2021 ANNUAL REPORT and 2022 PROXY STATEMENT

April 29, 2022

To our shareholders:

I am proud to be sending this letter to the shareholders of Standard BioTools, my first as Chief Executive Officer and President. I started in this role in April of this year. Accordingly, my comments will be primarily focused on our future. Specifically, I will outline how we plan to build on our success and overcome the barriers to our growth.

We are living in a time when unprecedented scientific breakthroughs are advancing the treatment of disease. With the recent strategic capital infusion from investors Casdin Capital, LLC, and Viking Global Investors LP, and an outstanding and ambitious team, we are well-positioned to be a part of that advancement by helping the life science industry develop breakthrough medicines faster and better. I am excited to usher in this new chapter, in which we will continue pioneering technologies and capabilities within discovery and translational research.

Unleashing Tools to Accelerate Breakthroughs in Human Health

The process of science is iterative; we make strides by building on prior discoveries. We have made notable progress in the past year in providing valuable solutions to advance our customers' research and growth. In May 2021, CyTOF® XT for high parameter flow cytometry was launched. The fourth-generation CyTOF platform addresses some of the key limitations of the prior-generation instruments. CyTOF XT™ increases throughput, integrates new sample introduction automation, improves time to results, and reduces total cost of ownership – features particularly valuable to translational and clinical researchers across the pharmaceutical and biotechnology sectors. Going forward, we will focus on the high-growth translational and clinical markets by enabling researchers to answer important questions by interrogating more than 50 markers simultaneously on millions of individual cells.

On November 11, 2021, we announced the launch of Biomark™ X, the latest generation of the industry-leading Biomark microfluidics platform. Biomark X integrates the Juno™ and Biomark HD instruments into a single platform while adding an expansive set of sample-to-answer capabilities on a single versatile, scalable, and transformative genomics platform. It simplifies workflows, streamlines operations to reduce hands-on time, and accelerates results with more data per run. Biomark X is an intuitive and integrated system that performs a variety of tasks in areas including genotyping, sample ID, strain ID, conservation biology, personal genomics, gene expression, pathogen detection, pharmacogenomics assays, and transplant prognostics. Going forward, we will focus on targeted applications in well-defined markets where we can achieve sufficient scale.

The Hyperion+™ Imaging System was launched at the American Association for Cancer Research Annual Meeting in April of this year. The System provides researchers with a deep understanding of disease and response to treatment, with the ability to stratify subjects by linking high-plex data to outcomes in clinical studies. Two critical challenges in realizing the full transformative potential of this remarkable technology are reducing the time to answer key biological questions and detecting important biomarkers that are expressed at low levels. The Hyperion+ Imaging System is designed to solve these challenges with faster time to results and a lower limit of detection than the current Hyperion Imaging System. These capabilities are key to quickly uncovering important spatial relationships with high-plex spatial imaging of 40-plus markers simultaneously at subcellular resolution. Going forward we will continue to invest in our imaging platform and applications to enable researchers to gain deep insights into molecules and pathways that can advance the medical community's ability to diagnose, treat, and mitigate risk for serious health conditions.

Challenges and Impacts

During the past two years, we have all been impacted by COVID-19. I am proud of our company's contribution in the global fight against this consequential pandemic. Our noninvasive, saliva-based test helped deliver a much-needed testing solution for patients and first responders around the world. Our Hyperion Imaging System was used in new published research about lung pathology in COVID-19 patients. Our CyTOF and Maxpar® Direct™ technologies were utilized to characterize immune and inflammatory responses in pregnant women infected with SARS-CoV-2. We will continue to do our part when called upon in service of science and humanity.

However, there is no denying that COVID-19 created a volatile operating environment that continues to impact all facets of our business, including slower than expected recovery in the APAC and EMEA regions. Last year, we experienced pandemic-related supply chain pressures. Our teams addressed several supply chain bottlenecks and worked through a substantial backlog of unfilled orders. While much of the uncertainty around the pandemic has recently been alleviated, the challenges it brought led to a significant slowdown of growth in our base business.

A New Chapter of Focused Execution and Growth

On April 4, 2022, we announced the closing of the $250 million strategic capital infusion from leading life sciences investors Casdin Capital, LLC, and Viking Global Investors LP. Mindful of our past and its lessons, we now embark on a new chapter of focused execution and growth, and 2022 will serve as the foundation we will build upon.

Going forward, we will refine our business strategy to build, maintain and strengthen our competitive positions in the markets in which we operate. We will do this by focusing on three areas: **revenue growth**, **improving our operating discipline**, and **strategic capital allocation**.

First, we will prioritize **revenue growth** by focusing our efforts to compete in growing market segments where we believe we have or could have a competitive advantage.

- **Accelerating growth in mass cytometry.** With particular emphasis to expand our CyTOF and Imaging Mass Cytometry™ platforms to further support translational and clinical research, we intend to simplify the design and execution of deep cell profiling, standardize sample analysis with reproducible workflows and automation, and significantly advance capabilities for novel therapeutic development. We will also invest in improving our consumable offerings—a.k.a., "menu expansion"—to better address our customers' needs. We expect the recent launch of Hyperion+ to improve our competitive position in the growing high-plex imaging market, and we will continue to invest to make our imaging products more competitive.

- **Realizing and rationalizing opportunities in targeted high-profit areas within microfluidics.** We will focus on targeted end-applications (e.g., proteomics, biomarker analysis) and key partnerships (e.g., Olink® Bioscience).

- **Leveraging a larger menu to expand customer base.** Currently, our customer reach is concentrated in basic research. We will direct sales and marketing to expand our relationships deeper into the life science ecosystem, including large biopharma, emerging biotech, and diagnostic companies and the broader CRO and CMO service provider network. We are already seeing encouraging adoption of CyTOF XT in the Pharma, Biotech, and CRO segments.

Second, we expect to significantly **improve our operating discipline** by implementing best-in-class processes to manage expenses and increase productivity.

- **Standard BioTools Business Systems (SBS).** To reach our goals, we will embark on a journey of continuous improvement (kaizen). We begin that journey with the Standard BioTools Business Systems (SBS)—a systematic approach to business operations based in LEAN methodologies used by the highest-performing organizations in the world. One key aspect of this approach is that we focus on processes and standard work, and leverage problem solving to close process gaps, thereby driving a no-blame culture. We will roll out training in SBS in the upcoming weeks.

- **Optimizing the cost structure.** As we work toward being sustainably cash-flow positive, we intend to have a leaner general and administrative expense structure and a sales and marketing spend that is better aligned to support high-growth areas.

Finally, we intend to expand our product offerings for our customers with **strategic capital allocation** to acquire complementary assets that allow us to leverage our existing infrastructure.

- **Focused and disciplined strategic capital allocation.** Our focus will be on acquisitions that are technologically de-risked, have immediate revenue

potential and have synergies with the Company's existing infrastructure. We will be strategically and financially disciplined in our M&A approach.

- Achieving significantly greater breadth and scale. With a strong platform and deeply experienced management team, we will strive to accelerate growth both organically and importantly inorganically to deliver breadth and scale to the Company.

Thanks to increased financial and operational flexibility, we have replaced short-term uncertainty with a focus on long-term growth. I look forward to leading this outstanding team as we embark on this transformation journey and am confident our tool set will indeed accelerate breakthroughs in human health.

Sincerely,

Michael Egholm, PhD
Chief Executive Officer and President

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

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2021
or
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission file number: 001-34180

FLUIDIGM CORPORATION

(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	**FLDM**	**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 ☐

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, 2021, the aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was approximately $463,753,327, 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, 2022, there were 77,198,577 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 May 2022, 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.

Fluidigm Corporation

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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 and our ability to continue as a going concern, 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 strategic investment transaction (described under *Recent Key Developments*) (the Private Placement Issuance), cost structure optimization, acceleration of growth, the expected timing and closing of the Private Placement Issuance, expectations regarding the issuance of the Series B Preferred Stock (as defined below), and other expectations for us following the closing of the Private Placement Issuance, including the achievement of its potential benefits. 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 "Fluidigm," the "Company," "we," "us," and "our" refer to Fluidigm Corporation and its subsidiaries.

PART I

ITEM 1. BUSINESS

Overview

Fluidigm improves life by driving meaningful insights in health and disease. Our innovative technologies explore the biological complexities of disease to advance human health through research, diagnostics and clinical applications. We create, manufacture, and market a range of products and services, including instruments, consumables, reagents and software that are used by researchers and clinical labs worldwide. Our customers are leading academic and government laboratories, as well as pharmaceutical, biotechnology, plant and animal research organizations, and clinical laboratories worldwide. Together with our customers, we strive to increase the quality of life for all.

Our mass cytometry systems (legacy Helios™ and newly introduced revolutionary CyTOF XT) deeply profiles cell phenotype and function. Referenced by more than fifteen hundred peer-reviewed publications around the world, mass cytometry has set a new standard in human immune profiling. Transforming biological imaging, our Hyperion™ Imaging System enables highly multiplexed protein biomarker detection at a single cellular level in tissues and tumors while still preserving tissue architecture and cellular morphology information using Imaging Mass Cytometry™ (IMC™).

Our microfluidic systems complement our mass cytometry offerings by providing highly scalable and automated workflows for quantitative polymerase chain reaction (PCR), gene expression, copy number variation analysis, and next-generation sequencing (NGS) library preparation. Used to detect somatic and genomic variations from a range of different sample types, these automated systems provide the cost efficiencies, flexibility and proven analytical performance that customers need to meet the increasing demands of molecular biomarker analysis for diagnostics and research applications.

Recent Key Developments

Strategic Investment Transaction

On January 23, 2022, 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 provides for a $12.5 million term loan to us (each, a Bridge Loan and collectively, the Bridge Loans). Subject to approval by our stockholders, upon the issuance of the shares of Series B Preferred Stock (as defined below) pursuant to the Purchase Agreements (as defined below), the Bridge Loans will be automatically converted into shares of Series B-1 Preferred Stock (as defined below) or Series B-2 Preferred Stock (as defined below), as applicable, in accordance with the terms of the Bridge Loan Agreements. The Bridge Loans were fully drawn on January 24, 2022. The proceeds of the Bridge Loans may be used for working capital and general corporate purposes.

Also on January 23, 2022, we entered into separate Series B Convertible Preferred Stock Purchase Agreements (the Purchase Agreements) with each of the Purchasers pursuant to which, among other things, 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 will issue and sell an aggregate of $225 million of convertible preferred stock, consisting of: (i) 112,500 shares of our 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 our 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 $1,000.00 per share to Viking (clauses (i) and (ii), 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 Series B Preferred Stock to be purchased by Casdin and Viking pursuant to the Purchase Agreements is in addition to any Series B Preferred Stock to be issued upon conversion of outstanding amounts under the Bridge Loan Agreements. The proceeds of the Preferred Equity Transactions will be used by us for expenses related to the Preferred Equity Transactions, as well as working capital, general corporate purposes and merger and acquisition opportunities that we may identify from time to time.

In connection with the Private Placement Issuance, we will change our name to “Standard BioTools Inc.” and Dr. Michael Egholm will be appointed as the Company’s President and Chief Executive Officer and as a member of our Board of Directors (the Board), each occurring upon the closing of the transactions contemplated by the Purchase Agreements (Closing). Dr. Egholm will succeed Chris Linthwaite, who will continue as our Chief Executive Officer until the earlier of the Closing or May 15, 2022.

The Closing is subject to customary closing conditions for a transaction of this nature, including approval by our stockholders of the issuance of the Series B Preferred Stock in connection with the Private Placement Issuance. Each Private Placement Issuance is also conditioned on the substantially contemporaneous consummation of the other Private Placement Issuance.

Our Board has called a special meeting to be held on March 25, 2022 (the 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 our common stock, par value $0.001 per share, (the Common Stock) 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 our name to Standard BioTools Inc. (together, the Charter Amendment Proposal); and (ii) to approve 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. clauses (A) through (C), the Private Placement Issuance Proposal). The Private Placement Issuance Proposal is conditioned on the approval of the Charter Amendment Proposal. The Charter Amendment Proposal is conditioned on the approval of the Private Placement Issuance Proposal. If both proposals do not receive the requisite vote for approval, neither the Charter Amendment Proposal nor the Private Placement Issuance Proposal will take effect. The parties have agreed that they will not be obligated to close the Preferred Equity Financing if the Charter Amendment Proposal has not been approved at the Special Meeting.

If the Charter Amendment Proposal and the Private Placement Issuance Proposal are not approved by our stockholders at the Special Meeting or the Purchase Agreements are otherwise terminated, then the Bridge Loans will become convertible, at each lender's option, into Common Stock at an initial conversion rate of 352.1126 shares of Common Stock per $1,000 of conversion amount, subject to the cap set forth in the Bridge Loan Agreements. The conversion rate is subject to customary adjustments as set forth in the Bridge Loan Agreements. The Bridge Loans bear interest (i) from and including the effective date of the Bridge Loan Agreements to but excluding March 1, 2022, at 10%, (ii) from and including March 1, 2022 to but excluding June 1, 2022, at 12%, (iii) from and including June 1, 2022 to but excluding September 1, 2022, at 14%, and (iv) from and including September 1, 2022 and thereafter, at 16%. Interest accrues daily and is payable in kind by adding the accrued interest to the outstanding principal amount on the last date of each month. The Bridge Loans mature on the 91st calendar day after the latest maturity date of the loans borrowed under our Loan and Security Agreement, dated as of August 2, 2018, with Silicon Valley Bank, and the principal, together with accrued and unpaid interest, is due on the maturity date.

Market Opportunity

We believe that we have large, multi-billion-dollar market opportunities for our products. We are a leader in the high-growth cytometry market for high parameter applications and high-plex imaging. Through our work with outside consultants and internal market analysis, we believe that the current potential market for mass cytometry high-parameter applications and addressable markets for spatial imaging is just under $1 billion, but expected to be approximately $3 billion by 2025, growing at a compound annual growth rate of approximately 27% over the next five years. We believe we will gain greater access to this market as use of our products expands beyond research to translational and clinical use.

For our microfluidics products, our work with outside consultants and market analysis indicate a potential opportunity in the respiratory and COVID-19 molecular diagnostics markets. We believe that our differentiated PCR microfluidics products could be well-suited to serve the needs of the diagnostics market. Our participation in COVID-19 testing provides an entry point if we choose to explore the diagnostics opportunity. The current markets for our products address a broad range of biological analysis approaches, including the genome, proteome, transcriptome, epigenome and microbiome used by academic life science research customers, as well as applied markets customers, including diagnostic and clinical research laboratories, biopharmaceutical companies, biorepositories and agricultural biotechnology entities. Our markets are increasingly looking to study data sets spanning these approaches in a concerted manner to reveal, understand, and address the biological complexities of disease.

In 2020, we were awarded the NIH Contract under the RADx program to support the expansion of our production capacity and throughput capabilities for COVID-19 testing with our microfluidics technology. As of December 31, 2021, we have achieved the required milestones and have received the total NIH Contract value of $34.0 million. Proceeds from the NIH Contract have been primarily used for capital expenditures to expand production capacity and, to a lesser extent, to offset applicable operating costs. With the funding from the NIH Contract, integrated fluidic circuit (IFC) manufacturing capacity increased from 12,000 IFCs per month to 36,000 IFCs per month in our Singapore facility.

One of the milestones under the NIH Contract was submitting a request with the FDA for Emergency Use Authorization (EUA) of the Advanta Dx COVID-19 EASE Assay. We were granted an EUA for this assay in February

2022. This test is 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.

In 2021:

- Fluidigm made significant strides in product innovation in the form of two new, world-class instrument systems, CyTOF® XT and Biomark™ X. Biomark X is our next generation qPCR platform, integrating the Fluidigm Juno and Biomark HD instruments into a single platform while adding sample-to-answer capabilities. CyTOF XT is the fourth-generation CyTOF instrument, designed to simplify the design and execution of deep cell profiling studies, standardize sample analysis with reproducible workflows and automation and accelerate novel therapeutic development. Both new instrument platforms provide customers with significant value at more economical price points relative to prior generation instruments and include significant enhancements that positively impact instrument operating efficiency and productivity.

- We delivered the Signature Q100 microfluidics platform to our OEM partner, Olink®, showcasing how strategic partnerships support our Vision 2025 growth plan and ability to expand Fluidigm's customer base for instruments and consumables usage.

- The Company focused on partnership and collaboration to accelerate customer adoption of its technology, innovate products or penetrate new markets. Fluidigm completed the milestones under its agreement with the National Institutes of Health, National Institute of Biomedical Imaging and Bioengineering, under the agency's Rapid Acceleration of Diagnostics (RADx) initiative. In addition, the Company completed all milestones in its collaboration with the Defense Advanced Research Projects Agency (DARPA) and its Epigenetic Characterization and Observation program that supports development of innovative programs based on our microfluidics technology.

- As of year-end 2021, 188 clinical trials were underway using CyTOF technology. Total publications and preprints involving CyTOF technology exceeded 1,846, including 179 publications and preprints for Imaging Mass Cytometry.

Products

We market innovative technologies and life science tools, including preparatory and analytical instruments for Mass Cytometry, PCR, Library Prep, Single Cell Genomics, and consumables, including IFCs, assays, and reagents. Our primary product offerings are summarized in the table below:

Product	Product Description	Applications
Mass Cytometry		
Analytical Systems:		
Helios™, a CyTOF system	The Helios mass cytometry system performs high-parameter (>50) single-cell analysis using antibodies conjugated to metal isotopes.	Mass Cytometry
CyTOF system, XT, a CyTOF system	The CyTOF XT mass cytometry system performs highly automated high-parameter (>50) single-cell analysis using antibodies conjugated to metal isotopes.	Mass Cytometry
Hyperion™ Imaging System	The Hyperion Imaging System brings together imaging capability with proven high-parameter CyTOF technology to enable the simultaneous detection of up to 38 protein markers in the spatial context of the tissue microenvironment.	Imaging Mass Cytometry

Product	Product Description	Applications
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.	Imaging Mass Cytometry
Flow Conductor	Flow Conductor is an integrated sample preparation system for flow or mass cytometry assays.	Mass Cytometry
Assays and Reagents:		
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.	Mass Cytometry and Imaging Mass Cytometry
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.	Mass Cytometry
Maxpar On Demand Reagents	Made to order conjugated antibodies, pre-verified and available with seven-day turn-around	Mass Cytometry
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.	Mass Cytometry
Software:		
CyTOF Software v7.0	Streamlines the selection and acquisition of multiple Regions of Interest (ROI) from each slide.	Mass Cytometry
CyTOF Software 8.0	Streamlines and automates the sample acquisition for CyTOF XT to measure 50+ markers for single-cell cytometry	Mass Cytometry
Microfluidics		
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 Biomark HD or EP1 platforms.	Library preparation for RNA-seq and targeted NGS. PCR applications include sequence detection, sample identification, genotyping, gene expression, and real-time digital PCR

Product	Product Description	Applications
Analytical Instruments:		
Biomark HD System	Real-time PCR analytical instrument for microfluidics-based workflows using Fluidigm IFCs.	Sequence detection, sample identification, genotyping, gene expression, and real-time digital PCR Expression
EP1 System	End-point PCR analytical instrument for microfluidics-based workflows using Fluidigm IFCs.	Genotyping, sample identification, and digital PCR
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 that incorporates preamplification for genotyping of 96 samples and 96 markers in a 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; Sequence detection, sample identification, genotyping, gene expression, and real-time digital PCR
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, Copy Number Variation and variant detection
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
Advanta™ Dx SARS-CoV-2 RT-PCR Assay	qPCR-based test that takes advantage of Fluidigm proprietary microfluidics technology and the Juno™ and Biomark™ HD systems.	Enables qualitative detection of nucleic acid from SARS-CoV-2 in saliva specimens collected without preservatives in a sterile container from individuals suspected of COVID-19 by their healthcare provider; authorized for use with the AZOVA COVID-19 Test Collection Kit for self-collection of saliva specimens at home with or without the supervision of a healthcare provider

Product	Product Description	Applications
Advanta™ Dx COVID-19 EASE Assay	qPCR-based test that takes advantage of Fluidigm proprietary microfluidics technology	Enables 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
Delta Gene and SNP Type Assays	Custom designed assays targeted to genomic regions of interest for genotyping and gene expression.	Gene Expression, Single-Cell Targeted Gene Expression, SNP Genotyping
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 or Juno 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
Single Cell Microfluidics		
Preparatory Instrument:		
C1 System	Sample preparation system that rapidly and reliably isolates and processes individual cells for genomic analysis.	Single-Cell NGS library preparation for RNA sequencing including full-length, end-counting, and total RNA applications; single-cell targeted gene expression by real-time PCR including microRNA analysis; single-cell epigenetics and multi-omic applications including ATAC-seq and REAP-Seq (RNA and Protein); single-cell NGS library preparation for DNA sequencing including targeted, whole exome and whole genome applications
Preparatory Analytical Instruments:		
C1 IFCs	IFCs that capture up to 800 cells between 5-25 microns in diameter and then automatically process the cells for a variety of genomic analysis using thermal and pneumatic controls at nanoliter scale.	Single-Cell NGS library preparation for RNA sequencing including full-length, end-counting, and total RNA applications; single-cell targeted gene expression by real-time PCR including microRNA analysis; single-cell epigenetics and multi-omic applications including ATAC-seq and REAP-Seq (RNA and Protein); single-cell NGS library preparation for DNA sequencing including targeted, whole exome and whole genome applications

Technology

Multi-Layer Soft Lithography

Our IFCs are manufactured using multi-layer soft lithography (MSL) technology to create valves, chambers, channels and other fluidic components on our IFCs that allow nanoliter quantities of fluids to be precisely manipulated within the IFC. We have developed commercial manufacturing processes to fabricate valves, channels, vias, and chambers with dimensions in the ten to 100 micron range, at high density and with high yields.

Integrated Fluidic Circuits

Our IFCs incorporate several different types of technology that together enable us to use MSL technology to rapidly design and deploy new microfluidic applications. 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. Our IFCs are built on specially designed input frames that are compatible with most commonly used laboratory systems.

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. The Hyperion Imaging System combines mass cytometry technology with imaging capability to enable simultaneous interrogation of up to 38 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. Lastly, our Flow Conductor sample preparation system provides sample preparation capabilities for both flow and mass cytometry assays. The Flow Conductor system can process up to 100 antibodies at a time and simultaneously stain and prepare up to 18 specimens.

Our Biomark HD system includes our custom thermal cycler, the FC1 cycler, and a sophisticated fluorescence imaging system. Our EP1 instrument is a fluorescence reader designed for end-point imaging, suitable for genotyping and digital PCR applications. Our C1 system combines the hardware elements of our IFC controllers and FC1 cycler with sophisticated scripting and protocol control software to enable automation of single-cell capture and preparation for subsequent analysis. Certain capabilities of the C1 system have been used to create our Juno system, which serves as a universal controller and cycler for our Dynamic Array IFCs. Our Polaris system combines the capabilities of all these instruments by incorporating thermal cycling, IFC control, environmental regulation, and imaging.

We have developed instrumentation technology to load samples and reagents onto our IFCs and to control and monitor reactions within our IFCs. Our line of IFC controllers consists of commercial pneumatic components and both custom and commercial electronics. They apply precise control of multiple pressures to move fluid and control valve states in a microfluidic IFC.

We also offer specialized software to manage and analyze the unusually large amounts of data produced by our systems. We offer Fluidigm 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. We also developed the C1 Script Builder software to enable customers to take full advantage of the flexibility of C1 IFC architecture by allowing them to program their own control scripts for the C1 system.

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 Delta Gene 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. PCR assay reagents need to be specific to the gene targets of interest but the process of designing a set of assays may delay the implementation experiments or require the use of expensive pre-designed assays. We have developed a process to provide customers with validated assays for their targets of interest.

Genomics

One primary area of focus within life science research is genetic analysis, the study of genes and their functions. 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 valuable insight into their health and functioning. Single-cell genomics is the study of the sequence and expression of genes and their ultimate functions at the individual cell level.

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.

- 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.

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.

Proteomics

Another focus within life science research is single cell protein analysis, the study of proteins and their structures and functions. 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.

There are several forms of high-throughput protein analysis in use today, including mass spectrometry, traditional flow cytometry, immunohistochemistry and both suspension and Imaging Mass Cytometry.

- Mass spectrometry is an analytical chemistry technique that measures the mass-to-charge ratio in molecules using external electric and magnetic fields. Mass spectrometry techniques are limited to bulk samples and provide an understanding of global protein dynamics on a tissue or organism level, but do not, by themselves, enable researchers to analyze data at a single cell level.

- 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.

- 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.

- Suspension mass cytometry 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.

- Imaging mass cytometry is similar to immunohistochemistry, but is also 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.

Customers

With the exception of our Advanta™ Dx SARS-CoV-2 RT-PCR Assay (Rx Only), which has been authorized for in vitro diagnostic use by clinical laboratories under Emergency Use Authorizations (EUAs) in the United States and CE-IVD in Europe, and our Advanta™ Dx COVID-19 EASE Assay, which has been authorized for in vitro diagnostic use by clinical laboratories under Emergency Use Authorizations (EUAs) in the United States, being performed on our instruments, we sell our instruments 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. No single customer represented more than 10% of our total revenue for 2021, 2020, or 2019.

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 several 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 primarily located in Singapore and Canada. Our facility in Singapore manufactures our IFCs and manages production of our microfluidics instruments, which are assembled by our contract manufacturer located within our Singapore facility. 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.

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 include a specialized polymer and other specialized materials from which our IFC cores are fabricated, specialized custom camera lenses, fiber light guides, and other components required for the reader of our Biomark system; specialized pneumatic and electronic components for our C1, Juno, Callisto, and Polaris systems; the electron multiplier detector included in, and certain metal isotopes used with, our CyTOF systems; specially developed lasers used in our Hyperion Imaging System; and certain raw materials for our Delta Gene and SNP Type assays and Access Array Target-Specific primers. 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 see the section entitled "Risk factors" in Part I, Item 1A of this Form 10-K.

Research and Development

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

The largest component of our current research and development effort is 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 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, that 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. It's main features include automation of sample introduction and acquisition, enabling unattended operation for 23 hours at high stability, 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 cancer research 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. We launched the AdvantaDx SARS-CoV-2 RT-PCR assay. In addition, we secured significant development partnerships, 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.

Our research and development expenses were $37.9 million, $36.5 million and $31.6 million in 2021, 2020, and 2019 respectively.

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 competition for human resources; cost of capital equipment and supplies; reputation among customers; innovation in product offerings; flexibility and ease of use; accuracy and reproducibility of results; 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 organization; 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 see the section entitled "Risk factors" in Part I, Item 1A of this Form 10-K.

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. To differentiate our company from other, larger enterprises, we need to introduce new and innovative offerings regularly and maintain a well-staffed commercial team "in the field" to successfully communicate the advantages of our products and overcome potential obstacles to acceptance of our products. In addition, ongoing collaborations and partnerships with key opinion leaders are desirable to demonstrate both biological innovation and applications that solve customer problems.

Intellectual Property

Patents

We have developed a portfolio of issued patents and patent applications directed to commercial products and technologies in development. As of December 31, 2021, we owned or licensed more than 410 patents and we had approximately 130 pending patent applications worldwide. Our utility patents have expiration dates ranging up to 2039, and our design patents have expiration dates ranging up to 2044.

License Agreements

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

Microfluidic Technologies. Our core microfluidics technology originated at the California Institute of Technology (Caltech) in the laboratory of Professor Stephen Quake, who is a co-founder of Fluidigm. We license microfluidics 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 2025.

- We have entered into a co-exclusive license agreement with Harvard University for the license of relevant patent filings relating to microfluidic 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 2027.

Mass Cytometry. 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. (Fluidigm Canada), and PerkinElmer Health Sciences, Inc. (PerkinElmer). Under the Original License Agreement, Fluidigm Canada received an exclusive, royalty bearing, worldwide license to certain patents owned by PerkinElmer in the field of inductively coupled plasma (ICP) -based mass cytometry, 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 provides automated sample preparation solutions for mass cytometry and flow cytometry instrument markets and is now part of Fluidigm's mass cytometry business. Included in this acquisition were certain intellectual property portfolio assets comprising 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.

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 see the section entitled "Risk factors" in Part I, Item 1A of this Form 10-K.

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, corporate partners, and, when needed, our advisers.

Government Regulation

Under section 564 of the Federal Food, Drug, and Cosmetic Act (FD&C Act), the FDA has authority to allow certain unapproved medical products or unapproved uses of approved medical products to be used during a public health emergency. In issuing an EUA, the FDA will consider the totality of scientific evidence available to the FDA regarding safety, efficacy and known and potential risks of such products and availability of alternatives to the emergency use products, among others. EUAs issued by the FDA will specify the scope of authorization and conditions of authorization, including limitations on distribution and conditions related to product advertising and promotion. Once granted, an EUA is effective until the declaration that circumstances exist justifying the authorization of the emergency use is terminated under Section 564(b)(2) of the FD&C Act or the EUA is revoked under Section 564(g) of the FD&C Act, after which the product must be cleared or approved by the FDA under a traditional pathway in order to remain on the market or to continue commercialization of the product.

In August 2020, the FDA granted an EUA for our Advanta Dx SARS-CoV-2 RT-PCR Assay for the qualitative detection of nucleic acid from SARS-CoV-2 in saliva specimens collected without preservatives in a sterile container from individuals suspected of COVID-19 by their healthcare providers. As set forth in the EUA, we are required to comply with the conditions of authorization, including certain requirements pertaining to FDA notification, distribution, printed materials, advertising and promotion. If we, our distributors, or authorized laboratories do not comply with the EUA requirements, our business, financial condition and results of operations may be adversely impacted, and we may be subject to regulatory or enforcement actions, including the issuance of an untitled letter, a warning letter, penalties, or fines, among other adverse actions.

If the FDA's policies and guidance change unexpectedly and/or materially or if we misinterpret them, potential sales of our Advanta Dx SARS-CoV-2 RT-PCR Assay could be adversely impacted. In addition, the FDA will revoke an EUA where it is determined that the underlying public health emergency no longer exists or warrants such authorization, or if new evidence becomes available that indicates the test does not meet the conditions of authorization or perform as provided in the EUA application. We cannot predict how long this EUA will remain effective. The termination or revocation of the EUA and changing policies and regulatory requirements could adversely impact our business, financial condition and results of operations. Given the uncertain nature of the COVID-19 pandemic and future legislation and regulation in this space, we can provide no assurance with respect to our ability to achieve or sustain profitability on a quarterly or annual basis.

Except for the Advanta Dx COVID-19 EASE Assay authorized by the FDA under the EUA granted in February 2022 and the Advanta Dx SARS-CoV-2 RT-PCR Assay authorized by the FDA under the EUA granted in August 2020, subsequently updated for use with the AZOVA COVID-19 Test Collection Kit, among other updates, all of our other products are currently labeled and sold for research purposes only, and we sell them to academic institutions, life sciences and clinical research laboratories that conduct research, and biopharmaceutical and biotechnology companies for non-diagnostic and non-clinical purposes. Our products are not intended or promoted for use in clinical practice in the diagnosis of disease or other conditions, and they are labeled, "For research use only. Not for use in diagnostic procedures." Accordingly, they are not subject to pre- and post-market controls for medical devices by the FDA. The FDA regulations require that research use only products be labeled, "For Research Use Only. Not for use in diagnostic procedures," or RUO products.

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 wish to label and market our products for use in performing clinical diagnostics, thus subjecting them to regulation by the FDA under pre-market and post-market control as medical devices, unless an exemption applies, we would be required to obtain either prior 510(k) clearance or prior pre-market approval (PMA) from the FDA before commercializing the product. The FDA classifies medical devices into one of three classes. Devices deemed to pose lower risk to the patient are placed in either class I or II, which, unless an exemption applies, requires the manufacturer to submit a pre-market notification requesting FDA clearance for commercial distribution pursuant to Section 510(k) of the FD&C Act. This process, known as 510(k) clearance, requires that the manufacturer demonstrate that the device is substantially equivalent to a previously cleared and legally marketed 510(k) device or a "pre-amendment" class III device for which pre-market approval applications (PMAs) have not been required by the FDA. This FDA review process typically takes from four to twelve months, although it can take longer. Most class I devices are exempted from this 510(k) premarket submission requirement. Devices deemed by the FDA to pose the greatest risk, such as life-sustaining, life-supporting, or implantable devices, or those deemed not substantially equivalent to a legally marketed predicate device, are placed in class III. Class III devices typically require PMA approval. To obtain PMA approval, an applicant must demonstrate the reasonable safety and effectiveness of the device based, in part, on data obtained in clinical studies. PMA reviews generally last between one and two years, although they can take longer. Both the 510(k) and the PMA processes can be expensive and lengthy and may not result in clearance or approval. If we are required to submit our products for pre-market review by the FDA, we may be required to delay marketing and commercialization while we obtain 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.

We would become subject to additional FDA requirements if our products are determined to be medical devices or if we elect to seek 510(k) clearance or pre-market approval. We would need to continue to invest significant time and other resources to ensure ongoing compliance with FDA quality system regulations and other post-market regulatory requirements. For additional information, please see the section entitled "Risk factors" in Part I, Item 1A of this Form 10-K.

International sales of medical devices are subject to foreign government regulations, which vary substantially from country to country. Outside of the EU, regulatory approval needs to be sought on a country-by-country basis in order to market medical devices. Although there is a trend towards harmonization of quality system, standards and regulations in each country may vary substantially which can affect timelines of introduction.

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 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), 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 of our 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 see the section entitled "Risk factors" in Part I, Item 1A of this Form 10-K.

Additionally, our research and development and manufacturing processes 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 three years, a significant portion of our revenue was generated outside of the United States. Total revenue received from customers outside the United States equaled $70.4 million, or 54% of our total revenue, in 2021, compared to $66.2 million, or 48% of our total revenue, in 2020, and $73.9 million, or 63% of our total revenue, in 2019. The majority of our long-lived assets are located within the United States, in Singapore and in Canada. Please see Note 6 and Note 16 to our audited consolidated financial statements for additional information regarding geographic areas.

Seasonality

Our business is not subject to significant seasonality. However, the timing of customer orders and shipments, customer budget and spending cycles, and new product releases can result in variability in our quarterly revenues.

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, Fluidigm 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 Fluidigm's most valued assets.

We are a values-driven organization. We believe strong shared values are essential for Fluidigm to evolve and grow and to be successful for the long-term. Our values inform our relationships with customers, suppliers, investors and each other. They ensure that we model respect and inclusiveness in our words and actions. Our core values, conceived and developed by our employees, define us when we are at our best and guide us in all that we do. Our core values are to:

- Create what customers need next
- Drive to make a difference
- Collaborate and learn
- Step up

A Growing Global Workforce

As of December 31, 2021, Fluidigm had 615 employees worldwide, 45% of whom were female. In the United States, 38% of our employees were female as of December 31, 2021. 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, 2021:

	United States	Canada	Singapore	Other	Total	Male	Female	Total
Manufacturing	16	61	68	—	145	69	76	145
Research and Development	44	73	23	—	140	88	52	140
Sales and Marketing	84	32	8	86	210	120	90	210
General and Administration	62	22	31	5	120	59	61	120
Total	206	188	130	91	615	336	279	615

Employee Safety and COVID-19

Employee safety has always been paramount at Fluidigm, a commitment very much in evidence as we continue to navigate the challenges of the COVID-19 pandemic. At the outset of the crisis, we tasked a global, interdisciplinary team of leaders in environmental health and safety, human resources, legal, facilities and information technology to develop guidelines and processes for new health and well-being protocols. Also developed were new practices for cross-functional, remote teamwork, operating disciplines and training programs.

