benefits	4,113	(8,721)
Deferred revenue	(3,467)	(3,208)
Other liabilities	(5,978)	(10,796)
Net cash used in operating activities	(89,370)	(44,061)
Investing activities		
Purchases of short-term investments	(137,302)	—
Proceeds from NIH Contract	—	1,318
Proceeds from sales and maturities of investments	53,000	—
Purchases of property and equipment, net	(3,825)	(13,264)
Net cash used in investing activities	(88,127)	(11,946)
Financing activities		
Proceeds from bridge loans	25,000	—
Proceeds from issuance of Series B Preferred Stock	225,000	—
Proceeds from advances under revolving line of credit	—	6,838
Proceeds from term loan	—	10,000
Repayment of advances under revolving line of credit	(6,838)	—
Repurchase of common stock	(563)	—
Repayment of long-term debt	—	(501)
Payments of debt and equity issuance costs	(12,547)	(79)
Proceeds from ESPP issuance and exercise of stock options	917	1,494
Payments for taxes related to net share settlement of equity awards and other	(211)	(1,793)
Net cash provided by financing activities	230,758	15,959
Effect of foreign exchange rate fluctuations on cash and cash equivalents	(404)	(21)
Net increase (decrease) in cash, cash equivalents and restricted cash	52,857	(40,069)
Cash and cash equivalents and restricted cash at beginning of period	29,467	69,536
Cash and cash equivalents and restricted cash at end of period	$ 82,324	$ 29,467
Supplemental disclosures of cash flow information		
Cash paid for interest	$ 3,493	$ 3,149
Cash paid for income taxes, net of refunds	$ 309	$ 2,085
Non-cash right-of-use assets and lease liabilities	$ 651	$ (2,435)
Asset retirement obligations	$ 718	$ 710

See accompanying notes

1. Description of Business

Standard BioTools Inc. (Standard BioTools, the Company, we, our or us) is driven by a bold vision – unleashing tools to accelerate breakthroughs in human health. We have an established portfolio of essential, standardized next-generation technologies that help biomedical researchers develop medicines faster and better. As a leading solutions provider, we endeavor to provide reliable and repeatable insights in health and disease using our proprietary mass cytometry and microfluidics technologies, respectively that help transform scientific discoveries into better patient outcomes. Standard BioTools works with leading academic, government, pharmaceutical, biotechnology, plant and animal research, and clinical laboratories worldwide, focusing on the most pressing needs in translational and clinical research, including oncology, immunology, and immunotherapy.

The Company, formerly known as Fluidigm Corporation, changed its name to Standard BioTools Inc. in April 2022, following the completion of the Private Placement Issuance (as defined and discussed in Note 3). The Company was founded in 1999 and is headquartered in South San Francisco, California.

2. Summary of Significant Accounting Policies

Basis of Presentation and Consolidation

The consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (U.S. GAAP) and include the accounts of our wholly owned subsidiaries. As of December 31, 2022, we had wholly owned subsidiaries in Singapore, Canada, the Netherlands, Japan, France, Italy, the United Kingdom, China, Germany and Norway. All subsidiaries, except for Singapore, use their local currency as their functional currency. The Singapore subsidiary uses the U.S. dollar as its functional currency. All intercompany transactions and balances have been eliminated in consolidation.

Certain prior period amounts in the consolidated statements of cash flow were reclassified to conform to the current period presentation. These reclassifications were immaterial and did not affect prior period total operating, investing or financing activities.

Use of Estimates

The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience, the current economic environment and on various other assumptions believed to be reasonable, which together form the basis for making judgments about the carrying values of assets and liabilities. The full extent to which the COVID-19 pandemic impacts our business, results of operations and financial condition will depend on numerous evolving factors including, but not limited to, the magnitude and duration of the pandemic, the extent to which it will impact worldwide macroeconomic conditions, including the speed of recovery, and governmental and business reactions to the pandemic. We assessed certain accounting matters that generally require consideration of forecasted financial information, including the impact of COVID-19 related supply chain shortages, the war in Ukraine, and inflation. These accounting matters included but were not limited to inventory and related reserves and the carrying value of goodwill and other long-lived assets. We also use significant judgment in determining the fair value of financial instruments, including debt and equity instruments. Actual results could differ materially from these estimates and could have a material adverse effect on our consolidated financial statements.

Foreign Currency

Assets and liabilities of non-U.S. subsidiaries that use their local currency as their functional currency are translated into U.S. dollars at exchange rates in effect on the balance sheet date. Income and expense accounts are translated at monthly average exchange rates during the year. The adjustments resulting from the foreign currency translations are recorded in accumulated other comprehensive loss, a separate component of stockholders' equity (deficit).

Revenue Recognition

We generate revenue primarily from the sale of our products and services. Product revenue is derived from the sale of instruments and consumables, including IFCs, assays and reagents. Service revenue is derived from the sale of instrument service contracts, repairs, installation, training and other specialized product support services. We also generate revenue from product development agreements, license and royalty agreements, and grants. Revenue is reported net of any sales, use and value-added taxes we collect from customers as required by government authorities. Research and development cost includes costs associated with development and grant revenue.

We recognize revenue based on the amount of consideration we expect to receive in exchange for the goods and services we transfer to the customer. Our commercial arrangements typically include multiple distinct products and services, and we allocate revenue to these performance obligations based on their relative standalone selling prices. Standalone selling prices (SSP) are generally determined using observable data from recent transactions. In cases where sufficient data is not available, we estimate a product's SSP using a cost plus a margin approach or by applying a discount to the product's list price.

Product Revenue

We recognize product revenue at the point in time when control of the goods passes to the customer, and we have an enforceable right to payment. This generally occurs either when the product is shipped from one of our facilities or when it arrives at the customer's facility, based on the contractual terms. Customers do not have a unilateral right to return products after delivery. Invoices are generally issued at shipment or in advance of service and become due in 30 to 60 days.

We sometimes perform shipping and handling activities after control of the product passes to the customer. We have made an accounting policy election to account for these activities as product fulfillment activities rather than as separate performance obligations.

Service Revenue

We recognize revenue from repairs, maintenance, installation, training and other specialized product support services at the point in time the work is completed. Installation and training services are generally billed in advance of service. Repairs and other services are generally billed at the point the work is completed.

Revenue associated with instrument service contracts is recognized on a straight-line basis over the life of the agreement, which is generally one to three years. We believe this time-elapsed approach is appropriate for service contracts because we provide services on demand throughout the term of the agreement. Invoices are generally issued in advance of service on a monthly, quarterly, annual or multi-year basis. Payments made in advance of service are reported on our consolidated balance sheet as deferred revenue.

Development Revenue

We have entered and may continue to enter into development agreements with third parties that provide for up-front and periodic milestone payments. Our development agreements may include more than one performance obligation. At the inception of the contract, we assess whether each obligation represents a separate performance obligation or whether such obligations should be combined as a single performance obligation. The transaction price for each development agreement is determined based on the amount of consideration we expect to be entitled to for satisfying all performance obligations within the agreement.

We assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue. In arrangements where we satisfy performance obligation(s) over time, we recognize development revenue using an input method that determines the extent of our progress toward completion by comparing the actual costs incurred to the total expected cost. As part of the accounting for these arrangements, we develop estimates and assumptions that require judgment to determine the transaction price and progress towards completion. We review these estimates at the end of each reporting period using the best available information, revise the estimates as necessary, and recognize revenue commensurate with our progress toward completion.

We may also generate revenue from development or collaboration agreements that do not include upfront or milestone-based payments. For these types of arrangements, we generally recognize revenue over time as the development services are provided.

Other Revenue

Other revenue consists of license and royalty revenue and grant revenue. We recognize revenue from license agreements when the license is transferred to the customer and the customer is able to use and benefit from the license. For contracts that include sales-based royalties, we recognize revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied.

We receive grants from various entities to perform research and development activities over contractually defined periods. Grant revenue is not accounted for under ASC 606 Revenue from Contracts with Customers, as the grant agreement is not with a customer. As there is no authoritative U.S. GAAP guidance for grants awarded to for-profit entities, we have applied the guidance in ASC 958 Not-for-Profit Entities by analogy. Revenue is generally recognized provided that the conditions under which the grants were provided have been met and any remaining performance obligations are perfunctory.

Significant Judgments

Applying the revenue recognition practices discussed above often requires significant judgment. Significant judgment is required when interpreting commercial terms in sales agreements and determining when control of goods and services passes to the customer. Judgment is also required when identifying performance obligations, estimating SSP and allocating purchase consideration in agreements that include multiple performance obligations. Any material changes created by errors in judgment could have a material effect on our operating results and overall financial condition.

Cash and Cash Equivalents

We consider all highly liquid financial instruments with maturities at the time of purchase of three months or less to be cash equivalents. Cash and cash equivalents may consist of cash on deposit with banks, and money market funds.

Investments

Short-term investments are comprised of U.S treasury securities that mature within one year. All investments are recorded at estimated fair value. Any unrealized gains and losses from investments are reported in accumulated other comprehensive loss, a separate component of stockholders' equity (deficit). We evaluate our investments to assess whether investments with unrealized loss positions are other-than-temporarily impaired. An investment is considered to be other-than-temporarily impaired if the impairment is related to deterioration in credit risk or if it is likely that we will sell the securities before the recovery of their cost basis. No investment has been assessed as other than temporarily impaired. The cost of securities sold, or the amount reclassified out of accumulated other comprehensive income into earnings is based on the specific-identification method.

Accounts Receivable, net

Trade accounts receivable are recorded at net invoice value. We review our exposure to accounts receivable and provide allowances of specific amounts if collectability is no longer reasonably assured based on historical experience and specific customer collection issues. We evaluate such allowances on a regular basis and adjust them as needed.

Concentrations of Business and Credit Risk

Financial instruments that potentially subject us to credit risk consist of cash, cash equivalents, investments, and accounts receivable. Our cash, cash equivalents, and investments may consist of deposits held with banks, money market funds, and other highly liquid investments that may at times exceed federally insured limits. Cash equivalents and investments are financial instruments that potentially subject us to concentrations of risk. Under our investment policy, we invest exclusively in securities issued by the U.S. government or U.S. government agencies, or in government money-market funds. The goals of our investment policy, in order of priority, are to: preserve capital, meet liquidity needs, and optimize returns.

We generally do not require collateral to support credit sales. To reduce credit risk, we perform credit evaluations of our customers. One genomics customer accounted for both 11% of total revenue for the year ended December 31, 2022 and 16% of outstanding net trade receivables at December 31, 2022. No customer represented more than 10% of total revenue for 2021 and no customer represented more than 10% of outstanding net trade receivables at December 31, 2021.

Our products include components that are currently procured from a single source or a limited number of sources. We believe that other vendors would be able to provide similar components; however, the qualification of such vendors may require

start-up time. In order to mitigate any adverse impacts from a disruption of supply, we attempt to maintain an adequate supply of critical limited-source components.

Inventories, net

Inventories are stated at the lower of cost (on a first-in, first-out basis) or net realizable value. Inventory costs include direct materials, direct labor, and normal manufacturing overhead. We regularly review inventory for excess and obsolete products and components. Significant judgment is required in determining provisions for slow-moving, excess, and obsolete inventories which are recorded when required to reduce inventory values to their estimated net realizable values based on product life cycle, development plans, product expiration, discontinuance of product lines, and quality issues.

Property and Equipment, net

Property and equipment, including leasehold improvements, are stated at cost less accumulated depreciation. Accumulated depreciation is calculated using the straight-line method over the estimated useful lives of the assets. Leasehold improvements are amortized over the estimated useful lives of the assets or the remaining term of the lease, whichever is shorter. The estimated useful lives of our property and equipment are generally as follows: computer equipment and software, three to four years; laboratory and manufacturing equipment, two to seven years; and office furniture and fixtures, five years.

Depreciation expense was $2.8 million in both 2022 and 2021.

Leases

We determine if an arrangement is a lease, or contains a lease, at the inception of the arrangement. Operating leases are reflected in operating lease right-of-use (ROU) assets and operating lease liabilities in our consolidated balance sheets. ROU assets represent our right-to-use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease ROU assets, and liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we generally use our incremental borrowing rate based on the estimated rate of interest for collateralized borrowing over a term similar to the lease arrangement. Significant judgment is required in determining the incremental collateralized borrowing rate. Lease expense is recognized on a straight-line basis over the lease term. Sublease income from an operating lease is recognized on a straight-line basis over the sublease term. See Note 10 Leases for additional information.

We elected the short-term lease recognition exemption for all leases that qualify. For those leases that qualify, we will not recognize ROU assets or lease liabilities for leases with an initial lease term of one year or less. We also elected not to separate lease and nonlease components for our building leases. The nonlease components are generally variable in nature and are expected to represent most of our variable lease costs. Variable costs are expensed as incurred. We have taken a portfolio approach for our vehicle leases by country.

Business Combinations, Goodwill, Intangible Assets and Other Long-Lived Assets

We have completed acquisitions of businesses in the past and may acquire additional businesses or technologies in the future. The results of businesses acquired in a business combination are included in our consolidated financial statements from the date of acquisition. We allocate the purchase price, which is the sum of the consideration provided in a business combination, to the identifiable assets and liabilities of the acquired business at their acquisition date fair values. Determining the fair value of assets acquired and liabilities assumed requires management to use significant judgment and estimates, including the selection of valuation methodologies and estimates of future revenue.

Goodwill, which has an indefinite useful life, represents the excess of cost over fair value of net assets acquired. Our intangible assets include developed technology, patents and licenses. The cost of identifiable intangible assets with finite lives is generally amortized on a straight-line basis over the assets' respective estimated useful lives. Judgment is needed to assess the factors that could indicate an impairment of intangible assets.

Goodwill and intangible assets with indefinite lives are not subject to amortization but are tested for impairment on an annual basis during the fourth quarter or whenever events or changes in circumstances indicate the carrying amount of these assets 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. Any impairment

charges could have a material adverse effect on our operating results and net asset value in the period in which we recognize the impairment charge.

In evaluating our goodwill and intangible assets with indefinite lives 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.

We evaluate our long-lived assets, including finite-lived intangibles, for indicators of possible impairment when events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. 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 can be recovered through undiscounted future operating cash flows. If impairment is indicated, we estimate the asset's fair value using future discounted cash flows associated with the use of the asset and adjust the carrying value of the asset accordingly.

Bridge Loans

The $25 million Bridge Loans (as described in Note 3) were recorded at fair value at inception in January 2022. The Company elected to use the fair value option under Accounting Standards Codification (ASC) 825 Financial Instruments and recorded the change in fair value from inception to the April 4, 2022 closing date of the Private Placement Issuance (see Note 3), when the Bridge Loans automatically converted into shares of Series B Redeemable Preferred Stock, as a non-operating loss on Bridge Loans in the consolidated statement of operations. Upon conversion, the carrying value of the Bridge Loans, including accrued interest to the date of the conversion was reclassified to Series B Redeemable Preferred Stock. Debt issuance costs were expensed as incurred.

Series B Redeemable Preferred Stock

The Purchase Agreements (as described in Note 3) for the issuance of shares of Series B Redeemable Preferred Stock were accounted for as forward sales contracts at fair value in accordance with ASC 480 Distinguishing Liabilities from Equities. The Series B Redeemable Preferred Stock was classified as mezzanine equity and recorded at fair value upon issuance, net of issuance costs, due to its redemption features that are outside of the Company's control. Mezzanine equity is presented separately on the consolidated balance sheets between liabilities and shareholders' equity because it shares characteristics of both. See Note 3 for additional information.

Restructuring and Other Related Costs

We record liabilities for costs associated with exit or disposal activities in the period in which the liability is incurred. Costs for involuntary separation programs are recorded when management has approved the plan for separation, the employees are identified and made aware of the benefits they are entitled to, it is unlikely that the plan will change significantly, and if applicable, any required governmental notification is made. Costs associated with benefits that are contingent on the employee continuing to provide service are recognized over the required service period. We record costs to implement business improvement programs, including external consulting and legal expenses, as they are incurred.

Deferred Grant Income

Proceeds from the NIH Contract have been principally recorded as capital expenditures and to offset applicable operating costs. The non-operating income recognized from the grant proceeds received in excess of the amounts spent for capital expenditures and operating expenses is reflected on the consolidated statement of operations as surplus funding from the NIH contract.

The NIH Contract met the definition of grants related to assets as the primary purpose for the payments was to fund the purchase and construction of capital assets to scale up production capacity. We elected to record the grants received as deferred income in accordance with International Accounting Standards (IAS) 20.

Deferred grant income related to production capacity expansion is being amortized for the related assets as a reduction of depreciation expense.

Term Loan, net

The term loan is recorded at its carrying value, which includes the outstanding principal amount and the cumulative accreted final payment, less unamortized debt issuance costs. Amortization of the debt issuance costs and accretion of the final payment are reflected in interest expense. The final payment is being accreted to the carrying value of the term loan through the expected maturity of July 1, 2025 using the effective interest method. Debt issuance costs were recorded as an offset to the carrying value of the loan and are amortized over the expected term also using the effective interest method. The total carrying value of the term loan is $10.3 million at December 31, 2022 and the principal debt repayments scheduled to be made in 2023 of $2.1 million are reported as current liabilities in the consolidated balance sheet.

Convertible Notes, net

We record the 2014 Notes and 2019 Notes (as described in Note 9) at their carrying values of $0.6 million and $54.0 million, respectively as at December 31, 2022, which includes their principal amounts plus accrued and unpaid interest. Offering-related costs, including underwriting costs, on the 2014 Notes and 2019 Notes were capitalized as debt issuance costs, recorded as an offset to the carrying value of the related Notes, and are amortized over the expected term of the related Notes using the effective interest method.