To keep our employees safe, we provide to those who can work remotely the tools and resources to do so. Our pivot to remote work has been successful, with employees taking advantage of our technology resources. Essential work continues not only at our facilities and labs, but also every day in home offices, living rooms, kitchens and spare rooms, made possible by our IT systems and the collective commitment of our people. Many of our employees have worked on-site in labs and other facilities throughout the pandemic, and we have adopted a range of protocols and practices to keep them safe.

We have empowered each Fluidigm business location to adopt health and safety recommendations that address local requirements, and we have made site-specific COVID-19 prevention plans readily available for all our employees. In addition, we provide team members practical recommendations based on guidelines from the Centers for Disease Control and Prevention, the World Health Organization, the U.S. Department of Health and Human Services, the Occupational Safety and Health Administration, and other regional government entities. We are committed to updating these recommendations and communicating new pertinent information when available.

One of the key learnings of the extended pandemic is that there are many ways for work to get done. Since the early days of the global health crisis, Fluidigm colleagues around the world have stepped up to make virtual work remarkably successful across a diverse range of teams in every part of the Company. Each Fluidigm site will determine how and when more people return, based on site-specific factors related to health and safety, the needs of the business and each individual's ability to work remotely versus the necessity to be onsite. We are prepared to be flexible as new information becomes available or as conditions change. As we consider a return to the workplace for more people, safety is our priority. We think

this is an opportunity to make Fluidigm a place to do your very best work in a way that is safe, flexible, collaborative and right for Fluidigm.

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, working to exceed our peer competitors. By doing so, we strive to provide incentives to our team members to achieve short- 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, Fluidigm 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.

Our culture is one that actively supports participation in learning activities and the application of new knowledge and skills on the job. As such, we strive to create a work environment that both challenges and supports all our team members to do their best work.

Diversity and Inclusion

At Fluidigm, 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 apply this commitment to diversity to every aspect of the employee experience, from recruitment to development, training and advancement. As Fluidigm evolves, we will continue to build an inclusive and diverse culture that empowers all of us.

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. 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.fluidigm.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.fluidigm.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.fluidigm.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 Us > 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 the Private Placement Issuance

- The pending strategic Private Placement Issuance may not be consummated or may be delayed.
- While the Private Placement Issuance is pending, we are subject to business uncertainties and contractual restrictions that could harm our business relationships, financial condition, operating results and business.
- We have incurred, and will incur, substantial expenses in connection with the Private Placement Issuance.
- Following the Closing, the Purchasers will own a significant portion of our total outstanding voting securities and may prevent other stockholders from influencing material corporate decisions following completion of the Private Placement Issuance.
- We may not be able to realize the anticipated benefits of the Private Placement Issuance, and we will be subject to business uncertainties that could adversely affect our business.
- The Private Placement Issuance, if consummated, will cause dilution to our current stockholders.
- The market value of our common stock could decline if the Purchasers sell their Series B Preferred Stock or common stock after certain transfer restrictions expire.

Risks Related to our Business, Industry, and Strategy

- The COVID-19 pandemic has significantly affected our business operations.
- 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.
- We have incurred losses since inception, and we may continue to incur substantial losses for the foreseeable future.
- 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.
- Our business growth strategy involves the potential for significant acquisitions.
- Our efficiency and cost-savings initiatives could be disruptive to our operations.
- Implementation of a company-wide enterprise resource planning (ERP) system could adversely affect our business.

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.
- 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 key employees.
- 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.
- Although the FDA granted Emergency Use Authorization (EUA) for our Advanta Dx SARS-CoV-2 RT-PCR Assay in August 2020 and an update to our EUA for use of the AZOVA COVID-19 Test Collection Kit in February 2021, among other updates, these authorizations are only valid during the COVID-19 public health emergency.
- 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.
- 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.
- 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

- We believe that our current level of cash and cash equivalents, together with committed financing facilities, are not sufficient to fund ongoing operations for at least the twelve-month period after the financial statements were issued. The existence of these conditions raises substantial doubt about our ability to continue as a "going concern" for at least the twelve-month period following the date the financial statements were issued.
- 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 herein), 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 cease to cover our business, our stock price and/or trading volume could decline.
- Any conversions of our 2014 Notes or 2019 Notes will dilute the ownership interest of our existing stockholders.

RISKS RELATED TO THE PRIVATE PLACEMENT ISSUANCE

The pending strategic Private Placement Issuance may not be consummated or may be delayed, and any failure to complete the Private Placement Issuance could materially and adversely impact our financial condition, results of operations, growth prospects and/or stock price.

As further described in Item 1, *Business*, we entered into (i) the Casdin Loan Agreement and (ii) the Viking Loan Agreement (the Bridge Loan Agreements). Each Bridge Loan Agreement provides for a Bridge Loan of $12.5 million to the Company. The Bridge Loans were fully drawn on January 24, 2022.

Also, as further described in Item 1, *Business*, on January 23, 2022, we entered into separate Purchase Agreements with each of the Purchasers, pursuant to which, among other things, at the Closing, and on the terms and subject to the conditions set forth therein, the Company will issue and sell in a private placement (a) to Casdin, 112,500 shares of the Company's newly designated Series B-1 Convertible Preferred Stock in exchange for $112.5 million, and (b) to Viking, 112,500 shares of the Company's newly designated Series B-2 Convertible Preferred Stock in exchange for $112.5 million.

Consummation of the Private Placement Issuance is subject to certain closing conditions, a number of which are not within our control, including stockholder approval of the Private Placement Issuance. We cannot predict with certainty whether or when any of the required closing conditions will be satisfied, and we can provide no assurance that all closing conditions will be satisfied or waived (where permissible) or that the Private Placement Issuance will be consummated timely or at all. Any failure to satisfy the closing conditions may prevent, delay or otherwise materially adversely affect the completion of the Private Placement Issuance. If the Private Placement Issuance is not consummated, our ongoing business and financial results may be materially adversely affected and we will be subject to a number of risks, including the following:

- the Purchase Agreements may be terminated;
- we may be unable to meet our debt maintenance or repayment obligations;
- we may lose the anticipated benefits of the Private Placement Issuance and access to the relationships and expertise of the Purchasers, which could negatively impact our financial results, growth prospects and strategic plans;
- our management may be required to divert attention from our business in order to negotiate an alternative transaction;
- we will be liable for significant transaction costs, including legal, accounting, financial advisory and other costs relating to the Private Placement Issuance; and
- we may be required to pay termination fees as required under the Purchase Agreements.

In addition, if the Private Placement Issuance is not completed, we may experience negative reactions from the financial markets and from our existing stockholders, customers, partners, employees, vendors and creditors. The trading price of our common stock may decline to the extent that the current market price for our common stock reflects a market assumption that the Private Placement Issuance will be completed. We may be unable to find a comparable alternative transaction that would allow us to meet our debt and other obligations as they come due, which could have important consequences, including potentially forcing us into bankruptcy or liquidation. These risks may materialize and may adversely affect our business, financial position, results of operations and cash flows, as well as the price of our common stock.

Litigation relating to the Private Placement Issuance may be filed that could prevent or delay the Private Placement Issuance closing and/or result in the payment of damages.

In connection with the Private Placement Issuance, it is possible that stockholders or other parties may file putative class action or other lawsuits against us or the Purchasers. Among other remedies, these parties could seek damages and/or to enjoin the Special Meeting. The outcome of any litigation is uncertain, and any such potential lawsuits could prevent or delay the Closing of the Private Placement Issuance and/or result in substantial costs to us. Any such actions may create uncertainty relating to the Private Placement Issuance and may be costly and distracting to management. Further, the defense or settlement of any lawsuit or claim that remains unresolved at the time the Private Placement Issuance is completed may adversely affect our business, financial condition, results of operations and cash flows.

In addition, in connection with the announcement of the Private Placement Issuance, we entered into an indemnification agreement with Dr. Egholm for indemnification with respect to potential claims by a prior employer against Dr. Egholm that may arise in connection with his engagement with us and becoming our Chief Executive Officer. We are currently responding to certain inquiries that a prior employer has made in connection with Dr. Egholm's signed offer letter to become our Chief

Executive Officer. Any claims for indemnification made by Dr. Egholm could cause us to incur costs and expenses. To the extent that we expend funds to indemnify Dr. Egholm, those funds will be unavailable for other purposes.

While the Private Placement Issuance is pending, we are subject to business uncertainties and contractual restrictions that could harm our business relationships, financial condition, operating results and business.

During the period prior to the Closing of the Private Placement Issuance and pursuant to the terms of the Purchase Agreements, we are exposed to certain inherent risks and contractual restrictions that could harm our business relationships, financial condition, operating results, and business, including:

- potential uncertainty in the marketplace, which could lead current and prospective customers to purchase products and services from other providers or delay purchasing from us;
- difficulties maintaining existing and/or establishing new business relationships, including business relationships with significant customers, suppliers and partners;
- the possibility of disruption to our business and operations resulting from the announcement and pendency of the Private Placement Issuance, including diversion of management attention and resources;
- the inability to attract and retain key personnel and recruit prospective employees, and the possibility that our current employees could be distracted, and their productivity decline as a result, due to uncertainty regarding the Private Placement Issuance;
- the inability to pursue alternative business opportunities or make changes to our business pending the completion of the Private Placement Issuance, and other restrictions on our ability to conduct our business;
- our inability to take certain actions that we might believe are beneficial for our business;
- the amount of the costs, fees, expenses and charges related to the Purchase Agreements and the Private Placement Issuance, which may materially and adversely affect our financial condition; and
- other developments beyond our control, including, but not limited to, changes in domestic or global economic conditions, that may affect the timing or success of the Private Placement Issuance.

If any one or more of these effects were to occur, they could materially and adversely impact our business, cash flow, results of operations or financial condition, as well as the market price of our common stock and our perceived value, regardless of whether the Private Placement Issuance is completed.

The Purchase Agreements limit our ability to pursue alternatives to the Private Placement Issuance.

The Purchase Agreements contain certain customary restrictions on our ability to solicit proposals from third parties for alternative transactions, including a strategic investment or a sale of the Company. In addition, subject to certain customary "fiduciary out" exceptions, our board of directors is required to recommend that our stockholders vote in favor of the approval of the Private Placement Issuance. In connection with termination of the Purchase Agreements under specified circumstances, we will be obligated to pay each Purchaser a termination fee of up to $5,000,000. Moreover, we may be required to reimburse each Purchaser for an amount not to exceed $1,250,000 for each Purchaser's documented expenses if the Purchase Agreements are terminated for any reason other than the applicable Purchaser's breach of its Purchase Agreement. The payment of these fees and expenses could materially and adversely impact our business, cash flow, results of operations or financial condition.

These provisions might discourage an otherwise-interested third party from considering or proposing an alternative transaction, including a transaction that may be deemed to offer greater value to our stockholders than the Private Placement Issuance.

Actions of activist stockholders or other parties may impair our ability to consummate the Private Placement Issuance or otherwise could negatively impact our business.

Actions taken by activist stockholders could impair our ability to satisfy conditions to the consummation of the Private Placement Issuance, including receiving the requisite stockholder approval, or otherwise preclude us from consummating the Private Placement Issuance. Such activist stockholders could also take actions that disrupt our business, divert the time and attention of management and our employees away from our business operations, cause us to incur substantial additional expense, create perceived uncertainties among current and potential customers, clients, suppliers, employees and other constituencies as to our future direction as a consequence thereof, which may result in lost sales or other business arrangements and the loss of potential business opportunities, and make it more difficult to attract and retain qualified personnel and business partners. Actions that our board of directors has taken, and may take in the future, in response to any offer or proposal by activist stockholders may result in litigation against us, which could also be a significant distraction for our management and

employees and may require us to incur significant costs or otherwise result in an adverse effect on us. In addition, actual or perceived actions of activist stockholders may cause significant fluctuations in the trading price of our common stock that do not necessarily reflect the underlying fundamentals and prospects of our business.

We have incurred, and will incur, substantial expenses in connection with the Private Placement Issuance.

We have incurred, and will incur, substantial expenses in connection with and as a result of the Private Placement Issuance, including financial advisory, legal, accounting, consulting and other advisory fees and expenses. A portion of the costs related to the Private Placement Issuance will be incurred regardless of whether the Private Placement Issuance is completed. While we have assumed that a certain level of transaction expenses will be incurred, factors beyond our control could affect the total amount or the timing of these expenses. Some of the expenses that will be incurred, by their nature, are difficult to estimate accurately. These expenses will exceed the costs historically borne by us and could adversely affect our financial condition and results of operations prior to and following the Private Placement Issuance.

Following the Closing, the Purchasers will own a significant portion of our total outstanding voting securities and may prevent other stockholders from influencing material corporate decisions following completion of the Private Placement Issuance, and the Purchasers' interests may conflict with those of our other stockholders.

Assuming the Closing occurs on April 1, 2022 (the Assumed Closing Date), the Series B Preferred Stock will initially be convertible into up to approximately 75,157,929 shares of our common stock (without giving effect to limitations associated with any conversion cap), including any shares of our common stock issuable upon conversion of the Series B Preferred Stock issued upon conversion of the Bridge Loans. On an as-converted basis, we expect this to collectively represent approximately 49.4% of our issued and outstanding common stock immediately following the Closing (equating to approximately 24.7% per Purchaser) based on the number of shares of common stock outstanding as of January 31, 2022, but assuming full conversion of all Series B Preferred Stock (without giving effect to limitations associated with any conversion cap) immediately following the Assumed Closing Date. As a result, the Purchasers are expected to be our largest stockholders. 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 be perceived negatively by other investors and, as a result, 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.

We may not be able to realize the anticipated benefits of the Private Placement Issuance, and we will be subject to business uncertainties that could adversely affect our business.

The anticipated benefits of the Private Placement Issuance, including, among others: (i) to capitalize Fluidigm appropriately; (ii) to avoid frequently recurring liquidity concerns that temper stock price performance; (iii) to manage operating expenses; (iv) to find new sources of growth both organic and inorganic; and (v) to implement management changes as necessary to achieve the foregoing may not be realized fully or at all, or may take longer to realize than we currently expect. Additionally, the Purchasers are preeminent investors in the life sciences market, and the Company may not realize the benefits from their domain experience and success in building growth companies in life sciences. Actual operating, strategic and revenue opportunities, if achieved at all, may be less significant than we expect or may take longer to achieve than we anticipate. If we are not able to achieve these objectives and realize the anticipated benefits from the Private Placement Issuance within the anticipated timing or at all, our business, financial condition and operating results may be adversely affected. Parties with whom we do business may experience uncertainty associated with the Private Placement Issuance. Our business relationships may be subject to disruption as customers, partners, vendors, landlords and other parties with whom we do business may attempt to delay or defer entering into new business relationships with us, negotiate changes in existing business relationships, terminate their contracts with us, or consider entering into business relationships with our competitors following the Private Placement Issuance. The occurrence of any of these events could have an adverse effect on our operating results, particularly during the period immediately following the Closing. Uncertainty about the effect of the Private Placement Issuance could also have an adverse effect on our employee relations. This uncertainty may impair our ability to attract, retain and motivate key personnel until the Private Placement Issuance is consummated and for a period of time thereafter. Any loss of key personnel, including members of our senior management team, could have an adverse effect on our operations and financial results.

The Private Placement Issuance, if consummated, will cause dilution to our current stockholders, which may negatively affect the market price of our common stock.

If our stockholders approve the Private Placement Issuance, upon the Closing, the Series B-1 Preferred Stock issued pursuant to the B-1 Purchase Agreement and Casdin Loan Agreement will initially be convertible into an aggregate of

approximately 37,578,964 shares of our common stock (subject to adjustment), and the Series B-2 Preferred Stock issued pursuant to the B-2 Purchase Agreement and Viking Loan Agreement will initially be convertible into an aggregate of approximately 37,578,964 shares of our Common Stock (subject to adjustment), assuming the Closing occurs on the Assumed Closing Date, and without giving effect to limitations associated with any conversion cap. On an as-converted basis, and assuming the Closing occurs on the Assumed Closing Date, we currently expect this to represent an aggregate of approximately 49.4% of our issued and outstanding shares of Common Stock immediately following the Closing (equating to approximately 24.7% per Purchaser) based on the number of shares of Common Stock outstanding as of January 31, 2022, but assuming full conversion of all Series B Preferred Stock (without giving effect to limitations associated with any conversion cap) immediately following the Closing. In connection with the Closing of the Private Placement Issuance, we also intend to adopt a 2022 Inducement Equity Incentive Plan (the "Inducement Plan"). The initial share reserve under the Inducement Plan is estimated to be 5% of the outstanding shares of Common Stock at the Closing, calculated on a fully diluted basis (assuming all equity awards to be granted in connection with the Closing are outstanding). As a result, our current stockholders will experience substantial dilution of any earnings per share we may have in the future, as well as of ownership percentage and voting rights. This could have the effect of depressing the market price of our common stock.

The market value of our common stock could decline if the Purchasers sell their Series B Preferred Stock or common stock after certain transfer restrictions expire or if our current stockholders sell large amounts of common stock following the Private Placement Issuance.

Pursuant to the Registration Rights Agreement that we entered into on January 23, 2022 with the Purchasers, we agreed to certain customary registration rights with respect to shares issuable under the Bridge Loan Agreements and the Purchase Agreements, including (i) any shares of common stock acquired by any Purchaser pursuant to the conversion of the Series B Preferred Stock in accordance with the Certificates of Designations, (ii) common stock issued upon conversion of the Bridge Loans if no Series B Preferred Stock is issued in accordance with the Bridge Loan Agreements and (iii) any shares of common stock acquired by any Purchaser pursuant to preemptive rights under the Purchase Agreements, which means that such shares would become eligible for resale in the public markets following the expiration of 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. Furthermore, our current stockholders may decide to reduce their investment in us due to the changes to our investment profile as a result of the Private Placement Issuance, and may sell large amounts of common stock leading up to or following the Private Placement Issuance. Such sales of our common stock could have the effect of depressing the market price of our common stock.

RISKS RELATED TO OUR BUSINESS, INDUSTRY, AND STRATEGY

The global COVID-19 pandemic has significantly affected our business operations and could continue to adversely impact our financial position and cash flows to an extent that is unknown and difficult to predict.

The pandemic and international public health emergency caused by SARS-CoV-2, the novel strain of coronavirus that causes the disease commonly known as COVID-19, has adversely affected all the countries in which we and our customers, suppliers, and other business partners operate, disrupting supply chains, causing significant volatility in global financial markets, and raising the prospect of an extended global recession. Public health problems resulting from COVID-19 and precautionary measures instituted by governments and businesses to mitigate its spread and resurgence, including travel restrictions and quarantines, could continue to contribute to a general slowdown in the global economy, cause increasingly adverse impacts on our customers, suppliers, and other business partners, and further disrupt our operations. Changes in our operations as a result of the COVID-19 pandemic have resulted in inefficiencies and delays, including in sales and product development efforts, and additional costs related to business continuity initiatives that cannot be fully mitigated through succession planning, employees working remotely, or teleconferencing technologies.

The COVID-19 pandemic and related governmental and societal reactions have had, and may continue to have, a negative impact on our business, liquidity, results of operations, and stock price due to the occurrence of some or all of the following events or circumstances among others:

- reduced demand for some of our products and services due to the impact of COVID-19 on our customers, including in the global academic research community;
- the negative impact of ongoing travel restrictions and social distancing policies on our sales operations, marketing efforts, and customer field support;
- diminished business productivity due to inefficiencies in employees working from home or increasing physical distancing and other pandemic response protocols in our production facilities;

- increased voluntary turnover, together with impaired ability to hire and effectively train new personnel due to labor shortages, travel restrictions, and physical distancing protocols;
- increased susceptibility to the risk of information technology security breaches and other disruptions due to increased volumes of remote access to our information systems from our employees working at home;
- increased operating costs if one of our facilities were to experience a COVID-19 outbreak;
- disruption of the operations of our contract manufacturers, suppliers, and other business partners;
- shortages or delays in the supply of components and materials used in our products; and
- increased volatility in our stock price due to financial market instability.

In addition to its negative impact on some aspects of our business, the COVID-19 pandemic has been a source of opportunity for our diagnostics business, opening up external funding sources to support innovation and product development and resulting in increased revenues due to sales of our Advanta Dx SARS-CoV-2 RT-PCR test and related sales of our microfluidics instruments. However, as vaccines and alternative testing options for the coronavirus have become available and the perceived threat of the pandemic has receded, the demand for our COVID-19 testing products has slowed, resulting in a corresponding decline in related revenue.

In 2021, factors such as supply chain constraints, China trade restrictions, and the ongoing slowdown in the Asia-Pacific region caused our overall revenues to decline more than expected. The extent to which the COVID-19 pandemic will continue to impact our business and financial results will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the continued spread and resurgences of the coronavirus; the emergence of new strains of the disease, such as the Delta and Omicron variants; the availability, efficacy, and acceptance of COVID-19 vaccines; the scope and duration of the public health emergency; and COVID-19 mitigation measures such as travel bans and restrictions, social distancing, quarantines, and business shutdowns and closures.

Because the severity, magnitude, and duration of the COVID-19 pandemic and its economic consequences are uncertain, we are unable to predict the impact of COVID-19 on our operations, our financial performance, and our ability to successfully execute our business strategies and initiatives. The ultimate impact of the COVID-19 pandemic on our operations and financial performance depends on many factors that are not within our control, including, but not limited, to: governmental, business, and individual actions that have been and continue to be taken in response to the pandemic (including restrictions on travel, transport and workforce pressures); the impact of the pandemic and actions taken in response on global and regional economies, travel, and economic activity; the availability of federal, state, local or non-U.S. funding programs; general economic uncertainty in key global markets and financial market volatility; global economic conditions and levels of economic growth; labor and materials shortages; supply chain difficulties, including disruption of logistics, shipping, and other distribution operations; and the pace of recovery when the threat of COVID-19 subsides.

As the COVID-19 pandemic continues to affect our operating and financial results, it may also have the effect of heightening many of the other risks described in our other risk factors below. COVID-19 may also affect our operating and financial results in a manner that is not presently known to us or that we currently do not expect to present significant risks to our operations or financial results, particularly if the pandemic and its associated impacts reoccur in the coming months.

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. Although our revenue increased year-over-year in 2020 compared to 2019 and in 2019 compared to 2018, we experienced a year-over-year decline in revenue in 2021 compared to 2020, and we may be similarly unable to achieve revenue growth in future periods. Variability in our quarterly or annual results of operations, mix of product revenue, including any decline in our revenue related to the COVID-19 pandemic, or variability in 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. Other unknown or unpredictable factors also could harm our results.

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 are 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 those projected by securities analysts, which could significantly decrease the price of our common stock.

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 $59.2 million, $53.0 million, and $64.8 million during the years 2021, 2020, and 2019, respectively. As of December 31, 2021, we had an accumulated deficit of $736.0 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.

We believe that our continued investment in research and development, sales, and marketing is essential to our long-term competitive position and future revenue growth and, as a result, we may incur operating losses for the foreseeable future and may never achieve profitability.

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, 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., NanoString Technologies, Inc. (NanoString), and Agena Bioscience, Inc. to be our principal competitors in the microfluidics space. We believe that Cytek Biosciences, Inc. and Becton, Dickinson and Company are currently our principal competitors for our mass cytometry market share, and that IonPath Inc., Akoya Biosciences, Inc., NanoString, and 10x Genomics, Inc. are our principal competitors for our Imaging Mass Cytometry™ market share. 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 intend to devote significant personnel and financial resources to research and development activities designed to advance the capabilities of our technology. 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.

Market opportunities may not develop as quickly 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.

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 system. 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 will require us to incur 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.

Our efficiency and cost-savings initiatives could be disruptive to our operations and adversely affect our results of operations and financial condition.

From time to time, we have implemented efficiency and cost-savings initiatives intended to stabilize our business operations. These efficiency initiatives have included targeted workforce reductions, optimizing our facilities, and reducing excess space. In 2020, in response to the uncertainty arising from the COVID-19 pandemic, we initiated a range of additional actions aimed at temporarily reducing our operating expenses and preserving liquidity, including implementing temporary enterprise-wide salary reductions of 20% for employees at or above the 'director' level and 10% for all others, temporarily reducing our board members' cash retainers by 20%, and constraining hiring. Although we discontinued our hiring constraints and pandemic-related pay reductions in 2020, we regularly review other possible actions to preserve liquidity and optimize our organization. For example, we may need to decrease or defer capital expenditures and development activities or implement further operating expense reduction measures. The implementation of these and other efficiency and cost-savings initiatives

could impair our ability to invest in developing, marketing and selling new and existing products, be disruptive to our operations, make it difficult to attract or retain employees, result in higher than anticipated charges, divert the attention of management, result in a loss of accumulated knowledge, impact our customer and supplier relationships, and otherwise adversely affect our results of operations and financial condition.

If we seek to implement a company-wide enterprise resource planning (ERP) system, such implementation could adversely affect our business and results of operations or the effectiveness of internal control over financial reporting.

We are considering implementing a company-wide ERP system 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. If we decide to implement a company-wide ERP system, our business and results of operations could 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. 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;
- 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—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 because of the COVID-19 pandemic 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 (including the ongoing COVID-19 pandemic), 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, several 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/CyTOF systems and certain metal isotopes used with the Hyperion/CyTOF 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.

In connection with the global supply chain disruptions following the onset of the COVID-19 pandemic, we 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.

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. We do not maintain significant key person life insurance with any of our employees and all our employees, including our management team, may terminate employment without notice and without cause or good reason.

Additionally, to expand 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, 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 we are unable to expand our direct sales, field support, and marketing forces or distribution capabilities 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 in large part on our ability to continue to increase the scope of our marketing efforts and develop and substantially expand our direct sales force and field application specialist 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 Biomark, EP1, 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 our products.

Our products, our Biomark, EP1, 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 Biomark 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. 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.

Due to the COVID-19 pandemic, we have an increased number of employees 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.

Although the FDA granted Emergency Use Authorization (EUA) for our Advanta Dx SARS-CoV-2 RT-PCR Assay in August 2020 (which was updated for use with the AZOVA COVID-19 Test Collection Kit in February 2021, among other updates) and our Advanta Dx COVID-19 EASE Assay in February 2022, these authorizations are only valid during the COVID-19 public health emergency, and when the federally declared public health emergency ends, we will be required to stop commercial distribution of our assay and the collection kit immediately in the United States unless we comply with FDA requirements, which may include obtaining FDA clearance or approval for our assay under a traditional regulatory pathway for in vitro diagnostics, which is lengthy and expensive.

Under section 564 of the Federal Food, Drug, and Cosmetic Act (FD&C Act), the FDA has authority to allow certain unapproved medical products or unapproved uses of approved medical products to be used during a public health emergency under an EUA. In issuing an EUA, the FDA will consider the totality of scientific evidence available to the FDA regarding safety, efficacy and known and potential risks of such products and availability of alternatives to the emergency use products, among others. EUAs issued by the FDA will specify the scope of authorization and conditions of authorization, including limitations on distribution and conditions related to product advertising and promotion. Once granted, an EUA is effective until the declaration that circumstances exist justifying the authorization of the emergency use is terminated under Section 564(b)(2) of the FD&C Act or the EUA is revoked under Section 564(g) of the FD&C Act, after which the product must be cleared or approved by the FDA under a traditional pathway as defined by the FDA and we must comply with the FDA quality system regulations in order to remain on the market or to continue commercialization of the product.

In August 2020, the FDA granted EUA for our Advanta Dx SARS-CoV-2 RT-PCR Assay for qualitative detection of nucleic acid from SARS-CoV-2 in saliva specimens from individuals suspected by their healthcare providers of having COVID-19, with the use of the assay limited to CLIA high complexity laboratories. Four supplements have been submitted and authorized as follows: S001 for addition of the FDA Reference Panel Results, S002 for software updates and labeling changes, S003 for addition of alternative source of targets and labeling updates, and S004 for addition of AZOVA home collection kit. In February 2021, the FDA updated that EUA for our Advanta Dx SARS-CoV-2 RT-PCR Assay for use with the AZOVA COVID-19 Test Collection Kit, which is authorized for self-collection of saliva specimens at home. In February 2022, we were granted EUA for our the Advanta Dx COVID-19 EASE Assay, which is 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. As set forth in each EUA, we are required to comply with the conditions of authorization, including certain requirements pertaining to FDA notification, distribution, printed materials, advertising and promotion. If we, our distributors, or authorized laboratories do not comply with the EUA requirements, our business, financial condition and results of operations may be adversely impacted, and we may be subject to regulatory or enforcement actions, including recall of our products and the issuance of an untitled letter, a warning letter, penalties, or fines, among other adverse actions.

If the FDA's policies and guidance change unexpectedly and/or materially or if we misinterpret them, potential sales of Advanta Dx SARS-CoV-2 RT-PCR and the AZOVA COVID-19 Test Collection Kit could be adversely impacted. In addition,

the FDA will revoke an EUA where it is determined that the underlying public health emergency no longer exists or warrants such authorization, or if new evidence becomes available that indicates the test does not meet the conditions of authorization or perform as provided in the EUA application. We cannot predict how long this EUA will remain effective. The termination or revocation of the EUA and changing policies and regulatory requirements could adversely impact our business, financial condition and results of operations. The demand for our product and our profitability may decline or be adversely impacted by the federal government's implementation of a national COVID-19 testing strategy. Given the uncertain nature of the COVID-19 pandemic and future legislation and regulation in this space, we can provide no assurance with respect to our ability to achieve or sustain profitability on a quarterly or annual basis.

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.

Our contract with the National Institutes of Health (NIH) could expose us to unique risks and costs as an entity contracting with the federal government.

The NIH launched the Rapid Acceleration of Diagnostics (RADx) program to expedite development, commercialization, and implementation of technologies for COVID-19 testing to help increase testing in the United States. In July 2020, we entered into a letter contract with the NIH for a project under the RADx program. The letter contract provided access to approximately $12.2 million of the total proposed funding for the project prior to execution of a further definitive contract for the project. In September 2020, we executed a definitive contract with the NIH as an amendment to the letter contract (collectively, the NIH Contract) to expand production capacity and throughput capabilities for COVID-19 testing with our microfluidics technology. Pursuant to the terms of the NIH Contract, the funding for the project was increased by approximately $22.0 million, for a total contract value of up to approximately $34.0 million. Release of funding under the NIH Contract is based on the achievement of milestones, including expansion of our manufacturing facilities, addition of production lines, and achieving full production capacity. As of December 31, 2021, all milestones have been achieved and accepted by NIH.

We must prioritize among many different opportunities, and we may expend our limited resources on programs that do not yield a successful or profitable product candidate and may forego other more profitable opportunities. Further, the Bayh-Dole Act applies to all NIH research and development funding granted to for-profit organizations, which requires the government to be provided a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world.

The NIH Contract includes certain provisions from the Federal Acquisition Regulations, some of which are customary or legally required, that give the U.S. government substantial rights and remedies, many of which are not typically found in commercial contracts. For example, the NIH Contract contains provisions permitting unilateral termination or modification, in whole or in part, at the convenience of the U.S. government. Under general principles of government contracting law, if the U.S. government terminates a contract for convenience, the government contractor may recover only its incurred or committed costs, settlement expenses and profit on work completed prior to the termination. If the U.S. government terminates a contract for default, the government contractor is entitled to recover costs incurred and associated profits on accepted items only and may be liable for excess costs incurred by the government in procuring undelivered items from another source. In addition, government contracts normally contain additional requirements that may increase our costs of doing business, reduce our profits, and expose us to liability for failure to comply with these terms and conditions. These requirements include, for example, mandatory internal control systems and policies, mandatory socioeconomic compliance requirements, including labor standards, non-discrimination and affirmative action programs and environmental compliance requirements and public disclosures of certain contract information, which may enable competitors to gain insights into our research program. If we fail

to maintain compliance with these requirements, we may be subject to potential contract or False Claims Act liability and to termination of our NIH Contract.

Other examples of rights and remedies under the NIH Contract include provisions that allow NIH to:

- terminate the NIH Contract, in whole or in part, for any reason or no reason;
- unilaterally reduce or modify the U.S. government's obligations under the NIH Contract, without our consent, including by imposing price adjustments;
- claim rights, including intellectual property rights, in or to (i) products, (ii) data, and (iii) facilities, in each case developed under the NIH Contract;
- under certain circumstances involving public health and safety, license inventions made under such agreements to third parties;
- suspend us from receiving new contracts pending resolution of alleged violations of procurement laws or regulations;
- impose U.S. manufacturing requirements for products that embody inventions conceived or first reduced to practice under the NIH Contract;
- suspend or debar us from doing future business with the government;
- change the course of a development program in a manner that differs from the NIH Contract's original terms or from our desired development plan, including decisions regarding our partners in the program;
- pursue civil or criminal remedies under the False Claims Act and False Statements Act; and
- control or prohibit the export of products.

Furthermore, we may be required to enter into agreements and subcontracts with third parties, including suppliers, consultants and other third-party contractors in order to satisfy our contractual obligations pursuant to our agreements with the U.S. government. Negotiating and entering into such arrangements can be time-consuming and we may not be able to reach agreement with such third parties. Any such agreement must also be compliant with the terms of the NIH Contract. Any delay or inability to enter into such arrangements or entering into such arrangements in a manner that is non-compliant with the terms of our contract, may result in violations of our contract.

U.S. government agencies routinely audit and investigate government contractors and recipients of federal grants and contracts (even after performance has been completed). These agencies review a contractor's performance under its contracts, cost structure and compliance with applicable laws, regulations and standards. The audit may also include review of the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's accounting, purchasing, property, estimating, compensation and management information systems. If an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions. In addition, we could suffer serious reputational harm if allegations of impropriety were made against us, which could cause our stock price to decrease.

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.

Except for the Advanta Dx SARS-CoV-2 RT-PCR Assay and the AZOVA COVID-19 Test Collection Kit authorized by the FDA under an EUA granted in August 2020 and updated in February 2021, among other updates, and our Advanta Dx COVID-19 EASE Assay authorized by the FDA under an EUA granted in February 2022, our other products are currently 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 are currently registered with the FDA as a medical device manufacturer, with the reagents for the Advanta Dx SARS-CoV-2 RT-PCR Assay listed as our sole medical device product. As noted in the issued EUA for the Advanta Dx SARS-CoV-2 RT-PCR Assay (including the EUA update for use with the AZOVA COVID-19 Test Collection Kit, among other updates) and the issued EUA for the Advanta Dx COVID-19 EASE Assay, the FDA has waived certain quality system requirements under 21 CFR Part 820 for the duration of each EUA. We may in the future list some of our other 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. If we do not comply with all the requirements of the EUA or the normal regulatory requirements for any of our medical device products, including additional regulatory requirements that would apply to the Advanta Dx SARS-CoV-2 RT-PCR Assay and the AZOVA COVID-19 Test Collection Kit after the expiration or termination of the EUA, we may be subject to regulatory or enforcement actions, including the issuance of an untitled letter, a warning letter, penalties, or fines, among other adverse actions, any of which may adversely impact our business, financial condition and results of operations. 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 Europe, we need to comply with the In Vitro Diagnostic Directive 98/79/EC and transition to the In Vitro Diagnostic Regulation 2017/746, which became effective May 26, 2017, with an application date of May 26, 2022. This will increase the difficulty of regulatory approvals in Europe in the future. In addition, the FDA regulates exports of medical devices. Failure to comply with these regulatory requirements or obtain and maintain required approvals, clearances and certifications could impair our ability to commercialize our products for diagnostic use outside of the United States.

In February 2021, we announced a supply and distribution agreement to market our CyTOF technology, panels, and reagents to clinical labs in China. As part of the agreement, we are working to seek National Medical Products Administration (NMPA) approval for our CyTOF instrument for diagnostic use in China. As we increase our operations outside of the United States, our compliance and operational costs will increase, and we will be exposed to greater liability under additional laws and regulations.

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, or the 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 Federal Food, Drug, and Cosmetic 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 2021, 2020, and 2019, approximately 56%, 54%, and 63% 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.

Since the beginning 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 of 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 are widely expected to result in retaliatory measures or actions, including tariffs, 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.

We are currently implementing new measures to reduce our exposure to this liability. The implementation of these measures may require us to expend substantial 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 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 the worldwide economic disruption related to the COVID-19 pandemic and related slowdowns in China, Japan, and elsewhere in the Asia-Pacific region, have negatively affected our revenues and operating results and may continue to do so. Even before the current public health crisis took hold,

the global credit and financial markets had been experiencing volatility and disruptions, including diminished liquidity and credit availability, increased concerns about inflation and deflation, and the downgrade of U.S. debt and exposure risks on other sovereign debts, decreased consumer confidence, lower economic growth, volatile energy costs, increased unemployment rates, and uncertainty about economic stability. Geopolitical events including the COVID-19 pandemic, 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.

A majority of our product sales are currently 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 of the countries in which our operations are located, which is primarily in the United States, with a portion of expenses incurred in Singapore and Canada where a significant portion of our manufacturing operations 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

As disclosed in footnote two of our consolidated financial statements, and referenced in our independent registered public accounting firm's report, we believe that our current level of cash and cash equivalents, together with committed financing facilities, are not sufficient to fund ongoing operations for at least the twelve-month period after the financial statements were issued. The existence of these conditions raises substantial doubt about our ability to continue as a "going concern" for at least the twelve-month period following the date the financial statements were issued.

Our current cash position and recurring operating losses have raised substantial doubt about our ability to continue as a going concern for at least the twelve-month period following the date the financial statements were issued. As of December 31, 2021, we had $29.5 million in cash, cash equivalents and restricted cash. Due to an extended strategic review process related to the pending Private Placement Issuance, we were unable in 2021 to implement certain cash management actions, including potential financing and/or cost reduction initiatives. Further, we have incurred, and expect to continue to incur, negative cash flows in pursuit of our business plans for at least the twelve-month period following the date the financial statements were issued. Management's plans to address the doubt regarding our ability to continue as a going concern are discussed under Part II, Item 7, "Management's discussion and analysis of financial condition and results of operations." Our ability to continue as a going concern is dependent upon our success in obtaining additional equity or debt financing, attaining further operating efficiencies, reducing expenditures and ultimately, generating significant revenue growth. Our plans to raise additional capital, including our ability to consummate the Private Placement Issuance, or take other actions to address the doubt regarding our ability to continue as a going concern, may not be successful. There can be no assurance that the Company would be able to obtain additional liquidity when needed or under acceptable terms, if at all. The perception of our ability to continue as a going concern may make it more difficult for us to obtain financing for the continuation of our operations and could result in the loss of confidence by investors, suppliers and employees.

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 have continued to experience losses and, if that trend continues, we may need to seek additional sources of financing. If our plans to raise capital and to consummate the Private Placement Issuance are not successful, or if such funds are insufficient to meet our cash requirements, we may need to raise substantial capital for various purposes, including:

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

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 and cost-savings initiatives;
- 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 or invest in businesses, products, and technologies, although we currently have no commitments or agreements relating to any of these types of transactions.

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. The ongoing COVID-19 pandemic has led to significant disruption and volatility in the global capital markets, increasing the cost of—and adversely impacting access to—capital. We entered into an Open Market Sale Agreement (Sale Agreement) with Jefferies LLC (Jefferies) to sell shares of our common stock having aggregate sales proceeds of up to $50 million, from time to time, through an at-the-market (ATM) equity offering program under which Jefferies acts as sales agent. During the third quarter of 2020, we sold approximately 2.5 million shares of our common stock pursuant to the Sale Agreement, for aggregate gross proceeds of $20.9 million. Our net proceeds were approximately $20.1 million, after deducting related expenses, including commissions of approximately $0.6 million and issuance costs of approximately $0.2 million. If we raise additional funds by issuing equity securities, either under the ATM program or otherwise, our stockholders will experience dilution. Debt financing in addition to our credit facility, 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. Moreover, 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 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, 2021, we had approximately $135.6 million of goodwill and net intangible assets, including approximately $106.4 million of goodwill and $29.2 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. (DVS) in February 2014 and InstruNor 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 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 would generally include 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. 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.

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.

In August 2021, we amended our Loan and Security Agreement dated as of August 2, 2018, between the Company and Silicon Valley Bank (SVB) (the Credit Agreement), which provides for secured revolving loans in an aggregate amount of up to $15.0 million (the 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 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 amendment) 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 lenders 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.

In January 2022, we entered into the Bridge Loan Agreements. Each Bridge Loan Agreement provides for a $12.5 million term loan to the Company. Each Bridge Loan Agreement contains customary affirmative and negative covenants which, unless waived by the applicable lenders, 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. If we fail to comply with the covenants and our other obligations under the Bridge Loan Agreements, the lenders would, subject to a subordination agreement, be able to accelerate the required repayment of amounts due under the Bridge Loan Agreements.

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.

We may experience an ownership change in connection with the Private Placement Issuance. Additionally, any other 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. If we experience an ownership change, our ability to use our NOLs or other tax benefits could be substantially limited, which could significantly impair their value. There is no assurance that we will be able to fully utilize our 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, 2021, we had outstanding $0.6 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (2014 Notes) and $55.0 million aggregate principal amount of our 5.25% convertible senior notes due 2024 (2019 Notes, and collectively 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 (2014 Notes Indenture), holders of the 2014

Notes may require us to repurchase all or a portion of the 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 2014 Notes Indenture or the indenture governing 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 January 2022, we borrowed $25.0 million under the Bridge Loan Agreements in connection with the Private Placement Issuance. 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 2013 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. 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, Fluidigm Canada Inc. (Fluidigm Canada), an Ontario corporation and wholly owned subsidiary of Fluidigm Sciences, was party to an interim license agreement, now expired, with Nodality, Inc. (Nodality) under which Nodality granted Fluidigm 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 Nodality, 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 have assisted the licensors of these technologies with the analysis of the domestic manufacturing requirement, and, in December 2008, the sole licensor subject to the requirement applied for a waiver of the domestic manufacturing requirement with respect to the relevant patents licensed to us by this licensor. In July 2009, the funding government agency granted the requested waiver of the domestic manufacturing requirement for a three-year period commencing in July 2009. In June 2012, the licensor requested a continued waiver of the domestic manufacturing requirement with respect to the relevant patents, but the government agency has not yet taken any action in response to this request. If the government agency does not grant the requested waiver or the government fails to grant additional waivers of such requirement that may be sought in the future, then the U.S. government could exercise its march-in rights with respect to the relevant patents licensed to us. In addition, the license agreement under which the relevant patents are licensed to us contains provisions that obligate us to comply with this domestic manufacturing requirement. We are not currently manufacturing instruments and IFCs in the United States that incorporate the relevant licensed technology. If our lack of compliance with this provision 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, 2021, we had 76,919,287 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, including in connection with the Private Placement Issuance, 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, 2021) 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:

- the impact of public health crises, including the COVID-19 pandemic, on global financial markets;
- 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 an alternative facility;
- supply chain disruptions;
- any future sales of our common stock or other securities in connection with raising additional capital or otherwise, including the Private Placement Issuance;
- 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 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. As discussed in Part I Item 3 (Legal Proceedings) of this Annual Report on Form 10-K, a class action securities lawsuit against us is currently pending. While we are continuing to defend such action vigorously, the defense of this action and any additional actions can be costly, divert the time and attention of our management, and harm our operating results, and any judgment against us or any future stockholder litigation could result in substantial costs.

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, including any issuances pursuant to our ATM equity offering program under our Sale Agreement with Jefferies, could result in substantial dilution to our existing stockholders and could cause our stock price to decline.

We will have broad discretion over the use of the proceeds to us from our ATM equity offering program and may apply the proceeds to uses that do not improve our operating results or the value of your securities.

We will have broad discretion to use the net proceeds to us from our ATM equity offering program, and investors will be relying solely on the judgment of our board of directors and management regarding the application of these proceeds. Investors will not have the opportunity, as part of their investment decision, to assess whether the proceeds are being used appropriately. Our use of the proceeds may not improve our operating results or increase the value of the securities offered pursuant to the ATM equity offering program.

If securities or industry analysts publish unfavorable research about us or cease to cover our business, 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 ceases 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, the 2019 Notes, or the Bridge Loans 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, 2019 Notes, or Bridge Loans 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, 2019 Notes, or Bridge Loans 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, 2019 Notes, or Bridge Loans could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities.

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 lease that commenced in March 2020 for a lease term of approximately 10 years. Additionally, we lease office, laboratory, and manufacturing space in Singapore consisting of approximately 40,000 square feet expiring in June 2027, and approximately 5,000 square feet expiring in March 2023. In Ontario, Canada, we have leased two properties, comprising approximately 44,500 square feet expiring in March 2026 and approximately 19,000 square feet expiring in March 2027. As of December 31, 2021, we also leased office space in Japan, China, and France, with various expiration dates through February 2026. We believe that our properties are in good condition and are adequate and suitable for their purposes. 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 Executive Officer and Chief Financial 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. The plaintiff has 30 days following the Court's entry of judgment to file an appeal. We believe the claims alleged in the complaint lack merit and, should an appeal be filed, we intend to defend this action vigorously.

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.

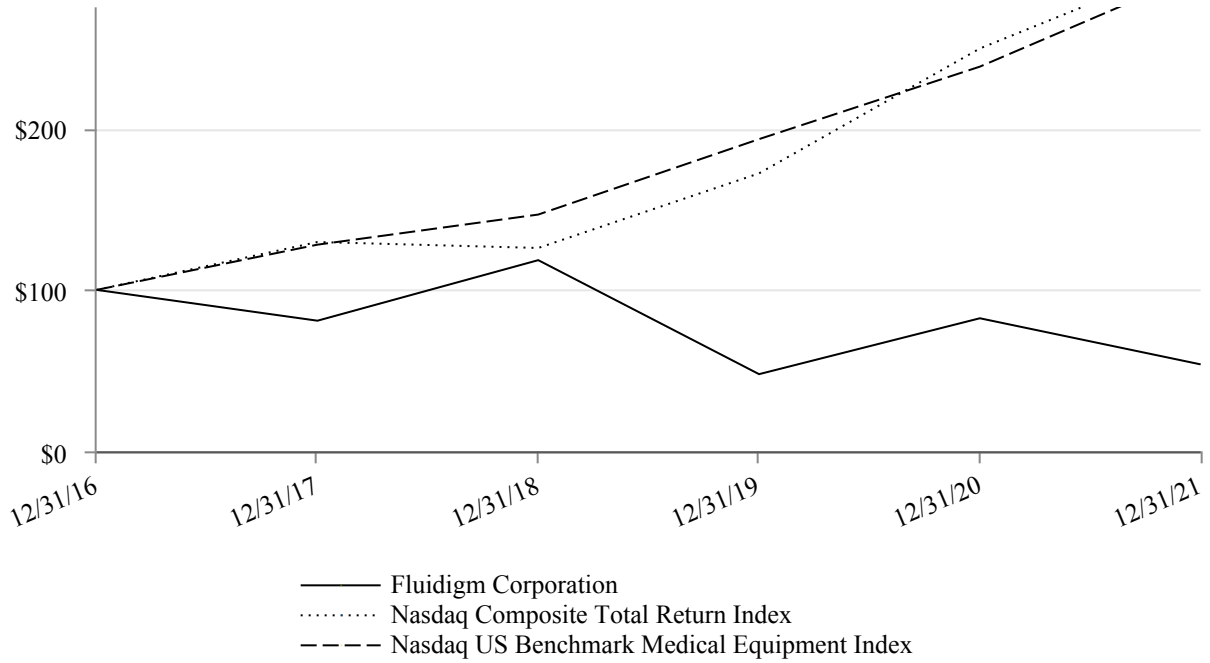
We had 82 stockholders of record as of January 31, 2022; however, because many of our outstanding shares are held by brokers or other institutions on behalf of stockholders, we are unable to estimate the total number of beneficial owners represented by the holders of record.

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.

Stock Performance Graph

The following performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Fluidigm Corporation under the Securities Act or the Exchange Act.

The following graph compares, from December 31, 2016 through December 31, 2021, the cumulative total return for our common stock, the Nasdaq Composite Total Return Index, and the Nasdaq US Benchmark Medical Equipment Index, assuming in each case an initial investment of $100 and reinvestment of all dividends. Such returns are based on historical results and are not intended to suggest future performance.



Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

We did not repurchase any shares of our common stock during the year ended December 31, 2021.

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 Fluidigm. 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 Fluidigm 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.

Overview

Fluidigm improves life by driving meaningful insights in health and disease. Our innovative technologies explore the biological complexities of disease to advance human health through research, diagnostics and clinical applications. We create, manufacture, and market a range of products and services, including instruments, consumables, reagents and software that are used by researchers and clinical labs worldwide. Our customers are leading academic and government laboratories, as well as pharmaceutical, biotechnology, plant and animal research organizations, and clinical laboratories worldwide. Together with our customers, we strive to increase the quality of life for all.

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 facility in Singapore manufactures our integrated fluidic circuits (IFCs) as well as our microfluidics instruments, which are assembled by our contract manufacturer located within our Singapore facility. Our mass cytometry instruments, assays and reagents are manufactured at our facility in Canada. In 2021, we manufactured microfluidics reagents in our facilities in Canada and South San Francisco as well as through U.S.-based third-party contract manufacturers for reagent manufacturing.

Our total revenue was $130.6 million in 2021 compared to $138.1 million and $117.2 million in 2020 and 2019, respectively. Product and service revenue was $126.3 million in 2021 compared to $122.5 million and $116.7 million in 2020 and 2019, respectively. We have incurred significant net losses since our inception in 1999 and, as of December 31, 2021, our accumulated deficit was $736.0 million.

Recent Developments

In 2020, we were awarded the NIH Contract under the RADx program to support the expansion of our production capacity and throughput capabilities for COVID-19 testing with our microfluidics technology. As of December 31, 2021, we have achieved the required milestones and have received the total NIH Contract value of $34.0 million. Proceeds from the NIH Contract have been primarily used for capital expenditures to expand production capacity and, to a lesser extent, to offset applicable operating costs. With the funding from the NIH Contract, IFC manufacturing capacity increased from 12,000 IFCs per month to 36,000 IFCs per month in our Singapore facility.

As vaccines and alternative testing options for the coronavirus have become more available and the perceived threat of the pandemic began to recede in 2021, the demand for our COVID-19 testing products slowed, resulting in a corresponding decline in COVID-19 testing revenue in 2021, compared to the third and fourth quarters of 2020. The pandemic also negatively impacted our base business revenue, which excludes COVID-19 related revenue. It is difficult to predict the impact of new strains of the coronavirus on our business or the impact they may have on the research priorities of our customers. For additional information on the various risks posed by the pandemic, refer to Part I, Item 1A- Risk Factors of this Form 10-K.

Global logistics and supply chain disruptions resulted in component delays and supply constraints with some of our suppliers. While some of these issues have been resolved, shortages of certain components have resulted in longer component order lead times to meet future demand. We expect to be able to meet product demand in 2022, but continued supply disruptions of components or materials or our inability to obtain components, materials, or assembly services from alternate sources could impact our ability to meet the ongoing demand of our customers.

On August 2, 2021, the Company amended its Loan and Security Agreement dated as of August 2, 2018, between the Company and Silicon Valley Bank (SVB) (the Amendment). The Amendment extends the maturity date of our $15.0 million revolving credit facility (Revolving Credit Facility) by one year, to August 2, 2023, and also provides for a term loan facility in an aggregate principal amount of $10.0 million (the Term Loan Facility). The stated maturity date of the Term Loan Facility is July 1, 2025, however if, as of June 1, 2024, the principal amount of our convertible debt exceeds $0.6 million or if the maturity date of our 2019 Notes has not been extended beyond January 1, 2026, then the maturity date of the Term Loan Facility will be

on June 1, 2024. There were $6.8 million of advances outstanding under the Revolving Credit Facility at December 31, 2021. The Term Loan Facility was fully drawn as of December 31, 2021.

Strategic Investment Transaction

On January 23, 2022, the Company 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 provides for a $12.5 million term loan to the Company (each, a Bridge Loan and collectively, the Bridge Loans). Subject to approval by the Company's stockholders, upon the issuance of the shares of Series B Preferred Stock (as defined below) pursuant to the Purchase Agreements (as defined below), the Bridge Loans will be automatically converted into a number of shares of Series B-1 Preferred Stock (as defined below) or Series B-2 Preferred Stock (as defined below), as applicable, in accordance with the terms of the Bridge Loan Agreements. The Bridge Loans were fully drawn on January 24, 2022. The proceeds of the Bridge Loans may be used for working capital and general corporate purposes.

Also on January 23, 2022, the Company entered into separate Series B Convertible Preferred Stock Purchase Agreements (the Purchase Agreements) with each of the Purchasers pursuant to which, among other things, at the closing of the transactions contemplated thereby, and on the terms and subject to the conditions set forth therein, including the approval of the Company's stockholders, the Company will 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 $1,000.00 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) at a purchase price of $1,000.00 per share to Viking (clauses (i) and (ii), 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 Series B Preferred Stock to be purchased by Casdin and Viking pursuant to the Purchase Agreements is in addition to any Series B Preferred Stock to be issued upon conversion of outstanding amounts under the Bridge Loan Agreements. The proceeds of the Preferred Equity Transactions will be used by the Company for expenses related to the Preferred Equity Transactions, as well as working capital, general corporate purposes and merger and acquisition opportunities that the Company may identify from time to time.

In connection with the Private Placement Issuance, the Company will change its name to "Standard BioTools Inc." and Dr. Michael Egholm will be appointed as the Company's President and Chief Executive Officer and as a member of our Board of Directors (the Board), each occurring upon the closing of the transactions contemplated by the Purchase Agreements (Closing). Dr. Egholm will succeed Chris Linthwaite, who will continue as the Company's Chief Executive Officer until the earlier of the Closing or May 15, 2022.

The Closing is subject to customary closing conditions for a transaction of this nature, including approval by the Company's stockholders of the issuance of the Series B Preferred Stock in connection with the Private Placement Issuance. Each Private Placement Issuance is also conditioned on the substantially contemporaneous consummation of the other Private Placement Issuance.

The Company's Board has called a special meeting to be held on March 25, 2022 (the Special Meeting) to ask the Company's stockholders to consider, vote upon and approve (i) a proposal to amend the Company's 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, of the Company (Common Stock) that the Company is 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. (together, the Charter Amendment Proposal); and (ii) to approve 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 (clauses (A) through (C), the Private Placement Issuance Proposal). The Private Placement Issuance Proposal is conditioned on the approval of the Charter Amendment Proposal. The Charter Amendment Proposal is conditioned on the approval of the Private Placement Issuance Proposal. If both proposals do not receive the requisite vote for approval, neither the Charter Amendment Proposal nor the Private Placement Issuance Proposal will take effect. The parties have agreed that they will not be obligated to close the Private Placement Issuance if the Charter Amendment Proposal has not been approved at the Special Meeting.

If the Charter Amendment Proposal and the Private Placement Issuance Proposal are not approved by the Company's stockholders at the Special Meeting or the Purchase Agreements otherwise terminated, then the Bridge Loans will become

convertible, at each lender's option, into Common Stock at an initial conversion rate of 352.1126 shares of Common Stock per $1,000 of conversion amount, subject to the cap set forth in the Bridge Loan Agreements. The conversion rate is subject to customary adjustments as set forth in the Bridge Loan Agreements. The Bridge Loans bear interest (i) from and including the effective date of the Bridge Loan Agreements to but excluding March 1, 2022, at 10%, (ii) from and including March 1, 2022 to but excluding June 1, 2022, at 12%, (iii) from and including June 1, 2022 to but excluding September 1, 2022, at 14%, and (iv) from and including September 1, 2022 and thereafter, at 16%. Interest accrues daily and is payable in kind by adding the accrued interest to the outstanding principal amount on the last date of each month. The Bridge Loans mature on the 91st calendar day after the latest maturity date of the loans borrowed under the Company's Loan and Security Agreement, dated as of August 2, 2018, with Silicon Valley Bank, and the principal, together with accrued and unpaid interest, is due on the maturity date.

Going Concern

For this annual report, we performed an assessment to determine whether there are conditions or events, considered in the aggregate, that raise substantial doubt about our ability to continue as a going concern for at least the twelve-month period following the date the financial statements were issued. As of December 31, 2021, we had $29.5 million in cash, cash equivalents and restricted cash. Due to an extended strategic review process related to the pending Private Placement Issuance, we were unable in 2021 to implement certain cash management actions, including potential financing and/or cost reduction initiatives. Further, we have incurred, and expect to continue to incur, negative cash flows in pursuit of our business plans for at least the twelve-month period following the date the financial statements were issued. As a result, we believe that our current level of cash and cash equivalents, together with committed financing facilities, are not sufficient to fund ongoing operations for at least the twelve-month period following the date the financial statements were issued. The existence of these conditions raises substantial doubt about our ability to continue as a going concern for the twelve-month period following the date the financial statements were issued.

Our ability to continue as a going concern is dependent upon our success in obtaining additional equity or debt financing, attaining further operating efficiencies, reducing expenditures and ultimately, generating significant revenue growth. We are evaluating strategies to obtain the required additional funding for future operations including the potential consummation of the $225 million Private Placement Issuance, which is contingent on stockholder approval and satisfaction of customary closing conditions. In the event the proposed investment does not occur, we would need to obtain the required additional funding for future operations from alternative sources. These sources may include, but are not limited to, equity financing, debt or other financing arrangements, and restructuring of operations to grow revenues and decrease expenses. Our plans to raise additional capital, including our ability to consummate the Private Placement Issuance, or take the other actions to address the doubt regarding our ability to continue as a going concern, may not be successful. There can be no assurance that we would be able to obtain additional liquidity when needed or under acceptable terms, if at all. Our financial results discussed below do not include any adjustments related to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern.

Critical Accounting Policies, Significant Judgments and Estimates

Our consolidated financial statements and the related notes included elsewhere in this Form 10-K are prepared in accordance with accounting principles generally accepted in the United States. 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 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. We assessed certain accounting matters that generally require consideration of forecasted financial information, including the unknown impact of COVID-19 pandemic. These accounting matters included, but were not limited to, our inventory and related reserves, and the carrying value of goodwill and other long-lived assets. Actual results could differ materially from these estimates and could have a material adverse effect on our consolidated financial statements. 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 believe that the following critical accounting policies involve a greater degree of judgment and complexity than our other accounting policies. Accordingly, these are the policies we believe are the most critical to understanding and evaluating our audited 2021 consolidated financial statements.

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 primarily 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 generally do not have a unilateral right to return products after delivery. Invoices are generally issued at shipment and generally become due in 30 to 60 days.

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 revenue, 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.

Product Warranties

We generally provide a one-year warranty on our instruments and establish a liability for the estimated cost of the obligation at the time the product is shipped. We periodically review our warranty liability and record adjustments based on specific terms provided to customers and our overall historical experience with usage. This expense is recorded as a component of cost of product revenue in the consolidated statements of operations.

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.

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. Judgment is required in determining the amounts of any such allowances.

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, and quality issues.

Leases

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, net and current and non-current 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 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.

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 our 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, including the current COVID-19 pandemic, declines in our market share or revenues, and an increase in our losses, rapid changes in technology, failure to achieve the benefits of capacity increases and utilization, significant litigation arising out of an acquisition, or other matters. Any impairment charges could have a material adverse effect on our operating results and net asset value in the quarter 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 our reporting unit is less than its carrying amount. If we determine that it is more likely than not that the fair value of our reporting unit is less than its carrying amount, we compare the fair value of our reporting unit to its carrying value. If the fair value of our reporting unit exceeds its carrying value, goodwill is not considered impaired and no further analysis is required. If the carrying value of the reporting unit exceeds its fair value, then an impairment loss equal to the difference would be recorded to goodwill. We did not recognize any impairment of goodwill for any of the periods presented herein.

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. We did not recognize any impairment of intangibles for 2021 or 2020. In 2019, we recognized an impairment charge of $0.4 million on patents and licenses that were not used in the current products and were not expected to be used in future product offerings.

Deferred Grant Income

In September 2020, we executed a definitive contract with the National Institutes of Health (NIH) for a project under the NIH Rapid Acceleration of Diagnostics (RADx) program. The definitive contract, which amended the letter contract we entered into with NIH in July 2020 (collectively the NIH Contract), has a total value of up to $34.0 million upon the achievement of certain milestones, which were achieved and accepted by the NIH as of December 31, 2021. Proceeds from the NIH Contract have been and will be used primarily to expand production capacity and throughput capabilities.

Accounting for the NIH Contract does not fall under ASC 606, Revenue from Contracts with Customers, as the NIH will not benefit directly from our expansion or product development. As there is no authoritative guidance under U.S. GAAP on accounting for government assistance to for-profit business entities, we applied International Accounting Standards (IAS) 20, Accounting for Government Grants and Disclosure of Government Assistance, by analogy when accounting for the NIH Contract payments to Fluidigm.

The NIH Contract proceeds used for production capacity expansion meet the definition of grants related to assets as the primary purpose for the payments is to fund the purchase and construction of capital assets to scale up production capacity. Under IAS 20, government grants related to assets are presented in the statement of financial position either by setting up the grant as deferred income or by deducting the grant in arriving at the carrying amount of the asset. Either of these two methods of presentation of grants related to assets in financial statements are regarded as acceptable alternatives under IAS 20. We have elected to record the grants received as deferred income using the first method.

Under IAS 20, grant proceeds are recognized when there is reasonable assurance the conditions of the grant will be met and the grant will be received. With the NIH Contract, this occurred when either each milestone was accepted by NIH or management concluded the conditions of the grant were substantially met. Deferred grant income related to production capacity expansion is being amortized over the period of depreciation for the related assets as a reduction of depreciation expense. Grant income related to reimbursement of operating costs is recorded as a reduction of those expenses incurred to date. Grant proceeds that exceed the cost of the capital expenditures and expenses expected to be incurred are recorded in other non-operating income.

Term Loan, net

On August 2, 2021, we entered into a Fourth Agreement to our Loan and Security Agreement (the Amendment) with Silicon Valley Bank. The Amendment extended the maturity date of our $15.0 million Revolving Credit Facility by one year, to August 2, 2023, and provided for a term loan facility in an aggregate principal amount up to $10.0 million (Term Loan Facility). As of December 31, 2021, the Term Loan Facility was fully drawn. Interest is payable monthly and principal balances are required to be repaid in 24 equal monthly installments beginning on August 1, 2023. In addition, 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. 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 using the effective interest method. The carrying value of the term loan 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.

Convertible Notes, net

In February 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (2014 Notes). In March 2018, we entered into separate privately negotiated transactions with certain holders of our 2014 Notes to exchange $150.0 million in aggregate principal amount of the 2014 Notes for our 2.75% Exchange Convertible Senior Notes due 2034 (2018 Notes). In the first quarter of 2019, the 2018 Notes were converted into 19.5 million shares of our common stock and the 2018 Notes were retired. We recorded a loss of $9.0 million on the retirement of the 2018 Notes at conversion in the first quarter of 2019. We determined the fair value of the 2018 Notes using valuation techniques that required us to make assumptions related to the implied discount rate.

In November 2019, we closed a private placement for $55.0 million aggregate principal amount of our 5.25% Senior Convertible Notes due 2024 (2019 Notes). The majority of the issuance proceeds were used to retire approximately $50.2 million of aggregate principal amount of our 2014 Notes. We recorded a loss of $3.0 million on the extinguishment of the 2014 Notes in the fourth quarter of 2019. This amount represented the difference between the fair value of the 2019 Notes used to extinguish the debt and the carrying value of the 2014 Notes, including unamortized debt issuance costs.

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. We recorded a loss of $9 thousand on the extinguishment of those notes, representing the difference between the price paid to extinguish the 2014 Notes and their carrying value, including unamortized debt issuance costs.

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.

Stock-Based Compensation

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

We recognize compensation costs for all stock-based awards, including stock options, RSUs, PSUs and stock purchased under our 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.

Recent Accounting Changes and Accounting Pronouncements

Adoption of New Accounting Guidance

In November 2019, the FASB issued ASU 2019-12-Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes. The amendments in this update improve consistent application of and simplify U.S. GAAP for Topic 740 by clarifying and amending existing guidance for, among other items, intra-period allocation, reporting tax law changes and losses in interim periods, state and local taxes not fully based on income and recognition of deferred tax liability related to certain transactions. There is also new guidance related to consolidated group reporting and tax impacts resulting from business combinations. The new guidance is effective for fiscal years beginning after December 15, 2020. The adoption of the new guidance did not have a significant impact on our financial results.

Recent Accounting Pronouncements

In August 2020, the FASB issued 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 amendments in this update reduce 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. The adoption of the new guidance is not expected to have a significant 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 is effective for annual periods beginning after December 15, 2021. The amendment establishes financial disclosure requirements for business entities that receive government assistance that they account for by analogizing to a grant or contribution model because there is no specific authoritative guidance under U.S. GAAP that applies to the transaction. Entities that receive this type of assistance should include the following information in their annual report: (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 are currently evaluating the impact the new standard will have on the disclosures included in our consolidated financial statements.

Results of Operations

The following table presents our historical consolidated statements of operations data for the years ended December 31, 2021, 2020, and 2019, and as a percentage of total revenue for the respective years (in thousands):

	Year Ended December 31,					
	2021		2020		2019	
Revenue:						
Total revenue	$130,581	100 %	$138,144	100 %	$117,243	100 %
Costs and expenses:						
Cost of product revenue	53,315	41	47,527	34	45,461	39
Cost of service revenue	7,893	6	7,291	5	7,503	6
Research and development	37,944	29	36,461	26	31,640	27
Selling, general and administrative	98,888	76	97,901	71	84,478	72
Total costs and expenses	198,040	152	189,180	136	169,082	144
Loss from operations	(67,459)	(52)	(51,036)	(36)	(51,839)	(44)
Interest expense	(3,823)	(3)	(3,572)	(3)	(4,279)	(4)
Surplus funding from NIH Contract	7,140	7	—	—	—	—
Loss from extinguishment of debt	(9)	—	—	—	(12,020)	(10)
Other income, net	491	—	507	—	1,433	1
Loss before income taxes	(63,660)	(48)	(54,101)	(39)	(66,705)	(57)
Income tax benefit	4,423	3	1,081	1	1,915	2
Net loss	$ (59,237)	(45)%	$ (53,020)	(38)%	$ (64,790)	(55)%

Revenue

We generate revenue primarily from the sale of our products and services and by entering into product development agreements, license and royalty agreements, and grants. Our product revenue consists of sales of instruments and consumables. Consumables revenue is largely driven by the size of our installed base of instruments and the annual level of pull-through per instrument. Service revenue is linked to the sales and active installed base of our instruments as our service revenue primarily consists of post-warranty service contracts, preventive maintenance plans, instrument parts, installation and training. We sell our products to leading academic and government laboratories, as well as pharmaceutical, biotechnology, clinical, plant and animal research organizations and clinical laboratories worldwide.

Development Revenue. Effective March 31, 2020, we signed an OEM Supply and Development Agreement (Development Agreement) with a customer. Under the Development Agreement, Fluidigm developed products based on its microfluidics technology. The Development Agreement provided up-front and periodic milestone payments during the development stage, which was completed in the third quarter of 2021, and on-going annual payments of $0.4 million for sustaining efforts. We recognized $2.6 million and $8.8 million of development revenue from the agreement for the years ended December 31, 2021 and 2020, respectively. Costs associated with the Development Agreement were recorded in research and development expense in the consolidated statement of operations.

Grant Revenue. We receive grants to perform research and development activities over contractually defined periods. Grant revenue is attributable to a grant agreement entered into in the second half of 2019, which was completed in the third quarter of 2021. Costs associated with the arrangement were recorded in research and development expense in the consolidated statement of operations.

License Revenue. In March 2020, we entered into an agreement to settle intellectual property infringement claims and received a $3.5 million payment in exchange for a perpetual license to certain of our intellectual property. The settlement was accounted for as a multi-element arrangement. Accordingly, $3.1 million of the proceeds was recognized in 2020 as license revenue and $0.4 million was offset against legal costs.

No single customer represented more than 10% of our total revenue for 2021 and 2020. Revenue from our five largest customers was 23% for both the years ended December 31, 2021 and 2020, respectively.

The following table presents our revenue by source for the years ended December 31, 2021, 2020, and 2019, and as a percentage of total revenue for the respective years (in thousands):

	Year Ended December 31,						Change	
	2021		2020		2019		2021	2020
Revenue:								
Instruments	$ 42,498	33 %	$ 45,536	33 %	$ 50,004	43 %	(7)%	(9)%
Consumables	57,878	44	54,408	39	45,412	39	6 %	20 %
Product revenue	100,376	77	99,944	72	95,416	82	— %	5 %
Service revenue	25,917	20	22,579	16	21,277	18	15 %	6 %
Product and service revenue	126,293	97	122,523	88	116,693	100	3 %	5 %
Development revenue	2,559	2	8,865	6	—	—	(71)%	NA
Grant revenue	1,582	1	3,593	3	550	—	(56)%	553 %
License revenue	147	—	3,163	3	—	—	(95)%	NA
Total revenue	$ 130,581	100 %	$ 138,144	100 %	$ 117,243	100 %	(5)%	18 %

The following table presents our total revenue by geographic area of our customers and as a percentage of total revenue for each year presented (in thousands):

	Year Ended December 31,						Change	
	2021		2020		2019		2021	2020
Americas	$ 63,877	49 %	$ 74,586	54 %	$ 47,016	40 %	(14)%	59 %
EMEA	42,722	33	37,776	27	40,024	34	13 %	(6)%
Asia-Pacific	23,982	18	25,782	19	30,203	26	(7)%	(15)%
Total revenue	$ 130,581	100 %	$138,144	100 %	$117,243	100 %	(5)%	18 %

The Americas revenue includes revenue generated in the United States of $60.2 million, $72.0 million, and $43.4 million for 2021, 2020 and 2019, respectively. Asia-Pacific revenue includes sales to customers in China of $12.5 million, $11.1 million and $15.4 million for 2021, 2020 and 2019, respectively. There was no foreign country or jurisdiction with sales in excess of 10% of total revenue in 2021, 2020, and 2019, except for China in 2019.

The following section includes management discussion and analysis for the fiscal year ended December 31, 2021. Refer to Part I Item 7 of the Annual Report on Form 10-K for the fiscal year ended December 31, 2020 filed with the SEC on February 25, 2021, for a discussion of the comparative results for 2020 and 2019, which discussion of comparative results is incorporated by reference into this Form 10-K.