Treasury Stock

We use the cost method to account for the repurchases of our common stock in accordance with ASC 505-30, *Equity-Treasury Stock.* The direct costs associated with settled share repurchases, including trading commissions, are reported as treasury stock in the shareholders' equity (deficit) section of our consolidated balance sheet.

Fair Value of Financial Instruments

Our financial instruments consist primarily of cash and cash equivalents, restricted cash, short-term investments, accounts receivable, accounts payable, advances on our revolving credit agreement, term loan advances and convertible notes. Our cash equivalents, restricted cash, accounts receivable, accounts payable and advances under our revolving credit agreement generally have short maturity or payment periods. Accordingly, their carrying values approximated their fair values at December 31, 2022 and 2021. Our short-term investments consist of U.S. treasury securities that are classified as available-for-sale and reported at fair value on our balance sheet. The convertible notes and term loan are presented at their net carrying values.

As a basis for computing fair value, we follow a three-tier value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level I: observable inputs such as quoted prices in active markets;

Level II: inputs other than quoted prices in active markets that are observable either directly or indirectly; and

Level III: unobservable inputs for which there is little or no market data, which requires us to develop our own assumptions.

This hierarchy requires us to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. Our cash equivalents, which include money market funds, and our short-term investments are classified as Level I because they are valued using quoted market prices.

Our convertible notes are not regularly traded, and it is difficult to estimate a reliable and accurate market price for these securities. The estimated fair values of these securities represent Level III valuations since a fair value for these securities cannot be determined by using readily observable inputs or measures, such as market prices. Fair values were estimated using pricing models and risk-adjusted value ranges. The estimated fair value of our term loan also represents a Level III valuation since the value cannot be determined by using readily observable inputs or measures, such as market prices. The fair value of our term loan was estimated using a discounted cash flows approach and current market interest rate data for similar loans.

Research and Development

We recognize research and development expenses in the period incurred. Research and development (R&D) expenses generally consist of personnel costs, independent contractor costs, prototype and materials expenses, allocated facilities and information technology expenses, and related overhead expenses.

Advertising Costs

We expense advertising costs as incurred. We incurred advertising costs of $3.9 million and $3.4 million during 2022 and 2021, respectively.

Stock-Based Compensation

We recognize compensation costs for all stock-based awards, including stock options, Restricted Share Units (RSUs), Performance Share Units (PSUs) and stock purchased under our Employee Share Purchase Plan (ESPP), based on the grant date fair value of the award. We recognize stock-based compensation expense on a straight-line basis over the requisite service periods for non-performance-based awards. For RSUs, fair value is measured based on the closing fair market value of our common stock on the date of grant. For PSUs with a market condition, we use a Monte Carlo simulation pricing model to incorporate the market condition effects at our grant date. The Monte Carlo pricing model requires inputs which are subjective and generally requires judgment by us. For PSUs with performance conditions, stock-based compensation expense is recognized over the requisite service period when the achievement of each individual performance goal becomes probable.

The fair value of options and stock purchases under ESPP on the grant date is estimated using the Black-Scholes option-pricing model, which requires the use of certain subjective assumptions, including expected term, volatility, risk-free interest rate and the fair value of our common stock. These assumptions generally require judgment. We determine the expected volatility based on our historical stock price volatility generally commensurate with the estimated expected term of the stock awards. The expected term of an award is based on historical forfeiture experience, exercise activity, and the terms and conditions of the stock awards. The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to each grant's expected term. We account for forfeitures as they occur.

Income Taxes

We use the asset and liability method to account for income taxes. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Valuation allowances are provided when the expected realization of deferred tax assets does not meet a "more likely than not" criterion. We make estimates and judgments about our future taxable income that are based on assumptions that are consistent with our plans and estimates. Should the actual amounts differ from our estimates, the amount of our valuation allowance could be materially impacted. Changes in these estimates may result in significant increases or decreases to our tax provision in a period in which such estimates are changed, which in turn would affect net income or loss.

We recognize the financial statement effects of a tax position when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. Any interest and penalties related to uncertain tax positions are reflected in the income tax provision.

Segment Reporting

We have historically operated as a single reportable segment, managed our business operations, and evaluated our financial performance on a consolidated basis until the third quarter of 2022. During the third quarter of 2022, our Chief Executive Officer (CEO), who is our Chief Operating Decision Maker (CODM), instituted the practice of evaluating operating performance and making resource allocation decisions using two reportable segments: mass cytometry and microfluidics. In the fourth quarter of 2022, we began referring to these two segments as proteomics and genomics, respectively. Each segment is identified by its unique portfolio of products.

We determine each segment's loss from operations by subtracting direct expenses, including cost of product and service revenues, R&D expense and sales and marketing expense, from revenues. Amortization, depreciation, and restructuring expense are included in each segment's operating expenses. Corporate costs, including general and administrative expenses for

functions shared by both operating segments such as executive management, human resources and finance, along with interest and taxes, are excluded from each segment's results, which is consistent with how our CODM measures segment performance.

Comprehensive Loss

Comprehensive loss is comprised of net loss and other comprehensive income (loss). Other comprehensive loss consists of unrealized gains and losses on our investments and foreign currency translation adjustments. Total comprehensive loss for all periods presented has been disclosed in the consolidated statements of comprehensive loss. Immaterial amounts of unrealized gains and losses are included in the consolidated statement of operations for the years ended December 31, 2022 and 2021.

The components of accumulated other comprehensive loss, net of tax, for the years ended December 31, 2022 and 2021 are as follows (in thousands):

	Foreign Currency Translation Adjustment	Unrealized Loss on Investments	Accumulated Other Comprehensive Loss
Ending balance at December 31, 2021	(907)	—	(907)
Change during the year	(487)	(502)	(989)
Ending balance at December 31, 2022	$ (1,394)	$ (502)	$ (1,896)

Net Loss per Share

Our basic and diluted net loss per share is calculated by dividing net loss by the weighted-average number of shares of common stock outstanding for the period. RSUs, PSUs, and stock options to purchase our common stock are considered to be potentially dilutive common shares but have been excluded from the calculation of diluted net loss per share as their effect is anti-dilutive for all periods presented.

The following potentially dilutive common shares were excluded from the computations of diluted net loss per share for the periods presented because including them would have been anti-dilutive (in thousands):

	December 31,	
	2022	2021
Stock options, RSUs, and performance stock awards	15,455	7,975
Series B Preferred Stock	75,164	—
2019 Convertible Notes	18,966	18,966
2019 Convertible Notes potential make-whole shares	4,741	1,337
2014 Convertible Notes	10	10
Total	114,336	28,288

The 422,309 common shares we repurchased during the year ended December 31, 2022 have also been excluded from our earnings per share and diluted earnings per share calculations.

Recent Accounting Changes and Accounting Pronouncements

Adoption of New Accounting Guidance

In August 2020, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2020-06 Debt-Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging-Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity. The amendment to this ASU reduced the number of accounting models for convertible instruments and allows more contracts to qualify for equity classification, which is expected to result in more convertible instruments being accounted for as a single unit, rather than being bifurcated between debt and equity. The new guidance is effective for fiscal years beginning after December 15, 2021. We adopted ASU 2020-06 effective January 1, 2022. The adoption of ASU 2020-06 did not have an impact on our 2014 Notes and 2019 Notes (each as defined in Note 9).

In November 2021, the FASB issued ASU 2021-10 Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance. The amendment was effective for annual periods beginning after December 15, 2021. The amendment established financial disclosure requirements for business entities receiving government assistance that was accounted for by analogizing to a grant or contribution model due to the absence of specific GAAP guidance for such transactions. Entities that receive this type of assistance are required to include the following information in the notes to their financial statements: (1) the nature of the transaction, (2) the significant terms and conditions, (3) the accounting treatment, (4) the line items on the balance sheet and income statement that are affected along with (5) the respective amounts that have been recorded. We adopted ASU 2021-10 effective January 1, 2022.

Recent Accounting Pronouncements

None.

3. Private Placement Issuance

Overview of Transactions

On January 23, 2022, we entered into (i) a Loan Agreement (the Casdin Bridge Loan Agreement) with Casdin Private Growth Equity Fund II, L.P. and Casdin Partners Master Fund, L.P. (collectively, Casdin) and (ii) a Loan Agreement (the Viking Bridge Loan Agreement, and together with the Casdin Bridge Loan Agreement, the Bridge Loan Agreements) with Viking Global Opportunities Illiquid Investments Sub-Master LP and Viking Global Opportunities Drawdown (Aggregator) LP (collectively, Viking and, together with Casdin, the Purchasers and each, a Purchaser). Each Bridge Loan Agreement provided for a $12.5 million term loan (the Bridge Loans) to the Company. The Bridge Loans were fully drawn on January 24, 2022. The Bridge Loans automatically converted into Series B Preferred Stock, defined below, upon the completion of the Preferred Equity Financing, defined below.

Also on January 23, 2022, we entered into separate Series B Convertible Preferred Stock Purchase Agreements (the Purchase Agreements) with each of Casdin and Viking pursuant to which at the closing of the transactions contemplated thereby, and on the terms and subject to the conditions set forth therein, including the approval of our stockholders, we issued and sold an aggregate of $225 million of convertible preferred stock on April 4, 2022, consisting of: (i) 112,500.00 shares of the Company's Series B-1 Convertible Preferred Stock, par value $0.001 per share (the Series B-1 Preferred Stock), at a purchase price of $1,000.00 per share to Casdin; and (ii) 112,500 shares of the Company's Series B-2 Convertible Preferred Stock, par value $0.001 per share (the Series B-2 Preferred Stock, and together with the Series B-1 Preferred Stock, the Series B Preferred Stock or the Series B Redeemable Preferred Stock) at a purchase price of $1,000.00 per share to Viking (the Preferred Equity Financing, and together with the issuance of shares of Series B Preferred Stock in connection with the conversion of the Bridge Loans, the Private Placement Issuance).

The rights, preferences and privileges of the Series B Preferred Stock are set forth in the Series B-1 Certificate of Designations and Series B-2 Certificate of Designations (collectively, the Series B Certificates of Designations). The Series B Preferred Stock ranks senior to our common stock with respect to dividend rights, redemption rights and rights on the distribution of assets on any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company. The holders of Series B Preferred Stock are entitled to participate in all dividends declared on our common stock on an as-converted basis, on the terms and subject to the conditions set forth in the Series B Certificates of Designations.

Our board of directors called a meeting (Special Meeting) to ask our stockholders to consider, vote upon and approve (i) a proposal to amend our Eighth Amended and Restated Certificate of Incorporation (the Charter) to, among other things, increase the number of shares of common stock, par value $0.001 per share, that we are authorized to issue from two hundred million (200,000,000) shares to four hundred million (400,000,000) shares and to change the Company's name to Standard BioTools Inc. (the Charter Amendment Proposal); (ii) a proposal to approve, in accordance with Nasdaq Listing Rule 5635, the issuance of (A) the Series B-1 Preferred Stock and the Series B-2 Preferred Stock pursuant to the Purchase Agreements, (B) the Series B-1 Preferred Stock and the Series B-2 Preferred Stock issuable pursuant to the terms of the Bridge Loan Agreements and (C) the common stock issuable upon the conversion of the Series B Preferred Stock (the Private Placement Issuance Proposal); and (iii) a proposal to adjourn the Special Meeting if the Special Meeting were convened and a quorum were present, but there were not sufficient votes to approve the Charter Amendment Proposal and the Private Placement Issuance Proposal (the Adjournment Proposal, and, together with the Private Placement Issuance Proposal and the Charter Amendment Proposal, the Stockholder Proposals). Each of the Private Placement Issuance Proposal and Charter Amendment Proposal were conditioned on the approval of the other proposal, and neither proposal would take effect unless both were approved by our stockholders.

Our stockholders approved the Charter Amendment Proposal and Private Placement Issuance Proposal on April 1, 2022. The Private Placement Issuance closed on April 4, 2022. Upon closing, 225,000 shares of Series B Preferred Stock were issued in accordance with the Purchase Agreements and the Bridge Loans converted into 30,559 shares of Series B Preferred Stock, for a total of 255,559 shares of Series B Preferred Stock. The proceeds of the Private Placement Issuance have been and will be used to fund expenses related to the Private Placement Issuance, as well as working capital, general corporate purposes and potential future merger and acquisition opportunities that we may identify from time to time.

Series B Redeemable Preferred Stock

Preferred stock is classified as debt, equity or mezzanine equity based on its redemption features. Preferred stock with redemption features outside of the control of the issuer, such as contingent redemption features, is classified as mezzanine equity. We recorded the Series B Preferred Stock classified as mezzanine equity at its fair value upon issuance, net of any issuance costs, on the consolidated balance sheet as of December 31, 2022 because it had features, such as change of control and liquidation preference, which are outside of the Company's control. Subsequent adjustment of the amount presented within mezzanine equity to its redemption amount is unnecessary as it is not probable that the instrument will become redeemable.

Upon closing, the value of the Bridge Loans and the Purchase Agreements, discussed in detail below, were reclassified and included in the carrying value of the Series B Redeemable Preferred Stock. The carrying value of the Series B Redeemable Preferred Stock as of April 4, 2022 was $311.3 million and was unchanged as of December 31, 2022.

The components of the carrying value of the Series B Redeemable Preferred Stock are as follows (in thousands):

	December 31, 2022
Proceeds from Purchase Agreements	$ 225,000
Proceeds from Bridge Loans	25,000
Change in fair value of Forward Purchase Agreements	60,081
Change in fair value of Bridge Loans	13,719
Less equity issuance costs	(12,547)
Total Series B Redeemable Preferred Stock	$ 311,253

The Series B Preferred Stock Certificates of Designations contain several conversion rights, redemption features and other key provisions described below.

Holder Voluntary Conversion Rights

The Series B Preferred Stock is convertible at the option of the holders thereof at any time into a number of shares of common stock equal to the Conversion Rate (as defined in the Series B Certificates of Designations), which is initially 294.1176 shares of common stock per share of Series B Preferred Stock, in each case subject to certain adjustments and certain limitations on conversion.

Issuer Call Provision

At any time after the fifth anniversary of the closing of the Private Placement Issuance, if the last reported sale price of the common stock is greater than 250% of the Conversion Price (as defined in the Series B Certificates of Designations) as of such time for at least 20 consecutive trading days, we may elect to convert all of the outstanding shares of Series B Preferred Stock into shares of common stock.

Issuer Redemption Provision

After the seventh anniversary of the closing of the Private Placement Issuance, subject to certain conditions, we may, at our option, redeem all of the outstanding shares of Series B Preferred Stock at a redemption price per share of Series B Preferred Stock, payable in cash, equal to the Liquidation Preference (as defined in the Series B Certificates of Designations).

Change of Control Provisions

If we undergo certain change of control transactions, each holder of outstanding shares of Series B Preferred Stock will have the option, subject to the holder's right to convert all or a portion of the shares of Series B Preferred Stock held by such

holder into common stock, to require us to purchase all or a portion of such holder's outstanding shares of Series B Preferred Stock that have not been converted into common stock at a purchase price per share of Series B Preferred Stock, payable in cash, equal to the greater of (A) the Liquidation Preference of such share of Series B Preferred Stock, and (B) the amount of cash and/or other assets that such holder would have been entitled to receive if such holder had converted such share of Series B Preferred Stock into common stock immediately prior to the change of control transaction (Change of Control Put).

In the event of a change of control in which we are not expected to be the surviving corporation or our common stock will no longer be listed on a U.S. national securities exchange, we will have a right to redeem, subject to the holder's right to convert into common stock prior to such redemption, all of such holder's shares of Series B Preferred Stock, or if a holder exercises the Change of Control Put in part, the remainder of such holder's shares of Series B Preferred Stock, at a redemption price per share payable in cash, equal to the greater of (A) the Liquidation Preference of such share of Series B Preferred Stock, and (B) the amount of cash and/or other assets that the holder would have received if such holder had converted such share of Series B Preferred Stock into common stock immediately prior to the change of control transaction.

Liquidation Rights

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company, the Series B Preferred Stock has a liquidation preference equal to the greater of (i) the Liquidation Preference (as defined in the Series B Certificates of Designations, currently $3.40) and (ii) the amount per share of Series B Preferred Stock that such holder would have received had all holders of Series B Preferred Stock, immediately prior to such voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company, converted all shares of Series B Preferred Stock into common stock pursuant to the terms of the Series B Certificates of Designations (without regard to any limitations on conversion contained therein).

Series B Convertible Preferred Stock Purchase Agreements

The Purchase Agreements for the issuance of 225,000 shares of Series B Preferred Stock for $225 million were accounted for as forward sales contracts at fair value in accordance with ASC 480 Distinguishing Liabilities from Equities because the Series B Preferred Stock included certain contingent redemption features which created an obligation for the Company to repurchase its shares. The fair value of the Series B Preferred Stock payable portion of the forward sales contracts was determined using a Monte Carlo Simulation (MCS), which relies on significant assumptions regarding the Company's estimated yield and estimated term. The MCS analysis used a random-walk process to simulate the value of our common stock and the resulting impact on the value of our Series B Preferred Stock, given the convertibility of the Series B Preferred Stock into cash or our common stock under several scenarios, as well as various provisions discussed above.

The fair value of the 225,000 shares of Series B Preferred Stock was determined to be $262.8 million as of March 31, 2022 and $285.1 million as of April 4, 2022. The $22.3 million increase in the fair value of the Series B Preferred Stock from March 31, 2022 to April 4, 2022 was primarily due to the increase in our common stock price from $3.59 per share on March 31, 2022 to $3.99 per share on April 4, 2022, and it was included in the loss on forward sale of Series B Preferred Stock on the consolidated statement of operations as of December 31, 2022.