Total Revenue. Total revenue decreased by $7.6 million, or 5%, for the twelve months ended December 31, 2021, compared to the twelve months ended December 31, 2020, driven primarily by lower development, grant and license revenue, partially offset by higher service revenue. Product revenue was essentially unchanged year over year.

Americas revenue declined by $10.7 million, or 14%, for the twelve months ended December 31, 2021, compared to the twelve months ended December 31, 2020, driven by lower development, grant and license revenue, and lower unit sales of instruments, partially offset by higher consumables and service revenue. The decline in instrument revenue in 2021 is attributable to reduced demand for the analytical test instruments used in COVID-19 test applications following the initial wave of investments by testing laboratories in 2020. The reduction in development revenue and grant revenue reflects the completion of the underlying contracts in 2021 and the associated deceleration of project activity. The reduction in license revenue is attributable to the non-recurring nature of the 2020 settlement agreement discussed above. In Asia-Pacific, revenue decreased by $1.8 million, or 7%, primarily due to lower unit sales of mass cytometry instruments, partially offset by increased microfluidics consumable revenues. EMEA revenue increased by $4.9 million, or 13%, primarily driven by higher unit sales of mass cytometry instruments. A weaker U.S. dollar contributed 2.6 percentage points of the 13 percentage point increase in EMEA revenue in 2021. Changes in foreign exchange rates increased total company revenues by 0.7 percentage points for the year ended December 31, 2021, compared to the year ended December 31, 2020.

Product and Service Revenue

The following tables present the split of product and service revenue between mass cytometry and microfluidic product categories and as a percentage of the respective category's total product and service revenue for each year presented (in thousands):

	Year Ended December 31,						Change	
	2021		2020		2019		2021	2020
Mass cytometry:								
Instruments	$ 29,964	44 %	$ 28,484	46 %	$ 41,575	57 %	5 %	(31)%
Consumables	18,960	28	18,023	29	17,850	24	5 %	1 %
Total product revenue	48,924	72	46,507	75	59,425	81	5 %	(22)%
Service revenue	18,733	28	15,625	25	13,895	19	20 %	12 %
Total product and service revenue	$ 67,657	100 %	$ 62,132	100 %	$ 73,320	100 %	9 %	(15)%

	Year Ended December 31,						Change	
	2021		2020		2019		2021	2020
Microfluidics:								
Instruments	$ 12,534	21 %	$ 17,053	28 %	$ 8,429	19 %	(26)%	102 %
Consumables	38,918	67	36,384	60	27,562	64	7 %	32 %
Total product revenue	51,452	88	53,437	88	35,991	83	(4)%	48 %
Service revenue	7,184	12	6,954	12	7,382	17	3 %	(6)%
Total product and service revenue	$ 58,636	100 %	$ 60,391	100 %	$ 43,373	100 %	(3)%	39 %

Mass cytometry product and service revenue increased $5.5 million, or 9%, for the twelve months ended December 31, 2021, compared to the twelve months ended December 31, 2020. Product revenue increased $2.4 million, or 5%, primarily due to sales of the new CyTOF XT system, which was launched in May 2021, along with growth in our imaging platforms, partially offset by lower Helios sales. Lower average unit selling prices partially offset the increased unit volume of mass cytometry instruments by $4.3 million. Service revenue increased $3.1 million, or 20%, year over year, driven by the growing number of service contracts and mass cytometry instrument installations.

Microfluidics product and service revenue decreased $1.8 million, or 3%, during the twelve months ended December 31, 2021 compared to the twelve months ended December 31, 2020. The decline in 2021 is attributable to lower COVID-19 testing revenue, primarily lower instrument revenue. Excluding COVID-19 related revenue, base microfluidics product and service revenue increased $6.7 million, or 18%, due to the launch of our OEM instrument and higher consumables revenue.

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.

The following table presents our product and service cost, product and service gross profit, and product and service margin for each year presented (in thousands):

	Year Ended December 31,			Change	Change
	2021	2020	2019	2021	2020
Cost of product revenue	$ 53,315	$ 47,527	$ 45,461	12 %	5 %
Cost of service revenue	7,893	7,291	7,503	8 %	(3)%
Cost of product and service revenue	$ 61,208	$ 54,818	$ 52,964	12 %	4 %
Product and service gross profit	$ 65,085	$ 67,705	$ 63,729	(4)%	6 %
Product and service margin	51.5 %	55.3 %	54.6 %	(3.8) ppts.	0.7 ppts.

Product and service margin decreased by 3.8 percentage points for the year ended December 31, 2021 compared to the year ended December 31, 2020. Product and service margins were impacted by lower average selling prices for mass cytometry instruments, unfavorable product mix from sales of our OEM instrument and lower COVID-19 consumables sales, and the absence of COVID-19 related government subsidies.

Operating Expenses

The following table presents our operating expenses for each year presented (in thousands):

	Year Ended December 31,			Change	
	2021	2020	2019	2021	2020
Research and development	$ 37,944	$ 36,461	$ 31,640	4 %	15 %
Selling, general and administrative	98,888	97,901	84,478	1 %	16 %
Total operating expenses	$136,832	$134,362	$116,118	2 %	16 %

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 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. We have made substantial investments in research and development since our inception and expect to continue to do so.

Research and development expense increased by $1.5 million, or 4%, to $37.9 million for 2021 compared to $36.5 million for 2020. Salaries and benefit costs increased primarily due to the absence of 2020 temporary salary reductions and COVID-19 related government subsidies, as well as higher headcount and merit increases, partially offset by lower variable employee compensation. Consulting costs increased by $0.8 million due to projects related to development agreements and grants.

Selling, General and Administrative

Selling, general and administrative expense consists primarily of personnel costs for our sales and marketing, business development, finance, legal, human resources, information technology, and general management, as well as professional services, such as legal and accounting services.

Selling, general and administrative expense increased by $1.0 million, or 1%, to $98.9 million for 2021 compared to $97.9 million for 2020. Marketing expenses increased $2.8 million primarily due to marketing campaigns and market research to support new product launches. Sales expenses increased $1.9 million driven by higher compensation and benefits as well as higher travel as we returned to more normal pre-COVID-19 pandemic spending levels. Partially offsetting these increases were lower general and administrative costs. General and administrative expenses fell primarily due to lower variable compensation and lower litigation costs.

Interest Expense and Other Non-Operating Items

The following table presents these items for each year presented (in thousands):

	Year Ended December 31,			Change	
	2021	2020	2019	2021	2020
Interest expense	$ (3,823)	$ (3,572)	$ (4,279)	(7)%	17 %
Surplus funding from NIH Contract	7,140	—	—	NA	NA
Loss from extinguishment of debt	(9)	—	(12,020)	NA	(100)%
Other income, net	491	507	1,433	3 %	65 %
Total	$ 3,799	$ (3,065)	$ (14,866)	224 %	79 %

The increase in interest expense for the twelve months ended December 31, 2021 compared to the twelve months ended December 31, 2020 is due to the $10.0 million Term Loans which commenced in August 2021.

In 2021, we recognized $7.1 million of proceeds under the NIH Contract in excess of amounts expected to be spent for capital expenditures and operating expenses.

In February 2021, as provided by the indenture governing the 2014 Notes, 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. We recorded a loss of $9 thousand on the extinguishment of those notes, representing the difference between the price paid to extinguish the 2014 Notes and their carrying value, including unamortized debt issuance costs.

Other income, net primarily consists of interest income and gains or losses on foreign exchange. Other income, net, of $0.5 million for 2021 is primarily attributable to the settlement of claims, partially offset by $0.2 million of foreign exchange losses.

Income Tax Benefit

Our tax provision is generally driven by three components: (i) tax provision from our foreign operations, (ii) tax benefits from the amortization of acquisition-related intangible assets, and (iii) discrete items, such as changes in valuation allowances or adjustments upon finalization of tax returns. Depending on the relative value of these components, we can have either a tax benefit or expense for any given period.

We recorded a tax benefit of $4.4 million, or an effective tax rate benefit of 6.9%, for the year ended December 31, 2021 compared to a tax benefit of $1.1 million, or an effective tax rate benefit of 2.0%, for the year ended December 31, 2020. The tax benefit in both years was principally due to the tax benefit from the amortization of our acquisition-related deferred tax liabilities of $3.1 million. The increased benefit in 2021 compared to 2020 was due to lower current year profits and increased tax benefits on capital expenditures and research activities in certain of our foreign operations, as well as adjustments related to the finalization of 2020 tax returns.

Liquidity, Capital Resources and Going Concern

Sources of Liquidity

As of December 31, 2021, our principal sources of liquidity consisted of $28.5 million of cash and cash equivalents, as well as $1.0 million of restricted cash. The borrowing base under our Revolving Credit Facility was $9.4 million. With advances outstanding of $6.8 million, availability under the Revolving Credit Facility was $2.5 million as of December 31, 2021.

Purchase obligations consist of contractual and legally binding commitments to purchase goods and services. 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. These include purchase commitments with our contract manufacturers and suppliers. As of December 31, 2021, these purchase commitments totaled $20.4 million. In addition, we have certain non-cancellable commitments with service providers that are not material in the aggregate. As of December 31, 2021, we had contractual purchase commitments for capital expenditures of $1.6 million for 2022, and we expect our total capital expenditures to be above that amount.

We have additional obligations as part of our ordinary course of business, beyond those committed for capital expenditures and other purchase obligations and commitments for purchases of goods and services. For example, see Note 9 Debt within our

consolidated financial statements for information about our short-term and long-term debt obligations and see Note 10 Leases within our consolidated financial statements for information about our lease obligations. Note 17 Commitments and Contingencies within our consolidated financial statements included elsewhere in this Annual Report contains information about our various contractual and legally binding purchase commitments to purchase goods and services discussed above. 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 amounts above. For example, some of these requirements are not handled through binding contracts or are fulfilled by vendors on a purchase order basis within short time horizons.

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 contractual obligations table 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.

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

	Year Ended December 31,		
	2021	2020	2019
Cash flow summary:			
Net cash used in operating activities	$ (44,061)	$ (15,417)	$ (35,210)
Net cash provided by (used in) investing activities	(11,946)	39,975	(39,301)
Net cash provided by financing activities	15,959	20,857	2,790
Effect of foreign exchange rate fluctuations on cash and cash equivalents	(21)	385	56
Net increase (decrease) in cash, cash equivalents and restricted cash	$ (40,069)	$ 45,800	$ (71,665)

Net Cash Used in Operating Activities. We derive cash flows from operations primarily from cash collected from the sale of our products and services, license agreements and grants. 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 2021 was $44.1 million and consisted of net loss of $59.2 million, less non-cash items of $35.1 million and cash used in assets and liabilities, net, of $19.9 million. Non-cash items included stock-based compensation expense and depreciation and amortization. The cash used in assets and liabilities, net was primarily attributable to a reduction of accrued compensation and liabilities of $8.7 million from bonus payments made in the first quarter of 2021, and an increase in inventories, net of $4.8 million.

Net cash used in operating activities in 2020 was $15.4 million and consisted of net loss of $53.0 million less non-cash adjustments of $35.2 million, and a net cash provided by assets and liabilities of $2.4 million. Increases in inventories, net and accounts receivable, net balances represent working capital increases due to higher revenues were more than offset by higher incentive compensation and other accruals.

Net cash used in operating activities in 2019 was $35.2 million and consisted of net loss of $64.8 million less non-cash adjustments of $43.2 million, and a net cash used in assets and liabilities of $13.6 million. Non-cash items primarily included a loss from extinguishment of debt of $12.0 million as well as stock-based compensation and depreciation and amortization. The net increase in assets and liabilities was primarily due to lower accrued liabilities for retention bonuses and other variable compensation.

Net Cash Provided by (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, 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 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 2021 was $11.9 million. Capital expenditures of $13.3 million were incurred primarily to expand our microfluidics IFC production capacity in Singapore related to the NIH Contract. Total proceeds from the NIH Contract were $8.6 million in 2021, of which $1.3 million is expected to be used for the Singapore facility expansion.

Net cash provided by investing activities in 2020 was $40.0 million and includes $36.8 million of proceeds from the sales and maturities of investments as well as $21.0 million of proceeds from the NIH Contract, reflecting the portion of the proceeds from the NIH Contract attributable to the capacity expansion. These inflows were partially offset by capital expenditures of $12.7 million, including $10.2 million of capital expenditures funded by the NIH Contract to expand our Singapore manufacturing facility, and $5.2 million of net cash paid for the InstruNor acquisition. Total proceeds from the NIH Contract received were $25.4 million in 2020.

Net cash used in investing activities in 2019 was $39.3 million, which included purchases of investments of $62.4 million and capital expenditures of $2.5 million to support our commercial and manufacturing operations, partially offset by proceeds from maturities of investments of $25.6 million.

Net Cash Provided by Financing Activities. Net cash provided by financing activities totaled $16.0 million in 2021. The principal sources of cash were $10.0 million of advances drawn against our new Term Loan Facility with Silicon Valley Bank, advances under the revolving credit agreement of $6.8 million, and $1.3 million of ESPP proceeds. Partially offsetting these sources was $1.8 million of withholding tax payments related to net share settlement of equity awards and the $0.5 million repurchase of 2014 Notes in February 2021.

We generated cash from financing activities of $20.9 million during 2020. Proceeds from our ATM equity offering were $20.1 million, net of commissions and offering costs. Proceeds from our ESPP program and stock options exercises were largely offset by payments of debt issuance costs and income tax withholding related to net share settlement of equity awards.

We generated cash from financing activities of $2.8 million during 2019. $51.8 million of proceeds from a new $55.0 million debt issuance were used to retire 2014 Notes, as discussed below in more detail. Payments of debt and equity issuance costs of $1.9 million were partially offset by cash inflows from equity programs.

Capital Resources and Going Concern

At December 31, 2021 and December 31, 2020, our working capital, excluding deferred revenues, current, and deferred grant income, current and restricted cash, was $38.0 million and $79.8 million, respectively, including cash and cash equivalents of $28.5 million and $68.5 million, respectively. We had no short-term investments at December 31, 2021 and December 31, 2020.

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 caused us to repurchase their notes in accordance with this provision leaving $0.6 million of 2014 Notes outstanding at December 31, 2021.

In November 2019, we closed a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act 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 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 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, 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, 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.

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.

On August 2, 2018, we entered into a Loan and Security Agreement with SVB (the Credit Agreement) for our Revolving Credit Facility, which provides for secured revolving loans in an aggregate amount of up to $15.0 million. 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.

As of December 31, 2021, the Term Loan Facility 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 of principal plus monthly payments of accrued interest. The Amendment also added a financial covenant to the Credit Facility, requiring us to maintain a minimum Adjusted Quick Ratio (as defined in the Amendment) of at least 1.25 to 1.00.

As of December 31, 2021, the total borrowing base under the Revolving Credit Facility was $9.4 million. We had $6.8 million drawn, leaving $2.5 million available. We were in compliance with all the terms and conditions of the Revolving Credit Agreement governing the Revolving Credit Facility as of December 31, 2021, except in one instance where non-compliance was subsequently waived. See Note 9 to our consolidated financial statements for more information about the Revolving Credit Facility.

Since our inception, we have financed our negative cash flow from operations primarily through equity offerings and the issuance of debt instruments. For this annual report, we performed an assessment to determine whether there are conditions or events, considered in the aggregate, that raise substantial doubt about our ability to continue as a going concern for at least the twelve-month period following the date the financial statements were issued. As of December 31, 2021, we had $29.5 million in cash, cash equivalents and restricted cash. Due to an extended strategic review process related to the pending Private Placement Issuance, we were unable in 2021 to implement certain cash management actions, including potential financing and/or cost reduction initiatives. Further, we have incurred, and expect to continue to incur, significant costs in pursuit of our business plans. As a result, we believe that our current level of cash and cash equivalents, together with committed financing facilities, are not sufficient to fund ongoing operations for at least the twelve-month period after the financial statements were issued. The existence of these conditions raises substantial doubt about our ability to continue as a going concern for at least the twelve-month period following the date the financial statements were issued.

Our ability to continue as a going concern is dependent upon our ability to obtain additional equity or debt financing, attain further operating efficiencies, reduce expenditures and ultimately, generate significant revenue growth. Our plans to raise additional capital, including our ability to consummate the Private Placement Issuance, or take other actions to address the doubt regarding our ability to continue as a going concern, may not be successful. There can be no assurance that the Company would be able to obtain additional liquidity when needed or under acceptable terms, if at all. Refer to “Risk Factors – As disclosed in footnote two of our consolidated financial statements, and referenced in our independent registered public accounting firm’s report, we believe that our current level of cash and cash equivalents, together with committed financing facilities, are not sufficient to fund ongoing operations for at least the twelve-month period after the financial statements were issued. The existence of these conditions raises substantial doubt about our ability to continue as a “going concern” for at least the twelve-month period following the date the financial statements were issued..’”

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of fluctuations in foreign currency exchange rates and interest rates. We do not hold or issue financial instruments for trading purposes.

Foreign Currency Exchange Risk

As we expand internationally our results of operations and cash flows will become increasingly subject to fluctuations due to changes in foreign currency exchange rates. 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. Our expenses are generally denominated in the currencies in which 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. For the year ended December 31, 2021, we had a foreign currency loss of $0.2 million compared to a foreign currency gain of $0.1 million in the prior year. To date, we have not entered into any foreign currency hedging contracts although we may do so in the future. As our international operations grow, we will continue to reassess our approach to manage our risk relating to fluctuations in currency rates. If foreign currency exchange rates had changed by 10% during the periods presented, it would not have had a material impact on our financial position or results of operations.

Interest Rate Sensitivity

We had cash and cash equivalents of $28.5 million as of December 31, 2021 These amounts were held primarily in cash on deposit with banks and money market funds which are short-term. Cash, cash equivalents and investments are held for working capital purposes. We believe that we do not have any material exposure to changes in the fair value of our money market portfolio as a result of changes in interest rates. Declines in interest rates, however, will reduce future investment income. If overall interest rates had decreased by 10% during the periods presented, our interest income would not have been materially affected.

Fair Value of Financial Instruments

We do not have material exposure to market risk with respect to investments. We do not use derivative financial instruments for speculative or trading purposes. We may adopt specific hedging strategies in the future.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Index to Consolidated Financial Statements

To the Board of Directors and Stockholders of Fluidigm Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the consolidated financial statements, including the related notes and financial statement schedule, of Fluidigm Corporation 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, 2021, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021 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, 2021, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Substantial Doubt about the Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the consolidated financial statements, the Company has incurred significant losses in each fiscal year since its inception and has an accumulated deficit that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

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.

National Institutes of Health (NIH) Contract Accounting

As described in Notes 2 and 4 to the consolidated financial statements, in September 2020, the Company executed a definitive contract with the National Institutes of Health (NIH) for a project under the NIH Rapid Acceleration of Diagnostics (RADx) program, which has a total value of up to $34.0 million upon the achievement of certain milestones which were achieved and accepted by December 31, 2021. As there is no authoritative guidance under U.S. GAAP on accounting for government assistance to for-profit business entities, management applied International Accounting Standards (IAS) 20, Accounting for Government Grants and Disclosure of Government Assistance by analogy when accounting for the NIH contract payments to the Company. Management has elected to record the grants received as deferred income with grant proceeds recognized when there is reasonable assurance the conditions of the grant will be met and the grant will be received. With the NIH contract, this occurred when either each milestone was accepted by NIH or management concluded the conditions of the grant were substantially met. Grant proceeds that exceed the cost of the capital expenditures and expenses expected to be incurred are recorded in other non-operating income. As of December 31, 2021, a total of $21.7 million has been recorded as deferred grant income, and during 2021 $7.1 million in other income associated with grant milestone receipts in excess of expected total costs under the grant was recorded.

The principal considerations for our determination that performing procedures relating to the NIH contract accounting is a critical audit matter are (i) the significant judgment by management when determining the applicable accounting model and milestone achievement; and (ii) the significant audit effort and subjectivity in performing procedures and evaluating audit evidence related to the accounting policy selection, application, classification and recognition of excess grant proceeds recorded in other non-operating income.

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 relating to the NIH contract, including controls over the determination of the appropriate accounting model, which grant milestones are met, and classification of costs and other non-operating income associated with the NIH contract. These procedures also included, among others (i) reading the executed agreement and correspondence with NIH, (ii) evaluating compliance with the contract requirements related to milestone

achievement, (iii) evaluating management's accounting analysis, and (iv) testing the accuracy and evaluating the classification of costs and other non-operating income associated with the NIH contract.

/s/ PricewaterhouseCoopers LLP

San Jose, California
March 7, 2022

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

FLUIDIGM CORPORATION
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)

	December 31,	
	2021	**2020**
ASSETS		
Current assets:		
Cash and cash equivalents	$ 28,451	$ 68,520
Accounts receivable (net of allowances of $356 at each of December 31, 2021 and 2020, respectively)	18,320	25,423
Inventories, net	20,825	19,689
Prepaid expenses and other current assets	4,470	4,031
Total current assets	72,066	117,663
Property and equipment, net	28,034	17,531
Operating lease right-of-use asset, net	37,119	38,114
Other non-current assets	3,689	4,680
Developed technology, net	27,927	40,206
Goodwill	106,379	106,563
Total assets	$ 275,214	$ 324,757
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 10,602	$ 9,220
Accrued compensation and related benefits	4,920	13,787
Operating lease liabilities, current	3,053	2,973
Deferred revenue, current	11,947	13,475
Deferred grant income, current	3,535	2,912
Other accrued liabilities	8,673	11,882
Advances under revolving credit agreement, current	6,838	—
Total current liabilities	49,568	54,249
Term loan, net	10,049	—
Convertible notes, net	54,160	54,224
Deferred tax liability	4,329	8,697
Operating lease liabilities, non-current	37,548	38,178
Deferred revenue, non-current	5,966	7,990
Deferred grant income, non-current	18,116	21,036
Other non-current liabilities	882	1,333
Total liabilities	180,618	185,707
Commitments and contingencies (Note 17)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 10,000 shares authorized, no shares issued and outstanding at either December 31, 2021 or 2020	—	—
Common stock: $0.001 par value, 200,000 shares authorized at December 31, 2021 and 2020; 76,919 and 74,543 shares issued and outstanding at December 31, 2021 and 2020, respectively	77	75
Additional paid-in capital	831,424	815,624
Accumulated other comprehensive loss	(907)	112
Accumulated deficit	(735,998)	(676,761)
Total stockholders' equity	94,596	139,050
Total liabilities and stockholders' equity	$ 275,214	$ 324,757

See accompanying notes

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Year Ended December 31,		
	2021	**2020**	**2019**
Revenue:			
Product revenue	$ 100,376	$ 99,944	$ 95,416
Service revenue	25,917	22,579	21,277
Development revenue	2,559	8,865	—
Other revenue	1,729	6,756	550
Total revenue	130,581	138,144	117,243
Costs and expenses:			
Cost of product revenue	53,315	47,527	45,461
Cost of service revenue	7,893	7,291	7,503
Research and development	37,944	36,461	31,640
Selling, general and administrative	98,888	97,901	84,478
Total costs and expenses	198,040	189,180	169,082
Loss from operations	(67,459)	(51,036)	(51,839)
Interest expense	(3,823)	(3,572)	(4,279)
Surplus funding from NIH Contract	7,140	—	—
Loss from extinguishment of debt	(9)	—	(12,020)
Other income, net	491	507	1,433
Loss before income taxes	(63,660)	(54,101)	(66,705)
Income tax benefit	4,423	1,081	1,915
Net loss	$ (59,237)	$ (53,020)	$ (64,790)
Net loss per share, basic and diluted	$ (0.78)	$ (0.74)	$ (0.97)
Shares used in computing net loss per share, basic and diluted	75,786	72,044	66,779

See accompanying notes

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31,		
	2021	2020	2019
Net loss	$ (59,237)	$ (53,020)	$ (64,790)
Other comprehensive income (loss), net of tax			
Foreign currency translation adjustment	(1,019)	730	69
Net change in unrealized gain (loss) on investments	—	(36)	36
Other comprehensive income (loss), net of tax	(1,019)	694	105
Comprehensive loss	$ (60,256)	$ (52,326)	$ (64,685)

See accompanying notes

FLUIDIGM CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance as of December 31, 2018	49,338	$ 49	$ 631,605	$ (687)	$ (558,851)	$ 72,116
Issuance of common stock on bond conversion	19,460	19	133,280	—	—	133,299
Issuance of restricted stock, net of shares withheld for taxes, and other	666	1	(601)	—	—	(600)
Issuance of common stock from option exercises	195	—	1,058	—	—	1,058
Issuance of common stock under ESPP	297	1	1,074	—	—	1,075
Stock-based compensation expense	—	—	11,349	—	—	11,349
Net loss	—	—	—	—	(64,790)	(64,790)
Other comprehensive income (loss), net of taxes	—	—	—	105	—	105
Balance as of December 31, 2019	69,956	70	777,765	(582)	(623,641)	153,612
Issuance of common stock from at-the-market offering, net of commissions	2,480	2	20,224	—	—	20,226
Issuance of restricted stock, net of shares withheld for taxes, and other	1,050	1	(460)	—	—	(459)
Issuance of common stock under ESPP	476	1	1,322	—	—	1,323
Issuance of common stock from stock option exercises	96	—	451	—	—	451
Equity issuance costs	—	—	(176)	—	—	(176)
Cumulative effect of new accounting standard for Topic 326 Credit Losses	—	—	—	—	(100)	(100)
Stock-based compensation expense	—	—	14,450	—	—	14,450
Acquisition of InstruNor AS	485	1	2,048	—	—	2,049
Net loss	—	—	—	—	(53,020)	(53,020)
Other comprehensive income (loss), net of taxes	—	—	—	694	—	694
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, and other	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 income (loss), net of taxes	—	—	—	(1,019)	—	(1,019)
Balance as of December 31, 2021	76,919	$ 77	$ 831,424	$ (907)	$ (735,998)	$ 94,596

See accompanying notes

FLUIDIGM CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS (In thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Operating activities			
Net loss	$ (59,237)	$ (53,020)	$ (64,790)
Adjustments to reconcile net loss to net cash used in operating activities:			
Stock-based compensation expense	16,101	14,451	11,393
Amortization of developed technology	11,918	11,910	11,200
Depreciation and amortization	3,653	4,014	4,605
Provision for excess and obsolete inventory	2,293	1,614	1,807
Lease amortization	497	2,017	(516)
Amortization of debt discounts, premiums and issuance costs	624	545	1,936
Impairment of intangible asset	—	—	443
Loss from extinguishment of debt	9	—	12,020
Loss on disposal of property and equipment	12	212	89
Other non-cash items	2	426	200
Changes in assets and liabilities:			
Accounts receivable, net	6,729	(7,628)	(2,075)
Inventories, net	(4,782)	(8,636)	(3,047)
Prepaid expenses and other assets	(436)	(877)	(1,400)
Accounts payable	1,281	3,356	787
Accrued compensation and related benefits	(8,721)	8,627	(9,310)
Deferred revenue	(3,208)	2,111	2,129
Other liabilities	(10,796)	5,461	(681)
Net cash used in operating activities	(44,061)	(15,417)	(35,210)
Investing activities			
Proceeds from NIH Contract	1,318	21,036	—
Acquisition, net of cash acquired	—	(5,154)	—
Purchases of investments	—	—	(62,370)
Proceeds from sale of investments	—	5,010	—
Proceeds from maturities of investments	—	31,800	25,600
Purchases of property and equipment, net	(13,264)	(12,717)	(2,531)
Net cash provided by (used in) investing activities	(11,946)	39,975	(39,301)
Financing activities			
Proceeds from term loan	10,000	—	—
Proceeds from advances under revolving credit agreement	6,838	—	—
Proceeds from issuance of common stock, net of commissions	—	20,226	—
Proceeds from 2019 Notes issuance	—	—	55,000
Repayment of long-term debt	(501)	—	(51,826)
Payments of debt and equity issuance costs	(79)	(684)	(1,888)
Proceeds from exercise of stock options	209	451	1,058
Proceeds from stock issuance from ESPP	1,285	1,323	1,075
Payments for taxes related to net share settlement of equity awards and other	(1,793)	(459)	(629)
Net cash provided by financing activities	15,959	20,857	2,790
Effect of foreign exchange rate fluctuations on cash and cash equivalents	(21)	385	56
Net increase (decrease) in cash, cash equivalents and restricted cash	(40,069)	45,800	(71,665)
Cash and cash equivalents and restricted cash at beginning of period	69,536	23,736	95,401
Cash and cash equivalents and restricted cash at end of period	$ 29,467	$ 69,536	$ 23,736
Supplemental disclosures of cash flow information			
Cash paid for interest	$ 3,149	$ 3,089	$ 3,542
Cash paid for income taxes, net of refunds	$ 2,085	$ 521	$ 205
Non-cash right-of-use assets and lease liabilities	$ (2,435)	$ 36,225	$ 10,402
Unpaid debt and equity issuance costs	$ —	$ —	$ 534
Asset retirement obligations	$ 710	$ 325	$ 312

See accompanying notes

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2021

1. Description of Business

Fluidigm Corporation (the Company, Fluidigm, we, our or us) improves life by driving meaningful insights in health and disease. Our innovative technologies explore the biological complexities of disease to advance human health through research, diagnostics and clinical applications. We create, manufacture, and market a range of products and services, including instruments, consumables, reagents and software that are used by researchers and clinical labs worldwide. Our customers are leading academic and government laboratories, as well as pharmaceutical, biotechnology, plant and animal research organizations, and clinical laboratories worldwide. The Company was formerly known as Mycometrix Corporation and changed its name to Fluidigm Corporation in April 2001. Fluidigm Corporation was founded in 1999 and is headquartered in South San Francisco, California.

2. Summary of Significant Accounting Policies

Basis of Presentation and Consolidation

The accompanying consolidated financial statements have been prepared assuming the Company will continue to operate as a going concern and meet its obligations when they become due over the twelve-month period subsequent to the date the financial statements were issued. The going concern assumption contemplates the realization of assets and satisfaction of liabilities in the normal course of business. The consolidated financial statements do not include any adjustments to the carrying amounts and classification of assets, liabilities and reported expenses that may be necessary if we were unable to continue as a going concern.

For this annual report, we performed an assessment to determine whether there are conditions or events, considered in the aggregate, that raise substantial doubt about our ability to continue as a going concern for at least the twelve-month period following the date the financial statements were issued. Since our inception, we have incurred significant operating losses and generated negative cash flows from operations. We have historically funded our operations primarily through the issuance of common stock and debt. We believe that our current level of cash and cash equivalents, together with committed financing facilities, are not sufficient to fund ongoing operations for at least the twelve-month period after the financial statements were issued. The existence of these conditions raises substantial doubt about the Company's ability to continue as a going concern for the twelve-month period following the date the financial statements were issued.

Our ability to continue as a going concern is dependent upon our success in obtaining additional equity or debt financing, attaining further operating efficiencies, reducing expenditures and ultimately, generating significant revenue growth. We are evaluating strategies to obtain the required additional funding for future operations, including the potential consummation of the $225 million investment in Fluidigm disclosed in Note 18 Subsequent Events (the Private Placement Issuance), which is contingent on stockholder approval and satisfaction of customary closing conditions. In the event the proposed investment does not occur, we would need to obtain the required additional funding for future operations from alternative sources. These sources may include, but are not limited to, equity financing, debt or other financing arrangements, and restructuring of operations to grow revenues and decrease expenses. Our plans to raise additional capital, including our ability to consummate the Private Placement Issuance, or take the other actions to address the doubt regarding our ability to continue as a going concern, may not be successful. There can be no assurance that we would be able to obtain additional liquidity when needed or under acceptable terms, if at all. The accompanying financial statements do not include any adjustments related to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern.

The consolidated financial statements include the accounts of our wholly owned subsidiaries. As of December 31, 2021, 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 balance sheet and statements of cash flows were reclassified to conform to the current period presentation. These reclassifications were immaterial and did not affect prior period total assets, total liabilities, stockholders' equity, total revenue, total costs and expenses, loss from operations or net loss.

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 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 unknown impact of COVID-19 pandemic. These accounting matters included, but were not limited to, our allowance for doubtful accounts and credit losses, inventory and related reserves and the carrying value of goodwill and other long-lived assets. 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 the 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.

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 primarily 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 generally do not have a unilateral right to return products after delivery. Invoices are generally issued at shipment and generally 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 type 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.

In March 2020, we entered into an agreement to settle intellectual property infringement claims, under which we received a $3.5 million payment in exchange for a perpetual license to certain Fluidigm intellectual property. The settlement was accounted for as a multiple-element arrangement. Accordingly, $3.1 million of the proceeds was recognized as license revenue and $0.4 million was offset against legal costs.

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.

Product Warranties

We generally provide a one-year warranty on our instruments and establish a liability for the estimated cost of the obligation at the time the product is shipped. We periodically review our warranty liability and record adjustments based on specific terms provided to customers and our overall historical experience with usage. This expense is recorded as a component of cost of product revenue in the consolidated statements of operations.

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, money market funds, and notes from government-sponsored agencies.

Investments

Short-term investments are comprised of notes from government-sponsored agencies 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. 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, and realized gains and losses were immaterial during the years presented. 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 primarily in securities issued by the U.S. government. The goals of our investment policy, in order of priority, are as follows: 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. No customer represented more than 10% of total revenue for 2021, 2020, or 2019, and no customer had an outstanding trade receivable balance that represented more than 10% of total billed accounts receivables at December 31, 2021, or 2020.

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, 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 for the years ended December 31, 2021, 2020, and 2019 was $2.8 million, $3.1 million, and $3.6 million, respectively.

Leases

We determine if an arrangement is a lease, or contains a lease, at the inception of the arrangement. 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 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 at the 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.

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 allocated 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, including the current COVID-19 pandemic, declines in our market share or revenues, and an increase in our losses, rapid changes in technology, failure to achieve the benefits of capacity increases and utilization, significant litigation arising out of an acquisition, or other matters. Any impairment charges could have a material adverse effect on our operating results and net asset value in the quarter 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 our reporting unit is less than its carrying amount. If we determine that it is more likely than not that the fair value of our reporting unit is less than its carrying amount, we compare the fair value of our reporting unit to its carrying value. If the fair value of our reporting unit exceeds its carrying value, goodwill is not considered impaired and no further analysis is required. If the carrying value of the reporting unit exceeds its fair value, then an impairment loss equal to the difference would be recorded to goodwill. We did not recognize any impairment of goodwill for any of the periods presented herein.

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. We did not recognize any impairment of intangibles for 2021 or 2020. In 2019, we recognized an impairment charge of $0.4 million on patents and licenses that were not used in the current products and were not expected to be used in future product offerings.

Deferred Grant Income

In September 2020, we executed a definitive contract with the National Institutes of Health (NIH) for a project under the NIH Rapid Acceleration of Diagnostics (RADx) program. The definitive contract, which amended the letter contract we entered into with NIH in July 2020 (collectively, the NIH Contract), has a total value of up to $34.0 million upon the achievement of certain milestones which were achieved and accepted by the NIH as of December 31, 2021. Proceeds from the NIH Contract have been and will be used primarily to expand production capacity and throughput capabilities.