The $60.1 million loss on forward sales of Series B Preferred Stock for the twelve months ended December 31, 2022 reflected the increase in the share price of our common stock from $2.84 per share at the inception of the contracts to $3.99 per share as of April 4, 2022 and the value of the various conversion rights and key provisions discussed above.

Bridge Loans

Prior to their conversion, the Bridge Loans bore interest (i) from and including the effective date of the Bridge Loan Agreements to but excluding March 1, 2022, at a rate of 10% per annum, (ii) from and including March 1, 2022 to but excluding June 1, 2022, at a rate of 12% per annum, (iii) from and including June 1, 2022 to but excluding September 1, 2022, at a rate of 14% per annum, and (iv) from and including September 1, 2022 and thereafter, at a rate of 16% per annum. Interest accrued daily and was payable in kind by adding the accrued interest to the outstanding principal amount. Unless earlier converted, the outstanding principal amount of the Bridge Loans (inclusive of principal and accrued and unpaid interest) was due and payable in cash on the maturity date.

The Bridge Loans automatically converted into Series B Preferred Stock upon the closing of the Private Placement Issuance, in accordance with the terms of the Bridge Loan Agreements. The Bridge Loans converted into a number of shares of Series B Preferred Stock equal to (i) the then-outstanding principal amount of the applicable Bridge Loan (including any interest added to the original principal amount thereof) plus accrued and unpaid interest (together, the Conversion Amount) on

the Bridge Loans divided by $1,000.00 multiplied by (ii) the Conversion Price (as defined in the Series B Certificates of Designations) divided by $2.84.

If the Series B Preferred Stock had not been approved for issuance by our stockholders, or the Purchase Agreements were terminated, then the Bridge Loans would have become convertible, at each lender's option, into common stock, par value $0.001 per share, of the Company at an initial conversion rate of 352.1126 shares of common stock per $1,000.00 of the Conversion Amount, subject to the cap set forth in the Bridge Loan Agreements.

Applying the guidance in ASC 825 Financial Instruments, we elected to record the Bridge Loans at their fair value. We employed a probability-weighted expected return method in our valuation analysis of the Bridge Loans. Specifically, our analysis contemplated two scenarios: 1) our stockholders approve the transaction (Approval Scenario) and 2) our stockholders do not approve the transaction (Disapproval Scenario). To estimate the fair value of the Bridge Loans pursuant to the Approval Scenario, we employed a Monte Carlo Simulation (MCS) analysis, discussed above, based on the underlying Series B Preferred Stock into which the Bridge Loans were convertible.

The change in fair value of the Bridge Loans from inception to conversion on April 4, 2022 is included as a non-operating loss on Bridge Loans in the consolidated statement of operations. The loss on Bridge Loans was $13.7 million for the twelve months ended December 31, 2022. The loss was attributable to the increase in our share price from the inception of the Bridge Loans to the April 4, 2022 closing date. Upon conversion, the carrying value of the Bridge Loans was reclassified to Series B Redeemable Preferred Stock. In addition, as required under the fair value option, issuance costs associated with the Bridge Loans of $0.2 million were recognized in general and administrative expenses in the first quarter of 2022.

4. NIH Contract

In September 2020, we executed a definitive contract with the National Institutes of Health (NIH), which amended the letter contract we entered into with NIH in July 2020 (collectively, the NIH Contract), under the NIH Rapid Acceleration of Diagnostics (RADx) program to support the expansion of our production capacity and throughput capabilities for COVID-19 test products that use our genomics technology. We completed the required milestones in 2021 and received the total NIH Contract value of $34.0 million as of December 31, 2021. Proceeds from the NIH Contract have been used primarily for capital expenditures to expand production capacity and, to a lesser extent, to offset applicable operating costs. The non-operating income recognized from the grant proceeds received in excess of the amounts spent for capital expenditures and operating expenses incurred is reflected on the consolidated statement of operations as surplus funding from the NIH contract.

The following tables summarize the activity under the NIH Contract through December 31, 2022 and 2021 (in thousands):

	Year Ended December 31,	
	2022	2021
Cumulative cash receipts from milestones achieved	$ 34,016	$ 34,016
Cumulative amounts applied against operating costs (excluding depreciation)	(4,526)	(4,522)
Cumulative amounts applied against depreciation expense for assets placed in service	(4,194)	(703)
Cumulative amounts recognized as non-operating income	(7,293)	(7,140)
Total deferred grant income	$ 18,003	$ 21,651
Assets placed in service, gross	$ 22,197	$ 16,890
Construction-in-progress	—	3,909
Cumulative amounts applied against depreciation expense for assets placed in service	(4,194)	(703)
Carrying value of property and equipment, net	18,003	20,096
Estimated future capital expenditures	—	1,555
Total deferred grant income	$ 18,003	$ 21,651
Deferred grant income, current	$ 3,644	$ 3,535
Deferred grant income, non-current	14,359	18,116
Total deferred grant income	$ 18,003	$ 21,651

The current portion of deferred grant income on our consolidated balance sheets represents the amounts expected to be offset against depreciation expense over the next twelve months. The non-current portion of deferred grant income includes amounts expected to be offset against depreciation expense in later periods.

We spent a total of $22.2 million on capital expenditures associated with the NIH Contract. In the third quarter of 2022, the capacity expansion project was completed, and all of the related assets were placed in service. In 2022, we recognized $0.2 million of non-operating income associated with the contract, bringing the cumulative total of such income under the NIH Contract to $7.3 million.

5. Business Combination

On January 17, 2020, we completed the acquisition of all of the outstanding shares of InstruNor AS, a privately held Norwegian company (InstruNor). The purchase price of $7.2 million included approximately $5.2 million of cash and 485,451 shares of our common stock valued at $4.22 per share, the closing price of our stock on the acquisition date. The acquisition was accounted for in accordance with ASC 805, *Business Combinations.* The assets acquired and liabilities assumed were recorded at their estimated fair values. The acquired assets included $5.4 million of identified intangibles representing the value of InstruNor's developed technology and $2.2 million of goodwill. During the second quarter of 2022, a $3.5 million impairment charge was recorded to write-off the unamortized portion of the developed technology intangible because we discontinued the sale of products that utilized the technology.

6. Revenue and Geographic Area

Disaggregation of Revenue by Product Type and Geographic Area

The following tables present our revenue for the years ended December 31, 2022 and 2021, respectively, based on product type and the geographic location of our customers' facilities (in thousands):

	Year Ended December 31,	
	2022	2021
Product revenue:		
Instruments	$ 25,664	$ 42,498
Consumables	46,790	57,878
Product revenue	72,454	100,376
Service revenue	23,712	25,917
Total product and service revenue	96,166	126,293
Development revenue	818	2,559
Other revenue:		
License and royalty revenue	964	147
Grant revenue	—	1,582
Total other revenue	964	1,729
Total revenue	$ 97,948	$ 130,581

	Year Ended December 31,	
	2022	2021
Americas	$ 43,982	$ 63,877
EMEA	33,136	42,722
Asia-Pacific	20,830	23,982
Total revenue	$ 97,948	$ 130,581

Most of our principal operations, other than manufacturing, and our decision-making functions, are located at our corporate headquarters in the United States. Revenue from customers in the United States represented $41.0 million, or 42%, of total revenues for the year ended December 31, 2022, and $60.2 million, or 46%, of total revenues for the year ended December 31, 2021.

Revenue from customers in China represented $11.3 million, or 11%, of total revenues for the year ended December 31, 2022, and less than 10% of total revenues for the year ended December 31, 2021.With the exception of China in 2022, no foreign country or jurisdiction had revenue in excess of 10% of our total revenue during the years ended December 31, 2022, and 2021.

One genomics customer accounted for 11% of our total revenue for the year ended December 31, 2022. No single customer represented more than 10% of our total revenue for the fiscal year ended December 31, 2021. Revenue from our five largest customers represented 19% of total revenue for the year ended December 31, 2022 and 23% of total revenue the year ended December 31, 2021.

Long-lived Assets by Geographical Area

We had long-lived assets consisting of property and equipment, net of accumulated depreciation, and operating lease ROU assets, net of accumulated amortization, in the following geographic areas for each year presented (in thousands):

	December 31,	
	2022	2021
United States	$ 31,785	$ 34,497
Singapore	21,178	23,732
Canada	5,394	5,597
Other Asia-Pacific	875	804
EMEA	303	523
Total	$ 59,535	$ 65,153

Development Agreement

Effective March 31, 2020, we signed an OEM Supply and Development Agreement (Development Agreement) with a customer to develop products based on our genomics technology. The Development Agreement provided for up-front and periodic milestone payments during its development stage, which was completed during the third quarter of 2021, and for on-going annual payments of $0.4 million for sustaining efforts. During the years ended December 31, 2022 and 2021, we recognized revenue under the Development Agreement of $0.8 million and $2.4 million, respectively.

Unfulfilled Performance Obligations

We reported $17.9 million of deferred revenue on our December 31, 2021 consolidated balance sheet. During the twelve months ended December 31, 2022, $10.8 million of the opening balance was recognized as revenue and $7.5 million of net additional advance payments were received from customers, primarily associated with instrument service contracts. At December 31, 2022, we reported $14.6 million of deferred revenue.

The following table summarizes the years in which we expect to recognize revenue from our instrument service contracts that were partially completed on December 31, 2022 (in thousands):

Fiscal Year	Expected Revenue [1]
2023	$ 12,089
2024	5,901
2025	2,796
Thereafter	1,351
Total	$ 22,137

(1) Expected revenue includes both billed amounts included in deferred revenue and unbilled amounts that are not reflected in our consolidated financial statements and are subject to change if our customers decide to cancel or modify their contracts. Purchase orders for instrument service contracts can generally be canceled without penalty before the service period begins.

We apply the practical expedient that permits us to forgo disclosing information about unsatisfied performance obligations associated with service contracts with an expected term of one year or less.

7. Goodwill and Intangible Assets, net

In connection with our acquisition of DVS Sciences Inc. (DVS) in February 2014, we recorded $104.1 million of goodwill and $112.0 million of intangibles associated with the acquired technology. In the first quarter of 2020, we recorded $2.2 million (Euro 2.0 million) of goodwill and $5.4 million (Euro 4.9 million) of developed technology intangibles from the InstruNor acquisition (see Note 5).

Goodwill and intangible assets with indefinite lives are not subject to amortization but are tested for impairment on an annual basis during the fourth quarter or whenever events or changes in circumstances indicate the carrying amount of these assets may not be recoverable. Qualitative assessment includes assessing significant events and circumstances such as our current results, assumptions regarding future performance, strategic initiatives and overall economic factors, including the ongoing global COVID-19 pandemic and macroeconomic developments to determine the existence of potential indicators of impairment and assess if it is more likely than not that the fair value of each of our reporting units or intangible assets is less than their carrying value. If indicators of impairment are identified, a quantitative impairment test is performed.

During the second quarter of 2022, we discontinued the sale of products that utilized the developed technology acquired from InstruNor and recorded a $3.5 million impairment charge to write-off the unamortized portion of the related intangible asset.

On August 31, 2022, we began reporting under two operating segments, which were also determined to be our reporting units for goodwill impairment testing. Immediately prior to the change, we performed a qualitative fair value assessment on our former reporting unit and concluded it was more likely than not the carrying value was less than its fair value. After changing to two operating segments, we performed quantitative impairment tests on the goodwill we allocated to each reporting unit and our significant long-lived assets and concluded there was no impairment.

After experiencing a significant decline in our share price during September 2022, we conducted quantitative goodwill impairment testing at the reporting unit level as of September 30, 2022, and it was determined there was no impairment.

The Company assessed goodwill for impairment again when it performed its annual testing at the end of the fourth quarter of 2022. A qualitative approach was employed, and it was determined there was no impairment as of December 31, 2022. The Company did not recognize any impairment of goodwill, long-lived assets or intangible assets in 2021.

The changes in the carrying value of goodwill by segment are as follows ($ in thousands):

	Proteomics	Genomics	Total
Balance as of December 31, 2021	$ 85,855	$ 20,524	$ 106,379
Foreign currency translation	(103)	(25)	(128)
Balance as of December 31, 2022	$ 85,752	$ 20,499	$ 106,251

Intangible assets also include other patents and licenses, which are included in other non-current assets. Intangible assets, net, were as follows (in thousands):

	December 31, 2022			
	Gross Amount	Accumulated Amortization and Impairment	Net	Weighted-Average Amortization Period
Developed technology	$ 117,194	$ (104,594)	$ 12,600	10.0 years
Patents and licenses	$ 11,247	$ (10,669)	$ 578	7.0 years

	December 31, 2021			
	Gross Amount	Accumulated Amortization	Net	Weighted-Average Amortization Period
Developed technology	$ 117,503	$ (89,576)	$ 27,927	9.9 years
Patents and licenses	$ 11,257	$ (10,000)	$ 1,257	7.0 years

Total amortization expense was $12.2 million and $12.7 million for the years ended December 31, 2022 and December 31, 2021, respectively. The $3.5 million impairment charge for the InstruNor developed technology intangible asset was recorded in research and development expense in 2022 and it is reflected in accumulated amortization in the above table.

Based on the net carrying value of our intangible assets at December 31, 2022, we expect our annual amortization expense to be as follows (in thousands):

Fiscal Year	Developed Technology Amortization Expense	Patents and Licenses Amortization Expense	Total
2023	$ 11,200	$ 571	$ 11,771
2024	1,400	7	1,407
Total	$ 12,600	$ 578	$ 13,178

8. Balance Sheet Details

Cash, Cash Equivalents and Restricted Cash

Cash, cash equivalents and restricted cash consisted of the following as of December 31, 2022 and 2021 (in thousands):

	December 31,	
	2022	2021
Cash and cash equivalents	$ 81,309	$ 28,451
Restricted cash	1,015	1,016
Total cash, cash equivalents, and restricted cash	$ 82,324	$ 29,467

Restricted cash of $1.0 million is included in other non-current assets while the remainder of the restricted cash is included in prepaid expenses and other current assets in the consolidated balance sheets as of December 31, 2022 and 2021.

Inventories, net

Inventories, net consisted of the following as of December 31, 2022 and 2021 (in thousands):

	December 31,	
	2022	2021
Raw materials	$ 11,203	$ 9,345
Work-in-process	345	867
Finished goods	9,925	10,613
Total inventories, net	$ 21,473	$ 20,825

Property and Equipment, net

Property and equipment, net consisted of the following as of December 31, 2022 and 2021 (in thousands):

	December 31,	
	2022	2021
Laboratory and manufacturing equipment	$ 33,329	$ 30,260
Leasehold improvements	12,234	12,095
Computer equipment and software	5,793	5,759
Office furniture and fixtures	1,713	2,074
Property and equipment, gross	53,069	50,188
Less accumulated depreciation and amortization	(29,029)	(26,703)
Construction-in-progress	1,612	4,549
Property and equipment, net	$ 25,652	$ 28,034

The majority of the amounts included in construction-in-progress in 2021 were related to the NIH Contract (see Note 4).

Accrued Compensation and Related Benefits

Accrued compensation and related benefits, which are included in current liabilities on the consolidated balance sheets consisted of the following as of December 31, 2022 and 2021 (in thousands):

	Year Ended December 31,	
	2022	2021
Accrued incentive compensation	$ 1,170	$ 14
Accrued vacation	2,795	3,388
Accrued payroll taxes and other	1,193	1,411
Accrued severance and retention payments	775	107
Accrued restructuring	3,220	—
Accrued compensation and related benefits	$ 9,153	$ 4,920

Refer to Note 16 for additional information on restructuring.

9. Debt

2014 Senior Convertible Notes (2014 Notes) and 2019 Senior Convertible Notes (2019 Notes)

The carrying values of the components of the 2014 Notes and 2019 Notes are as follows (in thousands):

	December 31,	
	2022	2021
2.75% 2014 Notes due 2034		
Principal amount	$ 578	$ 578
Unamortized debt discount	(8)	(8)
Unamortized debt issuance cost	(2)	(2)
Net carrying value of 2014 Notes	$ 568	$ 568
5.25% 2019 Notes due 2024		
Principal amount	$ 55,000	$ 55,000
Unamortized debt issuance cost	(953)	(1,408)
Net carrying value of 2019 Notes	$ 54,047	$ 53,592
Net carrying value of all Notes	$ 54,615	$ 54,160

2014 Notes and 2019 Notes

In February 2014, we closed an underwritten public offering of 2014 Notes. In 2019, the outstanding 2014 Notes were largely refinanced with the 2019 Notes, as discussed below. The effective interest rate on the 2014 Notes, reflecting the impact of debt discounts and issuance costs, is approximately 3.0% per annum. The 2014 Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the 2014 Notes. Holders may require us to repurchase all or a portion of their 2014 Notes on each of February 6, 2021, February 6, 2024, and February 6, 2029, at a repurchase price in cash equal to 100% of the principal amount of the 2014 Notes plus accrued and unpaid interest.

As provided by the indenture governing the 2014 Notes, in February 2021, holders of $0.5 million of the 2014 Notes required us to repurchase their notes at 100% of the principal amount plus accrued and unpaid interest. As of December 31, 2022, there was $0.6 million aggregate principal of the 2014 Notes outstanding.

In November 2019, we issued $55.0 million aggregate principal amount of 2019 Notes. Net proceeds of the 2019 Notes issuance were $52.7 million, after deductions for commissions and other debt issuance costs. $51.8 million of the proceeds of the 2019 Notes were used to retire $50.2 million aggregate principal amount of our 2014 Notes, leaving $1.1 million of aggregate principal value of the 2014 Notes then outstanding.