Accounting for the NIH Contract does not fall under ASC 606, Revenue from Contracts with Customers, as NIH will not benefit directly from our expansion or product development. As there is no authoritative guidance under U.S. GAAP on accounting for government assistance to for-profit business entities, we applied International Accounting Standards (IAS) 20, Accounting for Government Grants and Disclosure of Government Assistance, by analogy when accounting for the NIH Contract payments to Fluidigm.

The NIH Contract proceeds used for production capacity expansion meet the definition of grants related to assets as the primary purpose for the payments is to fund the purchase and construction of capital assets to scale up production capacity. Under IAS 20, government grants related to assets are presented in the statement of financial position either by setting up the grant as deferred income or by deducting the grant in arriving at the carrying amount of the asset. Either of these two methods of presentation of grants related to assets in financial statements are regarded as acceptable alternatives under IAS 20. We have elected to record the grants received as deferred income using the first method.

Under IAS 20, grant proceeds are recognized when there is reasonable assurance the conditions of the grant will be met and the grant will be received. With the NIH Contract, this occurred when either each milestone was accepted by NIH or management concluded the conditions of the grant were substantially met. Deferred grant income related to production capacity expansion is being amortized over the period of depreciation for the related assets as a reduction of depreciation expense. Grant income related to reimbursement of operating costs is recorded as a reduction of those expenses incurred to date. Grant proceeds that exceed the cost of the capital expenditures and expenses expected to be incurred are recorded in other non-operating income.

Term Loan, net

On August 2, 2021, we entered into a Fourth Agreement to our Loan and Security Agreement (the Amendment) with Silicon Valley Bank. The Amendment extended the maturity date of our $15.0 million Revolving Credit Facility by one year, to August 2, 2023, and provided for a term loan facility in an aggregate principal amount of up to $10.0 million (Term Loan Facility). As of December 31, 2021, the Term Loan Facility was fully drawn. Interest is payable monthly and principal balances are required to be repaid in 24 equal monthly installments beginning on August 1, 2023. In addition, 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. 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 using the effective interest method. The carrying value of the term loan 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.

Convertible Notes, net

In February 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (2014 Notes). In March 2018, we entered into separate privately negotiated transactions with certain holders of our 2014 Notes to exchange $150.0 million in aggregate principal amount of the 2014 Notes for our 2.75% Exchange Convertible Senior Notes due 2034 (2018 Notes). In the first quarter of 2019, the 2018 Notes were converted into 19.5 million shares of our common stock and the 2018 Notes were retired. We recorded a loss of $9.0 million on the retirement of the 2018 Notes at conversion in the first quarter of 2019. We determined the fair value of the 2018 Notes using valuation techniques that required us to make assumptions related to the implied discount rate.

In November 2019, we closed a private placement for $55.0 million aggregate principal amount of our 5.25% Senior Convertible Notes due 2024 (2019 Notes). The majority of the issuance proceeds were used to retire approximately $50.2 million of aggregate principal amount of our 2014 Notes. We recorded a loss of $3.0 million on the extinguishment of the 2014 Notes in the fourth quarter of 2019. This amount represented the difference between the fair value of the 2019 Notes used to extinguish the debt and the carrying value of the 2014 Notes, including unamortized debt issuance costs.

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. We recorded a loss of $9 thousand on the extinguishment of those notes, representing the difference between the price paid to extinguish the 2014 Notes and their carrying value, including unamortized debt issuance costs.

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.

See Note 9 for a detailed discussion of the accounting treatment of the transactions and additional information.

Fair Value of Financial Instruments

Our financial instruments consist primarily of cash and cash equivalents, restricted cash, investments, accounts receivable, accounts payable, advances on our revolving credit agreement, a term loan 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, 2021 and 2020. The convertible notes are presented at their carrying value, with fair value disclosures made in Note 11. As a basis for considering 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 are classified as Level I because they are valued using quoted market prices. Our term loan and our convertible notes, which are not regularly traded, are both classified as Level III since their values cannot be determined by using readily observable inputs or measures, such as market prices. Significant judgment is needed in valuing Level III items. Fair value of the term loan was estimated using a discounted cash flow approach and current market interest rate data for similar loans and fair values of the convertible debt were estimated using pricing models and risk-adjusted value ranges for the convertible notes.

Research and Development

We recognize research and development expenses in the period incurred. Research and development expenses 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 $3.4 million, $1.6 million and $3.4 million during 2021, 2020, and 2019, respectively.

Stock-Based Compensation

We recognize compensation costs for all stock-based awards, including stock options, RSUs, PSUs and stock purchased under our 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.

Comprehensive Loss

Comprehensive loss is comprised of net loss and other comprehensive income (loss). Other comprehensive income (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.

The components of accumulated other comprehensive loss, net of tax, for the years ended December 31, 2021, 2020, and 2019 are as follows (in thousands):

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) on Investments	Accumulated Other Comprehensive Income (Loss)
Ending balance at December 31, 2019	$ (618)	$ 36	$ (582)
Change during the year	730	(36)	694
Ending balance at December 31, 2020	112	—	112
Change during the year	(1,019)	—	(1,019)
Ending balance at December 31, 2021	(907)	$ —	$ (907)

Immaterial amounts of unrealized gains and losses have been reclassified into the consolidated statement of operations for the years ended December 31, 2021, 2020 and 2019.

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. Restricted stock units, performance share units, 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,		
	2021	2020	2019
Stock options, restricted stock units and performance stock awards	7,975	7,507	5,189
2019 Convertible Notes	18,966	18,966	18,966
2019 Convertible Notes potential make-whole shares	1,337	837	3,182
2014 Convertible Notes	10	19	19
Total	28,288	27,329	27,356

Recent Accounting Changes and Accounting Pronouncements

Adoption of New Accounting Guidance

In November 2019, the FASB issued ASU 2019-12-Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes. The amendments in this update improve consistent application of and simplify U.S. GAAP for Topic 740 by clarifying and amending existing guidance for, among other items, intra-period allocation, reporting tax law changes and losses in interim periods, state and local taxes not fully based on income and recognition of deferred tax liability related to certain transactions. There is also new guidance related to consolidated group reporting and tax impacts resulting from business combinations. The new guidance is effective for fiscal years beginning after December 15, 2020. The adoption of the new guidance did not have a significant impact on our financial results.

Recent Accounting Pronouncements

In August 2020, the FASB issued 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 amendments in this update reduce 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. The adoption of the new guidance is not expected to have a significant 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 is effective for annual periods beginning after December 15, 2021.

The amendment establishes financial disclosure requirements for business entities that receive government assistance that they account for by analogizing to a grant or contribution model because there is no specific authoritative guidance under U.S.GAAP that applies to the transaction. Entities that receive this type of assistance should include the following information in their annual report: (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 are currently evaluating the impact the new standard will have on the disclosures included in our consolidated financial statements.

3. 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). InstruNor is a provider of the only fully integrated sample preparation system for flow and mass cytometry. The acquisition of InstruNor supports our entry into the sample preparation market for cytometry analysis and expands our capabilities to include fully automated sample preparation for flow and mass cytometry. The purchase price of $7.2 million included approximately $5.2 million in cash and 485,451 shares of our common stock valued at the closing price on the effective date of $4.22.

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 at the InstruNor acquisition date. Developed technology was valued using a discounted cash flow model for which the most sensitive assumption was revenue growth rate. There were no measurement period adjustments recognized since the acquisition date. Non-tax deductible goodwill of $2.2 million was calculated as the purchase price less the fair value of the net assets acquired as follows (in thousands):

Purchase price:		
Cash consideration paid on closing to former equity holders	$	5,165
Non-cash consideration common shares		2,049
Total purchase price	$	7,214
Assets acquired:		
Cash and cash equivalents	$	11
Accounts receivable		32
Other receivables		13
Inventories, net		153
Developed technology		5,380
Liabilities assumed:		
Accounts payable		14
Other current liabilities		15
Deferred tax liability, net		566
Fair value of identifiable net assets acquired	$	4,994
Goodwill acquired on acquisition	$	2,220

4. NIH Contract

In 2020, we were awarded the NIH Contract under the RADx program to support the expansion of our production capacity and throughput capabilities for COVID-19 testing with our microfluidics technology. As of December 31, 2021, we have achieved the required milestones and have received the total NIH Contract value of $34.0 million. Proceeds from the NIH Contract have been and will be used primarily for capital expenditures to expand production capacity and, to a lesser extent, to offset applicable operating costs. Grant proceeds that exceed the cost of the capital expenditures and expenses expected to be incurred are recorded in other non-operating income.

The following tables summarize the activity under the NIH Contract through December 31, 2021 and 2020 (in thousands):

	Year Ended December 31,	
	2021	2020
Cumulative cash receipts from milestones achieved	$ 34,016	$ 25,436
Cumulative amounts applied against operating costs (excluding depreciation)	(4,522)	(1,488)
Cumulative amounts applied against depreciation expense for assets placed in service	(703)	—
Cumulative amounts recognized as non-operating income	(7,140)	—
Total deferred grant income	$ 21,651	$ 23,948
Assets placed in service, gross	$ 16,890	$ —
Construction-in-progress	3,909	9,652
Cumulative amounts applied against depreciation expense	(703)	—
Carrying value of property and equipment, net	20,096	9,652
Estimated future operating costs, excluding depreciation	—	2,912
Estimated future capital expenditures	1,555	11,384
Total deferred grant income	$ 21,651	$ 23,948
Deferred grant income, current	$ 3,535	$ 2,912
Deferred grant income, non-current	18,116	21,036
Total deferred grant income	$ 21,651	$ 23,948

Deferred grant income, current is included in other accrued liabilities on the balance sheets at December 31, 2021 and 2020 and represents amounts expected to be applied against costs over the next twelve months. Deferred grant, non-current includes depreciation expense on capital expenditure amounts which will be amortized in later periods. At December 31, 2020, deferred grant income included amounts expected to be applied against 2021 operating costs as well as future depreciation. At December 31, 2021, deferred grant income includes amounts related to future depreciation on capital expenditures placed or to be placed in service.

We expect to spend $22.4 million on capital expenditures associated with the NIH Contract. We have incurred $20.8 million of capital expenditures through December 31, 2021, of which assets valued at $16.9 million have been placed in service, while the remaining $3.9 million is included in construction-in-progress (See Note 8). We expect to place the remaining equipment in service in the first half of 2022.

5. Development Agreement

Effective March 31, 2020, we signed an OEM Supply and Development Agreement (Development Agreement) with a customer. Under the Development Agreement, Fluidigm developed products based on its microfluidics technology. The Development Agreement provided for up-front and periodic milestone payments during the development stage, which was completed in the third quarter of 2021, and on-going annual payments of $0.4 million for sustaining efforts. We recognized $2.4 million and $8.8 million of development revenue from this agreement for the years ended December 31, 2021 and 2020, respectively.

6. Revenue

Disaggregation of Revenue

The following table presents our revenue for the year ended December 31, 2021, 2020, and 2019, respectively, based on geographic area and by source (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Geographic Markets:			
Americas	$ 63,877	$ 74,586	$ 47,016
EMEA	42,722	37,776	40,024
Asia-Pacific	23,982	25,782	30,203
Total	$ 130,581	$ 138,144	$ 117,243

	Year Ended December 31,		
	2021	2020	2019
Source:			
Instruments	$ 42,498	$ 45,536	$ 50,004
Consumables	57,878	54,408	45,412
Product revenue	100,376	99,944	95,416
Service revenue	25,917	22,579	21,277
Development revenue	2,559	8,865	—
Other revenue:			
License and royalty revenue	147	3,163	—
Grant revenue	1,582	3,593	550
Total other revenue	1,729	6,756	550
Total	$ 130,581	$ 138,144	$ 117,243

Unfulfilled Performance Obligations

We reported $21.5 million of deferred revenue on our December 31, 2020 consolidated balance sheet. During the twelve months ended December 31, 2021, $11.9 million of the opening balance was recognized as revenue and $8.3 million of net additional advance payments were received from customers, primarily associated with instrument service contracts. At December 31, 2021, we reported $17.9 million of deferred revenue.

The following table summarizes the expected timing of revenue recognition for unfulfilled performance obligations associated with instrument service contracts that were partially completed at December 31, 2021 (in thousands):

Fiscal Year	Expected Revenue [1]
2022	$ 12,774
2023	6,735
2024	3,307
Thereafter	1,658
Total	$ 24,474

(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 before the service period begins without penalty.

We apply the practical expedient that permits us to not disclose information about unsatisfied performance obligations for service contracts with an expected term of one year or less.

7. Goodwill and Intangible Assets, net

In connection with our acquisition of DVS in February 2014, we recognized goodwill of $104.1 million and $112.0 million of developed technology. In the first quarter of 2020, we recognized $2.2 million (Euro 2.0 million) of goodwill from the InstruNor acquisition and $5.4 million (Euro 4.9 million) of developed technology (see Note 3). As the goodwill and developed technology from the InstruNor acquisition are recorded in the functional currency of our European operations, which is the Euro, these balances are revalued each period and the U.S. dollar value of these assets will fluctuate as foreign exchange rates change. We are amortizing InstruNor developed technology over 8.0 years.

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 our reporting unit or intangible assets is less than their carrying value. If indicators of impairment are identified, a quantitative impairment test is performed.

During the first quarter of fiscal 2020, we assessed whether the current and potential future impact of the COVID-19 pandemic represented an event which necessitated an impairment review. No impairment was recorded as a result of the quantitative assessment performed. In addition, the Company performed its annual impairment assessment as of December 31, 2021 and 2020 and there were no indicators of impairment identified.

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, 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

	December 31, 2020			
	Gross Amount	Accumulated Amortization	Net	Weighted-Average Amortization Period
Developed technology	$ 117,658	$ (77,452)	$ 40,206	9.9 years
Patents and licenses	$ 11,256	$ (9,238)	$ 2,018	7.5 years

Total amortization expense for the years ended December 31, 2021, December 31, 2020, and December 31, 2019 was $12.7 million, $12.8 million and $12.2 million, respectively.

Based on the carrying value of intangible assets, net, as of December 31, 2021, the annual amortization expense is expected to be as follows (in thousands):

Fiscal Year	Developed Technology Amortization Expense	Patents and Licenses Amortization Expense	Total
2022	$ 11,888	$ 678	$ 12,566
2023	11,888	572	12,460
2024	2,088	7	2,095
2025	688	—	688
2026	688	—	688
Thereafter	687	—	687
Total	$ 27,927	$ 1,257	$ 29,184

8. Balance Sheet Details

Cash, Cash Equivalents and Restricted Cash

Cash, cash equivalents and restricted cash consisted of the following as of December 31, 2021 and 2020 (in thousands):

	December 31,	
	2021	2020
Cash and cash equivalents	$ 28,451	$ 68,520
Restricted cash	1,016	1,016
Total cash, cash equivalents, and restricted cash	$ 29,467	$ 69,536

Short-term restricted cash of approximately $16 thousand is included in prepaid expenses and other current assets, and $1.0 million of non-current restricted cash is included in other non-current assets in the consolidated balance sheets as of December 31, 2021 and 2020.

Inventories, net

Inventories, net consisted of the following as of December 31, 2021 and 2020 (in thousands):

	December 31,	
	2021	2020
Raw materials	$ 9,345	$ 8,292
Work-in-process	867	1,214
Finished goods	10,613	10,183
Total inventories, net	$ 20,825	$ 19,689

Property and Equipment, net

Property and equipment, net consisted of the following as of December 31, 2021 and 2020 (in thousands):

	December 31,	
	2021	2020
Computer equipment and software	$ 5,759	$ 4,240
Laboratory and manufacturing equipment	30,260	18,107
Leasehold improvements	12,095	7,203
Office, furniture and fixtures	2,074	1,994
Property and equipment, gross	50,188	31,544
Less accumulated depreciation and amortization	(26,703)	(23,989)
Construction-in-progress	4,549	9,976
Property and equipment, net	$ 28,034	$ 17,531

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

Accrued Compensation and Related Benefits

Accrued compensation and related benefits consisted of the following as of December 31, 2021 and 2020 (in thousands):

	Year Ended December 31,	
	2021	2020
Accrued incentive compensation	$ 40	$ 7,842
Accrued vacation	3,388	3,367
Accrued payroll taxes and other	1,492	2,578
Accrued compensation and related benefits	$ 4,920	$ 13,787

Warranties

Activity for our warranty accrual for the years ended December 31, 2021 and 2020, which is included in other accrued liabilities, is summarized below (in thousands):

	Year Ended December 31,	
	2021	2020
Beginning balance	$ 1,663	$ 1,390
Accrual for current period warranties	418	1,028
Warranty costs incurred	(911)	(755)
Ending balance	$ 1,170	$ 1,663

9. Debt

2014 Senior Convertible Notes (2014 Notes)

In February 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2014 Notes. We received $195.2 million, net of underwriting discounts, from the issuance of the 2014 Notes and incurred approximately $1.1 million in offering-related expenses. The underwriting discount and offering-related expenses are being amortized to interest expense using the effective-interest rate method. The effective interest rate on the 2014 Notes, reflecting the impact of debt discounts and issuance costs, is approximately 3.0%. 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.

We have retired the majority of the 2014 Notes through the issuance of the 2018 Notes and 2019 Notes, as discussed below. 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. We recorded a loss of $9 thousand on the extinguishment of those notes, representing the difference between the price paid to extinguish the 2014 Notes and their carrying value, including unamortized debt issuance costs. As of December 31, 2021, there was $0.6 million aggregate principal of the 2014 Notes outstanding.

2018 Senior Convertible Notes (2018 Notes)

In March 2018, we entered into separate privately negotiated transactions with certain holders of our 2014 Notes to exchange $150.0 million in aggregate principal amount of the 2014 Notes for 2018 Notes, leaving $51.3 million of aggregate principal amount of 2014 Notes outstanding. The 2018 Notes accrued interest at a rate of 2.75%, payable semi-annually. The 2018 Notes were scheduled to mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the indenture governing the 2018 Notes. In the first quarter of 2019, $150.0 million of the 2018 Notes were converted into 19.5 million shares of our common stock and the notes were retired. We recognized a loss of $9.0 million on the conversion of 2018 Notes, which was included in loss on extinguishment of debt in 2019. This amount represents the difference between the fair value of the bonds converted and the carrying value of the bonds at the time of conversion.

2019 Senior Convertible Notes (2019 Notes)

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. We recognized a loss of $3.0 million on the exchange of the 2014 Notes for the 2019 Notes. The loss on extinguishment of debt was calculated as the difference between the reacquisition price (i.e., the fair value of the principal amount of 2019 Notes) and the net carrying value of the 2014 Notes exchanged.

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.

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 debt issuance costs are amortized over the expected term of the 2019 Notes using the effective interest method through the maturity date of December 1, 2024. The effective rate on the 2019 Notes is 6.2%.

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

	December 31,	
	2021	2020
2.75% 2014 Notes due 2034		
Principal amount	$ 578	$ 1,079
Unamortized debt discount	(8)	(16)
Unamortized debt issuance cost	(2)	(4)
Net carrying value of 2014 Notes	$ 568	$ 1,059
5.25% 2019 Notes due 2024		
Principal amount	$ 55,000	$ 55,000
Unamortized debt issuance cost	(1,408)	(1,835)
Net carrying value of 2019 Notes	$ 53,592	$ 53,165
Net carrying value of all Notes	$ 54,160	$ 54,224

Revolving Credit Facility and Term Loan, net

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, as defined in the agreement, of at least 1.25 to 1.00.

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%. 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, 2021, the Borrowing Base of the Revolving Credit Facility was $9.4 million, of which we had borrowed $6.8 million, leaving $2.5 million available.

As of December 31, 2021 the Term Loan Facility was fully drawn. The interest rate on the Term Loan Facility is the greater of 4% 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 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 6.3% as of December 31, 2021.

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

	December 31,	
	2021	2020
Term Loan		
Principal amount	$ 10,000	$ —
End of term fee accretion	79	—
Unamortized debt issuance cost	(30)	—
Net carrying value of term loan	$ 10,049	$ —
Credit Facility		
Borrowing Base	$9,368	$ 15,000
Carrying value of advances under revolving credit agreement	$ 6,838	$ —

10. Leases

We have operating leases for buildings, equipment and vehicles. Existing leases have remaining terms of less than one year to eight years. Some leases contain options to extend the lease, usually for up to five years, and termination options.

Supplemental balance sheet information related to leases was as follows as of December 31, 2021 and 2020 (in thousands, except for discount rate and lease term):

	December 31, 2021	December 31, 2020
Operating lease right-of-use buildings	$ 43,457	$ 41,132
Operating lease right-of-use equipment	84	89
Operating lease right-of-use vehicles	676	679
Total operating lease right-of-use assets, gross	44,217	41,900
Accumulated amortization	(7,098)	(3,786)
Total operating lease right-of-use assets, net	$ 37,119	$ 38,114
Operating lease liabilities, current	$ 3,053	$ 2,973
Operating lease liabilities, non-current	37,548	38,178
Total operating lease liabilities	$ 40,601	$ 41,151
Weighted average remaining lease term (in years)	7.7 years	8.6 years
Weighted average discount rate per annum	11.7 %	11.9 %

The following table presents the components of lease expense for the year-ended December 31, 2021 and 2020, respectively (in thousands):

(in thousands)	Twelve months ended December 31, 2021	Twelve months ended December 31, 2020
Operating lease cost (including variable costs)	$ 10,918	$ 9,682
Variable costs including non-lease component	$ 2,853	$ 2,336
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	$ 7,568	$ 5,265

Future minimum lease payments under commenced non-cancelable operating leases are as of December 31, 2021 as follows (in thousands):

Fiscal Year	Minimum Lease Payments for Operating Leases
2022	$ 7,480
2023	7,644
2024	7,721
2025	7,932
2026	7,704
Thereafter	24,948
Total future minimum payments	$ 63,429
Less: imputed interest	(22,828)
Total	$ 40,601

11. Fair Value of Financial Instruments

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

	December 31, 2021					
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Cash-Restricted
Assets:						
Cash and money market funds	$ 28,451	$ —	$ —	$ 28,451	$ 28,451	$ —
Cash-restricted	1,016	—	—	1,016	—	1,016
Total cash, cash equivalents and restricted cash	$ 29,467	$ —	$ —	$ 29,467	$ 28,451	$ 1,016

	December 31, 2020					
	Amortized Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Cash-Restricted
Assets:						
Cash and money market funds	$ 68,520	$ —	$ —	$ 68,520	$ 68,520	$ —
Cash-restricted	1,016	—	—	1,016	—	1,016
Total cash, cash equivalents and restricted cash	$ 69,536	$ —	$ —	$ 69,536	$ 68,520	$ 1,016

Cash and cash equivalents are Level I measurements. 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, 2021, and 2020.

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 a 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.

The following table summarizes the par value, carrying value and the estimated fair value of our debt at December 31, 2021 and 2020, respectively (in thousands):

	December 31, 2021			December 31, 2020		
	Par Value	Carrying Value	Fair Value	Par Value	Carrying Value	Fair Value
2014 Notes	$ 578	$ 568	$ 601	$ 1,079	$ 1,059	$ 1,122
2019 Notes	55,000	53,592	81,880	55,000	53,165	117,899
Total Notes	$ 55,578	$ 54,160	$ 82,481	$ 56,079	$ 54,224	$119,021
Term loan, net	$ 10,000	$ 10,049	$ 10,113	$ —	$ —	$ —
Advances under revolving credit agreement	$ 6,838	$ 6,838	$ 6,838	$ —	$ —	$ —

12. Shareholders' Equity

2020 At-the-Market Offering

In March 2020, we entered into an Open Market Sale Agreement (Sale Agreement) with Jefferies LLC (Jefferies) to sell shares of our common stock having aggregate sales proceeds of up to $50.0 million, from time to time, through an "at-the-market" equity offering program under which Jefferies acts as sales agent. During the third quarter of 2020, we sold 2.5 million shares of our common stock pursuant to the Sale Agreement, for aggregate gross proceeds of $20.9 million. Our net proceeds from the sale of such shares of common stock were approximately $20.1 million, after deducting related expenses, including commissions of approximately $0.6 million and issuance costs of approximately $0.2 million.

InstruNor Acquisition

In January 2020, we completed the acquisition of all of the outstanding shares of InstruNor (see Note 3). The purchase price was approximately $7.2 million, consisting of $5.2 million in cash and 485,451 shares of our common stock. No adjustments were made to the initial purchase price allocation.

Common Shares Reserved

At December 31, 2021, 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
2011 Equity Incentive Plan	1,429	7,512	3,519
DVS Sciences Inc. 2010 Equity Incentive Plan	9	—	—
2017 Inducement Award Plan	159	76	—
2017 Employee Stock Purchase Plan	—	—	2,633
	1,597	7,588	6,152

Included in the securities to be issued upon release of RSUs and PSUs are the maximum number of shares that could be issued for performance share unit awards, which can vest at 0%-200% of the number of awards granted. The number of shares available for future issuance also reflects PSU awards granted at the maximum number of shares that could be issued under these awards.

13. Stock-Based 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, restricted stock units (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.

Incentive stock options and non-statutory stock options granted under the 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, performance stock units (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.

Valuation and Expense Information

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

	Year Ended December 31,		
	2021	2020	2019
Stock options			
Weighted average expected volatility	94.0 %	79.0 %	69.5 %
Weighted average expected term	4.2 years	3.8 years	4.3 years
Weighted average risk-free interest rate	0.6 %	2.6 %	1.9 %
Dividend yield	—	—	—
Weighted-average fair value per share	$ 3.73	$ 2.60	$ 7.17

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, 2018	1,812	$ 7.09
RSU granted	1,808	$ 8.08
RSU released	(730)	$ 8.06
RSU forfeited	(339)	$ 7.80
Balance at December 31, 2019	2,551	$ 7.43
RSU granted	3,788	$ 4.06
RSU released	(1,139)	$ 7.04
RSU forfeited	(338)	$ 6.24
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

The total intrinsic value of RSUs vested and released during the year ended December 31, 2021, 2020 and 2019 were approximately $11.2 million, $8.0 million and $5.8 million, 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, 2021, the unrecognized compensation costs related to outstanding unvested RSUs under our equity incentive plans were $22.5 million. We expect to recognize those costs over a weighted average period of 2.5 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, 2018	2,385	$ 7.56	7.8	
Options granted	50	$ 13.08		
Options exercised	(197)	$ 5.43		$ 1,198
Options forfeited	(211)	$ 8.73		
Balance at December 31, 2019	2,027	$ 7.78	6.8	
Options granted	117	$ 4.05		
Options exercised	(100)	$ 4.84		$ 359
Option forfeited	(409)	$ 9.22		
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
Vested at December 31, 2021	1,503	$ 7.13	5.5	$ 82
Unvested awards at December 31, 2021	94	$ 6.30	8.0	$ —

(1) Aggregate intrinsic value as of December 31, 2021 was calculated as the difference between the closing price per share of our common stock on the last trading day of 2021, which was $3.92, and the exercise price of the options, multiplied by the number of in-the-money options.

As of December 31, 2021, the unrecognized compensation costs related to outstanding unvested options under our equity incentive plans were $0.3 million. We expect to recognize those costs over a weighted average period of 0.8 years.

Performance-based Awards

Performance Stock Units with Market Condition

We have granted performance stock units to certain executive officers and senior level employees. The number of performance stock units ultimately earned under these awards is calculated based on the Total Shareholder Return (TSR) of our common stock as compared to the TSR of a defined group of peer companies during the applicable three-year performance period. The percentage of performance stock units that vest will depend on our relative position at the end of the performance period and can range from 0% to 200% of the number of units granted.

Based on the performance of our stock relative to our defined group of peer companies for the period 2018 to 2020, PSUs awarded in 2018 vested in 2021 at a rate of 118.6% of the target. The performance adjustment in the table below reflects the impact of the above-target performance.

	Number of Units (in 000s)	Weighted-Average Grant Date Fair Value per Unit
Balance at December 31, 2018	155	$ 10.09
PSU granted	401	$ 16.90
PSU released	—	—
PSU forfeited	(9)	$ 10.09
Balance at December 31, 2019	547	$ 15.09
PSU granted	509	$ 4.82
PSU released	—	—
PSU forfeited	(94)	$ 14.26
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

As of December 31, 2021, the unrecognized compensation costs related to these awards were $3.8 million. We expect to recognize those costs over a weighted average period of 1.8 years.

The PSU awards above include 0.3 million of PSUs awarded in 2019. Based on the performance of our stock relative to our defined group of peer companies for the period 2019 to 2021, these awards did not meet the minimum target and the shares returned to the 2011 Equity Plan pool in early 2022.

Performance Stock Units with Performance Conditions

During 2019, we granted performance stock units to a certain employee. The number of performance stock units that ultimately vest under these awards is 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 thousand units of these awards outstanding with a weighted-average grant date fair value of $6.46 per unit. The operational milestones were not met and the awards were cancelled in early 2022.

2017 Employee Stock Purchase Plan (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. Employees may not purchase more than $25 thousand of stock for any 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.

Stock-based Compensation Expense

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

	For the Year Ended December 31,		
	2021	2020	2019
Restricted stock units, stock options and performance share units	$ 15,470	$ 13,428	$ 10,555
Employee stock purchase plan	631	1,023	838
Total stock-based compensation	$ 16,101	$ 14,451	$ 11,393

14. Income Taxes

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

	Year Ended December 31,		
	2021	2020	2019
Domestic	$ (56,291)	$ (46,277)	$ (59,900)
International	(7,369)	(7,824)	(6,805)
Loss before income taxes	$ (63,660)	$ (54,101)	$ (66,705)

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

	Year Ended December 31,		
	2021	2020	2019
Current:			
Federal	$ —	$ —	$ —
State	(63)	(31)	(31)
Foreign	167	(2,314)	(568)
Total current tax (expense) benefit	104	(2,345)	(599)
Deferred:			
State	—	—	—
Foreign	4,319	3,426	2,514
Total deferred benefit	4,319	3,426	2,514
Total benefit for income taxes	$ 4,423	$ 1,081	$ 1,915

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,		
	2021	2020	2019
Tax benefit at federal statutory rate	21.0 %	21.0 %	21.0 %
State tax expense, net of federal benefit	2.8	1.7	0.9
Foreign tax benefit (expense)	4.7	(0.9)	(0.1)
Change in valuation allowance	(15.5)	(11.4)	(6.0)
Federal research and development credit	0.7	1.1	0.7
Unrecognized tax benefit	(0.1)	(0.1)	(0.1)
Non-deductible interest/premium	(1.0)	(1.1)	(7.9)
Global Intangible Low-Tax Income (GILTI)	—	(3.9)	(5.6)
Net operating loss expiration	(2.9)	(3.3)	—
Executive stock-based compensation	(1.3)	—	—
Other, net	(1.5)	(1.1)	—
Effective tax rate	6.9 %	2.0 %	2.9 %

At December 31, 2017, we changed our permanent reinvestment assertion and will not permanently reinvest our foreign earnings outside the United States. The cash generated from some of our foreign subsidiaries may be used domestically to fund operations. Any domestic, foreign withholding tax and state taxes that may be due upon future repatriation of earnings is not expected to be significant.

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

	December 31,	
	2021	2020
Deferred tax assets:		
Net operating loss carryforwards	$ 115,739	$ 104,785
Reserves and accruals	3,473	5,242
Depreciation and amortization	1,931	2,819
Tax credit carryforwards	20,480	18,268
Stock-based compensation	2,871	3,168
Right-of-use lease liability	9,322	9,451
Total gross deferred tax assets	153,816	143,733
Valuation allowance on deferred tax assets	(141,087)	(131,232)
Total deferred tax assets, net of valuation allowance	12,729	12,501
Deferred tax liabilities:		
Fixed assets and intangibles	(8,416)	(12,272)
Right-of-use asset	(8,459)	(8,694)
Total deferred tax liabilities	(16,875)	(20,966)
Net deferred tax liability	$ (4,146)	$ (8,465)
Deferred tax liability per balance sheet	$ (4,329)	$ (8,697)
less deferred tax assets included in other long-term assets	183	232
Net deferred tax liability	$ (4,146)	$ (8,465)

We evaluate a number of factors to determine the realizability of our deferred tax assets. Recognition of deferred tax assets is appropriate when realization of these assets is more likely than not. Assessing the realizability of deferred tax assets is dependent upon several factors including historical financial results. The net deferred tax assets have been partially offset by a valuation allowance because we have incurred losses in the U.S. since our inception. The valuation allowance increased by $9.9

million during 2021 and $1.1 million during 2020. The changes in valuation allowance during 2021 and 2020 are mainly due to taxable losses and an increase in tax attributes.

The valuation allowances of $141.1 million and $131.2 million as of December 31, 2021 and 2020, 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 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 U.S. federal and state deferred tax assets.

A reconciliation of the beginning and ending amount of the valuation allowance for the years ended December 31, 2021, 2020, and 2019 is as follows (in thousands):

	Valuation Allowance
December 31, 2018	$ 126,108
Charges to earnings	—
Charges to other accounts	3,976
December 31, 2019	130,084
Charges to earnings	—
Charges to other accounts	1,142
December 31, 2020	$ 131,226
Charges to earnings	—
Charges to other accounts	9,861
December 31, 2021	$ 141,087

As of December 31, 2021, we had net operating loss carryforwards for U.S. federal income tax purposes of $508.2 million, of which $1.7 million expire in 2022, and U.S. federal research and development tax credits of $10.0 million, of which $0.4 million expire in 2022 and the rest through 2041. As of December 31, 2021, we had net operating loss carryforwards for state income tax purposes of $196.6 million, of which $0.4 million expire in 2022 and the rest through 2041, and California research and development tax credits of $13.3 million, which do not expire. As of December 31, 2021, we had foreign net loss carryforwards of $3.4 million which can mostly be carried forward indefinitely.

Utilization of the net operating loss carryforwards and credits may be subject to a substantial annual limitation due to the ownership change limitations provided by Section 382 of the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization. In 2021, we continued the Section 382 analysis as historically performed through December 31, 2021 and, based on the information that was available to us, we do not believe that an ownership change occurred during the current year.

The aggregate changes in the balance of our gross unrecognized tax benefits during 2021, 2020, and 2019 were as follows (in thousands):

December 31, 2018	$	7,344
Increases in balances related to tax positions during a prior period		155
Increases in balances related to tax positions taken during current period		354
Decreases in balances related to tax positions taken during prior period		(20)
December 31, 2019		7,833
Increases in balances related to tax positions during a prior period		756
Increases in balances related to tax positions taken during current period		441
Decreases in balances related to tax positions taken during prior period		(144)
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

Accrued interest and penalties related to unrecognized tax benefits were included in the income tax provision and are immaterial as of December 31, 2021 and 2020. The uncertain taxes payable are recorded as a long-term liability on the balance sheet. During 2021, we decreased our balances related to tax positions in the prior period to reflect a payment of $0.7 million related to our uncertain tax position in Singapore. We received a final determination from the tax authorities in October 2021 and paid the amounts accrued.

As of December 31, 2021, there were $0.2 million of unrecognized tax benefits that, if recognized, would affect our effective tax rate. We do not anticipate that our existing unrecognized tax benefits will significantly increase or decrease within the next 12 months.

In accordance with U.S. GAAP, the Company is allowed to make an accounting policy choice of either (1) treating taxes related to GILTI as a current period expense when incurred, or (2) factoring such amounts into the measurement of deferred taxes. The Company has treated GILTI related taxes as a current period expense when incurred in the consolidated financial statements.

We file income tax returns in the United States, various states, and certain foreign jurisdictions. As a result of net 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. Employee Benefit Plans

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 2015, we implemented a match formula of 100% up to $2,000 annually, following a 4-year vesting schedule. In 2019, the match was increased to up to $3,000 annually. Employer matching contributions to the 401(k) plan were $0.6 million for the years ended December 31, 2021, 2020, and 2019.

16. Information About Geographic Areas

We operate in one reporting segment that creates, manufactures, and markets a range of products and services, including instruments, consumables, reagents and software that are used by researchers and clinical labs worldwide. Our chief executive officer manages our operations and evaluates our financial performance on a consolidated basis. For purposes of allocating resources and evaluating regional financial performance, our chief executive officer reviews separate sales information for the different regions of the world. Our general and administrative expenses and our research and development expenses are not allocated to any specific region. Most of our principal operations, other than manufacturing, and our decision-making functions are located at our corporate headquarters in the United States.

A summary table of our revenue by geographic areas of our customers and by product and services for the years ended December 31, 2021, 2020 and 2019 is included in Note 6 to the consolidated financial statements.

Revenue from customers in the United States represented $60.2 million, or 46%, of total revenues for the year ended December 31, 2021. Revenue from domestic customers represented $72.0 million, or 52%, of total revenues for the year ended December 31, 2020 and $43.4 million, or 37%, for the year ended December 31, 2019.

Revenue from customers in China were less than 10% of total revenues for the year ended December 31, 2021 and 2020. Revenue from customers in China represented $15.4 million, or 13%, of total revenues for the year ended December 31, 2019. With the exception of China, no other foreign country or jurisdiction had revenue in excess of 10% of our total revenue during the years 2021, 2020 and 2019.

No individual customer represented more than 10% of our total revenues for the fiscal years ended December 31, 2021, 2020, and 2019. Revenues from our five largest customers were 23% for the both the years ended December 31, 2021 and 2020, and 17% for 2019.

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,	
	2021	2020
United States	$ 34,497	$ 35,188
Singapore	23,732	12,195
Canada	5,597	6,456
Asia-Pacific	804	1,048
EMEA	523	758
Total	$ 65,153	$ 55,645

The increase in long-lived assets in Singapore is attributable to capital expenditures funded by the NIH Contract (see Note 4).

17. Commitments and Contingencies

Commitments

In the normal course of business, we enter into various contractual and legally binding purchase commitments. As of December 31, 2021, these commitments were approximately $22.0 million.

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 contractual obligations table 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 Executive Officer and Chief Financial 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. The plaintiff has 30 days following the Court's entry of judgment to file an appeal. We believe the claims alleged in the complaint lack merit and, should an appeal be filed, we intend to defend this action vigorously.

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 losses can be estimated, we accrue a liability for the estimated loss. We have not recorded any such liabilities. 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 January 23, 2022, 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 provides for a $12.5 million term loan to us (each, a Bridge Loan and collectively, the Bridge Loans). Subject to approval by our stockholders, upon the issuance of the shares of Series B Preferred Stock (as defined below) pursuant to the Purchase Agreements (as defined below), the Bridge Loans will be automatically converted into shares of Series B-1 Preferred Stock (as defined below) or Series B-2 Preferred Stock (as defined below), as applicable, in accordance with the terms of the Bridge Loan Agreements. The Bridge Loans were fully drawn on January 24, 2022. The proceeds of the Bridge Loans may be used for working capital and general corporate purposes.

Also on January 23, 2022, we entered into separate Series B Convertible Preferred Stock Purchase Agreements (the Purchase Agreements) with each of the Purchasers pursuant to which, among other things, 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 will issue and sell an aggregate of $225 million of convertible preferred stock, consisting of: (i) 112,500 shares of our 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 our 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 $1,000.00 per share to Viking (clauses (i) and (ii), 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 Series B Preferred Stock to be purchased by Casdin and Viking pursuant to the Purchase Agreements is in addition to any Series B Preferred Stock to be issued upon conversion of outstanding amounts under the Bridge Loan Agreements. The proceeds of the Preferred Equity Transactions will be used by us for expenses related to the Preferred Equity Transactions, as well as working capital, general corporate purposes and merger and acquisition opportunities that we may identify from time to time.

In connection with the Private Placement Issuance, we will change our name to "Standard BioTools Inc." and Dr. Michael Egholm will be appointed as the Company's President and Chief Executive Officer and as a member of our Board of Directors (the Board), each occurring upon the closing of the transactions contemplated by the Purchase Agreements (Closing). Dr. Egholm will succeed Chris Linthwaite, who will continue as our Chief Executive Officer until the earlier of the Closing or May 15, 2022.

The Closing is subject to customary closing conditions for a transaction of this nature, including approval by our stockholders of the issuance of the Series B Preferred Stock in connection with the Private Placement Issuance. Each Private Placement Issuance is also conditioned on the substantially contemporaneous consummation of the other Private Placement Issuance.

Our Board has called a special meeting to be held on March 25, 2022 (the 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, (the Common Stock) 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 our name to Standard BioTools Inc. (together, the Charter Amendment Proposal); and (ii) to approve 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 (clauses (A) through (C), the Private Placement Issuance Proposal). The Private Placement Issuance Proposal is conditioned on the approval of the Charter Amendment Proposal. The Charter Amendment Proposal is conditioned on the approval of the Private Placement Issuance Proposal. If both proposals do not receive the requisite vote for approval, neither the Charter Amendment Proposal nor the Private Placement Issuance Proposal will take effect. The parties have agreed that they will not be obligated to close the Private Placement Issuance if the Charter Amendment Proposal has not been approved at the Special Meeting.

If the Charter Amendment Proposal and the Private Placement Issuance Proposal are not approved by our stockholders at the Special Meeting or the Purchase Agreements are otherwise terminated, then the Bridge Loans will become convertible, at each lender's option, into Common Stock at an initial conversion rate of 352.1126 shares of Common Stock per $1,000 of conversion amount, subject to the cap set forth in the Bridge Loan Agreements. The conversion rate is subject to customary adjustments as set forth in the Bridge Loan Agreements. The Bridge Loans bear interest (i) from and including the effective date of the Bridge Loan Agreements to but excluding March 1, 2022, at 10%, (ii) from and including March 1, 2022 to but excluding June 1, 2022, at 12%, (iii) from and including June 1, 2022 to but excluding September 1, 2022, at 14%, and (iv) from and including September 1, 2022 and thereafter, at 16%. Interest accrues daily and is payable in kind by adding the accrued interest to the outstanding principal amount on the last date of each month. The Bridge Loans mature on the 91st calendar day after the latest maturity date of the loans borrowed under our Loan and Security Agreement, dated as of August 2, 2018, with Silicon Valley Bank, and the principal, together with accrued and unpaid interest, is due on the maturity date.

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, 2021. 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, 2021, 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, 2021. 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, 2021.

The effectiveness of our internal control over financial reporting as of December 31, 2021 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, 2021 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.

SCHEDULE II—VALUATION AND QUALIFYING ACCOUNTS AND RESERVES

	In thousands			
	Balance at Beginning of Period	Additions/ Charged to Expense	Deductions	Balance at End of Period
Year ended December 31, 2021				
Accounts receivable allowance	$ 356	$ —	$ —	$ 356
Year ended December 31, 2020				
Accounts receivable allowance	$ 6	$ 356	$ (6)	$ 356
Year ended December 31, 2019				
Accounts receivable allowance	$ 126	$ 179	$ (299)	$ 6

	In thousands			
	Balance at Beginning of Period	Additions/ Charged to Expense	Deductions	Balance at End of Period
Year ended December 31, 2021				
Warranty allowance	$ 1,663	$ 418	$ (911)	$ 1,170
Year ended December 31, 2020				
Warranty allowance	$ 1,390	$ 1,028	$ (755)	$ 1,663
Year ended December 31, 2019				
Warranty allowance	$ 863	$ 1,386	$ (859)	$ 1,390

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, 2021 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.fluidigm.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.** See "Index to Consolidated Financial Statements" in Part II, Item 8 of this Form 10-K.

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 Fluidigm Corporation effective as of April 24, 2021.	8-K	3.1	4/29/2021
3.3	Certificate of Designation of Rights, Preferences and Privileges of Series A Participating Preferred Stock.	8-K	3.1	11/22/2016
3.4	Certificate of Elimination of Series A Participating Preferred Stock of Fluidigm Corporation.	8-K	3.1	8/2/2017
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
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

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
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.	Filed herewith		
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
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

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
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.	Filed herewith		
10.19F	Default Waiver and Consent to Loan and Security Agreement, dated March 4, 2022, between the Company and Silicon Valley Bank.	Filed herewith		
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

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
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 Stephen Christopher Linthwaite, dated July 14, 2016.	10-Q	10.1	5/8/2018
10.27#	Employment and Severance Agreement, effective as of August 1, 2016, by and between Fluidigm Corporation and Stephen Christopher Linthwaite.	10-Q	10.2	11/9/2016
10.28#	Offer Letter to Vikram Jog dated January 29, 2008.	S-1	10.17	12/3/2010
10.29#	Offer Letter to Bradley A. Kreger dated February 13, 2018.	10-K	10.18	3/18/2019
10.30#	Offer Letter to Colin McCracken dated April 12, 2019.	10-K	10.30	2/25/2021
10.31#	Offer Letter to Nick Khadder dated April 6, 2020.	10-K	10.31	2/25/2021
10.32#	Repatriation Agreement with Colin McCracken dated June 16, 2021.	10-Q	10.4	8/6/2021
10.33#	Terms and Conditions of Employment for Colin McCracken, effective June 26, 2021.	10-Q	10.5	8/6/2021
10.34	Reserved.			
10.35	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
10.35A	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
10.36	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
10.36A	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
10.37	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
10.38#	Stephen Christopher Linthwaite Transition Agreement and Release.	8-K	10.6	1/24/2022
10.39#	Michael Egholm Offer Letter.	8-K	10.7	1/24/2022

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.40#	Indemnification Agreement, dated January 23, 2022, by and between Fluidigm Corporation and Michael Egholm.	8-K	10.8	1/24/2022
10.41#	Hanjoon Alex Kim Offer Letter.	8-K	10.9	1/24/2022
10.42#	Form of Retention Letter.	8-K	10.10	1/24/2022
21.1	Subsidiaries of Fluidigm Corporation.	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		
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 Fluidigm Corporation 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.

FLUIDIGM CORPORATION

Dated: March 7, 2022

By: /s/ Stephen Christopher Linthwaite
Stephen Christopher Linthwaite
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Stephen Christopher Linthwaite 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/ Stephen Christopher Linthwaite **Stephen Christopher Linthwaite**	President and Chief Executive Officer (Principal Executive Officer); Director	March 7, 2022
/s/ Vikram Jog **Vikram Jog**	Chief Financial Officer (Principal Financial and Accounting Officer)	March 7, 2022
/s/ Carlos V. Paya **Carlos V. Paya**	Chairman of the Board of Directors	March 7, 2022
/s/ Nicolas M. Barthelemy **Nicolas M. Barthelemy**	Director	March 7, 2022
/s/ Gerhard F. Burbach **Gerhard F. Burbach**	Director	March 7, 2022
/s/ Laura M. Clague **Laura M. Clague**	Director	March 7, 2022
/s/ Bill W. Colston **Bill W. Colston**	Director	March 7, 2022
/s/ Ana K. Stankovic **Ana K. Stankovic**	Director	March 7, 2022

2 Tower Place, Suite 2000
South San Francisco, California 94080
(650) 266-6000

April 29, 2022

Dear Stockholder:

You are cordially invited to attend the Annual Meeting of Stockholders of Standard BioTools Inc. (the "Annual Meeting") to be held on Wednesday, June 15, 2022 at 8:30 a.m., Pacific time, at the Genesis SSF Performing Arts Center, located at 1 Tower Place, South San Francisco, California 94080. At the meeting, we will be voting on the matters described in the attached formal meeting notice and proxy statement.

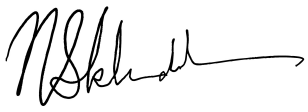
This year, we are again taking advantage of U.S. Securities and Exchange Commission rules that allow companies to furnish proxy materials to their stockholders over the Internet. This process allows us to provide our stockholders with the information they need in a timely manner, while reducing the environmental impact of printing and distributing our proxy materials and lowering our costs.

On or about May 2, 2022, we expect to mail to our stockholders a Notice of Internet Availability of Proxy Materials (the "Notice") containing instructions on how to access the proxy statement for our 2022 Annual Meeting and our Annual Report on Form 10-K for the year ended December 31, 2021. The Notice also provides instructions for voting online or by telephone, as well as information on how to receive a paper copy of the proxy materials by mail.

Your vote is very important. Whether or not you plan to attend the Annual Meeting and regardless of the number of shares you own, it is important that your shares be represented. We hope you will vote as soon as possible via the Internet, by telephone, or—if you requested a paper copy of the proxy materials by mail—by mailing a completed, signed, and dated proxy card in the envelope provided. Any stockholder who attends the meeting may vote in person, even if he or she has already voted online, by telephone, or by mail.

Thank you for your continued support of Standard BioTools. We look forward to seeing you at our Annual Meeting.

Sincerely,



Nicholas S. Khadder
Senior Vice President, General Counsel, and
Corporate Secretary

STANDARD BIOTOOLS INC.
2 Tower Place, Suite 2000
South San Francisco, California 94080
(650) 266-6000

NOTICE OF 2022 ANNUAL MEETING OF STOCKHOLDERS

Time and Date	8:30 a.m., Pacific time, on Wednesday, June 15, 2022
Place	Genesis SSF Performing Arts Center 1 Tower Place, South San Francisco, California 94080
Items of Business	• To elect the two nominees for Class III director named in this proxy statement, each to hold office until our 2025 annual meeting of stockholders or until her or his successor is duly elected and qualified. • To vote, on an advisory basis, to approve the compensation of our named executive officers for the year ended December 31, 2021, as set forth in this proxy statement. • To ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2022. • To transact any other business that may properly come before the 2022 Annual Meeting and any adjournment or postponement.
Adjournments and Postponements	Any action on the items of business described above may be considered at the Annual Meeting at the time and on the date specified above or at any time and date to which the Annual Meeting may be properly adjourned or postponed.
Record Date	You are entitled to vote only if you were a Standard BioTools stockholder of record as of the close of business on the record date, April 18, 2022. Only holders of record of Standard BioTools common stock, Series B-1 Convertible Preferred Stock, and Series B-2 Convertible Preferred Stock on April 18, 2022 are entitled to notice of and to vote at the Annual Meeting.
Meeting Admission	You are entitled to attend the Annual Meeting only if you were a Standard BioTools stockholder as of the close of business on the record date or otherwise hold a valid proxy for the Annual Meeting. If you are not a stockholder of record but hold shares through a broker, bank, trustee, or nominee (i.e., in "street name"), you should provide proof of your beneficial ownership as of the record date, such as your most recent account statement prior to the record date, a copy of the voting instruction card provided by your broker, bank, trustee, or nominee, or similar evidence of ownership.
Annual Report	You may access our Annual Report on Form 10-K for the year ended December 31, 2021 and our proxy solicitation materials by visiting www.proxyvote.com. Our 2021 Annual Report is not a part of the proxy solicitation materials.

Voting	**Your vote is very important. Whether or not you plan to attend the Annual Meeting, we encourage you to read the proxy statement accompanying this notice and submit your proxy or voting instructions as soon as possible. For specific instructions on how to vote your shares, please refer to the instructions in the section entitled "General Information" beginning on page 1 of the proxy statement accompanying this notice, or provided in the Notice of Internet Availability of Proxy Materials.**
	Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to Be Held on June 15, 2022. The Notice of 2022 Annual Meeting of Stockholders, proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2021 are each available at www.proxyvote.com.

The Notice of Internet Availability of Proxy Materials containing instructions on how to access this proxy statement and our annual report is first being mailed on or about May 2, 2022.

PROXY STATEMENT
FOR 2022 ANNUAL MEETING OF STOCKHOLDERS

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STANDARD BIOTOOLS INC.
2 Tower Place, Suite 2000
South San Francisco, California 94080

PROXY STATEMENT

FOR THE 2022 ANNUAL MEETING OF STOCKHOLDERS
to be held on Wednesday, June 15, 2022

GENERAL INFORMATION

In this proxy statement: the terms "we," "our," "Standard BioTools," and the "Company" each refer to Standard BioTools Inc.; the term "Board" means our Board of Directors; and the term "proxy materials" means this proxy statement and the form of proxy. These proxy materials are furnished in connection with the solicitation by our Board of proxies to be voted at our 2022 annual meeting of stockholders, which will take place on Wednesday, June 15, 2022 at 8:30 a.m., Pacific time, at the Genesis SSF Performing Arts Center located at 1 Tower Place, South San Francisco, California 94080, and any postponements, adjournments or continuations thereof (the "Annual Meeting").

The information provided in the "question and answer" format below is for your convenience only and is merely a summary of the information contained in this proxy statement. You should read this entire proxy statement carefully. Information contained on or accessible through our website is not intended to be incorporated by reference into this proxy statement and references to our website in this proxy statement are intended to be inactive textual references only.

1. Why did I receive a notice regarding the availability of proxy materials on the Internet instead of a full set of proxy materials?

Under rules adopted by the U.S. Securities and Exchange Commission (the "SEC"), we have elected to furnish our proxy materials to our stockholders primarily via the Internet, instead of mailing printed copies of the proxy materials to each stockholder. On or about May 2, 2022, we expect to mail to our stockholders a Notice of Internet Availability of Proxy Materials (the "Notice") containing instructions on how to access our proxy materials and our Annual Report on Form 10-K for the year ended December 31, 2021 via the Internet and how to vote your proxy. If you receive the Notice, you will not automatically receive a printed copy of our proxy materials in the mail. If you would like to receive a printed copy, please follow the instructions provided in the Notice.

Our 2022 proxy materials and our 2021 Annual Report are accessible at: www.proxyvote.com

2. What information is contained in this proxy statement?

The information in this proxy statement relates to the proposals to be voted on at the Annual Meeting, the voting process, the compensation of our directors and most highly paid executive officers, our corporate governance policies, information on our Board, and certain other required information.

3. What items of business will be voted on at the Annual Meeting?

The items of business scheduled to be voted on at the Annual Meeting are as follows:

- the election of the two nominees for Class III director named in this proxy statement, each to hold office until our 2025 annual meeting of stockholders or until her or his successor is duly elected and qualified;
- to vote, on an advisory basis, to approve the compensation of our named executive officers for the year ended December 31, 2021, as set forth in this proxy statement; and
- to ratify the appointment of PricewaterhouseCoopers LLP ("PwC") as our independent registered public accounting firm for the year ending December 31, 2022.

In addition, pursuant to the Certificate of Designations governing the Series B-1 Convertible Preferred Stock (the "B-1 Certificate of Designations"), par value $0.001 per share (the "Series B-1 Preferred Stock") and the Certificate of Designations governing the Series B-2 Convertible Preferred Stock (the "B-2 Certificate of Designations" and, together with the B-1 Certificate of Designations, the "Certificates of Designations"), par value $0.001 per share (the "Series B-2 Preferred Stock," and together with the Series B-1 Preferred Stock, "Series B Preferred Stock"), the holders of shares of Series B-1 Preferred Stock, voting as a separate class, are entitled to nominate and elect one director at this year's Annual Meeting, to serve until the

next annual meeting of stockholders following his or her election and until his or her successor is duly elected and qualified and the holders of shares of Series B-2 Preferred Stock, voting as a separate class, are entitled to nominate and elect one director at this year's Annual Meeting to serve until the next annual meeting of stockholders following his or her election and until his or her successor is duly elected and qualified. Pursuant to the B-1 Certificate of Designations, the holders of Series B-1 Preferred Stock are expected to elect Eli Casdin, effective as of the date of this year's Annual Meeting. Pursuant to the B-2 Certificate of Designations, the holders of Series B-2 Preferred Stock are expected to elect Martin Madaus, effective as of the date of this year's Annual Meeting.

We will also transact any other business that properly comes before the Annual Meeting.

4. How does the Board recommend that I vote?

Our Board recommends that you vote your shares:

- "FOR" the nominees for Class III director named in this proxy statement;
- "FOR" approval of the compensation of our named executive officers for the year ended December 31, 2021, on an advisory basis; and
- "FOR" the ratification of the appointment of PwC as our independent registered public accounting firm for the year ending December 31, 2022.

5. What is a proxy?

A proxy is your legal designation of another person to vote the stock you own, in the event that you are unable to cast your vote directly at the meeting. The person you designate is your "proxy," and you give the proxy authority to vote your shares at the meeting—according to your instructions—by submitting your voting instructions online, by telephone, or via a physical proxy card. We have designated our President and Chief Executive Officer ("CEO"), Dr. Michael Egholm, and our Chief Financial Officer, Vikram Jog, to serve as proxies for the Annual Meeting.

6. What shares can I vote?

Each share of our common stock issued and outstanding as of the close of business on April 18, 2022, the record date for our 2022 Annual Meeting (the "Record Date"), is entitled to vote on all items being considered at the Annual Meeting (other than the election of the Series B-1 Preferred Director and the Series B-2 Preferred Director). In addition, holders of record of our Series B-1 Preferred Stock and Series B-2 Preferred Stock, as of the close of business on the Record Date shall be entitled to notice of, and to vote at, the Annual Meeting. You may vote all shares owned by you as of the Record Date, including (i) shares held directly in your name as the stockholder of record and (ii) shares you own through an account with a broker, bank, trustee, or other intermediary, sometimes referred to as owning in "street name." On the Record Date, we had 77,252,135 shares of common stock and 255,559 shares of Series B Preferred Stock issued and outstanding. Each holder of our Series B-1 Preferred Stock and our Series B-2 Preferred Stock is entitled to that number of votes calculated in accordance with the Certificates of Designations previously filed as exhibits to our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 5, 2022. As of the close of business on the Record Date, the holders of all of our outstanding Series B preferred stock are entitled to 75,164,396 votes at the Annual Meeting. The holders of our capital stock were entitled to an aggregate of 152,416,531 votes as of the close of business on the Record Date.

7. How many votes am I entitled to per share?

For all matters described in this proxy statement for which your vote is being solicited, each holder of shares of common stock is entitled to one vote for each share of common stock held by such holder as of the Record Date. Each holder of our Series B-1 Preferred Stock and our Series B-2 Preferred Stock is entitled to that number of votes calculated in accordance with the Certificates of Designations previously filed as exhibits to our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 5, 2022. The holders of shares of Series B-1 Preferred Stock and shares of Series B-2 Preferred Stock have voting power measured in a manner related to the conversion ratio of the shares of Series B-1 Preferred Stock and Series B-2 Preferred Stock and are entitled to vote as a single class with the holders of the common stock and the holders of any other class or series of equity interest of the Company then entitled to vote with the common stock on all matters submitted to a vote of the holders of common stock.

8. Are any shares subject to voting restrictions?

To the extent the Series B-1 Preferred Stock held by Casdin and each Permitted Transferee (as defined in the B-1 Certificate of Designations) (the "Casdin Parties") would, in the aggregate, represent voting rights with respect to more than 19.9% of the common stock (including the Series B-1 Preferred Stock on an as-converted basis) (the "B-1 Voting Threshold"), the Casdin Parties will not be permitted to exercise the voting rights with respect to any shares of Series B-1 Preferred Stock, as applicable, held by them in excess of the B-1 Voting Threshold and the Chief Financial Officer or General Counsel of the

Company shall exercise the voting rights with respect to such shares of Series B-1 Preferred Stock in excess of the B-1 Voting Threshold in the same proportion as the outstanding common stock (excluding any and all common stock beneficially owned, directly or indirectly, by the Casdin Parties and Viking Parties (as defined below)) voted on the relevant matters.

To the extent the Series B-2 Preferred Stock held by Viking and each Permitted Transferee (as defined in the B-2 Certificate of Designations) (the "Viking Parties") would, in the aggregate, represent voting rights with respect to more than 19.9% of the common stock (including the Series B-2 Preferred Stock on an as-converted basis) (the "B-2 Voting Threshold"), the Viking Parties will not be permitted to exercise the voting rights with respect to any shares of Series B-2 Preferred Stock, as applicable, held by them in excess of the B-2 Voting Threshold and the Chief Financial Officer or General Counsel of the Company shall exercise the voting rights with respect to such shares of Series B-2 Preferred Stock in excess of the B-2 Voting Threshold in the same proportion as the outstanding common stock (excluding any and all common stock beneficially owned, directly or indirectly, by the Casdin Parties and the Viking Parties) voted on the relevant matters.

9. What is the difference between holding shares as a stockholder of record and as a beneficial owner?

Many stockholders beneficially own shares held in "street name" by a broker, bank, trustee, or other nominee rather than holding the shares directly in their own name. As summarized below, there are some distinctions between shares held of record and those owned beneficially.

- ***Stockholder of Record.*** If your shares are registered directly in your name with our transfer agent, Computershare Trust Company, N.A., you are considered the stockholder of record with respect to those shares, and the Notice was sent directly to you by our mailing agent. As the stockholder of record, you have the right to grant your voting proxy directly to our designated proxies or to vote in person at the Annual Meeting. You may vote online or by telephone as described below under the heading "How can I vote my shares without attending the Annual Meeting?" and on the Notice. If you requested a printed copy of the proxy materials, you may also vote by mail by following the instructions on your proxy card.
- ***Beneficial Owner.*** If your shares are held in a brokerage account or by another intermediary, you are considered the beneficial owner of shares held in street name, and the Notice was forwarded to you by your broker, bank, trustee, or other nominee. As the beneficial owner, you have the right to direct your broker, bank, trustee, or other nominee how to vote your shares, and you are also invited to attend the Annual Meeting.

  Since a beneficial owner is not the stockholder of record, you may not vote your shares in person at the Annual Meeting unless you obtain a "legal proxy" from the broker, bank, trustee or nominee that holds your shares giving you the right to vote the shares at the meeting. If you are a beneficial owner and do not wish to vote in person or you will not be attending the Annual Meeting, you may vote by following the instructions provided by your broker, bank, trustee, or other nominee.

10. How can I contact the Company's transfer agent?

Contact our transfer agent by writing Computershare Trust Company, N.A., 462 South 4th Street, Suite 1600, Louisville, KY 40202. You may also contact our transfer agent by calling (800) 662-7232 or (781) 575-2879 or via its Investor Center at https://www-us.computershare.com/Investor/Contact.

11. How can I attend the Annual Meeting?

You are entitled to attend the Annual Meeting only if you were a Standard BioTools stockholder as of the Record Date or you hold a valid proxy for the Annual Meeting. If you are not a stockholder of record but beneficially own shares held in street name, you should provide proof of beneficial ownership as of the Record Date, such as your most recent account statement prior to April 18, 2022, together with a copy of the voting instruction card provided by your broker, bank, trustee or nominee, or other similar evidence of ownership.

If you do not comply with the procedures outlined above, you may not be admitted to the Annual Meeting.

Please let us know if you plan to attend the meeting by indicating your plans when prompted if you vote online or by telephone, or by marking the appropriate box on your proxy card if you vote by mail.

12. Will the Annual Meeting be webcast?

No.

13. How can I vote my shares in person at the Annual Meeting?

Shares held in your name as the stockholder of record may be voted by you in person at the Annual Meeting. Shares owned beneficially and held in street name may be voted by you in person at the Annual Meeting only if you obtain a legal proxy from the broker, bank, trustee, or other nominee that holds your shares giving you the right to vote the shares. Even if you plan to attend the Annual Meeting, we recommend that you also submit your proxy or voting instructions as described below so that your vote will be counted if you later decide not to attend the meeting.

14. How can I vote my shares without attending the Annual Meeting?

By telephone or via the Internet

If you are a stockholder of record, you may vote by following the telephone or Internet voting instructions on your Notice.

If you are a beneficial owner of shares, your broker, bank, trustee, or other nominee may make telephone or Internet voting available to you. The availability of telephone and Internet voting for beneficial owners will depend on the voting processes of your broker, bank, trustee, or other nominee. Therefore, we recommend that you follow the voting instructions in the materials you receive.

By mail, if you requested a printed copy of the proxy materials

If you are a stockholder of record, complete, sign and date the enclosed proxy card or voting instruction card and return it in the return envelope provided (which is postage prepaid if mailed in the United States). If the prepaid envelope is missing, please mail your completed proxy card to Vote Processing, c/o Broadridge Financial Solutions, Inc., 51 Mercedes Way, Edgewood, NY 11717.

If you are a stockholder of record and you return your signed proxy card but do not indicate your voting preferences, the persons named in the proxy card as proxy holders—Dr. Michael Egholm and Vikram Jog—will vote the shares represented by your proxy card as recommended by our Board.

If you are a beneficial owner of shares and you requested a printed copy of the proxy materials from your broker, bank, trustee, or other nominee, simply complete the proxy card and mail it according to the instructions provided by your broker, bank, trustee, or other nominee.

You may attend the Annual Meeting in person even if you have already voted by proxy.

15. Can I change my vote or revoke my proxy?

You may change your vote at any time prior to the taking of the vote at the Annual Meeting. If you are the stockholder of record, you may change your vote by (i) granting a new proxy bearing a later date (which automatically revokes the earlier proxy) using any of the methods described above (and until the applicable deadline for each method), (ii) providing a written notice of revocation to our corporate secretary at Standard BioTools Inc., 2 Tower Place, Suite 2000, South San Francisco, California 94080, Attn: Corporate Secretary, prior to your shares being voted, or (iii) attending the Annual Meeting and voting in person. Attendance at the meeting will not cause your previously granted proxy to be revoked unless you specifically so request. For shares held in street name, you may change your vote by submitting new voting instructions to your broker, bank, trustee, or nominee following the instructions they provided or, if you have obtained a legal proxy from your broker, bank, trustee, or nominee giving you the right to vote your shares, by attending the Annual Meeting and voting in person.

16. Is there a list of stockholders entitled to vote at the Annual Meeting?

The names of stockholders of record entitled to vote at the Annual Meeting will be available at the Annual Meeting and from our corporate secretary for ten days prior to the meeting for any purpose germane to the meeting, between the hours of 9:00 a.m. and 4:30 p.m., at our corporate headquarters at 2 Tower Place, Suite 2000, South San Francisco, California 94080.

17. Is my vote confidential?

Proxy instructions, ballots, and voting tabulations that identify individual stockholders are handled in a manner that protects your voting privacy. Your vote will not be disclosed either within the Company or to third parties, except as necessary to meet applicable legal requirements, to allow for the tabulation of votes and certification of the vote, or to facilitate a successful proxy solicitation.

18. How many shares must be present or represented to conduct business at the Annual Meeting?

As of the Record Date, there were 77,252,135 shares of our common stock and 127,780 shares of Series B-1 Preferred Stock and 127,779 shares of Series B-2 Preferred Stock outstanding. Each holder of our common stock is entitled to one vote

for each share of common stock held as of the Record Date, and each holder of our Series B-1 Preferred Stock is entitled to that number of votes calculated in accordance with the B-1 Certificate of Designations previously filed as an exhibit to our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 5, 2022 and each holder of our Series B-2 Preferred Stock is entitled to that number of votes calculated in accordance with the B-2 Certificate of Designations previously filed as an exhibit to our Current Report on Form 8-K filed with the Securities and Exchange Commission on April 5, 2022. The presence at the Annual Meeting, in person or by proxy, of the holders of a majority of the voting power of all of the shares of our capital stock outstanding on the Record Date will constitute a quorum. The holders of our capital stock were entitled to an aggregate of 152,416,531 votes as of the close of business on the Record Date. Abstentions and "broker non-votes" are counted as present and entitled to vote for purposes of determining a quorum. A "broker non-vote" occurs when a broker, bank, trustee, or other nominee holding shares for a beneficial owner does not vote on a particular proposal because that holder does not have discretionary voting power for that particular item and has not received voting instructions from the beneficial owner. If there is no quorum, the chairperson of the meeting or the holders of a majority of the stock issued and outstanding present at the Annual Meeting may adjourn the meeting to another date.

19. What is the voting requirement to approve each of the proposals?

Proposal	Vote Required	Discretionary Voting Allowed?
Election of Class III Directors	Plurality of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the election of directors	No
Advisory Vote on Approval of Executive Compensation	Majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter	No
Ratification of Appointment of PwC for the year ending December 31, 2022	Majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter	Yes

If you are a beneficial owner, your broker, bank, trustee, or other nominee is permitted to vote your shares on the ratification of the appointment of PwC as our independent registered public accounting firm for the year ending December 31, 2022, even if the record holder does not receive voting instructions from you. However, your broker, bank, trustee, or other nominee does not have discretionary authority to vote on the election of the Class III directors without instructions from you, in which case a broker non-vote will occur and your shares will not be voted on this matter. In addition, discretionary voting is not allowed with respect to the advisory vote to approve the compensation of our named executive officers. Accordingly, if you are a beneficial owner, it is particularly important that you provide your instructions for voting your shares on the election of the Class III directors and the advisory vote on approval of executive compensation to your broker, bank, trustee, or other nominee.

Election of Class III Directors

The election of directors requires a plurality of the voting power of the shares present in person or by proxy at the meeting and entitled to vote thereon to be approved. Therefore, the two nominees receiving the highest number of affirmative "FOR" votes will be elected as Class III directors. You may (i) vote "FOR" all nominees, (ii) "WITHHOLD" your vote as to all nominees, or (iii) vote "FOR ALL EXCEPT" for those specific nominees from whom you withhold your vote. A properly executed proxy card marked "WITHHOLD" or "FOR ALL EXCEPT" will not be voted with respect to the election of the applicable Class III director(s) although it will be counted for purposes of determining whether there is a quorum. Abstentions and broker non-votes will not affect the outcome of the election of the Class III directors.

Advisory Vote on Approval of Executive Compensation

The affirmative "FOR" vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal is required to approve, on an advisory basis, the compensation awarded to our named executive officers for the year ended December 31, 2021. You may vote "FOR," "AGAINST," or "ABSTAIN" on this proposal. Abstentions have the same effect as a vote against the proposal. Broker non-votes are not included in the tabulation of voting results on this proposal, and will not affect the outcome of voting on this proposal. Although the vote is non-binding, our Board and our Compensation Committee value the opinions of our stockholders in this matter and, to the extent there is any significant vote against the named executive officer compensation as disclosed in this proxy statement, we will endeavor to communicate with stockholders to better understand the concerns that influenced the vote, consider our stockholders' concerns and the Compensation Committee will evaluate whether any actions are necessary to address those concerns.

Ratification of Appointment of PricewaterhouseCoopers LLP

The affirmative "FOR" vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal is required to ratify the appointment of PwC as our independent registered public accounting firm for the year ending December 31, 2022. You may vote "FOR," "AGAINST," or "ABSTAIN" on this proposal. Abstentions have the same effect as a vote against the proposal. Broker non-votes are not included in the tabulation of voting results on this proposal, and will not affect the outcome of voting on this proposal. Notwithstanding the appointment of PwC and even if our stockholders ratify the appointment, our Audit Committee, in its discretion, may appoint another independent registered public accounting firm at any time during our fiscal year if our Audit Committee believes that such a change would be in the best interests of our Company and our stockholders.

20. Interest of Executive Officers and Directors

None of our executive officers or directors has any substantial interest in any matter to be acted upon, other than our directors, with respect to the election to office of the directors so nominated.