The 2019 Notes bear interest at 5.25% per annum, payable semiannually on June 1 and December 1 of each year, beginning on June 1, 2020. The 2019 Notes will mature on December 1, 2024, unless earlier repurchased or converted pursuant to their terms. The 2019 Notes will be convertible at the option of the holder at any point prior to the close of business on the second scheduled trading day preceding the maturity date. The initial conversion rate of the Notes is 344.8276 shares of the Company's common stock per $1,000 principal amount of 2019 Notes (which is equivalent to an initial conversion price of approximately $2.90 per share). The conversion rate is subject to adjustment upon the occurrence of certain specified events. Those certain specified events include voluntary conversion of the 2019 Notes prior to our exercise of the Issuer's Conversion Option or in connection with a make-whole fundamental change, entitling the holders, under certain circumstances, to a make-whole premium in the form of an increase in the conversion rate determined by reference to a make-whole table set forth in the indenture governing the 2019 Notes. The conversion rate will not be adjusted for any accrued and unpaid interest.

The 2019 Notes will also be convertible at our option upon certain conditions in accordance with the terms of the indenture governing the 2019 Notes. On or after December 1, 2021 to December 1, 2022, if the price of the Company's common stock has equaled or exceeded 150% of the Conversion Price then in effect for a specified number of days (Issuer's Conversion Option), we may, at our option, elect to convert the 2019 Notes in whole but not in part into shares of the Company, determined in accordance with the terms of the indenture. On or after December 1, 2022, if the price of the Company's common stock has equaled or exceeded 130% of the Conversion Price then in effect for a specified number of days, we may, at our option, elect to convert the 2019 Notes in whole but not in part into shares of the Company, determined in accordance with the terms of the indenture governing the 2019 Notes.

Offering-related costs for the 2019 Notes were capitalized as debt issuance costs and are recorded as an offset to the carrying value of the 2019 Notes. The effective rate on the 2019 Notes is 6.2% per annum.

Revolving Credit Facility and Term Loan, net

The carrying values of our term loan and advances under the Revolving Credit Facility are as follows (in thousands):

	December 31,	
	2022	2021
Term Loan		
Principal amount	$ 10,000	$ 10,000
End of term fee accretion	296	79
Unamortized debt issuance cost	(19)	(30)
Net carrying value of term loan	10,277	10,049
Less: term loan, current	2,083	—
Term loan, non-current	$ 8,194	$ 10,049
Revolving Credit Facility		
Carrying value of advances under revolving credit agreement	$ —	$ 6,838

Revolving Credit Facility

On August 2, 2018, we entered into a revolving credit facility with Silicon Valley Bank (as amended, the Revolving Credit Facility) in an aggregate principal amount of up to the lesser of (i) $15.0 million (Maximum Amount) or (ii) the sum of (a) 85% of our eligible receivables and (b) 50% of our eligible inventory, in each case, subject to certain limitations (Borrowing Base), provided that the amount of eligible inventory that may be counted towards the Borrowing Base shall be subject to a cap as set forth in the Revolving Credit Facility.

On August 2, 2021, we amended our Revolving Credit Facility to extend the maturity date to August 2, 2023 and to provide for a new $10.0 million Term Loan Facility (the Term Loan Facility and, together with the Revolving Credit Facility, the Credit Facility). The stated maturity of the Term Loan Facility is July 1, 2025. However, if the principal amount of our convertible debt exceeds $0.6 million as of June 1, 2024 or if the maturity date of our 2019 Notes has not been extended beyond January 1, 2026 by June 1, 2024, then the maturity of the Term Loan Facility will be June 1, 2024. The Credit Facility is collateralized by substantially all our property, other than intellectual property. The Credit Facility also includes a financial

covenant that requires us to maintain a minimum Adjusted Quick Ratio of at least 1.25 to 1.00 and a liquidity requirement of greater than $20.0 million, which are both defined in our agreement.

The interest rate on advances made under the Revolving Credit Facility is the greater of (i) prime rate plus 0.50% or (ii) 5.25% per annum. Interest on any outstanding advances is due and payable monthly and the principal balance is due at maturity though loans can be prepaid at any time without penalty. Fees for Revolving Credit Facility include an annual commitment fee of $112,500 and a quarterly unused line fee based on the Borrowing Base. As of December 31, 2022, there were no borrowings under the Revolving Credit Facility and the total availability was $9.2 million.

On March 10, 2023, Silicon Valley Bank was announced as closed by the California Department of Financial Protection and Innovation, and the Federal Deposit Insurance Corporation has been appointed as a receiver. As a result, we no longer expect to be able to draw on the Revolving Credit Facility.

Term Loan, net

As of December 31, 2022 our Term Loan Facility was fully drawn and the carrying value of the loan was $10.3 million. The interest rate on the Term Loan Facility is the greater of 4% per annum or a floating per annum rate equal to three quarters of one percentage points (0.75%) above the prime rate. Interest on any outstanding term loan advances is due and payable monthly. In addition to the monthly interest payments, a final payment equal to 6.5% of the original principal amount of each advance is due on the earlier of the maturity date or the date the advance is repaid. Principal balances are required to be repaid in twenty-four equal installments beginning on August 1, 2023. The $2.1 million current portion of the term loan reflected on the December 31, 2022 consolidated balance sheet represents principal debt repayments scheduled to be made in 2023.The effective interest rate on the Term Loan Facility, reflecting the impact of debt issuance costs, the $0.7 million end-of-term fee and expected timing of principal repayment was 9.3% per annum as of December 31, 2022.

10. Leases

We have operating leases for buildings, equipment and vehicles. Existing leases have remaining terms ranging from less than one year to seven years. Some leases contain options to extend the lease, usually for up to five years, along with termination options. In August 2022, we entered into an agreement to sublease approximately 25% of our corporate headquarters location in South San Francisco, California. We expect to recognize $4.8 million of sublease income over the 39-month lease term, which commenced in October 2022.

Supplemental balance sheet information related to leases was as follows as of December 31, 2022 and 2021 (in thousands, except for discount rate and lease term):

	December 31, 2022	December 31, 2021
Operating lease right-of-use buildings	$ 43,500	$ 43,457
Operating lease right-of-use equipment	65	84
Operating lease right-of-use vehicles	749	676
Total operating lease right-of-use assets, gross	44,314	44,217
Accumulated amortization	(10,431)	(7,098)
Total operating lease right-of-use assets, net	$ 33,883	$ 37,119
Operating lease liabilities, current	$ 3,682	$ 3,053
Operating lease liabilities, non-current	34,081	37,548
Total operating lease liabilities	$ 37,763	$ 40,601
Weighted average remaining lease term (in years)	6.8 years	7.7 years
Weighted average discount rate per annum	11.8 %	11.7 %

The following table presents the components of our net lease expense for the years-ended December 31, 2022 and 2021, respectively (in thousands):

($ in thousands)	Twelve months ended December 31, 2022	Twelve months ended December 31, 2021
Operating lease cost (including variable costs)	$ 10,917	$ 10,918
Variable costs (including non-lease components)	$ 2,930	$ 2,853
Supplemental information:		
Cash paid for amounts included in the measurement of operating lease liabilities (included in net cash used in operating activities)		
Operating cash flows from operating leases	$ 7,540	$ 7,568

Future minimum lease payments and sublease income as of December 31, 2022 under commenced non-cancelable operating leases are as follows (in thousands):

Fiscal Year	Minimum Lease Payments for Operating Leases	Sublease Income
2023	$ 7,805	$ (1,533)
2024	7,808	(1,587)
2025	7,918	(1,642)
2026	7,694	—
2027	7,367	—
Thereafter	17,580	—
Total future minimum payments (receipts)	$ 56,172	$ (4,762)
Less: imputed interest	(18,409)	
Total operating lease liabilities	$ 37,763	

On February 28, 2023, we signed another agreement to sublease approximately 25% of our corporate headquarters location in South San Francisco, California for a period of 77 months. We expect to recognize $9.1 million of sublease income over the lease term commencing on December 1, 2023.

11. Fair Value of Financial Instruments

The following tables summarize our cash, restricted cash and available-for-sale securities that were measured at fair value by significant investment category within the fair value hierarchy as at December 31, 2022 and 2021 (in thousands):

	December 31, 2022						
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-term Marketable Securities	Cash- Restricted
Assets:							
Level I:							
Cash-unrestricted	$ 27,415	$ —	$ —	$ 27,415	$ 27,415	$ —	$ —
Cash-restricted	1,015	—	—	1,015	—	—	1,015
Total cash	$ 28,430	$ —	$ —	$ 28,430	$ 27,415	$ —	$ 1,015
Available-for-sale:							
Money market funds	$ 53,894	$ —	$ —	$ 53,894	$ 53,894	$ —	$ —
U.S. treasury securities	84,977	—	(502)	84,475	—	84,475	—
Total available-for-sale	$ 138,871	$ —	$ (502)	$ 138,369	$ 53,894	$ 84,475	$ —
Total	$ 167,301	$ —	$ (502)	$ 166,799	$ 81,309	$ 84,475	$ 1,015

	December 31, 2021						
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-term Marketable Securities	Cash-Restricted
Assets:							
Level I:							
Cash-unrestricted	$ 23,448	$ —	$ —	$ 23,448	$ 23,448	$ —	$ —
Cash-restricted	1,016	—	—	1,016	—	—	1,016
Total cash	$ 24,464	$ —	$ —	$ 24,464	$ 23,448	$ —	$ 1,016
Available-for-sale:							
Money market funds	$ 5,003	$ —	$ —	$ 5,003	$ 5,003	$ —	$ —
U.S. treasury securities	—	—	—	—	—	—	—
Total available-for-sale	$ 5,003	$ —	$ —	$ 5,003	$ 5,003	$ —	$ —
Total	$ 29,467	$ —	$ —	$ 29,467	$ 28,451	$ —	$ 1,016

There were no transfers between Level I and Level II measurements, and no changes in the valuation techniques used during the years ended December 31, 2022, and 2021. All of the money market and U.S. Treasury investments mature on or before May 31, 2023.

Debt

Our convertible notes are not regularly traded. The estimated fair values for these securities represent Level III valuations since a fair value for these securities cannot be determined by using readily observable inputs or measures, such as market prices. Fair values were estimated using pricing models and risk-adjusted value ranges.

The estimated fair value of our term loan also represents a Level III valuation since the value cannot be determined by using readily observable inputs or measures, such as market prices. The fair value of our term loan was estimated using a discounted cash flow model and current market interest rate data for similar loans. The advances under the revolving credit

agreement typically have short repayment periods and their carrying values approximate their fair values due to their short-term duration.

The following table summarizes the par value, carrying value and the estimated fair value of our debt at December 31, 2022 and 2021, respectively (in thousands):

	December 31, 2022			December 31, 2021		
	Par Value	Carrying Value	Fair Value	Par Value	Carrying Value	Fair Value
2014 Notes	$ 578	$ 568	$ 498	$ 578	$ 568	$ 601
2019 Notes	55,000	54,047	48,408	55,000	53,592	81,880
Total Notes	$ 55,578	$ 54,615	$ 48,906	$ 55,578	$ 54,160	$ 82,481
Term loan, net	$ 10,000	$ 10,277	$ 9,820	$ 10,000	$ 10,049	$ 10,113
Advances under revolving credit agreement	$ —	$ —	$ —	$ 6,838	$ 6,838	$ 6,838
Total debt	$ 65,578	$ 64,892	$ 58,726	$ 72,416	$ 71,047	$ 99,432

Assets Measured at Fair Value on a Nonrecurring Basis

During the third quarter of 2022, the Company changed its reporting structure and organized itself under two operating segments, which were determined to be reporting units for goodwill impairment testing. Goodwill was allocated to each reporting unit and tested for impairment on August 31, 2022 along with our significant long-lived assets. Following a significant decline in the price of the Company's stock during September 2022, goodwill was tested for impairment again on September 30, 2022. Impairment testing requires significant judgment as it involves selecting an appropriate valuation method, identifying reporting units, assigning assets and liabilities to the reporting units, and estimating future cash flows, revenue growth rates, terminal values and discount rates. These fair value measurements fall in Level III of the fair value hierarchy.

We estimated the fair value of proteomics developed technology intangible asset using a discounted cash flow (DCF) analysis We believe the most significant unobservable input (Level III) used in the analysis was the estimated remaining service life of eleven years. The fair value of our reporting units was estimated using an approach that combined both a DCF analysis and a guideline public company analysis, weighted 80% and 20%, respectively. We believe the most significant unobservable inputs used in the analysis were as follows:

	Proteomics	Genomics
Unobservable inputs:		
Weighted average cost of capital (WACC)	20.2%	16.8%
Compound annual growth rate (CAGR) for revenue (2022 to 2027 forecast)	20.4%	6.7%
Terminal value multiple (using 2027 revenue forecast)	3.5	2.8
Control premium	30%	30%

12. Mezzanine Equity and Shareholders' Equity (Deficit)

Stock Repurchase Program

On November 28, 2022, we announced that our board of directors had authorized the repurchase of up to $20.0 million shares of the Company's common stock, in the open market or in negotiated transactions, through December 31, 2023. The repurchases are expected to be funded by cash on hand. We repurchased a total of 422,309 shares of common stock under the program at a total cost of $0.6 million, or an average of $1.33 per share in 2022. As of December 31, 2022, the Company had a remaining authorization to repurchase up to $19.4 million shares under this program. Repurchases may be suspended or discontinued at any time at the Company's discretion.

Private Placement Issuance

On April 1, 2022, our stockholders approved the Charter Amendment Proposal and Private Placement Issuance Proposal discussed in Note 3. The Private Placement Issuance closed on April 4, 2022 and we issued 255,559 shares of Series B Preferred Stock, which are classified as mezzanine equity on the consolidated balance sheet as of December 31, 2022. In connection with the closing, we adopted the 2022 Inducement Equity Incentive Plan (2022 Inducement Plan) with an initial reserve for issuance of approximately 9.5 million shares.

Common Shares Reserved

At December 31, 2022, we had reserved shares of common stock for future issuance under equity compensation plans as follows:

In thousands:	Securities To Be Issued Upon Exercise Of Options	Securities To Be Issued Upon Release Of Restricted Stock and Performance Share Units at Maximum	Number Of Remaining Securities Available For Future Issuance
2022 Inducement Equity Incentive Plan	6,148	1,371	1,918
2011 Equity Incentive Plan	1,572	6,650	1,966
2017 Inducement Award Plan	159	5	—
DVS Sciences Inc. 2010 Equity Incentive Plan	3	—	—
2017 Employee Stock Purchase Plan	—	—	2,050
	7,882	8,026	5,934

Included in the securities to be issued upon release of RSUs and PSUs are the maximum number of shares that could be issued for PSU awards, which can vest at 0%-200% of the number of awards granted.

13. Benefit Plans

Our board of directors sets the terms, conditions, and restrictions related to our 2017 Employee Stock Purchase Plan (ESPP) and the grant of stock options, RSUs and performance-based awards under our stock-based plans. Our board of directors determines the number of awards to grant and also sets vesting criteria.

In general, RSUs vest on a quarterly basis over a period of four years from the date of grant at a rate of 25% on the first anniversary of the grant date and ratably each quarter over the remaining 12 quarters, or ratably over 16 quarters, subject to the employees' continued employment. We may grant RSUs with different vesting terms from time to time.

Stock options granted under our 2022 Inducement Plan and 2011 Equity Incentive Plan (2011 Plan) have a term of no more than ten years from the date of grant and an exercise price of at least 100% of the fair market value of the underlying common stock on the date of grant. Generally, options vest at a rate of either 25% on the first anniversary of the option grant date and ratably each month over the remaining period of 36 months, or ratably each month over 48 months. We may grant options with different vesting terms from time to time.

For performance-based share awards, our board of directors sets the performance objectives and other vesting provisions in determining the number of shares or value of performance units and performance shares that will be paid out. Such payout will be a function of the extent to which performance objectives or other vesting provisions have been achieved.

2011 Equity Incentive Plan

In January 2011, our board of directors adopted the 2011 Plan under which incentive stock options, non-statutory stock options, RSUs, stock appreciation rights, PSUs, and performance shares may be granted to our employees, directors, and consultants. In April 2019, our board of directors authorized, and in June 2019, our stockholders approved, an amendment and restatement of the 2011 Plan to make various changes, including increasing the number of shares reserved for issuance by approximately 5.0 million shares and extending the term of the 2011 Plan until April 2029. In May 2020, our board of directors authorized, and in June 2020, our stockholders approved, an increase of 1.4 million in the number of shares reserved for

issuance under the 2011 Plan. In April 2021, our board of directors authorized, and in May 2021, our stockholders approved, an additional increase of 4.1 million in the number of shares reserved for issuance under the 2011 Plan.

2022 Inducement Equity Incentive Plan

As discussed in Note 12, we adopted the 2022 Inducement Plan in April 2022 and reserved 9.5 million shares of common stock for the issuance of equity-based awards, including non-statutory stock options, RSUs, restricted stock, stock appreciation rights, performance shares and PSUs. In accordance with Nasdaq listing rules, equity awards issued under the 2022 Inducement Plan are restricted to individuals who are not already employees or directors of the Company. The terms and conditions of the 2022 Inducement Plan are substantially similar to those of the 2011 Plan.