21. What happens if additional matters are presented at the Annual Meeting?

Other than the items of business described in this proxy statement, we are not aware of any other business to be acted upon at the Annual Meeting. If you grant a proxy, the persons named as proxy holders, Dr. Michael Egholm and Vikram Jog, or either of them, will have the discretion to vote your shares on any additional matters properly presented for a vote at the meeting. If for any reason a Class III director nominee is not available as a candidate for director, the persons named as proxy holders will vote your proxy for such other candidate as may be nominated by our Board.

22. Who will count the votes?

A representative of our mailing agent, Broadridge Financial Solutions, Inc. ("Broadridge"), will tabulate the votes and act as inspector of elections.

23. Who will bear the cost of soliciting votes for the Annual Meeting?

We will pay the entire cost of preparing, assembling, printing, mailing, and distributing these proxy materials and soliciting votes. In addition to the mailing of these proxy materials, the solicitation of proxies or votes may be made in person, by telephone, or by electronic communication by our directors, officers, and employees, who will not receive any additional compensation for such solicitation activities. We may also reimburse brokerage firms, banks, trustees, and other nominees for the cost of forwarding proxy materials to beneficial owners. We have hired Alliance Advisors, LLC ("Alliance Advisors") to help us solicit proxies. We expect to pay Alliance Advisors a base fee of $7,500 plus reimbursement of reasonable out-of-pocket expenses. Proxy solicitations will be made primarily through the mail, but may be supplemented by telephone, facsimile, Internet, or personal solicitation by Alliance Advisors.

24. Where can I find the voting results of the Annual Meeting?

We will announce preliminary voting results at the Annual Meeting. We will also disclose voting results on a Current Report on Form 8-K (a "Form 8-K") filed with the SEC within four business days after the Annual Meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the Annual Meeting, we will file a Form 8-K to publish preliminary results and, within four business days after final results are known, file an additional Form 8-K to publish the final results.

25. What is "householding" and how does it affect me?

We have adopted a procedure approved by the SEC called "householding." Under this procedure, stockholders of record who have the same address and last name will receive only one copy of the Notice unless one or more of these stockholders notifies us that they wish to receive individual copies. Stockholders who participate in householding will continue to be able to request and receive separate proxy cards. This procedure will reduce our printing costs and postage fees.

If you are eligible for householding but you and other stockholders of record with whom you share an address received multiple copies of the Notice, or if you hold stock in more than one account, and, in either case, you wish to receive only a single copy of the Notice for your household, please contact our mailing agent, Broadridge, either by calling (800) 579-1639, via the Internet at http://www.proxyvote.com, or via email at sendmaterial@proxyvote.com.

If you participate in householding and wish to receive a separate copy of the Notice, or if you do not wish to continue to participate in householding and prefer to receive separate copies in the future, please contact Broadridge as indicated above.

Upon request, we will promptly deliver a separate copy of the Notice and, if applicable, the proxy materials to any stockholder at a shared address to which we delivered a single copy of any of these documents.

Beneficial owners can request information about householding from their broker, banks, trustee, or other nominee.

26. What is the deadline to propose actions for consideration at next year's annual meeting of stockholders or to nominate individuals to serve as directors?

Stockholder Proposals

Stockholders may present proper proposals for inclusion in our proxy statement and for consideration at the next annual meeting of stockholders by submitting their proposals in writing to our corporate secretary in a timely manner. For a stockholder proposal to be considered for inclusion in our proxy statement for our next annual meeting of stockholders, our corporate secretary must receive the written proposal at our principal executive offices not later than January 2, 2023; *provided*, *however*, that in the event that we hold our 2023 annual meeting of stockholders more than 30 days before or 60 days after the one-year anniversary date of the 2022 Annual Meeting, we will disclose the new deadline by which stockholder proposals must be received under Item 5 of our earliest possible Quarterly Report on Form 10-Q or, if impracticable, by any means reasonably calculated to inform stockholders. In addition, stockholder proposals must otherwise comply with the requirements of Rule 14a-8 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Such proposals also must comply with SEC regulations under Rule 14a-8 regarding the inclusion of stockholder proposals in company-sponsored proxy materials. Proposals should be addressed to:

Standard BioTools Inc.
Attn: Corporate Secretary
2 Tower Place, Suite 2000
South San Francisco, California 94080

Our bylaws also establish an advance notice procedure for stockholders who wish to present a proposal before an annual meeting of stockholders, but do not intend for the proposal to be included in our proxy statement. Our bylaws provide that the only business that may be conducted at an annual meeting is business that is (i) specified in the Company's proxy materials with respect to such meeting, (ii) otherwise properly brought before the meeting by or at the direction of our Board, or (iii) properly brought before the meeting by a stockholder of record entitled to vote at the annual meeting who has delivered timely written notice to our corporate secretary, which notice must contain the information specified in our bylaws. To be timely for our 2023 annual meeting of stockholders, our corporate secretary must receive the written notice at our principal executive offices:

- not earlier than February 16, 2023, and
- not later than March 18, 2023.

In the event that we hold our 2023 annual meeting of stockholders more than 30 days before or more than 60 days after the one-year anniversary date of the 2022 Annual Meeting, then notice of a stockholder proposal that is not intended to be included in our proxy statement must be received no earlier than the close of business on the 120th day before the 2023 annual meeting and no later than the close of business on the later of the following two dates:

- the 90th day prior to the 2023 annual meeting, or
- the 10th day following the day on which public announcement of the date of such meeting is first made.

If a stockholder who has notified us of his, her or its intention to present a proposal at an annual meeting does not appear to present such proposal at such meeting, we are not required to present the proposal for a vote at the meeting.

Nomination of Director Candidates

Our bylaws permit stockholders to nominate directors for election at an annual meeting of stockholders. To nominate a director, the stockholder must provide the information required by our bylaws. In addition, the stockholder must give timely notice to our corporate secretary in accordance with our bylaws, which, in general, require that the notice be received by our corporate secretary within the time described above under "Stockholder Proposals" for stockholder proposals that are not intended to be included in our proxy statement.

In addition, it is the policy of our Nominating and Corporate Governance Committee to consider recommendations for candidates to the Board from stockholders holding not less than one percent (1%) of the outstanding shares of our common stock continuously for at least twelve months prior to the date of submission of the recommendation or nomination. Any such recommendations should include the nominee's name and qualifications for membership on our Board, and should be directed to our corporate secretary at our address set forth above. For additional information regarding stockholder recommendations for

director candidates, please see the section entitled "*Corporate Governance and Board of Directors — Process for Recommending Candidates to the Board of Directors*."

Availability of Bylaws

Our bylaws are available on our website at https://investors.fluidigm.com/corporate-governance/governance-overview. You may also contact our corporate secretary at our principal executive offices for a copy of the relevant bylaw provisions regarding the requirements for making stockholder proposals and nominating director candidates.

CORPORATE GOVERNANCE AND BOARD OF DIRECTORS

Corporate Governance Principles

Our Board has adopted a set of principles that establish the corporate governance policies pursuant to which the Board intends to conduct its oversight of our business in accordance with its fiduciary responsibilities. Among other things, these corporate governance principles address the establishment and operation of Board committees, the role of our chairman, and matters relating to director independence and performance assessments. Our corporate governance principles can be found on our website at https://investors.fluidigm.com by clicking on Governance — Governance Overview.

Role and Composition of the Board

As identified in our corporate governance principles, the role of our Board is to oversee the performance of our CEO and other senior management. Our Board is responsible for hiring, overseeing, and evaluating management, while management is responsible for running our day-to-day operations.

Our Board currently has eight members and is divided into three staggered classes of directors, except the Series B-1 Preferred Director and Series B-2 Preferred Director who are not in a class. The Board is nominating two nominees for election as Class III directors. Pursuant to the terms of the certificates of designations of our Series B-1 Preferred Stock and Series B-2 Preferred Stock, the holders of a majority of the Series B-1 Preferred Stock, voting as a separate class, are entitled to nominate and elect one member to the Board at this Annual Meeting for so long as Casdin and its Permitted Transferees (as defined in the B-1 Certificate of Designations) continue to beneficially own shares of Series B-1 Preferred Stock that represent at least 7.5% of the outstanding shares of common stock, on an as converted basis, and the holders of a majority of the Series B-2 Preferred Stock, voting as a separate class, are entitled to nominate and elect one member to the Board at this Annual Meeting for so long as Viking and its Permitted Transferees (as defined in the B-2 Certificate of Designations) continue to beneficially own shares of Series B-2 Preferred Stock that represent at least 7.5% of the outstanding shares of common stock, on an as converted basis. Eli Casdin is expected to be elected by the holders of a majority of the Series B-1 Preferred Stock as the Series B-1 Director and Martin Madaus is expected to be elected by the holders of a majority of the Series B-2 Preferred Stock as the Series B-2 Director. Each of Mr. Casdin and Dr. Madaus has agreed to serve as a director.

The following table sets forth the names, ages as of April 18, 2022, and certain other information for each of our current directors:

Name	Class	Age	Position	Director Since	Current Term Expires	Expiration of Term For Which Nominated
Michael Egholm	I	59	President, CEO, and Director	2022	2023	—
Bill W. Colston[(1)]	I	54	Director	2019	2023	—
Gerhard F. Burbach[(1)(2)(3)]	II	60	Director	2013	2024	—
Carlos Paya[(3)]	II	63	Chairman	2017	2024	—
Laura M. Clague[(2)]	III	63	Director	2018	2022	2025
Frank R. Witney	III	68	Director	2022	2022	2025
Eli Casdin	NA	49	Director	2022	2022	2023
Martin Madaus[(1)(2)]	NA	62	Director	2022	2022	2023

(1) Member of our Compensation Committee
(2) Member of our Audit Committee
(3) Member of our Nominating and Corporate Governance Committee

Except with respect to directors elected by the Series B Preferred Stock, at each annual meeting of stockholders, a class of directors is elected for a term of three years to succeed the class of directors whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during the years 2023 for the Class I directors, 2024 for the Class II directors, and 2025 for the Class III directors.

2021 Board Meetings

During 2021, our Board held fifty-six (56) meetings (including regularly scheduled and special meetings). All of our directors attended at least 75% of the aggregate number of meetings of the Board and of the committees on which they served during the past fiscal year, in each case during the period that he or she served as a director.

Director Attendance at Annual Meeting of Stockholders

Although we do not have a formal policy regarding attendance by members of our Board at annual meetings of stockholders, we encourage all directors to attend. Five of the then-seven members of our Board attended our 2021 annual meeting of stockholders.

Board Leadership Structure

Our corporate governance principles provide that the Board will fill the chairman and CEO positions based upon the Board's view of what is in our best interests at any point in time. Although our current chairman is a non-employee director, the Board has not adopted any policy requiring separation of the chairman and CEO positions or requiring allocation of the chairman position to a non-employee director. Dr. Carlos Paya, an independent director with substantial board and executive leadership experience, currently serves as our chairman. In addition to Standard BioTools, Dr. Paya currently serves on the board of directors of Mallinckrodt plc (OTC:MNKKQ) and as chairman of the board of Vaxcyte, Inc. (Nasdaq: PCVX), a vaccine company, and Highlight Therapeutics S.L., a privately held immuno-oncology company. Our Board believes that Dr. Paya's qualifications to serve as chairman include his experience as a trained immunologist, infectious disease expert and physician, combined with his operating experience as an executive and chief executive officer in the life sciences industry.

Separating the positions of the chairman and CEO allows our CEO to focus on our day-to-day business, while allowing our chairman to lead our Board in its fundamental role providing independent advice to and oversight of management. The Board believes that having an independent director serve as chairman is the appropriate leadership structure for Standard BioTools at this time and demonstrates our commitment to good corporate governance.

Director Independence

As a company listed on the Nasdaq Global Select Market ("Nasdaq"), we are required by the Nasdaq listing requirements to maintain a board of directors comprising a majority of "independent directors," as determined affirmatively by our Board. In addition, the Nasdaq rules require that, subject to specified exceptions, each member of our Audit, Compensation, and Nominating and Corporate Governance Committees be independent. In March 2022, our Board undertook a review of the independence of our directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. As a result of this review, our Board determined that a majority of our current directors are "independent directors" as defined under applicable Nasdaq rules, including Gerhard F. Burbach, Laura M. Clague, Bill W. Colston, Martin Madaus, Carlos Paya, and Frank Witney. Michael Egholm is not considered an independent director because of his positions as our President and Chief Executive Officer, effective April 4, 2022, and Eli Casdin is not considered an independent director because of his service as Chief Executive Officer of an entity in which Dr. Egholm serves on the board of directors. There are no family relationships among any of our directors and officers.

Our Board previously determined that each of Nicolas M. Barthelemy and Ana K. Stankovic was an independent director during his or her service as a director in 2021 and until each resigned from the Board effective April 4, 2022. Stephen Christopher Linthwaite was not considered an independent director during 2021 through his resignation from the Board effective April 4, 2022 because of his positions as our President and Chief Executive Officer. Our Board was composed of a majority of independent directors at all times during 2021 and continues to be so comprised. There were no family relationships among any of our directors and officers during 2021.

Executive Sessions of Independent Directors

In order to promote open discussion among independent directors, our Board has a policy of conducting executive sessions of independent directors during each regularly scheduled board meeting and at such other times as requested by an independent director. These executive sessions are chaired by our chairman. Dr. Egholm does not participate in such sessions.

Board's Role in Risk Oversight

While our management team is responsible for the day-to-day management of the risks Standard BioTools faces, our Board has the responsibility to oversee management's processes for identifying, monitoring, and addressing enterprise risks, evaluate

and discuss with management its assessments of matters relating to enterprise risks, and oversee and monitor management's plans to address such risks. The Board takes an enterprise-wide approach to risk management designed to support the achievement of organizational objectives, including strategic objectives, to improve long-term organizational performance, and to enhance stockholder value. In order to understand the most significant risks faced by the Company and the steps being taken to manage those risks, Standard BioTools conducts quarterly enterprise risk management assessments, facilitated by the Company's executive leadership team in collaboration with the internal audit function, which are presented by management at each quarterly Board meeting. The Board's review of our business is an integral aspect of its assessment of management's tolerance for risk and its determination as to the appropriate level of risk for our Company.

Although the Board has determined that enterprise risk management should be the responsibility of the Board as a whole, it has delegated responsibility to oversee specific areas of risk management to its committees. Our Audit Committee focuses on financial risks, including risks related to the Company's investment policy and practices, as well as overseeing the Company's information technology risk management program. Together with our Nominating and Corporate Governance Committee, the Audit Committee also monitors the Company's compliance with laws, regulations, and related Company policies, including our whistleblower policy, anticorruption compliance policy, related person transactions policy, and Code of Ethics and Conduct. Our Nominating and Corporate Governance Committee additionally assists the Board in fulfilling its oversight responsibilities with respect to the management of risk associated with corporate governance and board organization, membership, and structure. Our Compensation Committee considers risks related to the attraction and retention of talent and risks related to the design of compensation programs and arrangements. Additional information about the Compensation Committee's role in risk oversight can be found in our Compensation Discussion and Analysis under "Risk Management Considerations."

At periodic meetings of the Board and its committees and in other meetings and discussions, management reports to, and seeks guidance from, the Board and its committees with respect to the most significant risks that could affect our business, such as legal, financial, tax, audit, and cybersecurity-related risks. In addition, among other matters, management provides periodic reports on our compliance programs and efforts to our Audit Committee and Nominating and Corporate Governance Committee.

Board Committees

Our Board has three standing committees: an Audit Committee, a Compensation Committee, and a Nominating and Corporate Governance Committee. Each committee operates under a written charter approved by our Board that satisfies the applicable standards of the SEC and Nasdaq. The committee charters are available on our website at https://investors.fluidigm.com by clicking on Governance — Governance Overview.

The table below shows the members and chairs of each committee and the number of meetings held in 2021.

	Audit	Compensation	Nominating and Corporate Governance
Nicolas M. Barthelemy(1)	X(2)	C	
Gerhard F. Burbach	X	C(3)	X
Laura M. Clague	C(4)		
Bill W. Colston		X	
Carlos Paya			C
Ana K. Stankovic(5)	X(5)		X(5)
Meetings in 2021	7	9	8

C = Chair

(1) Mr. Barthelemy stepped down from our Board, including all committees, in April 2022.
(2) Mr. Barthelemy stepped down from our Audit Committee in July 2021.
(3) Mr. Burbach was appointed to replace Mr. Barthelemy as chair in April 2022.
(4) Board-designated "audit committee financial expert" under SEC rules.
(5) Dr. Stankovic was appointed to our Audit and Nominating and Corporate Governance Committees in February 2021. Dr. Stankovic stepped down from our Board, including all committees, in April 2022.

Audit Committee. Our Audit Committee is currently chaired by Laura M. Clague. Our Board has determined that each member of the Audit Committee is independent and financially literate under the current rules and regulations of the SEC and Nasdaq and that Ms. Clague qualifies as an "audit committee financial expert" within the meaning of the rules and regulations of the SEC.

The Audit Committee oversees our corporate accounting and financial reporting process and the financial and cybersecurity aspects of our enterprise risk management process, and assists our Board in monitoring our financial systems and our legal and regulatory compliance. Our Audit Committee is authorized to, among other things:

- oversee the work of our independent registered public accounting firm;
- approve the hiring, discharge, and compensation of our independent registered public accounting firm;
- approve engagements of our independent registered public accounting firm to render any audit or permissible non-audit services;
- evaluate the qualifications, independence, and performance of our independent registered public accounting firm;
- discuss and, as appropriate, review with management and our independent registered public accounting firm our annual and quarterly financial statements and our major critical accounting policies and practices;
- review management's assessment of our internal controls; and
- review the adequacy and effectiveness of our internal control policies and procedures.

Compensation Committee. Our Compensation Committee is currently chaired by Gerhard F. Burbach. Each member of the Compensation Committee is an independent director under the applicable rules and regulations of the SEC and Nasdaq. Furthermore, if required to ensure compliance with Rule 16b-3 under the Exchange Act, a subcommittee of the Compensation Committee or the Board considers and approves the grant of equity awards to our executive officers.

The Compensation Committee oversees our corporate compensation programs and is authorized to, among other things:

- review and approve, or make recommendations to the Board to approve, the compensation and benefits of our CEO and other executive officers;
- review and approve, or make recommendations to the Board to approve, our corporate goals and objectives relevant to the compensation of our CEO;
- provide oversight of the Company's overall compensation plans and benefits program; and
- administer our equity incentive plans.

Please see the sections entitled "*Executive Compensation*" and "*Compensation of Non-Employee Directors*" for a description of our processes and procedures for the consideration and determination of executive and director compensation.

Nominating and Corporate Governance Committee. Our Nominating and Corporate Governance Committee is currently chaired by Dr. Carlos Paya. Our Board has determined that each member of our Nominating and Corporate Governance Committee is an independent director under the applicable rules and regulations of the SEC and Nasdaq.

Our Nominating and Corporate Governance Committee oversees and assists our Board in reviewing and recommending nominees for election as directors and oversees our corporate governance matters. Among other things, the Nominating and Corporate Governance Committee is authorized to:

- evaluate and make recommendations regarding the composition, organization, and governance of the Board and its committees;
- evaluate the performance of members of the Board and make recommendations regarding committee and chair assignments;
- recommend desired qualifications for Board membership and conduct searches for potential members of the Board;
- oversee the orientation process for new directors and continuing director education;
- review and recommend Board compensation programs for outside directors;
- review and make recommendations concerning management succession planning; and
- develop and make recommendations with regard to our corporate governance guidelines.

The Nominating and Corporate Governance Committee also reviews our initiatives with respect to sustainability and corporate responsibility, including environmental and social matters.

Compensation Committee Interlocks and Insider Participation

None of the members of our Compensation Committee during our last fiscal year (which included Nicolas M. Barthelemy, Gerhard F. Burbach, and Bill W. Colston) was an officer or employee of our Company. During our last fiscal year, none of our executive officers served as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our Board or Compensation Committee.

Considerations in Identifying and Evaluating Director Nominees

Our Nominating and Corporate Governance Committee has established policies and procedures relating to the consideration of any individual recommended as a prospective director nominee from stockholders. Please see the section entitled "*Process for Recommending Candidates to the Board of Directors*" below for details. The Nominating and Corporate Governance Committee will consider candidates recommended by stockholders in the same manner as candidates recommended to the Committee from other sources.

The Nominating and Corporate Governance Committee is responsible for determining the criteria for membership to our Board and recommending candidates for election to the Board. In its evaluation of director candidates, including the members of the Board eligible for reelection, our Nominating and Corporate Governance Committee considers the following:

- the current size and composition of our Board and the needs of the Board and its respective committees;
- factors such as character, integrity, judgment, diversity of background (including gender, race, and ethnicity) and experience, independence, area of expertise, corporate experience, length of service, potential conflicts of interest, other commitments, and the like; and
- other factors that our Nominating and Corporate Governance Committee may consider appropriate.

Any nominee for a position on the Board must satisfy the following minimum qualifications:

- the highest personal and professional ethics and integrity;
- proven achievement and competence in the nominee's field and the ability to exercise sound business judgment;
- skills that are complementary to those of the existing Board;
- the ability to assist and support management and make significant contributions to the Company's success; and
- an understanding of the fiduciary responsibilities required of a member of the Board and the commitment of time and energy necessary to diligently carry out those responsibilities.

If our Nominating and Corporate Governance Committee determines that an additional or replacement director is required, the Nominating and Corporate Governance Committee may take such measures as it considers appropriate in connection with its evaluation of a director candidate, including candidate interviews, inquiry of the person or persons making the recommendation or nomination, engagement of an outside search firm to gather additional information, or reliance on the knowledge of the members of the Committee, Board, or management. We have from time to time retained a third-party search firm to assist with the identification and evaluation of qualified candidates to serve on the Board.

In addition, as discussed above, the holders of the Series B-1 Preferred Stock, voting as a separate class, are entitled to appoint the Series B-1 Preferred Director to the Board for so long as Casdin and its Permitted Transferees (as defined in the B-1 Certificate of Designations) continue to beneficially own shares of Series B-1 Preferred Stock that represent at least 7.5% of the outstanding shares of common stock, on an as converted basis and the holders of the Series B-2 Preferred Stock, voting as a separate class, are entitled to appoint the Series B-2 Preferred Director to the Board for so long as Viking and its Permitted Transferees (as defined in the B-2 Certificate of Designations) continue to beneficially own shares of Series B-2 Preferred Stock that represent at least 7.5% of the outstanding shares of common stock, on an as converted basis.

Board Diversity

Our director nominating policies include specific references to factors relating to diversity, such as diversity of gender, race and national origin, education, professional experience, and differences in viewpoints and skills. Our Nominating and Corporate Governance Committee believes that it is essential that the Board members represent diverse viewpoints and considers these factors in its deliberations over Board expansion and potential candidates.

Because we are a public company with our principal executive office located in the State of California, we may be required under California Senate Bill 826 adopted in 2018 ("SB 826") and the recently enacted California Assembly Bill 979 ("AB 979") to meet certain requirements with respect to the number of women and members of other underrepresented communities on our Board. As of the date of this proxy statement, we are out of compliance with SB 826, having only one of the required three female directors. We are currently in compliance with the requirements of AB 979 based on our current Board composition; however, we may be required under AB 979 to have two directors from designated underrepresented communities by the end of 2022. Our Nominating and Corporate Governance Committee is conducting an active search for additional women candidates to join the Board, in addition to prioritizing the selection of diverse directors who meet the requirements of AB 979.

Board Diversity Matrix (as of April 18, 2022)

Board Size				
Total Number of Directors		8		
Part I: Gender Identity	Male	Female	Non-Binary	Did Not Disclose Gender
Number of directors based on gender identity	7	1	—	—
Part II: Demographic Background				
African American or Black	—	—	—	—
Alaskan Native or Native American	—	—	—	—
Asian	—	—	—	—
Hispanic or Latinx	1	—	—	—
Native Hawaiian or Pacific Islander	—	—	—	—
White	6	1	—	—
Two or More Races or Ethnicities	—	—	—	—
LGBTQ+	—	—	—	—
Did Not Disclose Demographic Background	—	—	—	—

Process for Recommending Candidates to the Board of Directors

It is the policy of our Nominating and Corporate Governance Committee to consider recommendations for candidates to the Board from stockholders holding not less than one percent (1%) of the outstanding shares of our common stock continuously for at least twelve months prior to the date of submission of the recommendation or nomination. Stockholder recommendations for candidates to the Board must be directed in writing to Standard BioTools Inc., 2 Tower Place, Suite 2000, South San Francisco, California 94080, Attention: Corporate Secretary, and must include the candidate's name, home and business contact information, detailed biographical data, relevant qualifications, a signed letter from the candidate confirming willingness to serve, information regarding any relationships between the candidate and Standard BioTools, and evidence of the recommending stockholder's ownership of our stock. Such recommendations must also include a statement from the recommending stockholder in support of the candidate, particularly within the context of the criteria for Board membership, including issues of character, integrity, judgment, diversity of background and experience, independence, area of expertise, corporate experience, length of service, potential conflicts of interest, other commitments, and the like, and personal references. For details regarding the process to nominate a director directly for election to the Board at an annual meeting of the stockholders, please see item 26 of the *General Information* section entitled "*What is the deadline to propose actions for consideration at next year's annual meeting of stockholders or to nominate individuals to serve as directors? — Nomination of Director Candidates*."

Code of Ethics and Conduct

We are committed to the highest standards of integrity and ethics in the way we conduct our business. We have adopted a code of ethics and conduct that applies to the members of our Board, our officers and employees (including our CEO, Chief Financial Officer, and Principal Accounting Officer), as well as our agents, contractors, and consultants. Our code of ethics and conduct establishes our policies and expectations with respect to a wide range of business conduct, including preparation and maintenance of financial and accounting information, compliance with laws, and conflicts of interest.

Under our code of ethics and conduct, each of our directors, officers, and employees is required to report suspected or actual violations to the extent permitted by law. In addition, we have adopted separate procedures concerning the receipt and investigation of complaints relating to accounting or audit matters. These procedures have been adopted and are administered by our Audit Committee.

Our code of ethics and conduct can be found on our website at https://investors.fluidigm.com by clicking on Governance — Governance Overview. When required by the rules of the SEC or Nasdaq, we will disclose any future amendment to, or waiver of, any provision of the code of ethics and conduct for our CEO, Principal Financial Officer, Principal Accounting Officer, or any member of our Board on our website at https://investors.fluidigm.com in the Governance Overview section, within four business days following the date of such amendment or waiver.

Stockholder Engagement

We believe that understanding the perspective of our stockholders is a key component of good corporate governance and we are committed to an active and robust stockholder engagement program. The goals of our stockholder engagement program are to:

- provide transparency and visibility into our strategy, our financial and operational performance, and our governance practices;
- determine which issues are important to our stockholders and share our views on those issues; and
- discuss and seek feedback on our business, executive compensation, and corporate governance policies and practices.

We engage with stockholders year-round, involving our investor relations team, senior management, and our chairman or Board committee chairs as appropriate and/or requested. This includes participating in investor conferences, industry and formal events, in person one-on-one meetings, and conference calls throughout the year.

During 2020 and continuing into 2021, we solicited engagement with stockholders representing over 50 percent of our outstanding shares to request their feedback on our business strategy, company history, financial performance, governance, additions to the Board, and executive compensation programs. Members of our investor relations team and executive management have reached out to our largest active stockholders and spoken with those expressing concerns, with members of our Board joining certain discussions.

This dialogue has informed our Board's meeting agendas, and led to governance enhancements that help us address the issues that matter most to our stockholders. In response to investor feedback, we adopted changes in guidance and our guidance financial metrics, enhanced our executive compensation practices, and implemented new policies formalizing our commitment to sound corporate social responsibility practices.

Communications with the Board

We have a practice of regularly engaging with our stockholders to seek their feedback, as further described in the section titled "Stockholder Engagement" above. Stockholders who wish to communicate with our Board or with an individual member of our Board are welcome to do so either (i) in writing, addressed to: Standard BioTools Inc., 2 Tower Place, Suite 2000, South San Francisco, California 94080, Attn: Corporate Secretary, or (ii) by going online to https://investors.fluidigm.com and clicking on Governance — Contact the Board. Communications are distributed to our Board, or to any individual directors as appropriate, depending on the facts and circumstances outlined in the communication.

Corporate Responsibility and Sustainability

Our mission is to improve life through comprehensive health insight. Our cutting-edge biotechnology tools empower researchers to deepen human understanding of health and disease and accelerate the development of therapies to increase the quality of all life. Consistent with this mission, we strive to conduct our business in a manner that demonstrates our respect for the environment in which we live and operate and our concern for the health and safety of the personnel throughout our organization and supply chain.

In 2019, at the recommendation of our Nominating and Corporate Governance Committee, our Board adopted:

- an enterprise-level environment, health, and safety policy;
- a statement of commitment to doing business responsibly by aligning our strategies and global operations with the United Nations Global Compact principles on human rights, labor laws, environmental protection, and corruption in business;
- a supply chain transparency and anti-slavery statement; and
- a business partner code of conduct formally defining our expectations for our distributors, suppliers, vendors, contractors, agents, and all other third parties who provide products or services to us.

These policies and statements can be found on our website at https://investors.fluidigm.com/social-responsibility.

In 2021, we published our inaugural Environmental, Social, and Governance ("ESG") Report, which was prepared to highlight information regarding our ESG programs. The development of our environmental, health, safety, and social responsibility programs is ongoing. We will provide updates and additional information on our website as we move forward.

COMPENSATION OF NON-EMPLOYEE DIRECTORS

Compensation Policy

Non-employee directors receive an annual retainer for service on our Board and an annual retainer for service on committees of the Board as set forth below:

Annual cash retainer for each non-employee director	$	40,000
Annual cash retainer for each Audit Committee member	$	10,000
Annual cash retainer for each Compensation Committee member	$	7,000
Annual cash retainer for each Nominating and Corporate Governance Committee member	$	5,000
Annual cash retainer for each Strategic Transactions Committee member	$	10,000
Additional cash retainer for chairmanship of the Board	$	50,000
Additional cash retainer for chairing the Audit Committee	$	10,000
Additional cash retainer for chairing the Compensation Committee	$	8,000
Additional cash retainer for chairing the Nominating and Corporate Governance Committee	$	5,000

We have also adopted an outside director equity compensation policy (the "Compensation Policy") to formalize the granting of equity compensation to non-employee directors under our 2011 Equity Incentive Plan (the "2011 Plan"). As amended in March 2021, the Compensation Policy provides for automatic equity awards as set forth below:

		Grant Date Value:	
Type of Award	**Description**	**Restricted Stock Units (RSUs)**	**Stock Options**
Initial Awards	Granted to new non-employee directors upon initial election / appointment	$63,250	$63,250
Annual Awards	Granted to continuing non-employee directors on the date of each annual meeting of the Company's stockholders following election / appointment	$57,500	$57,500

Non-employee directors are eligible to receive all types of awards under the 2011 Plan except for incentive stock options, and may receive discretionary awards not covered by the Compensation Policy.

The exercise price of all stock options granted pursuant to the Compensation Policy will be 100% of the fair market value of our common stock on the date of grant and the term of all stock options will be ten years.

All awards granted to non-employee directors under the 2011 Plan are subject to vesting, conditioned upon the recipient's continued service on the Board through the applicable vesting date, as set forth below.

- Initial option awards and initial restricted stock unit ("RSU") awards vest in equal annual installments over four years.
- Annual option awards vest and become exercisable in 12 equal monthly installments.
- Annual RSU awards vest in full on the earlier to occur of (i) the first anniversary of the grant date and (ii) one day prior to the date of the Company's next annual meeting of stockholders.

Non-employee directors are permitted to defer the settlement of their vested RSU awards—including RSUs elected in lieu of cash retainers—until the earlier to occur of (i) a qualifying change in control and (ii) termination of service as a Board member.

The administrator of the 2011 Plan, in its discretion, may change or otherwise revise the terms of awards granted under the Compensation Policy.

In the event of a "change of control" as defined in the 2011 Plan, all unvested equity awards then held by non-employee directors will vest fully and become exercisable as to all shares thereunder regardless of performance goals, vesting criteria, or other conditions.

RSUs in Lieu of Cash and RSU Deferral

Non-employee directors have the option to elect to receive an RSU award in lieu of 100% of their annual cash retainers payable for services to be rendered as a non-employee director, chairperson of the Board, or chair or member of any Board

committee. RSUs elected in lieu of payments in cash vest quarterly but settlement of such RSUs can be deferred as described below.

Each non-employee director may elect to defer settlement of his or her RSU grants until the earlier of the termination of his or her service on our Board or a qualifying change in control.

Non-Employee Director Stock Ownership Guidelines

Our Board has approved stock ownership guidelines for our non-employee directors to further align their interests with the interests of our stockholders.

Pursuant to the guidelines, each non-employee director is expected to accumulate and hold a number of shares of our common stock equal to the lesser of (i) that number of shares with a value equal to three times his or her Board cash retainer or (ii) 19,540 shares, and to maintain this minimum amount of stock ownership during the director's tenure on the Board. For purposes of determining stock ownership pursuant to the guidelines, we include shares owned outright and vested in-the-money stock options, but do not include value or shares attributable to unvested time vesting restricted stock, unvested and/or out-of-the money stock options and/or unearned performance shares. Our non-employee directors are expected to achieve the applicable level of ownership by the end of the fiscal year that follows the five-year anniversary of the date he or she becomes covered by the guidelines.

Non-employee directors are not required to purchase shares on the open market in order to comply with the guidelines. In the event a non-employee director falls out of compliance with the guidelines at any time, he or she will be required to maintain 50% of the shares (net of tax and exercise costs) acquired through the vesting or exercise of awards until the guidelines are again satisfied. The guidelines include a once-met-always-met policy such that each non-employee director will be deemed to satisfy the guideline if they hold at least the number of shares that, as of the first measurement date they comply with the guidelines, was equal to the guideline value (i.e., following the initial compliance, the policy for each non-employee director will reset to the lesser of the guideline value or the number of shares that originally satisfied the guideline).

2021 Director Compensation

The following table sets forth information concerning compensation paid or accrued for services rendered to us by members of our Board for the year ended December 31, 2021. The table excludes Mr. Casdin, Dr. Egholm, Dr. Madaus, and Dr. Witney, who joined the Board in 2022, and Mr. Linthwaite, who was a named executive officer and did not receive any compensation from us in his role as a director in 2021.

	Fees Earned or Paid in Cash ($)	Stock Awards ($)[1]	Option Awards ($)[1]	Total ($)
Nicolas M. Barthelemy	70,834	57,502	57,501	185,837
Gerhard F. Burbach	72,000	57,502	57,501	187,003
Laura M. Clague	59,994[2]	57,502	57,501	174,997
Bill W. Colston	47,000	57,502	57,501	162,003
Carlos Paya	110,000	57,502	57,501	225,003
Ana K. Stankovic	55,000	57,502	57,501	170,003

(1) Amounts represent the aggregate grant date fair value of the option award and RSU awards, as applicable, calculated in accordance with Financial Accounting Standards Board ASC Topic 718, Stock Compensation, as amended, without regard to estimated forfeitures. See Note 13 of the notes to our audited consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2021 for a discussion of valuation assumptions made in determining the grant date fair value and compensation expense of our stock options and RSU awards.

(2) Amount reflects RSUs received in lieu of cash fees for 2021.