Valuation and Expense Information

The weighted average assumptions used to estimate the fair value of options granted were as follows:

	Year Ended December 31,	
	2022	2021
Stock options		
Weighted average expected volatility	91.8 %	94.0 %
Weighted average expected term	4.3 years	4.2 years
Weighted average risk-free interest rate	2.6 %	0.6 %
Dividend yield	—	—
Weighted-average fair value per share	$ 2.21	$ 3.73

Activity under the various plans was as follows:

Restricted Stock Units:

	Number of Units (in 000s)	Weighted-Average Grant Date Fair Value per Unit
Balance at December 31, 2020	4,862	$ 4.98
RSU granted	3,295	$ 5.23
RSU released	(2,225)	$ 5.02
RSU forfeited	(791)	$ 4.66
Balance at December 31, 2021	5,141	$ 5.18
RSU granted	6,769	$ 2.17
RSU released	(2,463)	$ 4.89
RSU forfeited	(2,327)	$ 4.61
Balance at December 31, 2022	7,120	$ 2.58

The total intrinsic value of RSUs vested and released was $12.1 million and $11.2 million during the years ended December 31, 2022, and 2021, respectively. The intrinsic value of vested and released RSUs is calculated by multiplying the fair market value of our common stock on the vesting date by the number of shares vested. As of December 31, 2022, the unrecognized compensation costs related to outstanding unvested RSUs under our equity incentive plans were $14.8 million. We expect to recognize those costs over a weighted average period of 2.7 years.

***Stock Options*:**

	Number of Options (in 000s)	Weighted-Average Exercise Price per Option	Weighted-Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value(1) in (000s)
Balance at December 31, 2020	1,635	$ 7.33	6.2	$ 834
Options granted	92	$ 5.56		
Options exercised	(37)	$ 5.62		$ 25
Options forfeited	(93)	$ 10.49		
Balance at December 31, 2021	1,597	$ 7.08	5.6	$ 82
Options granted	7,810	$ 3.91		
Options exercised	(31)	$ 3.25		$ 10
Options forfeited	(1,494)	$ 4.56		
Balance at December 31, 2022	7,882	$ 4.43	7.9	$ —
Vested at December 31, 2022	1,513	$ 6.49	4.2	$ —
Unvested awards at December 31, 2022	6,369	$ 3.94	9.3	$ —

(1) Aggregate intrinsic value was calculated as the difference between the closing price per share of our common stock on the last trading day of 2022, which was $1.17, and the exercise price of the options, multiplied by the number of in-the-money options.

As of December 31, 2022, the unrecognized compensation costs related to outstanding unvested options under our equity incentive plans were $13.9 million. We expect to recognize those costs over a weighted average period of 3.3 years.

Performance-based Awards:

PSUs with Market Condition

We have granted PSUs to certain executive officers and senior level employees. The number of PSUs ultimately earned under these awards is calculated by comparing the Total Shareholder Return (TSR) of our common stock over the applicable three year period against the TSR of a defined group of peer companies. The Company's relative performance against its peer group determines the payout, which can range from 0% to 200% of the base award.

	Number of Units (in 000s)	Weighted-Average Grant Date Fair Value per Unit
Balance at December 31, 2020	962	$ 9.74
PSU granted	396	$ 9.60
Performance adjustment for 2018 awards	21	$ 10.09
PSU released	(133)	$ 10.09
PSU forfeited	(36)	$ 4.82
Balance at December 31, 2021	1,210	$ 10.11
PSU granted	—	$ —
Performance adjustment for 2019 awards	(341)	$ 16.97
PSU released	—	$ —
PSU forfeited	(416)	$ 8.77
Balance at December 31, 2022	453	$ 4.81

As of December 31, 2022, the unrecognized compensation costs related to these awards were $0.2 million. We expect to recognize those costs over a weighted average period of 1 year.

The TSR target for the 2019-2021 performance period was not met. Accordingly, 340,670 shares were returned to the 2011 Equity Incentive Plan pool in 2022. The performance target for the 2021-2022 performance period was also not met and an additional 401,082 shares will be returned to the pool in early 2023.

PSUs with Performance Conditions

During 2019, we granted PSUs to a certain employee. The number of PSUs that ultimately vested under these awards was dependent on the employee achieving certain discrete operational milestones on or before predetermined measurement dates, the latest of which was December 31, 2021. As of December 31, 2021, there were approximately 29,000 PSUs outstanding with a weighted-average grant date fair value of $6.46 per unit. In early 2022, the awards were forfeited since the operational milestones were not met.

2017 ESPP

Our ESPP offers U.S. and some non-U.S. employees the right to purchase shares of our common stock. Our ESPP program has a six-month offering period, with a new period commencing on the first trading day on or after May 31 and November 30 of each year. Employees are eligible to participate through payroll deductions of up to 10% of their compensation. Employee stock purchases under this plan are limited to $25,000 per calendar year. Shares are sold to employees under the ESPP for 85% of the lower of the fair market value of a share of our common stock on the first day of the offering period or the last day of the offering period.

Employee Benefit Savings Plan

We sponsor a 401(k) savings plan for our employees in the United States that stipulates that eligible employees may elect to contribute to the plan, subject to certain limitations, up to the lesser of 90% of eligible compensation or the maximum amount allowed by the U.S. Internal Revenue Service. In 2019 and onward, the employee match formula was 100% up to $3,000 annually. Employer matching contributions to the 401(k) plan were $0.6 million per year for each of the years presented in this report.

Compensation Expense

Total stock-based compensation expense recognized was as follows (in thousands):

	For the Year Ended December 31,	
	2022	2021
RSUs, stock options and PSUs	$ 14,530	$ 15,470
Employee stock purchase plan	350	631
Total stock-based compensation	$ 14,880	$ 16,101

14. Income Taxes

Our loss before income taxes consists of the following (in thousands):

	Year Ended December 31,	
	2022	2021
Domestic	$ (174,041)	$ (56,291)
International	(18,887)	(7,369)
Loss before income taxes	$ (192,928)	$ (63,660)

Significant components of our benefit from income taxes are as follows (in thousands):

	Year Ended December 31,	
	2022	2021
Current:		
Federal	$ —	$ —
State	(87)	(63)
Foreign	(405)	167
Total current tax (expense) benefit	(492)	104
Deferred:		
Federal	—	—
State	—	—
Foreign	3,322	4,319
Total deferred benefit	3,322	4,319
Total benefit from income taxes	$ 2,830	$ 4,423

Reconciliation of income taxes at the statutory rate to the benefit from income taxes recorded in the statements of operations is as follows:

	Year Ended December 31,	
	2022	2021
Tax benefit at federal statutory rate	21.0 %	21.0 %
State tax expense, net of federal benefit	0.8	2.8
Foreign tax benefit	0.8	4.7
NOL carryforwards expiring unutilized	(22.8)	(2.9)
Change in valuation allowance	17.1	(15.5)
Federal R&D credit	0.2	0.7
Unrecognized tax benefit	0.9	(0.1)
Non-deductible interest/premium	(0.3)	(1.0)
Non-deductible loss on Forward Sale of Preferred Stock and Bridge Loans	(8.0)	—
R&D tax credits expiring unutilized	(5.2)	—
Executive stock-based compensation	(0.8)	(1.3)
Other, net	(2.2)	(1.5)
Effective tax rate	1.5 %	6.9 %

Significant components of our deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforward	$ 85,182	$ 115,739
Reserves and accruals	3,943	3,473
Depreciation and amortization	563	1,931
Capitalized R&D costs	3,840	—
Tax credit carryforwards	14,456	20,480
Stock-based compensation	2,064	2,871
Right-of-use lease liabilities	8,663	9,322
Total gross deferred tax assets	118,711	153,816
Valuation allowance on deferred tax assets	(107,893)	(141,087)
Total deferred tax assets, net of valuation allowance	10,818	12,729
Deferred tax liabilities:		
Fixed assets and intangibles	(3,913)	(8,416)
Right-of-use assets	(7,729)	(8,459)
Total deferred tax liabilities	(11,642)	(16,875)
Net deferred tax liability	$ (824)	$ (4,146)
Deferred tax liability per balance sheet	$ (1,055)	$ (4,329)
Less deferred tax assets included in other long-term assets	231	183
Net deferred tax liability	$ (824)	$ (4,146)

We are in the process of updating our Section 382 Study through December 31, 2022 and anticipate that an ownership change occurred on April 4, 2022 due to the issuance of preferred equity. We are anticipating that as a result of this ownership change a portion of our net operating loss (NOL) carryforwards and all of our R&D credits will expire unutilized.

We establish a valuation allowance for deferred tax assets if we determine it is more likely than not the related tax benefit will not be realized. We rely on several factors when assessing the realizability of deferred tax assets, including historical financial results, our ability to recover net operating loss carry-forwards, the projected future operating results, and our ability to use tax planning strategies.

The valuation allowances of $107.9 million and $141.1 million as of December 31, 2022 and 2021, respectively, primarily relate to temporary tax differences, net operating losses and research and development credits generated in the current and prior years. We believe it is more likely than not that U.S. federal and state, Canada and Norway deferred tax assets relating to temporary differences, net operating losses and research and development credits are not realizable. As such, full valuation allowances have been applied against the deferred tax assets relating to jurisdictions of the U.S. federal and state, Canada and Norway.

A reconciliation of the beginning and ending amounts of the valuation allowance for the years ended December 31, 2022 and 2021 is as follows (in thousands):

	Valuation Allowance
December 31, 2020	$ 131,226
Charges to earnings	—
Charges to other accounts	9,861
December 31, 2021	141,087
Charges to earnings	—
Charges to other accounts	(33,194)
December 31, 2022	$ 107,893

As of December 31, 2022, we had net operating loss carryforwards for U.S. federal income tax purposes of $351.7 million, of which $19.3 million will expire in 2023, and U.S. federal research and development tax credits of $0.3 million, which begin expiring in 2042. As of December 31, 2022, we had net operating loss carryforwards for state income tax purposes of $206.3 million, which will expire through 2041, and California research and development tax credits of $14.0 million, which do not expire. As of December 31, 2022, we had foreign net loss carryforwards of $6.1 million which will begin to expire in 2043, and foreign tax credit carryforwards of $5.9 million which begin to expire in 2025.

The aggregate changes in the balance of our gross unrecognized tax benefits during 2022, and 2021 were as follows (in thousands):

December 31, 2020	$ 8,886
Increases in balances related to tax positions during a prior period	25
Increases in balances related to tax positions taken during current period	325
Decreases in balances related to tax positions taken during prior period	(721)
December 31, 2021	8,515
Increases in balances related to tax positions during a prior period	154
Decreases in balances related to tax positions taken during current period	—
Decreases in balances related to tax positions taken during prior period	(1,697)
December 31, 2022	$ 6,972

As of December 31, 2022, there was approximately $0.1 million of unrecognized tax benefits that, if recognized, would reduce our effective tax rate. We do not anticipate that our existing unrecognized tax benefits will significantly increase or decrease within the next 12 months.

Accrued interest and penalties related to unrecognized tax benefits was included in the income tax provision. The amount was immaterial as of December 31, 2022. During 2021, the unrecognized tax benefit for Singapore was settled, decreasing the unrecognized tax benefit by $0.7 million

We file income tax returns in the United States, its various states, and in certain foreign jurisdictions. As a consequence of having operating loss carryforwards, all of our tax years are open to federal and state examination in the United States. Tax years from 2012 are open to examination in various foreign countries.

15. Segment Reporting

Prior to the third quarter of 2022, we operated as a single reportable segment, managed our business operations, and evaluated our financial performance on a consolidated basis. During the third quarter of 2022, our CEO, who is our CODM instituted the practice of evaluating operating performance and making resource allocation decisions using two reportable segments: mass cytometry and microfluidics. In the fourth quarter of 2022, we began referring to these two segments as proteomics and genomics, respectively. Each segment is identified by its unique portfolio of products. Proteomics includes our instruments, consumables, software, and services based upon technologies used in the identification of proteins. Genomics

includes our instruments, consumables, software, and services based upon technologies used in the identification of genes (DNA, RNA) and their functions.

We determine each segment's loss from operations by subtracting direct expenses, including cost of product and service revenues, R&D expense and sales and marketing expense, from revenues. Amortization, depreciation, and restructuring expense are included in each segment's operating expenses. Corporate costs, including general and administrative expenses for functions shared by both operating segments such as executive management, human resources and finance, along with interest and taxes, are excluded from each segment's results, which is consistent with how our CODM measures segment performance.

We do not prepare, or report segmented balance sheet information as our CODM does not use the information to assess segment operating performance. The segments adhere to the same accounting policies as the Company as a whole.

Segment reporting for historical periods has been included in this report to ensure comparability with the current year. Our business segment information for the years ended December 31, 2022 and 2021 as follows (in thousands):

	Year Ended December 31,	
	2022	2021
Revenue:		
Proteomics	$ 52,502	$ 67,657
Genomics	45,446	62,924
Total revenue	$ 97,948	$ 130,581
Loss from operations:		
Proteomics	$ (28,751)	$ (10,917)
Genomics	(26,885)	(10,198)
Corporate expenses	(60,569)	(46,344)
Total loss from operations	$ (116,205)	$ (67,459)
Depreciation & amortization:		
Proteomics	$ 4,344	$ 1,073
Genomics	448	456
Corporate	1,431	1,690
Total depreciation & amortization	$ 6,223	$ 3,219

Proteomics depreciation and amortization expense for the twelve months ended December 31, 2022 includes a $3.5 million impairment charge to write-off the unamortized balance of the developed technology intangible asset acquired from InstruNor in 2020.

16. Restructuring and Other Related Costs

In August 2022, we announced a restructuring plan, including a reduction in force, to improve operational efficiency, achieve cost savings and align our Company's workforce to the future needs of the business. In addition to the reduction in force, we are reducing leased office space, optimizing our manufacturing footprint, and streamlining support functions. We are employing a more disciplined cost management culture throughout our organization, investing in training, and plan to take advantage of more advanced technologies including upgrading our enterprise resource planning (ERP) system.

We record restructuring and other related costs as incurred. These items are classified within cost of product and service revenue, R&D expenses, and selling, general and administrative expenses in our consolidated statements of operations. We recognized $4.2 million of restructuring expense and $1.2 million of other related costs for the twelve months ended December 31, 2022.

We expect substantially all cash payments associated with remaining restructuring activities and termination benefits recorded in 2022 will be paid during 2023. We expect to complete all restructuring actions commenced during 2022 by the end of 2023 and to incur additional charges of up to $4.0 million related primarily to employee severance and facility exit costs in 2023. These estimates are subject to a number of assumptions, and actual results may differ.

A summary of the changes in our restructuring and other related liabilities for the twelve months ended December 31, 2022 appears below (in thousands):

	Balance at December 31, 2021	Twelve Months Ended December 31, 2022		Balance at December 31, 2022
	Liabilities	Charges	Payments	Liabilities [1]
Restructuring:				
Severance and employee-related benefits	$ —	$ 4,232	$ (1,012)	$ 3,220
Other related costs:				
Legal and consulting expenses	—	1,176	(1,157)	19
Total	$ —	$ 5,408	$ (2,169)	$ 3,239

(1) Restructuring liabilities are recorded in accrued compensation and related benefits on the consolidated balance sheet. Liabilities related to other related costs are recorded in other accrued liabilities on the consolidated balance sheet.

Restructuring and other related costs were classified in the consolidated statement of operations as follows for the twelve months ended December 31, 2022 (in thousands):

	Twelve Months Ended December 31, 2022
Restructuring:	
Cost of product and service	$ 63
Research and development	1,116
Selling, general and administrative	3,053
Total restructuring	4,232
Other related costs:	
Selling, general and administrative	1,176
Total other related costs	1,176
Total restructuring and other related costs	$ 5,408

The Company's restructuring and other related costs by segment and corporate were as follows for the twelve months ended December 31, 2022 (in thousands):

	Twelve Months Ended December 31, 2022
Restructuring:	
Proteomics	$ 1,708
Genomics	1,065
Corporate	1,459
Total restructuring	4,232
Other related costs:	
Corporate	1,176
Total other related costs	1,176
Total restructuring and other related costs	$ 5,408

17. Commitments and Contingencies

In the normal course of business, we enter into various contractual and legally binding purchase commitments. As of December 31, 2022, our open commitments totaled $13.5 million. Capital expenditure commitments as of December 31, 2022 were immaterial.

We have entered into several license and patent agreements. Under these agreements, we pay annual license maintenance fees, non-refundable license issuance fees, and royalties as a percentage of net sales for the sale or sublicense of products using the licensed technology. Future payments related to these license agreements have not been included in the open commitments above, as the period of time over which the future license payments will be required to be made, and the amount of such payments, are indeterminable. We do not expect the license payments to be material in any particular year.

Indemnifications

From time to time, we have entered into indemnification provisions under certain of our agreements in the ordinary course of business, typically with business partners, customers, and suppliers. Pursuant to these agreements, we may indemnify, hold harmless, and agree to reimburse the indemnified parties on a case-by-case basis for losses suffered or incurred by the indemnified parties in connection with any patent or other intellectual property infringement claim by any third party with respect to our products. The term of these indemnification provisions is generally perpetual from the time of the execution of the agreement. The maximum potential amount of future payments we could be required to make under these indemnification

provisions is typically not limited to a specific amount. In addition, we have entered into indemnification agreements with our officers, directors, and certain other employees. With certain exceptions, these agreements provide for indemnification for related expenses including, among others, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding.

Contingencies

In September 2020, a putative class action complaint alleging violations of the federal securities laws was filed against the Company (also naming our Chief Financial Officer and our former Chief Executive Officer as defendants) in the U.S. District Court for the Northern District of California (Reena Saintjermain, et al. v. Fluidigm Corporation, et al). The Court appointed a lead plaintiff and lead counsel in December 2020, and an amended complaint was filed on February 19, 2021. The complaint, as amended, seeks unspecified damages on behalf of a purported class of persons and entities who acquired our common stock between February 7, 2019 and November 5, 2019 and alleges securities laws violations based on statements and alleged omissions made by the Company during such period. The Company filed a motion to dismiss the complaint on April 5, 2021 and, on August 4, 2021, the Court granted defendants' motion to dismiss with leave to amend. A second amended complaint was filed on September 14, 2021. The Company filed a motion to dismiss the second amended complaint on October 29, 2021 and, on February 14, 2022, the Court granted defendants' motion and dismissed the second amended complaint with prejudice. On March 15, 2022, the lead plaintiff filed a notice of appeal of the District Court's decision. Following the Circuit Court appellate hearing on February 6, 2023, the Circuit Court granted defendants' motion to dismiss on February 21, 2023.

From time to time, we may be subject to various legal proceedings and claims arising in the ordinary course of business. These include disputes and lawsuits related to intellectual property, mergers and acquisitions, licensing, contract law, tax, regulatory, distribution arrangements, employee relations and other matters. Periodically, we review the status of each matter and assess its potential financial exposure. If the potential loss from any claim or legal proceeding is considered probable and a range of possible loss can be estimated, we accrue a liability for the estimated loss. We have not recorded any such liabilities in any of the periods presented. Legal proceedings are subject to uncertainties, and the outcomes are difficult to predict. Because of such uncertainties, accruals are based only on the best information available at the time. As additional information becomes available, we continue to reassess the potential liability related to pending claims and litigation and may revise estimates.

18. Subsequent Event

On February 28, 2023, we signed a lease agreement to sublease approximately 25% of our corporate headquarters location in South San Francisco for a period of 77 months. We expect to recognize $9.1 million of sublease income over the lease term commencing on December 1, 2023.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2022. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2022, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as such term is defined in Exchange Act Rule 13a-15(f) to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Management assessed our internal control over financial reporting as of December 31, 2022. Management based its assessment on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework). Based on that evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2022.

The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers, LLP, an independent registered public accounting firm, as stated in their report included in this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the three months ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on the Effectiveness of Controls

Control systems, no matter how well conceived and operated, are designed to provide a reasonable, but not an absolute, level of assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. Because of the inherent limitations in any control system, misstatements due to error or fraud may occur and not be detected.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURES REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information called for by this item will be set forth in our Proxy Statement for the Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2022 and is incorporated herein by reference.

Our board of directors has adopted a Code of Ethics and Conduct that applies to all of our employees, officers and directors, including our Chief Executive Officer, Chief Financial Officer and other executive and senior financial officers. The full text of our code of business conduct and ethics is posted on the investor relations page on our website which is located at www.standardbio.com. We will post any amendments to our code of business conduct and ethics, or waivers of its requirements, on our website.

ITEM 11. EXECUTIVE COMPENSATION

The information called for by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information, if any, required by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information, if any, required by this item will be set forth in our Proxy Statement and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

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

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

1. **Financial Statements.** See "Index to Consolidated Financial Statements" in Part II, Item 8 of this Form 10-K.

2. **Financial Statement schedule.** N/A.

3. **Exhibits.** The exhibits listed in the accompanying Index to Exhibits are filed herewith or are incorporated by reference to exhibits previously filed with the U.S. Securities and Exchange Commission.

ITEM 16. FORM 10-K SUMMARY

None.

INDEX TO EXHIBITS

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
2.1	Agreement and Plan of Merger dated January 28, 2014 by and among Fluidigm Corporation, DVS Sciences, Inc., Dawid Merger Sub, Inc. and Shareholder Representative Services LLC.	8-K	2.1	1/29/2014
3.1	Eighth Amended and Restated Certificate of Incorporation of Fluidigm Corporation filed on February 15, 2011.	10-K	3.1	3/28/2011
3.2	Amended and Restated Bylaws of Standard BioTools Inc.	S-8	4.8	4/1/2022
3.3	Certificate of Amendment to the Eighth Amended and Restated Certificate of Incorporation.	S-8	4.3	4/1/2022
3.4	Certificate of Designation of Rights, Preferences and Privileges of Series A Participating Preferred Stock.	8-K	3.1	11/22/2016
3.5	Certificate of Elimination of Series A Participating Preferred Stock of Fluidigm Corporation.	8-K	3.1	8/2/2017
3.6	Certificate of Designations of Rights, Preferences and Privileges of Series B-1 Convertible Preferred Stock.	8-K	3.6	4/5/2022
3.7	Certificate of Designations of Rights, Preferences and Privileges of Series B-2 Convertible Preferred Stock.	8-K	3.7	4/5/2022
4.1	Specimen Common Stock Certificate of Fluidigm Corporation.	S-8	4.1	8/3/2017
4.2	Description of Securities.	10-K	4.2	2/25/2021
4.3	Indenture, dated February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.1	2/4/2014
4.4	First Supplemental Indenture, dated February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.2	2/4/2014
4.5	Form of Global Note (included in Exhibit 4.4).	8-K	4.3	2/4/2014
4.6	Indenture, dated November 22, 2019, by and between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.1	11/22/2019
4.7	Form of 5.25% Convertible Senior Note due 2024 (included in Exhibit 4.6).	8-K	4.2	11/22/2019
10.1	Form of Indemnification Agreement between Fluidigm Corporation and its directors and officers.	S-1/A	10.1	1/28/2011
10.2	Lease between AP3-SF3 CT North, LLC and Fluidigm Corporation, dated March 20, 2019.	10-Q	10.1	5/7/2019
10.2A	First Amendment to Lease between AP3-SF3 CT North, LLC and Fluidigm Corporation, dated April 26, 2019.	10-Q	10.2	5/7/2019
10.2B	Second Amendment to Lease between AP3-SF3 CT North, LLC and Fluidigm Corporation, dated February 25, 2020.	10-K	10.2B	2/25/2021
10.3†	Office Lease by and among Rodick Equities Inc., Fluidigm Canada Inc., and Fluidigm Corporation, dated August 17, 2015.	10-Q	10.1	11/9/2015

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.4	Tenancy for Flatted Factory Space in Singapore between JTC Corporation and Fluidigm Corporation dated July 27, 2005, as amended August 12, 2008 and May 31, 2010.	S-1	10.20	12/3/2010
10.5	Offer of Tenancy for Facility Lease between Fluidigm Singapore Pte. Ltd. and SBC Institutional Trust Services (Singapore) Limited, as trustee of Ascendas Real Estate Investment Trust dated October 14, 2013.	10-K	10.21	3/12/2014
10.5A	Offer of Tenancy for Lease of Additional Space at Singapore Facility between Fluidigm Singapore Pte. Ltd. and HSBC Institutional Trust Services (Singapore) Limited, as trustee of Ascendas Real Estate Investment Trust, dated April 2, 2015.	10-Q	10.1	8/10/2015
10.5B	Lease Agreement dated November 19, 2020 between Fluidigm Singapore Pte. Ltd. and HSBC Institutional Trust Services (Singapore) Limited as Trustee of Ascendas Real Estate Investment Trust.	10-Q	10.2	8/6/2021
10.5C	Lease Agreement dated June 8, 2021 between Fluidigm Singapore Pte. Ltd. and HSBC Institutional Trust Services (Singapore) Limited as Trustee of Ascendas Real Estate Investment Trust.	10-Q	10.3	8/6/2021
10.5D	Lease Agreement dated December 13, 2021 between Fluidigm Singapore Pte. Ltd. and HSBC Institutional Trust Services (Singapore) Limited as Trustee of Ascendas Real Estate Investment Trust.	10-K	10.5D	3/8/2022
10.6	Reserved.			
10.7#	2009 Equity Incentive Plan of Fluidigm Corporation, as amended.	S-1	10.3	12/3/2010
10.7A#	Forms of agreements under the 2009 Equity Incentive Plan.	S-1	10.3A	12/3/2010
10.8#	Fluidigm Corporation 2011 Equity Incentive Plan, as amended effective May 25, 2021.	8-K	10.1	5/25/2021
10.8A#	Forms of agreements under the 2011 Equity Incentive Plan.	S-1/A	10.4A	1/28/2011
10.8B#	Amendments to the Fluidigm Corporation 2011 Equity Incentive Plan and 2009 Equity Incentive Plan and the DVS Sciences, Inc. 2010 Equity Incentive Plan.	8-K	10.2	8/2/2017
10.8C#	Forms of U.S. agreements under the 2011 Equity Incentive Plan.	SC TO-I	(d)(2)	8/23/2017
10.8D	Rules of the Fluidigm Corporation 2011 Equity Incentive Plan for Restricted Stock Unit Awards Granted to French Participants.	SC TO-I	(d)(3)	8/23/2017
10.8E	Rules of the Fluidigm Corporation 2011 Equity Incentive Plan for Options Granted to French Participants.	SC TO-I	(d)(4)	8/23/2017
10.8F	UK Sub-plan to the Fluidigm Corporation 2011 Equity Incentive Plan.	SC TO-I	(d)(5)	8/23/2017
10.8G#	Form of Restricted Stock Unit Agreement-Non-U.S. under the 2011 Equity Incentive Plan.	SC TO-I	(d)(6)	8/23/2017
10.8H#	Form of Stock Option Agreement-Non-U.S. under the 2011 Equity Incentive Plan.	SC TO-I	(d)(7)	8/23/2017

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.9#	Fluidigm Corporation 2017 Inducement Award Plan and related form agreements.	8-K	10.1	1/11/2017
10.10#	Fluidigm Corporation 2017 Employee Stock Purchase Plan, as amended and restated effective June 23, 2020.	8-K	10.1	6/24/2020
10.11#	Executive Bonus Plan.	10-K	10.25	3/28/2011
10.12†	Second Amended and Restated License Agreement between California Institute of Technology and the registrant, effective as of May 1, 2004.	10-Q	10.2	11/9/2020
10.12A†	First Addendum, effective as of March 29, 2007, to Second Amended and Restated License Agreement between California Institute of Technology and the registrant effective as of May 1, 2004.	10-Q	10.2A	11/9/2020
10.13†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	10-Q	10.3	11/9/2020
10.13A†	First Amendment to Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	10-Q	10.3A	11/9/2020
10.14†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	10-Q	10.4	11/9/2020
10.15†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	10-Q	10.5	11/9/2020
10.16†	Letter Agreement between President and Fellows of Harvard College and the registrant dated December 22, 2004.	10-Q	10.6	11/9/2020
10.17†	License Agreement between MDS Analytical Technologies, a business unit of MDS INC., and DVS Sciences Inc., dated July 17, 2008.	10-Q/A	10.3	9/15/2014
10.18†	Sublicense Agreement between DVS Sciences Inc. and Fluidigm Corporation, dated January 28, 2014.	10-Q/A	10.4	9/15/2014
10.19	Loan and Security Agreement, dated as of August 2, 2018 by and between Fluidigm Corporation and Silicon Valley Bank.	8-K	10.1	8/2/2018
10.19A	Default Waiver and First Amendment to Loan and Security Agreement, dated September 1, 2018, between the Company and Silicon Valley Bank.	10-K	10.13A	2/27/2020
10.19B	Second Amendment to Loan and Security Agreement, dated November 20, 2019, between the Company and Silicon Valley Bank.	8-K	10.2	11/22/2019
10.19C	Third Amendment to Loan and Security Agreement, dated April 21, 2020, between the Company and Silicon Valley Bank.	8-K	10.1	4/22/2020
10.19D	Fourth Amendment to Loan and Security Agreement, dated August 2, 2021, between the Company and Silicon Valley Bank.	8-K	10.1	8/5/2021
10.19E	Fifth Amendment to Loan and Security Agreement, dated December 27, 2021, between the Company and Silicon Valley Bank.	10-K	10.19E	3/8/2022

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.19F	Default Waiver and Consent to Loan and Security Agreement, dated March 4, 2022, between the Company and Silicon Valley Bank.	10-K	10.19F	3/8/2022
10.20	Purchase Agreement, dated November 20, 2019, between Fluidigm Corporation and Barclays Capital Inc., as representative of the several initial purchasers named in Schedule I thereto.	8-K	10.1	11/22/2019
10.21	Open Market Sale Agreement, dated as of March 4, 2020, between Fluidigm Corporation and Jefferies LLC.	8-K	1.1	3/5/2020
10.22†	Contract by and between the National Institutes of Health and the registrant effective as of July 30, 2020, as amended September 28, 2020.	10-Q	10.1	11/9/2020
10.22A†	Amendment dated May 10, 2021 to Contract by and between the National Institutes of Health and the registrant effective as of July 30, 2020, as amended September 29, 2020 and February 18, 2021.	10-Q	10.1	8/6/2021
10.22B†	Amendment dated September 29, 2021 to Contract by and between the National Institutes of Health and the registrant effective as of July 30, 2020, as amended September 29, 2020 and February 18, 2021, and May 10, 2021.	10-Q	10.1	11/9/2021
10.23#	Form of Amended and Restated Employment and Severance Agreement between Fluidigm Corporation and each of its executive officers.	8-K	10.14	12/11/2012
10.24#	Fluidigm Corporation 2020 Change of Control and Severance Plan.	10-Q	10.5	8/7/2020
10.25#	Endorsement Split-Dollar Life Insurance Agreement.	10-Q	10.5	11/7/2017
10.26#	Offer Letter to Vikram Jog dated January 29, 2008.	S-1	10.17	12/3/2010
10.27	Series B-1 Loan Agreement, dated as of January 23, 2022, by and among Fluidigm Corporation, Casdin Partners Master Fund, L.P., and Casdin Private Growth Equity Fund II, L.P.	8-K/A	10.1	2/11/2022
10.27A	Series B-2 Loan Agreement, dated as of January 23, 2022, by and among Fluidigm Corporation, Viking Global Opportunities Illiquid Investments Sub-Master LP, and Viking Global Opportunities Drawdown (Aggregator) LP.	8-K	10.2	1/24/2022
10.28	Series B-1 Convertible Preferred Stock Purchase Agreement, dated as of January 23, 2022, by and among Fluidigm Corporation, Casdin Private Growth Equity Fund II, L.P., and Casdin Partners Master Fund, L.P.	DEF 14A	Anx. B	2/24/2022
10.28A	Series B-2 Convertible Preferred Stock Purchase Agreement, dated as of January 23, 2022, by and among Fluidigm Corporation, Viking Global Opportunities Illiquid Investments Sub-Master LP, and Viking Global Opportunities Drawdown (Aggregator) LP.	DEF 14A	Anx. C	2/24/2022
10.29	Registration Rights Agreement, dated as of January 23, 2022, by and between Fluidigm Corporation, Casdin Private Growth Equity Fund II, L.P., Casdin Partners Master Fund, L.P., Viking Global Opportunities Illiquid Investments Sub-Master LP, and Viking Global Opportunities Drawdown (Aggregator) LP.	8-K	10.5	1/24/2022

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.30#	Stephen Christopher Linthwaite Transition Agreement and Release.	8-K	10.6	1/24/2022
10.31#	Michael Egholm Offer Letter.	8-K	10.7	1/24/2022
10.32#	Form of Indemnification Agreement entered into by and between Standard BioTools Inc. and each of its officers and directors.	Filed herewith		
10.33#	Hanjoon Alex Kim Offer Letter.	8-K	10.9	1/24/2022
10.34#	Standard BioTools 2022 Inducement Equity Incentive Plan.	S-8	4.9	4/01/2022
10.35#	Form of Notice of Stock Option Grant and Stock Option Agreement under the 2022 Inducement Equity Incentive Plan.	S-8	99.1	4/01/2022
10.36#	Form of Notice of Restricted Stock Unit Grant and Restricted Stock Unit Agreement under the 2022 Inducement Equity Incentive Plan.	S-8	99.2	4/01/2022
10.3742#5	Form of Retention Letter.	8-K	10.10	1/24/2022
10.38	Default Waiver and Consent to Loan and Security Agreement, dated March 4, 2022, between the Company and Silicon Valley Bank.	10-K	10.19F	3/08/2022
10.39	Letter Agreement dated March 25, 2022.	8-K	10.1	3/28/2022
10.40	Support Agreement, dated March 29, 2022, by and among Fluidigm Corporation and Caligan Partners LP and certain of its affiliates.	8-K	10.1	3/29/2022
10.41	Sublease, dated as of August 30, 2022, between Standard BioTools Inc. and CIRC Bio, Inc.	10-Q	10.1	11/09/2022
21.1	Subsidiaries of Standard BioTools Inc.	Filed herewith		
23.1	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm.	Filed herewith		
24.1	Power of Attorney (contained in the signature page to this Form 10-K).	Filed herewith		
31.1	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 of Chief Executive Officer.	Filed herewith		
31.2	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 of Chief Financial Officer.	Filed herewith		
32.1~	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Executive Officer.	Filed herewith		
32.2~	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Financial Officer.	Filed herewith		
101.INS	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.	Filed herewith		
101.SCH	XBRL Taxonomy Extension Schema Document	Filed herewith		
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	Filed herewith		
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	Filed herewith		

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
101.LAB	XBRL Taxonomy Extension Label Document	Filed herewith		
101.PRE	XBRL Taxonomy Extension Presentation Document	Filed herewith		

Management contracts or compensation plans or arrangements in which directors or executive officers are eligible to participate.

† Portions of this exhibit have been redacted in compliance with Regulation S-K Item 601(b)(10)(iv) or pursuant to an order granted by the Securities and Exchange Commission for confidential treatment.