Director Equity Awards

The aggregate numbers of shares underlying stock options and RSUs outstanding at December 31, 2021 for each non-employee director were as follows:

	Aggregate Number of Shares Underlying Stock Options Outstanding as of December 31, 2021	Aggregate Number of Shares Underlying RSUs Outstanding as of December 31, 2021
Nicolas M. Barthelemy	76,791[2]	10,342[2]
Gerhard F. Burbach	128,791	44,544[1]
Laura M. Clague	58,191	47,501[1]
Bill W. Colston	45,119	12,674
Carlos Paya	76,791	10,342
Ana K. Stankovic	27,639[2]	16,508[2]

(1) Amount includes RSUs with respect to which settlement has been deferred.

(2) The outstanding Company equity awards held by Mr. Barthelemy and Dr. Stankovic vested in full as of April 4, 2022, in connection with their resignations from the Board.

PROPOSAL NUMBER 1

ELECTION OF CLASS III DIRECTORS

Board Structure

Our Board currently consists of eight directors, including two directors elected by the holders of Series B Preferred Stock. Six of the directors are distributed among three staggered classes (Classes I, II and III), of two directors each. At each annual meeting of stockholders, a class of directors is elected for a term of three years to succeed the class of directors whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held this year for the Class III directors, in 2023 for the Class I directors, and in 2024 for the Class II directors, or upon their earlier death, resignation or removal. One of our directors is elected to a one year term by the vote of the holders of a majority of the voting power of our Series B-1 Preferred Stock and one of our directors is elected to a one year term by the vote of the holders of a majority of the voting power of our Series B-2 Preferred Stock. The directors elected by the Series B-1 Preferred Stock and Series B-2 Preferred stock are not assigned to a class.

Nominees for Class III Directors (Term Expiring in 2025)

At the 2022 Annual Meeting, two Class III directors will be elected to the Board by the holders of our stock (including the Series B Preferred Stock, voting as a single class). Our Nominating and Corporate Governance Committee recommended, and our Board nominated, Laura M. Clague and Frank Witney, each a current Class III director, as nominees for reelection as Class III directors at the 2022 Annual Meeting and each has consented to being named in this Proxy Statement.

Ms. Clague and Dr. Witney have each agreed to serve if elected, and management has no reason to believe that they will be unavailable to serve. In the event a nominee is unable or declines to serve as a director at the time of the 2022 Annual Meeting, proxies will be voted for any nominee who may be proposed by the Nominating and Corporate Governance Committee and designated by the present Board to fill the vacancy.

Biographical Information Concerning the Class III Director Nominees

Laura M. Clague, age 63, has been a member of our Board since October 2018. Ms. Clague has served as the chief financial officer of Travere Therapeutics, Inc. since November 2014. Ms. Clague previously served as the chief financial officer of the San Diego and Ohio operations of Amylin Pharmaceuticals, Inc., a wholly owned subsidiary of Bristol-Myers Squibb. Prior to the acquisition by Bristol-Myers Squibb in 2012, Ms. Clague was the vice president, corporate controller and chief accounting officer of Amylin for 10 years, and during this time also served as the chief financial officer of the Amylin/Lilly Collaboration. From 1988 to 1999, Ms. Clague was the director of finance and accounting operations for Sony Electronics, Inc. From 1985 to 1988, Ms. Clague served as internal audit supervisor at Cubic Corporation. From 1982 to 1985, Ms. Clague held various audit positions at KPMG. Ms. Clague also serves on the board of directors of Genasys Inc. (formerly LRAD Corporation), where she chairs the audit committee. Ms. Clague is a certified public accountant in the State of California, and has a B.S. in Business Administration from Menlo College. We believe that Ms. Clague's extensive background in finance and accounting and her experience in the life sciences industry qualify her to serve on our Board.

Frank Witney, Ph.D., age 68, joined our Board in April 2022. Dr. Witney has served as an operating partner at Ampersand Capital Partners, a private equity firm, since September 2016. From July 2011 to March 2016, Dr. Witney served as president and chief executive officer of Affymetrix, Inc., a provider of life science products and molecular diagnostic products, until Affymetrix was acquired by Thermo Fisher Scientific Inc. From April 2009 to May 2011, Dr. Witney served as president and chief executive officer of Dionex Corporation, a provider of analytical instrumentation and related accessories and chemicals. From December 2008 to April 2009, Dr. Witney served as Affymetrix's executive vice president and chief commercial officer. From July 2002 to December 2008, Dr. Witney served as president and chief executive officer of Panomics Inc. Dr. Witney currently serves on the boards of directors of PerkinElmer Inc. (NYSE:PKI), CODEX DNA (Nasdaq:DNAY), Cerus Corporation (Nasdaq:CERS), Emulate, Inc., Leinco Technologies, Inc., and JumpCode Genomics, Inc. He has previously served on the boards of Gyros Protein Technologies, RareCyte Inc., GeneOptx, Canopy Bioscience, and Nexcelom Inc. Dr. Witney earned a B.S. in microbiology from the University of Illinois as well as a M.S. in microbiology and a Ph.D in molecular and cellular biology from Indiana University. We believe that Dr. Witney's experience in the life sciences industry and his relevant public board experience qualify him to serve on our Board.

Preferred Directors

In addition to the directors listed above, pursuant to the terms of the certificates of designations of our Series B-1 Preferred Stock and Series B-2 Preferred Stock, the holders of a majority of the Series B-1 Preferred Stock voting as a separate class and the holders of a majority of the Series B-2 Preferred Stock voting as a separate class have the right, subject to certain conditions, to each nominate for election and to elect one member to the Board at this Annual Meeting.

From and after April 4, 2022, for so long as Casdin and its Permitted Transferees (as defined in the B-1 Certificate of Designations) continue to beneficially own shares of Series B-1 Preferred Stock that represent at least 7.5% of the outstanding shares of common stock, on an as converted basis (the "Casdin Ownership Percentage"), on the terms and subject to the conditions set forth in the B-1 Certificate of Designations, the holders of a majority of the outstanding shares of Series B-1 Preferred Stock will have the right to nominate for election and to elect one member to the Board (the "Series B-1 Preferred Director"). Subject to applicable law and Nasdaq listing standards, the Series B-1 Preferred Director shall be offered the opportunity, with respect to each standing committee of the Board, to sit on such committee. Further, the Series B-1 Preferred Director will hold office until the following year's annual meeting of the Company's stockholders and until his or her successor is duly elected or qualified or until his or her earlier death, incapacity, resignation or removal. The Series B-1 Preferred Director is not classified with the remaining members of the Board.

From and after April 4, 2022, for so long as Viking and its Permitted Transferees (as defined in the B-2 Certificate of Designations) continue to beneficially own shares of Series B-2 Preferred Stock that represent at least 7.5% of the outstanding shares of common stock, on an as converted basis (the "Viking Ownership Percentage"), on the terms and subject to the conditions set forth in the B-2 Certificate of Designations, the holders of a majority of the outstanding shares of Series B-2 Preferred Stock will each have the right to nominate for election and to elect one member to the Board (the "Series B-2 Preferred Director" and together with the Series B-1 Preferred Director, the "Preferred Directors"). Subject to applicable law and Nasdaq listing standards, the Series B-2 Preferred Director shall be offered the opportunity, with respect to each standing committee of the Board, to sit on such committee. The Series B-2 Preferred Director will hold office until the following year's annual meeting of the Company's stockholders and until his or her successor is duly elected or qualified or until his or her earlier death, incapacity, resignation or removal. The Series B-2 Preferred Director is not classified with the remaining members of the Board.

For the election of the Preferred Directors, the Casdin Parties, as the holders of the Series B-1 Preferred Stock, voting as a separate class, are entitled to elect the Series B-1 Preferred Director and the Viking Parties, as the holders of the Series B-2 Preferred Stock, voting as a separate class, are entitled to elect the Series B-2 Preferred Director.

The Series B-1 Preferred Director nominee is expected to be Eli Casdin. Mr. Casdin is a current Board member who was designated by the Casdin Parties who are the holders of all of the outstanding shares of Series B-1 Preferred Stock. The holders of Series B-1 Preferred Stock will vote separately, as a class, on the election of the Series B-1 Preferred Director. The Series B-2 Preferred Director nominee is expected to be Dr. Martin Madaus. Dr. Madaus is a current Board member who was designated by the Viking Parties who are the holders of all of the outstanding shares of Series B-2 Preferred Stock. The holders of Series B-2 Preferred Stock will vote separately, as a class, on the election of the Series B-2 Preferred Director. The holders of common stock do not vote on these director nominees.

Eli Casdin, age 49, has served as a member of our Board on behalf of the holders of Series B-1 Preferred Stock since April 2022. Mr. Casdin currently serves as chief investment officer of Casdin Capital, an investment firm specializing in life sciences, which he founded in 2011. Prior to founding Casdin Capital, Mr. Casdin was a vice president at Alliance Bernstein's thematic investment arm from 2007 until 2011, focusing on new technologies for the life sciences and healthcare sectors. Mr. Casdin previously held positions at Bear Stearns, an investment bank and Cooper Hill Partners, a biotechnology-focused investment firm. Mr. Casdin also currently serves on the board of directors of SomaLogic, Inc. (Nasdaq: SLGC), Sema4 Holdings Corp. (Nasdaq: SMFR), Century Therapeutics, Inc. (Nasdaq: IPSC), Tenaya Therapeutics, Inc. (Nasdaq: TNYA), Absci Corporation (Nasdaq: ABSI), and EQRx, Inc. (Nasdaq: EQRX). Mr. Casdin has previously served on the board of directors of Exact Sciences Corporation and as a board observer for Invitae, 4D Molecular Therapeutics, Fulcrum Therapeutics, Tango Therapeutics, and Verve Therapeutics, and served as chief executive officer and director of CM Life Sciences, Inc., CM Life Sciences II, Inc., and CM Life Sciences III, Inc., until August 2021, September 2021, and December 2021, respectively. Mr. Casdin also currently serves on the boards of directors of a number of privately held life sciences companies, and currently serves as a director on the Columbia University School of General Studies board of visitors, the Rockefeller University board of directors, and the New York Genome Center board of directors. Mr. Casdin earned his B.S. from Columbia University and an M.B.A. from Columbia Business School. We believe that Mr. Casdin's extensive experience as both an investor and executive in the biopharmaceutical industry, as well as his extensive service on the boards of directors of numerous life sciences and biotechnology companies, provides him with the qualifications and skills necessary to serve on our Board.

Martin D. Madaus, Ph.D., age 62, has served as a member of our Board on behalf of the holders of the Series B-2 Preferred Stock since April 2022. Dr. Madaus has served as senior healthcare operating executive of The Carlyle Group, a multinational private equity, alternative asset management and financial services corporation, since February 2019. From June 2014 to February 2019, Dr. Madaus served as chairman and chief executive officer at Ortho-Clinical Diagnostics, Inc., a diagnostics company that makes products and diagnostic equipment for blood testing. Dr. Madaus previously served as chief executive officer of Quanterix Corporation, a life sciences company, from October 2011 to July 2012 and its President from June 2011 to July 2012. Previously, Dr. Madaus was the chairman, president and chief executive officer of Millipore Corporation (MIL), a

life sciences company serving the bioscience research and biopharmaceutical manufacturing industry, from January 2005 to July 2010, when Millipore was acquired by Merck KGaA. From July 2009 to May 2015, Dr. Madaus served as a member of the board of directors of Mettler Toledo International, a manufacturer of scales and analytical instruments. Dr. Madaus currently serves as a member of the boards of directors of Quanterix Corporation (Nasdaq: QTRX), Candela Corporation, Ultivue Inc., Emulate, Inc. and Unchained Labs. Dr. Madaus received a Doctor of Veterinary Medicine from the University of Munich in Germany and a Ph.D. in Veterinary Medicine from the Veterinary School of Hanover in Germany. Dr. Madaus's qualifications for service as a member of our board of directors include his extensive public and private company board experience and his substantial knowledge of and managerial experience in the diagnostics industry.

Required Vote

The Class III directors elected to the Board will be elected by a plurality of the voting power present in person or represented by proxy and entitled to vote on the election of directors. In other words, the two nominees receiving the highest number of "FOR" votes will be elected as the Class III directors. Abstentions and broker non-votes will not affect the outcome of the election of the Class III directors. Shares represented by executed proxies will be voted, if authority to do so is not expressly withheld (as indicated on the proxy card), for the election of Ms. Clague and Dr. Witney.

Recommendation

Our Board recommends a vote "FOR" the election to the Board of each of Laura M. Clague and Dr. Frank Witney as Class III directors.

Continuing Class I Directors (Term Expiring in 2023)

Bill W. Colston, Ph.D., age 54, has served as a member of our Board since July 2019. Dr. Colston founded a privately held company in the synthetic biology space, Sestina Bio, LLC, in early 2020 and currently serves as its chief executive officer. In 2018, Dr. Colston joined iCarbonX Inc. ("iCarbonX"), a privately held China-based company offering an artificial intelligence platform for health data, and served as its president and a member of its board of directors until March 2020. From 2011 to until its acquisition by iCarbonX in April 2018, Dr. Colston served as chief executive officer, co-founder, and a member of the board of directors of HealthTell Inc., a company focused on developing next generation tests that broadly characterize the immune system. From 2008 until 2012, Dr. Colston served as scientific founder, chief executive officer, and a member of the board of directors of QuantaLife Inc., a biotechnology startup company that developed a genetic analysis system and was acquired by Bio-Rad Laboratories, Inc. in 2011. From 1998 to 2008, Dr. Colston served in various senior leadership roles with Lawrence Livermore National Security Laboratory. In addition to his service on the iCarbonX board of directors, Dr. Colston currently serves on the boards of directors of RubrYc Therapeutics, Inc. and Purigen Biosystems, Inc., private companies in the fields of life sciences and biotechnology. A prolific scientific writer and inventor, he has authored numerous publications and patents. Dr. Colston received his B.A. in biology/biological sciences from the University of Texas at Austin in May 1989, and his Ph.D. in biomedical engineering from the University of California, Davis, in December 1997. We believe that Dr. Colston's scientific background and his extensive experience in the life sciences and biotechnology industries qualify him to serve on our Board.

Michael Egholm, Ph.D., age 59, joined the Company as President, Chief Executive Officer, and a member of our Board on April 4, 2022. Dr. Egholm previously served as chief executive officer of Standard BioTools, LLC after leaving Danaher Corporation, a global science and technology company, in September 2021. He previously served as the chief technology officer of Danaher Life Sciences, the life sciences arm of Danaher Corporation, from 2017 to September 2021. Prior to that, he served as president, biopharmaceuticals at Pall Corporation, a global supplier of filtration, separations and purification products, from 2014 to 2017 and as their chief technology officer from 2010 to 2014. Dr. Egholm has also served as a member of the board of directors of IsoPlexis Corporation, a publicly traded biopharmaceutical company, since 2018. Dr. Egholm is an elected member of the Royal Danish Academy of Sciences and Letters. Dr. Egholm completed his Ph.D. and Master's degree in Chemistry at the University of Copenhagen. We believe that Dr. Egholm's extensive industry experience with life sciences companies qualifies him to serve on our Board.

Continuing Class II Directors (Term Expiring in 2024)

Gerhard F. Burbach, age 60, has been a member of our Board since January 2013. Mr. Burbach currently serves as chairman of the board of directors of Procyrion Inc., a private medical device company focused on the treatment of chronic heart failure, and as a member of the boards of directors of Vascular Dynamics, a private medical device company focused on the treatment of hypertension, BWX Technologies, Inc. (NYSE: BWXT), a company that manufactures and supplies nuclear components and fuel, and Artelon, a private medical technology company focused on orthopedic soft tissue restoration. Mr. Burbach served on the board of directors of Autonomic Technologies, Inc., a private medical device company focused on the treatment of severe headaches, from December 2015 to April 2019, including service as chairman of the board beginning April

2016 and as interim chief executive officer and president from December 2015 to April 2016. From January 2006 to September 2014, Mr. Burbach served as president, chief executive officer, and director of Thoratec Corporation (Nasdaq: THOR), a company that develops, manufactures, and markets proprietary medical devices used for circulatory support. In addition, from 2004 to February 2013, Mr. Burbach served as a member of the board of directors of Digirad Corporation (Nasdaq: DRAD), a company focused on diagnostic imaging products. From April 2005 to January 2006, Mr. Burbach served as president and chief executive officer of Digirad Corporation. From July 2003 to April 2005, he served as president and chief executive officer of Bacchus Vascular, Inc., a developer of catheter-based medical devices. From January 2001 to July 2003, he served as chief executive officer of Philips Nuclear Medicine, a division of Philips Electronics, and before its acquisition by Philips, he worked for four years for ADAC Laboratories, most recently as president. Mr. Burbach also spent six years with the management consulting firm of McKinsey & Company, Inc., where he was most recently a senior engagement manager in the firm's healthcare practice. Mr. Burbach received a B.S. in Industrial Engineering from Stanford University in 1984 and an M.B.A. from Harvard Business School in 1990. We believe that Mr. Burbach's experience as a chief executive officer and director of other public life sciences companies qualifies him to serve on our Board.

Carlos Paya, M.D., Ph.D., age 63, has been a member of our Board since March 2017 and has served as the chairman of our Board since May 2020. Dr. Paya currently serves on the board of directors of Mallinckrodt plc (OTC: MNKKQ), a manufacturer of specialty pharmaceutical products, and as chairman of the board of Highlight Therapeutics S.L, a private, clinical-stage company dedicated to unlocking the full potential of immuno-oncology. From May 2011 to June 2019, Dr. Paya served as president, chief executive officer and director of Immune Design Corp. He previously served as president of Elan Corporation, a pharmaceutical corporation that was acquired by Perrigo Company, from November 2008 to April 2011. Before joining Elan Corporation, Dr. Paya was at Eli Lilly & Company, a pharmaceutical corporation, from September 2001 to November 2008 as vice president, Lilly Research Laboratories. From January 1991 to August 2001, Dr. Paya was professor of medicine, immunology, and pathology, and vice dean of the clinical investigation program at the Mayo Clinic in Rochester, Minnesota. He received his M.D. and Ph.D. degrees from the University of Madrid and underwent postdoctoral training at the Institute Pasteur, Paris, France. We believe that Dr. Paya's experience in the life sciences industry gives him the qualifications and skills to serve on our Board.

PROPOSAL NUMBER 2

ADVISORY VOTE ON EXECUTIVE COMPENSATION

At our 2017 annual meeting of stockholders, our Board recommended and our stockholders approved holding an advisory vote on the compensation of our named executive officers every year; we believe an annual vote allows for a meaningful evaluation period of performance against our compensation practices. Accordingly, as required by Section 14A of the Exchange Act, we are asking our stockholders to cast an advisory vote to approve the compensation of our named executive officers as described in this proxy statement.

We encourage you to read our Compensation Discussion and Analysis beginning on page 27, which describes in more detail how our executive compensation program operates and is designed to achieve our goals, as well as the compensation tables and narrative beginning on page 41, which provide detailed information on the compensation of our named executive officers.

Compensation Program and Philosophy

The primary goals of our executive compensation program are to hire and retain talented and experienced executive officers who are motivated to achieve or exceed our short-term and long-term corporate goals. Our compensation philosophy is team-oriented and our success is dependent on what our management team can accomplish together. Therefore, we seek to provide our non-CEO executive officers with comparable levels of base salary, bonuses, and annual equity awards that are based largely on overall company performance.

In determining the form and amount of compensation payable to our executive officers, we are guided by the following objectives and principles:

- Team-oriented approach to establishing compensation levels;
- Compensation should relate to performance;
- Equity awards help executive officers think like stockholders; and
- Total compensation opportunities should be competitive.

Our Board believes that our current executive compensation program has been effective at linking executive compensation to our performance and aligning the interests of our executive officers with those of our stockholders. We are asking our stockholders to indicate their support for the compensation of our named executive officers as described in this proxy statement by voting in favor of the following resolution:

"RESOLVED, that the stockholders approve, on an advisory basis in a non-binding vote, the compensation of Standard BioTools Inc. named executive officers as disclosed pursuant to Item 402 of Securities and Exchange Commission Regulation S-K, including the Compensation Discussion and Analysis, the compensation tables, and narrative disclosures set forth in the proxy statement relating to Standard BioTools's 2022 Annual Meeting of Stockholders."

Required Vote

The affirmative "FOR" vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal is required to approve, on an advisory basis, the compensation awarded to named executive officers for the year ended December 31, 2021. You may vote "FOR," "AGAINST," or "ABSTAIN" on this proposal. Abstentions have the same effect as a vote against the proposal. Broker non-votes are not included in the tabulation of voting results on this proposal, and will not affect the outcome of voting on this proposal.

Although this say-on-pay vote is advisory and, therefore, will not be binding on us, our Compensation Committee and our Board value the opinions of our stockholders. Accordingly, to the extent there is a significant vote against the compensation of our named executive officers, we will consider our stockholders' concerns, and the Compensation Committee will evaluate what actions may be necessary or appropriate to address those concerns.

Recommendation

Our Board recommends a vote "FOR" the approval, on an advisory basis, of the compensation of our named executive officers as disclosed in this proxy statement.

PROPOSAL NUMBER 3

RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Our Audit Committee has appointed PricewaterhouseCoopers LLP ("PwC") to audit the financial statements of our Company for the fiscal year ending December 31, 2022 and recommends that stockholders vote in favor of the ratification of such appointment. During 2021, PwC served as our registered independent public accounting firm.

At the Annual Meeting, stockholders are being asked to ratify the appointment of PwC as our independent registered public accounting firm for our fiscal year ending December 31, 2022. Stockholder ratification of the appointment of PwC is not required by our bylaws or other applicable legal requirements. However, our Board is submitting the appointment of PwC to our stockholders for ratification as a matter of good corporate governance. In the event that this appointment is not ratified by the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the Annual Meeting and entitled to vote, such appointment will be reconsidered by our Audit Committee. Even if the appointment is ratified, our Audit Committee, in its sole discretion, may appoint another independent registered public accounting firm at any time during our fiscal year ending December 31, 2022 if our Audit Committee believes that such a change would be in the best interests of the Company and its stockholders. A representative of PwC is expected to be present at the Annual Meeting, will have an opportunity to make a statement if he or she wishes to do so, and is expected to be available to respond to appropriate questions from stockholders.

Required Vote

Ratification of the appointment of PwC as our independent registered public accounting firm for the year ending December 31, 2022 requires the affirmative "FOR" vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal. You may vote "FOR," "AGAINST," or "ABSTAIN" on this proposal. Abstentions are deemed to be votes cast and have the same effect as a vote against the proposal. Broker non-votes are not deemed to be votes cast, are not included in the tabulation of voting results on this proposal, and will not affect the outcome of voting on this proposal.

Recommendation

Our Board recommends a vote "FOR" the ratification of the appointment of PwC as our independent registered public accounting firm for the year ending December 31, 2022.

Principal Accounting Fees and Services

The following table sets forth the aggregate fees for audit services provided by PwC for the years ended December 31, 2021 and December 31, 2020:

	2021	2020
Audit fees[(1)]	$ 1,681,000	$1,794,045
Audit-related fees[(2)]	7,500	150,000
Tax fees[(3)]	9,843	33,429
All other fees[(4)]	4,500	290,044
Total fees	$ 1,702,843	$2,267,518

(1) Audit fees for 2021 consist of fees billed or to be billed by PwC for professional services rendered for the integrated audit of our annual consolidated financial statements and management's report on internal controls included in our Annual Report on Form 10-K; for the review of the consolidated financial statements included in our quarterly reports on Form 10-Q; and for other services, including statutory audits and services rendered in connection with SEC filings.

(2) Audit-related fees consist of fees for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported under "Audit Fees." These services include consultations concerning financial accounting and reporting standards.

(3) Tax fees consist of fees for tax compliance, advice, and planning services.

(4) All other fees consist of amounts billed by PwC for professional services other than the services reported above. These include fees associated with permissible consulting services and a license fee that enables the company to utilize PwC's specialized accounting research software.

Policy on Audit Committee Pre-Approval of Services Performed by Independent Registered Public Accounting Firm

Consistent with the requirements of the SEC and the Public Company Accounting Oversight Board (PCAOB) regarding auditor independence, our Audit Committee has responsibility for appointing, setting compensation, and overseeing the work of our independent registered public accounting firm. In recognition of this responsibility, our Audit Committee has established a policy for the pre-approval of all audit and permissible non-audit services provided by the independent registered public accounting firm. These services may include audit services, audit-related services, tax services, and other services. The Audit Committee generally pre-approves particular services or categories of services on a case-by-case basis. The independent registered public accounting firm and management are required to periodically report to the Audit Committee regarding the extent of services provided by the independent registered public accounting firm in accordance with these pre-approvals, and the fees for the services performed to date.

All of the services of PwC for 2020 and 2021 described above were pre-approved by the Audit Committee.

Report of the Audit Committee

The Audit Committee assists the Board in fulfilling its oversight responsibility over the Company's financial reporting process. It is not the duty of the Audit Committee to plan or conduct audits, to prepare the Company's financial statements, or to assess the Company's internal control over financial reporting. Management has the primary responsibility for preparing the financial statements and assuring their accuracy, effectiveness, and completeness. Management is also responsible for the reporting process, including the system of internal controls. The independent registered public accounting firm is responsible for auditing the Company's financial statements and internal control over financial reporting and expressing its opinion as to whether the statements present fairly, in accordance with accounting principles generally accepted in the United States, the Company's financial condition, results of operations, and cash flows. However, the Audit Committee reviews and discusses the financial statements with management and the independent registered public accounting firm prior to the presentation of financial statements to our stockholders and, as appropriate, initiates inquiries into various aspects of the Company's financial affairs.

Unless the Audit Committee has reason to question its reliance on management or the independent registered public accounting firm, the members of the Audit Committee necessarily rely on information provided to them by and on the representations made by management and the independent registered public accounting firm. Accordingly, the Audit Committee's oversight does not provide an independent basis to determine that management has applied appropriate accounting and financial reporting principles. Furthermore, the Audit Committee's authority and oversight responsibilities do not independently assure that the audits of the Company's financial statements have been carried out in accordance with the standards of the PCAOB or that the financial statements are presented in accordance with accounting principles generally accepted in the United States.

In this context, the Audit Committee has met and held discussions with management and the independent registered public accounting firm to review the Company's audited 2021 consolidated financial statements (including the quality of the Company's accounting principles). Management represented to the Audit Committee that the Company's consolidated financial statements were prepared in accordance with accounting principles generally accepted in the United States, and the Audit Committee consulted with management and the independent registered public accounting firm prior to approving the presentation of the audited 2021 consolidated financial statements to stockholders. The Audit Committee discussed with the independent registered public accounting firm the matters required to be discussed by Statement on Auditing Standards No. 1301, *Communications with Audit Committees*, as adopted by the PCAOB.

The Audit Committee has discussed with the independent accountant the independent accountant's independence from the Company and its management. As part of that review, the Audit Committee received the written disclosures and letter required by the applicable requirements of the PCAOB regarding the independent accountant's communications with the Audit Committee concerning independence. Based on the reviews and discussions referred to above, the Audit Committee recommended to the Board, and the Board approved, the Company's audited consolidated financial statements for the year ended December 31, 2021 for filing with the SEC as part of the Company's Annual Report on Form 10-K. The Audit Committee has appointed PricewaterhouseCoopers LLP as the Company's independent registered public accounting firm for the year ending December 31, 2022.

The Audit Committee

Laura M. Clague (Chair)
Gerhard F. Burbach
Martin Madaus

The Audit Committee Report does not constitute soliciting material, and shall not be deemed to be filed or incorporated by reference into any other filing by the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent the Company specifically incorporates the Audit Committee Report by reference therein.

EXECUTIVE OFFICERS

The names of our executive officers, their ages, their positions with Standard BioTools and other biographical information as of April 18, 2022 are set forth below. There are no family relationships among any of our directors or executive officers.

Name	Age	Position
Michael Egholm	59	Chief Executive Officer, President, and Director
Vikram Jog	65	Chief Financial Officer
Jeremy Davis	51	Senior Vice President, Chief Commercial Officer
Nicholas Khadder	48	Senior Vice President, General Counsel, and Secretary
Hanjoon Alex Kim	51	Chief Operating Officer
Bradley Kreger	47	Senior Vice President, Global Operations

Michael Egholm. Please see the biographical information provided above in the section entitled "Continuing Class I Directors (Term Expiring in 2023)."

Vikram Jog has served as our Chief Financial Officer since February 2008. From April 2005 to February 2008, Mr. Jog served as chief financial officer for XDx, Inc. (now CareDx, Inc.), a molecular diagnostics company. From March 2003 to April 2005, Mr. Jog was a vice president of Applera Corporation, a life science company that is now part of Thermo Fisher Scientific, and vice president of finance for its related businesses Celera Genomics and Celera Diagnostics. From April 2001 to March 2003, Mr. Jog was vice president of finance for Celera Diagnostics and corporate controller of Applera Corporation. Mr. Jog received a Bachelor of Commerce degree from Delhi University and an M.B.A. from Temple University. Mr. Jog is a member of the American Institute of Certified Public Accountants.

Jeremy Davis joined the Company as Senior Vice President, Chief Commercial Officer on April 4, 2022. Prior to joining the Company, Mr. Davis served as the chief commercial officer of Standard BioTools, LLC, a life science tools company, since January 2022. Previously, he served as president – OEM channel of Culligan International, a water filtration manufacturing and service company, from May 2019 to August 2021. From May 2017 to June 2018, Mr. Davis served as chief executive officer of Consolidated Glass Holdings, an architectural and security glass fabrication company. From April 2014 to May 2017, Mr. Davis served as president – SenDx Medical at Danaher Corporation. Mr. Davis received a B.S. in Chemical Engineering from the University of Oklahoma and an M.B.A. from Case Western Reserve University.

Nicholas Khadder has served as our Senior Vice President, General Counsel, and Corporate Secretary, most recently since April 2020, and, previously, from June 2016 to March 2020. From 2010 to June 2016, Mr. Khadder held various positions at Amyris, Inc., an industrial biotechnology company, including senior vice president, general counsel and corporate secretary from 2013 to June 2016, interim general counsel from July 2013 to December 2013 and assistant general counsel from October 2010 to July 2013. Prior to joining Amyris, Mr. Khadder served in senior corporate counsel roles at LeapFrog Enterprises, Inc., an educational entertainment company, from August 2008 to September 2010, and at Protiviti, Inc., an internal audit and risk consulting firm, from June 2005 to July 2008. Before commencing his in-house legal career, Mr. Khadder was a corporate law associate at Fenwick & West LLP from 1998 to 2005. Mr. Khadder received a J.D. from Berkeley Law (the University of California, Berkeley, School of Law) and a B.A. in English from the University of California, Berkeley.

Hanjoon Alex Kim joined the Company as Chief Operating Officer on April 4, 2022. Prior to joining the Company, Mr. Kim served as the chief business officer of Standard BioTools, LLC, a life science tools company, since October 2021. Previously, he served in various roles at Milliken & Company ("Milliken") from October 2015 to May 2021, including executive vice president and president of the Healthcare Division of Milliken from June 2019 to May 2021, executive vice president of the Growth Ventures Group from April 2017 to June 2019, and as executive vice president of corporate strategy and corporate development from October 2015 to June 2019. Prior to that, Mr. Kim served in various leadership roles at the Pall Corporation, the Water Quality Group, and the Motion Group at the Danaher Corporation. Mr. Kim received an M.B.A. from the Stanford Graduate School of Business, an M.S. in Mechanical Engineering from the University of Pittsburgh, and a B.S. in Mechanical Engineering from Carnegie Mellon University.

Bradley Kreger joined the Company as Senior Vice President, Global Operations in April 2018. From December 2016 to April 2018, Mr. Kreger was senior director, operations, clinical sequencing division at Thermo Fisher Scientific, a life sciences company. From 1995 to December 2016, Mr. Kreger held various staff and management positions at Affymetrix, a biotechnology company, including vice president, reagent manufacturing and global process engineering, senior director, global process engineering and manufacturing science, and director, global process engineering and manufacturing science. Mr. Kreger received an M.B.A. from Western Governors University and a B.S. in Biotechnology and Business from Charter Oak State College.

COMPENSATION DISCUSSION AND ANALYSIS

The following discussion and analysis of compensation arrangements of our named executive officers should be read together with the compensation tables and related disclosures set forth below.

Introduction

In this Compensation Discussion and Analysis, we provide the following:

Named Executive Officers

This Compensation Discussion and Analysis describes the material elements of compensation awarded to, earned by, or paid to our executive officers, including our named executive officers ("NEOs"), during 2021. Our NEOs for 2021 were:

Vikram Jog	Chief Financial Officer
Nicholas Khadder	Senior Vice President, General Counsel, and Secretary
Bradley Kreger	Senior Vice President, Global Operations
Stephen Christopher Linthwaite	Former President and CEO
Colin McCracken	Former Chief Commercial Officer

Management Changes in 2022

In January 2022, we entered into an offer letter with Dr. Egholm pursuant to which he was appointed Chief Executive Officer of the Company (the "Egholm Letter") and an offer letter with Mr. Kim pursuant to which he was appointed Chief Operating Officer of the Company (the "Kim Letter), in each case, effective April 4, 2022. In addition, Jeremy Davis was appointed Senior Vice President and Chief Commercial Officer of the Company effective April 4, 2022.

Pursuant to a transition agreement and release entered into with the Company (the "Transition Agreement"), Mr. Linthwaite resigned from his position as President and Chief Executive Officer, effective April 4, 2022, but will continue as a consultant to the Company through November 30, 2022, pursuant to the terms of a consulting agreement entered into with the Company, effective as of April 4, 2022 (the "Consulting Agreement").

In March 2022, Mr. McCracken notified the Company of his intention to resign effective June 12, 2022. Mr. McCracken is assisting with the Company's transition plan with respect to his role and responsibilities and will continue with the Company as an employee in a non-executive capacity through his separation date.

Additional details regarding the Egholm Letter, Kim Letter, and Transition Agreement and Consulting Agreement are included in the "2022 Management Agreements" section below.

Executive Summary

Company Overview

Standard BioTools Inc. (Nasdaq: LAB), previously known as Fluidigm Corporation, is driven by a bold purpose — unleashing tools to accelerate breakthroughs in human health. Standard BioTools has an established portfolio of essential, standardized next-generation technologies that help biomedical researchers develop medicines faster and better. As a leading solutions provider, the Company provides reliable and repeatable insights in health and disease using its proprietary mass cytometry and microfluidics technologies, which 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.

2021 Business and Performance Highlights

- Launched CyTOF® XT, designed to simplify the design and execution of deep cell profiling studies, standardize sample analysis with reproducible workflows and automation and accelerate novel therapeutic development to improve human health.
- Launched Biomark™ X, the latest generation of its industry-leading Biomark instrument, adding an expansive set of sample-to-answer capabilities on a single versatile, scalable and transformative genomics platform with pre-orders of the new instrument taken in the fourth quarter of 2021.
- Continued development of the Hyperion+™ Imaging System, which was launched at the American Association for Cancer Research Annual Meeting in April 2022. The Hyperion™+ provides researchers with a deep understanding of disease and response to treatment, with the ability to stratify subjects by linking high-plex data to outcomes in clinical studies.
- Continued responding to the SARS-CoV-2 ("COVID-19") pandemic by taking steps to protect our employees, support our customers, and manage our liquidity through programs