~ In accordance with Item 601(b)(32)(ii) of Regulation S-K and SEC Release No. 33-8238 and 34-47986, Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, the certifications furnished in Exhibits 32.1 and 32.2 hereto are deemed to accompany this Form 10-K and will not be deemed "filed" for purposes of Section 18 of the Exchange Act. Such certifications will not be deemed to be incorporated by reference into any filings under the Securities Act or the Exchange Act, except to the extent that Standard BioTools Inc. specifically incorporates it by reference.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

STANDARD BIOTOOLS INC.

Dated: March 14, 2023

By: /s/ Michael Egholm
Michael Egholm
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Michael Egholm and Vikram Jog, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign this Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/Michael Egholm **Michael Egholm**	President and Chief Executive Officer (Principal Executive Officer); Director	March 14, 2023
/s/ Vikram Jog **Vikram Jog**	Chief Financial Officer (Principal Financial and Accounting Officer)	March 14, 2023
/s/ Carlos V. Paya **Carlos V. Paya**	Chairman of the Board of Directors	March 14, 2023
/s/ Gerhard F. Burbach **Gerhard F. Burbach**	Director	March 14, 2023
/s/ Eli D. Casdin **Eli D. Casdin**	Director	March 14, 2023
/s/ Laura M. Clague **Laura M. Clague**	Director	March 14, 2023
/s/ Bill W. Colston **Bill W. Colston**	Director	March 14, 2023
/s/ Martin D. Madaus **Martin D. Madaus**	Director	March 14, 2023
/s/ Frank R. Witney **Frank R. Witney**	Director	March 14, 2023

STANDARD BIOTOOLS INC.

INDEMNIFICATION AGREEMENT

This Indemnification Agreement ("Agreement") is made as of [DATE] by and between Standard BioTools Inc., a Delaware corporation (the "Company"), and [NAME] ("Indemnitee").

WHEREAS, the Company and Indemnitee recognize the significant cost of directors' and officers' liability insurance and the general reductions in the coverage of such insurance;

WHEREAS, the Company and Indemnitee further recognize the substantial increase in corporate litigation in general, subjecting officers and directors to expensive litigation risks at the same time as the coverage of liability insurance has been severely limited; and

WHEREAS, the Company desires to attract and retain the services of highly qualified individuals, such as Indemnitee, to serve as officers and directors of the Company and to indemnify its officers and directors so as to provide them with the maximum protection permitted by law.

NOW, THEREFORE, in consideration for Indemnitee's services as an officer or director of the Company, the Company and Indemnitee hereby agree as follows:

1. Definitions.

(a) A "Change in Control" shall be deemed to occur upon the earliest to occur after the date of this Agreement of any of the following events:

(i) Acquisition of Stock by Third Party. Any Person (as defined below) is or becomes the Beneficial Owner (as defined below), directly or indirectly, of securities of the Company representing fifteen percent (15%) or more of the combined voting power of the Company's then outstanding securities;

(ii) Change in Board Composition. During any period of two consecutive years (not including any period prior to the execution of this Agreement), individuals who at the beginning of such period constitute the Company's board of directors, and any new directors (other than a director designated by a person who has entered into an agreement with the Company to effect a transaction described in Sections 1(a)(i), 1(a)(iii) or 1(a)(iv)) whose election by the board of directors or nomination for election by the Company's stockholders was approved by a vote of at least two-thirds of the directors then still in office who either were directors at the beginning of the period or whose election or nomination for election was previously so approved, cease for any reason to constitute at least a majority of the members of the Company's board of directors;

(iii) Corporate Transactions. The effective date of a merger or consolidation of the Company with any other entity, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior to such merger or consolidation continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than 50% of the combined voting power of the voting securities of the surviving entity outstanding immediately after such merger or consolidation and with the power to elect at least a majority of the board of directors or other governing body of such surviving entity;

(iv) Liquidation. The approval by the stockholders of the Company of a complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets; and

(v) Other Events. Any other event of a nature that would be required to be reported in response to Item 6(e) of Schedule 14A of Regulation 14A (or in response to any similar item on any similar schedule or form) promulgated under the Securities Exchange Act of 1934, as amended, whether or not the Company is then subject to such reporting requirement.

For purposes of this Section 1(a), the following terms shall have the following meanings:

(1) "Person" shall have the meaning as set forth in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended; provided, however, that "Person" shall exclude (i) the Company, (ii) any trustee or other fiduciary holding securities under an employee benefit plan of the Company, and (iii) any corporation owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their ownership of stock of the Company.

(2) "Beneficial Owner" shall have the meaning given to such term in Rule 13d-3 under the Securities Exchange Act of 1934, as amended; provided, however, that "Beneficial Owner" shall exclude any Person otherwise becoming a Beneficial Owner by reason of (i) the stockholders of the Company approving a merger of the Company with another entity or (ii) the Company's board of directors approving a sale of securities by the Company to such Person.

(b) "Corporate Status" describes the status of a person who is or was a director, trustee, general partner, managing member, officer, employee, agent or fiduciary of the Company or any other Enterprise.

(c) "DGCL" means the General Corporation Law of the State of Delaware.

(d) "Disinterested Director" means a director of the Company who is not and was not a party to the Proceeding in respect of which indemnification is sought by Indemnitee.

(e) "Enterprise" means the Company and any other corporation, partnership, limited liability company, joint venture, trust, employee benefit plan or other enterprise of which Indemnitee is or was serving at the request of the Company as a director, trustee, general partner, managing member, officer, employee, agent or fiduciary.

(f) "Expenses" include all reasonable attorneys' fees, retainers, court costs, transcript costs, fees and costs of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, or otherwise participating in, a Proceeding. Expenses also include (i) Expenses incurred in connection with any appeal resulting from any Proceeding, including without limitation the premium, security for, and other costs relating to any cost bond, supersedeas bond or other appeal bond or their equivalent, and (ii) for purposes of Section 12(d), Expenses incurred by Indemnitee in connection with the interpretation, enforcement or defense of Indemnitee's rights under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company. Expenses, however, shall not include amounts paid in settlement by Indemnitee or the amount of judgments or fines against Indemnitee.

(g) "Independent Counsel" means a law firm, or a partner or member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent (i) the Company or Indemnitee in any matter material to either such party (other than as Independent Counsel with respect to matters concerning Indemnitee under this Agreement, or other indemnitees under similar indemnification agreements), or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term "Independent Counsel" shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee's rights under this Agreement.

(h) "Proceeding" means any threatened, pending or completed action, suit, arbitration, mediation, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or proceeding, whether brought in the right of the Company or otherwise and whether of a civil, criminal, administrative or investigative nature, including any appeal therefrom and including without limitation any such Proceeding pending as of the date of this Agreement, in which Indemnitee was, is or will be involved as a party, a potential party, a non-party witness or otherwise by reason of (i) the fact that Indemnitee is or was a director or officer of the Company, (ii) any action taken by Indemnitee or any action or inaction on Indemnitee's part while acting as a director or officer of the Company, or (iii) the fact that he or she is or was serving at the request of the Company as a director, trustee, general partner, managing member, officer, employee, agent or fiduciary of the Company or any other Enterprise, in each case whether or not serving in such capacity at the time any liability or Expense is incurred for which indemnification or advancement of expenses can be provided under this Agreement.

(i) Reference to "other enterprises" shall include employee benefit plans; references to "fines" shall include any excise taxes assessed on a person with respect to any employee benefit plan; references to "serving at the request of the Company" shall include any service as a director, officer, employee or agent of the Company which imposes duties on, or involves services by, such director, officer, employee or agent with respect to an employee benefit plan, its participants or beneficiaries; and a person who acted in good faith and in a manner he or she reasonably believed to be in the best interests of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner "not opposed to the best interests of the Company" as referred to in this Agreement.

2. Indemnity in Third-Party Proceedings. The Company shall indemnify Indemnitee in accordance with the provisions of this Section 2 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding, other than a Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 2, Indemnitee shall be indemnified to the fullest extent permitted by applicable law against all Expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by Indemnitee or on his or her behalf in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was unlawful.

3. Indemnity in Proceedings by or in the Right of the Company. The Company shall indemnify Indemnitee in accordance with the provisions of this Section 3 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 3, Indemnitee shall be indemnified to the fullest extent permitted by applicable law against all Expenses and, to the fullest extent permitted by law, amounts paid in settlement actually and reasonably incurred by Indemnitee or on Indemnitee's behalf in connection with such Proceeding or any claim,

issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company. No indemnification shall be made under this Section 3 in respect of any claim, issue or matter as to which Indemnitee shall have been adjudged by a court of competent jurisdiction to be liable to the Company, unless and only to the extent that the Delaware Court of Chancery or any court in which the Proceeding was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnification for such expenses as the Delaware Court of Chancery or such other court shall deem proper.

4. Indemnification for Expenses of a Party Who is Wholly or Partly Successful. To the extent that Indemnitee is a party to or a participant in and is successful (on the merits or otherwise) in defense of any Proceeding or any claim, issue or matter therein, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by Indemnitee or on Indemnitee's behalf in connection therewith. To the extent permitted by applicable law, if Indemnitee is not wholly successful in such Proceeding but is successful, on the merits or otherwise, in defense of one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by Indemnitee or on Indemnitee's behalf in connection with (a) each successfully resolved claim, issue or matter and (b) any claim, issue or matter related to any such successfully resolved claim, issuer or matter. For purposes of this section, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

5. Indemnification for Expenses of a Witness. To the extent that Indemnitee is, by reason of his or her Corporate Status, a witness in any Proceeding to which Indemnitee is not a party, Indemnitee shall be indemnified to the extent permitted by applicable law against all Expenses actually and reasonably incurred by Indemnitee or on Indemnitee's behalf in connection therewith.

6. Additional Indemnification.

(a) Notwithstanding any limitation in Sections 2, 3 or 4, the Company shall indemnify Indemnitee to the fullest extent permitted by applicable law if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding (including a Proceeding by or in the right of the Company to procure a judgment in its favor) against all Expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by Indemnitee or on his or her behalf in connection with the Proceeding or any claim, issue or matter therein.

(b) For purposes of Section 6(a), the meaning of the phrase "to the fullest extent permitted by applicable law" shall include, but not be limited to:

(i) the fullest extent permitted by the provision of the DGCL that authorizes or contemplates additional indemnification by agreement, or the corresponding provision of any amendment to or replacement of the DGCL; and

(ii) the fullest extent authorized or permitted by any amendments to or replacements of the DGCL adopted after the date of this Agreement that increase the extent to which a corporation may indemnify its officers and directors.

7. Exclusions. Notwithstanding any provision in this Agreement, the Company shall not be obligated under this Agreement to make any indemnity in connection with any Proceeding (or any part of any Proceeding):

(a) for which payment has actually been made to or on behalf of Indemnitee under any statute, insurance policy, indemnity provision, vote or otherwise, except with respect to any excess beyond the amount paid;

(b) for an accounting or disgorgement of profits pursuant to Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of federal, state or local statutory law or common law, if Indemnitee is held liable therefor (including pursuant to any settlement arrangements);

(c) for any reimbursement of the Company by Indemnitee of any bonus or other incentive-based or equity-based compensation or of any profits realized by Indemnitee from the sale of securities of the Company, as required in each case under the Securities Exchange Act of 1934, as amended (including any such reimbursements that arise from an accounting restatement of the Company pursuant to Section 304 of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), or the payment to the Company of profits arising from the purchase and sale by Indemnitee of securities in violation of Section 306 of the Sarbanes-Oxley Act), if Indemnitee is held liable therefor (including pursuant to any settlement arrangements);

(d) initiated by Indemnitee, including any Proceeding (or any part of any Proceeding) initiated by Indemnitee against the Company or its directors, officers, employees, agents or other indemnitees, unless (i) the Company's board of directors authorized the Proceeding (or the relevant part of the Proceeding) prior to its initiation, (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law, (iii) otherwise authorized in Section 12(d) or (iv) otherwise required by applicable law; or

(e) if prohibited by applicable law.

8. Advances of Expenses. The Company shall advance the Expenses incurred by Indemnitee in connection with any Proceeding, and such advancement shall be made as soon as reasonably practicable, but in any event no later than 30 days, after the receipt by the Company of a written statement or statements requesting such advances from time to time (which shall include invoices received by Indemnitee in connection with such Expenses but, in the case of invoices in connection with legal services, any references to legal work performed or to expenditure made that would cause Indemnitee to waive any privilege accorded by applicable law shall not be included with the invoice). Advances shall be unsecured and interest free and made without regard to Indemnitee's ability to repay such advances. Indemnitee hereby undertakes to repay any advance to the extent that it is ultimately determined that Indemnitee is not entitled to be indemnified by the Company. This Section 8 shall not apply to the extent advancement is prohibited by law and shall not apply to any Proceeding for which indemnity is not permitted under this Agreement, but shall apply to any Proceeding referenced in Section 7(b) or 7(c) prior to a determination that Indemnitee is not entitled to be indemnified by the Company.

9. Procedures for Notification and Defense of Claim.

(a) Indemnitee shall notify the Company in writing of any matter with respect to which Indemnitee intends to seek indemnification or advancement of Expenses as soon as reasonably practicable following the receipt by Indemnitee of notice thereof. The written notification to the Company shall include, in reasonable detail, a description of the nature of the Proceeding and the facts underlying the Proceeding. The

failure by Indemnitee to notify the Company will not relieve the Company from any liability which it may have to Indemnitee hereunder or otherwise than under this Agreement, and any delay in so notifying the Company shall not constitute a waiver by Indemnitee of any rights, except to the extent that such failure or delay materially prejudices the Company.

(b) If, at the time of the receipt of a notice of a Proceeding pursuant to the terms hereof, the Company has directors' and officers' liability insurance in effect, the Company shall give prompt notice of the commencement of the Proceeding to the insurers in accordance with the procedures set forth in the applicable policies. The Company shall thereafter take all commercially-reasonable action to cause such insurers to pay, on behalf of Indemnitee, all amounts payable as a result of such Proceeding in accordance with the terms of such policies.

(c) In the event the Company may be obligated to make any indemnity in connection with a Proceeding, the Company shall be entitled to assume the defense of such Proceeding with counsel approved by Indemnitee, which approval shall not be unreasonably withheld, upon the delivery to Indemnitee of written notice of its election to do so. After delivery of such notice, approval of such counsel by Indemnitee and the retention of such counsel by the Company, the Company will not be liable to Indemnitee for any fees or expenses of counsel subsequently incurred by Indemnitee with respect to the same Proceeding. Notwithstanding the Company's assumption of the defense of any such Proceeding, the Company shall be obligated to pay the fees and expenses of Indemnitee's counsel to the extent (i) the employment of counsel by Indemnitee is authorized by the Company, (ii) counsel for the Company or Indemnitee shall have reasonably concluded that there is a conflict of interest between the Company and Indemnitee in the conduct of any such defense such that Indemnitee needs to be separately represented, (iii) the Company is not financially or legally able to perform its indemnification obligations or (iv) the Company shall not have retained, or shall not continue to retain, such counsel to defend such Proceeding. The Company shall have the right to conduct such defense as it sees fit in its sole discretion. Regardless of any provision in this Agreement, Indemnitee shall have the right to employ counsel in any Proceeding at Indemnitee's personal expense. The Company shall not be entitled, without the consent of Indemnitee, to assume the defense of any claim brought by or in the right of the Company.

(d) Indemnitee shall give the Company such information and cooperation in connection with the Proceeding as may be reasonably appropriate.

(e) The Company shall not be liable to indemnify Indemnitee for any settlement of any Proceeding (or any part thereof) without the Company's prior written consent, which shall not be unreasonably withheld.

(f) The Company shall not settle any Proceeding (or any part thereof) without Indemnitee's prior written consent, which shall not be unreasonably withheld.

10. Procedures upon Application for Indemnification.

(a) To obtain indemnification, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and as is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification following the final disposition of the Proceeding. The Company shall, as soon as reasonably practicable after receipt of such a request for indemnification, advise the board of directors that Indemnitee has requested indemnification. Any delay in providing the request will not relieve the Company from its obligations under this Agreement, except to the extent such failure is prejudicial.

(b) Upon written request by Indemnitee for indemnification pursuant to Section 10(a), a determination with respect to Indemnitee's entitlement thereto shall be made in the specific case (i) if a Change in Control shall have occurred, by Independent Counsel in a written opinion to the Company's board of directors, a copy of which shall be delivered to Indemnitee or (ii) if a Change in Control shall not have occurred, (A) by a majority vote of the Disinterested Directors, even though less than a quorum of the Company's board of directors, (B) by a committee of Disinterested Directors designated by a majority vote of the Disinterested Directors, even though less than a quorum of the Company's board of directors, (C) if there are no such Disinterested Directors or, if such Disinterested Directors so direct, by Independent Counsel in a written opinion to the Company's board of directors, a copy of which shall be delivered to Indemnitee or (D) if so directed by the Company's board of directors, by the stockholders of the Company. If it is determined that Indemnitee is entitled to indemnification, payment to Indemnitee shall be made within ten days after such determination. Indemnitee shall cooperate with the person, persons or entity making the determination with respect to Indemnitee's entitlement to indemnification, including providing to such person, persons or entity upon reasonable advance request any documentation or information that is not privileged or otherwise protected from disclosure and that is reasonably available to Indemnitee and reasonably necessary to such determination. Any costs or expenses (including attorneys' fees and disbursements) reasonably incurred by Indemnitee in so cooperating with the person, persons or entity making such determination shall be borne by the Company, to the extent permitted by applicable law.

(c) In the event the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 10(b), the Independent Counsel shall be selected as provided in this Section 10(c). If a Change in Control shall not have occurred, the Independent Counsel shall be selected by the Company's board of directors, and the Company shall give written notice to Indemnitee advising him or her of the identity of the Independent Counsel so selected. If a Change in Control shall have occurred, the Independent Counsel shall be selected by Indemnitee (unless Indemnitee shall request that such selection be made by the Company's board of directors, in which event the preceding sentence shall apply), and Indemnitee shall give written notice to the Company advising it of the identity of the Independent Counsel so selected. In either event, Indemnitee or the Company, as the case may be, may, within ten days after such written notice of selection shall have been given, deliver to the Company or to Indemnitee, as the case may be, a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 1 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If such written objection is so made and substantiated, the Independent Counsel so selected may not serve as Independent Counsel unless and until such objection is withdrawn or a court has determined that such objection is without merit. If, within 20 days after the later of (i) submission by Indemnitee of a written request for indemnification pursuant to Section 10(a) hereof and (ii) the final disposition of the Proceeding, the parties have not agreed upon an Independent Counsel, either the Company or Indemnitee may petition a court of competent jurisdiction for resolution of any objection which shall have been made by the Company or Indemnitee to the other's selection of Independent Counsel and for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 10(b) hereof. Upon the due commencement of any judicial proceeding or arbitration pursuant to Section 12(a) of this Agreement, the Independent Counsel shall be discharged and relieved of any further responsibility in such capacity (subject to the applicable standards of professional conduct then prevailing).

(d) The Company agrees to pay the reasonable fees and expenses of any Independent Counsel and to fully indemnify such counsel against any and all Expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

11. Presumptions and Effect of Certain Proceedings.

(a) In making a determination with respect to entitlement to indemnification hereunder, the person, persons or entity making such determination shall, to the fullest extent not prohibited by law, presume that Indemnitee is entitled to indemnification under this Agreement if Indemnitee has submitted a request for indemnification in accordance with Section 10(a) of this Agreement, and the Company shall, to the fullest extent not prohibited by law, have the burden of proof to overcome that presumption in connection with the making by such person, persons or entity of any determination contrary to that presumption.

(b) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnitee to indemnification or create a presumption that Indemnitee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnitee had reasonable cause to believe that his or her conduct was unlawful.

(c) For purposes of any determination of good faith, Indemnitee shall be deemed to have acted in good faith to the extent Indemnitee relied in good faith on (i) the records or books of account of the Enterprise, including financial statements, (ii) information supplied to Indemnitee by the officers of the Enterprise in the course of their duties, (iii) the advice of legal counsel for the Enterprise or its board of directors or counsel selected by any committee of the board of directors or (iv) information or records given or reports made to the Enterprise by an independent certified public accountant, an appraiser, investment banker or other expert selected with reasonable care by the Enterprise or its board of directors or any committee of the board of directors. The provisions of this Section 11(c) shall not be deemed to be exclusive or to limit in any way the other circumstances in which Indemnitee may be deemed to have met the applicable standard of conduct set forth in this Agreement.

(d) Neither the knowledge, actions nor failure to act of any other director, officer, agent or employee of the Enterprise shall be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement.

12. Remedies of Indemnitee.

(a) Subject to Section 12(e), in the event that (i) a determination is made pursuant to Section 10 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 8 or 12(d) of this Agreement, (iii) no determination of entitlement to indemnification shall have been made pursuant to Section 10 of this Agreement within 90 days after the later of the receipt by the Company of the request for indemnification or the final disposition of the Proceeding, (iv) payment of indemnification pursuant to this Agreement is not made (A) within ten days after a determination has been made that Indemnitee is entitled to indemnification or (B) with respect to indemnification pursuant to Sections 4, 5 and 12(d) of this Agreement, within 30 days after receipt by the Company of a written request therefor, or (v) the Company or any other person or entity takes or threatens to take any action to declare this Agreement void or unenforceable, or institutes any litigation or other action or proceeding designed to deny, or to recover from, Indemnitee the benefits provided or intended to be

provided to Indemnitee hereunder, Indemnitee shall be entitled to an adjudication by a court of competent jurisdiction of his or her entitlement to such indemnification or advancement of Expenses. Indemnitee shall commence such proceeding seeking an adjudication within 180 days following the date on which Indemnitee first has the right to commence such proceeding pursuant to this Section 12(a); provided, however, that the foregoing clause shall not apply in respect of a proceeding brought by Indemnitee to enforce his or her rights under Section 4 of this Agreement. The Company shall not oppose Indemnitee's right to seek any such adjudication in accordance with this Agreement.

(b) Neither (i) the failure of the Company, its board of directors, any committee or subgroup of the board of directors, Independent Counsel or stockholders to have made a determination that indemnification of Indemnitee is proper in the circumstances because Indemnitee has met the applicable standard of conduct, nor (ii) an actual determination by the Company, its board of directors, any committee or subgroup of the board of directors, Independent Counsel or stockholders that Indemnitee has not met the applicable standard of conduct, shall be a defense to the action or create a presumption that Indemnitee has or has not met the applicable standard of conduct. In the event that a determination shall have been made pursuant to Section 10 of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding commenced pursuant to this Section 12 shall be conducted in all respects as a de novo trial, on the merits, and Indemnitee shall not be prejudiced by reason of that adverse determination. In any judicial proceeding commenced pursuant to this Section 12, the Company shall, to the fullest extent not prohibited by law, have the burden of proving Indemnitee is not entitled to indemnification or advancement of Expenses, as the case may be.

(c) To the fullest extent not prohibited by law, the Company shall be precluded from asserting in any judicial proceeding commenced pursuant to this Section 12 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court that the Company is bound by all the provisions of this Agreement. If a determination shall have been made pursuant to Section 10 of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding commenced pursuant to this Section 12, absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statements not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) To the extent not prohibited by law, the Company shall indemnify Indemnitee against all Expenses that are incurred by Indemnitee in connection with any action for indemnification or advancement of Expenses from the Company under this Agreement unless as a part of such action, the court of competent jurisdiction determines that each of the material assertions made by Indemnitee as a basis for such action were not made in good faith or were frivolousor to the extent Indemnitee is successful in such action, and, if requested by Indemnitee, shall (as soon as reasonably practicable, but in any event no later than 30 days, after receipt by the Company of a written request therefor) advance such Expenses to Indemnitee, subject to the provisions of Section 8.

(e) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification shall be required to be made prior to the final disposition of the Proceeding.

13. Contribution. To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amounts incurred by Indemnitee, whether for Expenses, judgments, fines or amounts paid or to be paid in settlement, in connection with any claim relating to an indemnifiable event under this

Agreement, in such proportion as is deemed fair and reasonable in light of all of the circumstances of such Proceeding in order to reflect (i) the relative benefits received by the Company and Indemnitee as a result of the events and transactions giving rise to such Proceeding; and (ii) the relative fault of Indemnitee and the Company (and its other directors, officers, employees and agents) in connection with such events and transactions.

14. Non-exclusivity. The rights of indemnification and to receive advancement of Expenses as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Company's certificate of incorporation or bylaws, any agreement, a vote of stockholders or a resolution of directors, or otherwise. To the extent that a change in Delaware law, whether by statute or judicial decision, permits greater indemnification or advancement of Expenses than would be afforded currently under the Company's certificate of incorporation and bylaws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change, subject to the restrictions expressly set forth herein or therein. Except as expressly set forth herein, no right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. Except as expressly set forth herein, the assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

15. Primary Responsibility. The Company acknowledges that Indemnitee has or may have certain rights to indemnification and advancement of expenses provided by other entities and/or organizations (collectively, the "Secondary Indemnitors"). The Company hereby agrees (i) that it is the indemnitor of first resort (i.e., its obligations to Indemnitee are primary and any obligation of the Secondary Indemnitors to advance Expenses or to provide indemnification for the same Expenses or liabilities incurred by Indemnitee in connection with a Proceeding are secondary), (ii) that it shall be required to advance the full amount of Expenses incurred by Indemnitee and shall be liable for the full amount of all Expenses, judgments, penalties, fines and amounts paid in settlement to the extent legally permitted and as required by the terms of this Agreement and the certificate of incorporation or bylaws of the Company (or any other agreement between the Company and Indemnitee), without regard to any rights Indemnitee may have against the Secondary Indemnitors, and (iii) that, to the extent not in contravention of any insurance policy or policies providing liability or other insurance for the Company or any director, trustee, general partner, managing member, officer, employee, agent or fiduciary of the Company or any other Enterprise, it irrevocably waives, relinquishes and releases the Secondary Indemnitors from any and all claims against the Secondary Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Secondary Indemnitors on behalf of Indemnitee with respect to any claim for which indemnification is required under the terms of this Agreement shall affect the foregoing and the Secondary Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of Indemnitee against the Company. The Company and Indemnitee agree that the Secondary Indemnitors are express third party beneficiaries of the terms of this Section 15.

16. No Duplication of Payments. The Company shall not be liable under this Agreement to make any payment of amounts otherwise indemnifiable hereunder (or for which advancement is provided hereunder) if and to the extent that Indemnitee has otherwise actually received payment for such amounts under any insurance policy, contract, agreement or otherwise.

17. Insurance. The Company shall, from time to time, make the good faith determination whether or not it is practicable for the Company to obtain and maintain a policy or policies of insurance with reputable

insurance companies providing the officers and directors of the Company with coverage for losses from wrongful acts, or to ensure the Company's performance of its indemnification obligations under this Agreement. Among other considerations, the Company will weigh the costs of obtaining such insurance coverage against the protection afforded by such coverage. In all policies of director and officer liability insurance, Indemnitee shall be named as an insured in such a manner as to provide Indemnitee the same rights and benefits as are accorded to the most favorably insured of the Company's directors, if Indemnitee is a director; or of the Company's officers, if Indemnitee is not a director of the Company but is an officer. Notwithstanding the foregoing, the Company shall have no obligation to obtain or maintain such insurance if the Company determines in good faith that such insurance is not reasonably available, if the premium costs for such insurance are disproportionate to the amount of coverage provided, if the coverage provided by such insurance is limited by exclusions so as to provide an insufficient benefit, or if Indemnitee is covered by similar insurance maintained by a subsidiary or parent of the Company.

18. Subrogation. In the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

19. Services to the Company. Indemnitee agrees to serve as a director or officer of the Company or, at the request of the Company, as a director, trustee, general partner, managing member, officer, employee, agent or fiduciary of another Enterprise, for so long as Indemnitee is duly elected or appointed or until Indemnitee tenders his or her resignation or is removed from such position. Indemnitee may at any time and for any reason resign from such position (subject to any other contractual obligation or any obligation imposed by operation of law), in which event the Company shall have no obligation under this Agreement to continue Indemnitee in such position. This Agreement shall not be deemed an employment contract between the Company (or any of its subsidiaries or any Enterprise) and Indemnitee. Indemnitee specifically acknowledges that any employment with the Company (or any of its subsidiaries or any Enterprise) is at will, and Indemnitee may be discharged at any time for any reason, with or without cause, with or without notice, except as may be otherwise expressly provided in any executed, written employment contract between Indemnitee and the Company (or any of its subsidiaries or any Enterprise), any existing formal severance policies adopted by the Company's board of directors or, with respect to service as a director or officer of the Company, the Company's certificate of incorporation or bylaws or the DGCL. No such document shall be subject to any oral modification thereof.

20. Successors. This Agreement shall be binding upon the Company and its successors and assigns, including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business or assets of the Company, and shall inure to the benefit of Indemnitee and Indemnitee's heirs, executors and administrators. The Company shall require and cause any successor (whether direct or indirect by purchase, merger, consolidation or otherwise) to all or substantially all of the business or assets of the Company, by written agreement, expressly to assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform if no such succession had taken place.

21. Severability. Nothing in this Agreement is intended to require or shall be construed as requiring the Company to do or fail to do any act in violation of applicable law. The Company's inability, pursuant to court order or other applicable law, to perform its obligations under this Agreement shall not constitute a breach of this Agreement. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable for any reason whatsoever: (i) the validity, legality and enforceability of the remaining provisions of this Agreement (including without limitation, each portion of any section of this Agreement containing any

such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by law; (ii) such provision or provisions shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties hereto; and (iii) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

22. Enforcement. The Company expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it hereby in order to induce Indemnitee to serve as a director or officer of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as a director or officer of the Company.

23. Entire Agreement. This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof; provided, however, that this Agreement is a supplement to and in furtherance of the Company's certificate of incorporation and bylaws and applicable law.

24. Modification and Waiver. No supplement, modification or amendment to this Agreement shall be binding unless executed in writing by the parties hereto. No amendment, alteration or repeal of this Agreement shall adversely affect any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his or her Corporate Status prior to such amendment, alteration or repeal. No waiver of any of the provisions of this Agreement shall constitute or be deemed a waiver of any other provision of this Agreement nor shall any waiver constitute a continuing waiver.

25. Notices. All notices and other communications required or permitted hereunder shall be in writing and shall be mailed by registered or certified mail, postage prepaid, sent by facsimile or electronic mail or otherwise delivered by hand, messenger or courier service addressed:

(a) if to Indemnitee, to Indemnitee's address, facsimile number or electronic mail address as shown on the signature page of this Agreement or in the Company's records, as may be updated in accordance with the provisions hereof; or

(b) if to the Company, to the attention of the Chief Executive Officer or Chief Financial Officer of the Company at 2 Tower Place, Suite 2000, South San Francisco, CA 94080, or at such other current address as the Company shall have furnished to Indemnitee, with a copy (which shall not constitute notice) to Robert Kornegay, Wilson Sonsini Goodrich & Rosati, P.C., 650 Page Mill Road, Palo Alto, California 94304.

Each such notice or other communication shall for all purposes of this Agreement be treated as effective or having been given (i) if delivered by hand, messenger or courier service, when delivered (or if sent via a nationally-recognized overnight courier service, freight prepaid, specifying next-business-day delivery, one business day after deposit with the courier), or (ii) if sent via mail, at the earlier of its receipt or three days after the same has been deposited in a regularly-maintained receptacle for the deposit of the United States mail, addressed and mailed as aforesaid, or (iii) if sent via facsimile, upon confirmation of facsimile transfer or, if sent via electronic mail, upon confirmation of delivery when directed to the relevant electronic mail address, if sent during normal business hours of the recipient, or if not sent during normal business hours of the recipient, then on the recipient's next business day.

26. Applicable Law and Consent to Jurisdiction. This Agreement and the legal relations among the parties shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware, without regard to its conflict of laws rules. The Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Delaware Court of Chancery, and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court of Chancery for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) appoint, to the extent such party is not otherwise subject to service of process in the State of Delaware, The Corporation Trust Company, Wilmington, Delaware as its agent in the State of Delaware as such party's agent for acceptance of legal process in connection with any such action or proceeding against such party with the same legal force and validity as if served upon such party personally within the State of Delaware, (iv) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court of Chancery, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court of Chancery has been brought in an improper or inconvenient forum.

27. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. This Agreement may also be executed and delivered by facsimile signature and in counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. Only one such counterpart signed by the party against whom enforceability is sought needs to be produced to evidence the existence of this Agreement.

28. Captions. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

(signature page follows)

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first written above.

STANDARD BIOTOOLS INC.

_____

Signature of Authorized Signatory

_____

Print Name

_____

Title

Address: _____

_____

AGREED TO AND ACCEPTED:

INDEMNITEE:

_____

Signature

_____

Print Name

_____

Title

Address: _____

_____

Exhibit 21.1

SUBSIDIARIES OF STANDARD BIOTOOLS INC.

Subsidiaries of Standard BioTools Inc. (Delaware):

SB Sciences Inc. (Delaware)

Standard BioTools (Shanghai) Instrument Technology Company Limited (China)

Standard BioTools K.K. (Japan)

Standard BioTools Europe B.V. (Netherlands)

Standard BioTools Singapore Pte. Ltd. (Singapore)

Subsidiaries of Standard BioTools Europe B.V. (Netherlands):

Standard BioTools France SARL (France)

Standard BioTools GmbH (Germany)

Standard BioTools Italy S.r.l. (Italy)

InstruNor AS (Norway)

Standard BioTools UK Limited (United Kingdom)

Subsidiaries of SB Sciences Inc. (Delaware):

Standard BioTools Canada Inc. (Ontario, Canada)

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (Nos. 333-265010, 333-230383), Form S-8 (Nos. 333-264086, 333-256617, 333-172206, 333-180363, 333-187204, 333-202325, 333-209904, 333-215555, 333-219667, 333-222561, 333-229214, 333-232441, 333-239810) and Form S-8/S-3 (No.333-194084) of Standard BioTools Inc. of our report dated March 13, 2023, relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
San Jose, California
March 14, 2023

Exhibit 31.1

CERTIFICATION OF THE PRESIDENT AND CHIEF EXECUTIVE OFFICER
PURSUANT TO SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Michael Egholm, certify that:

1. I have reviewed this annual report on Form 10-K of Standard BioTools Inc.;

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

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

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

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

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

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

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

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

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

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

Date: March 14, 2023

By: /s/ Michael Egholm
Michael Egholm
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Vikram Jog, certify that:

1. I have reviewed this annual report on Form 10-K of Standard BioTools Inc.;

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

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

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

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

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

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

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

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

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

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

Date: March 14, 2023

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer

Exhibit 32.1

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

I, Michael Egholm, the chief executive officer of Standard BioTools Inc. (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

1. the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 (the "Report"), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Date: March 14, 2023

By: /s/ Michael Egholm
Michael Egholm
President and Chief Executive Officer

Exhibit 32.2

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

I, Vikram Jog, the chief financial officer of Standard BioTools Inc. (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

1. the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 (the "Report"), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Date: March 14, 2023

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer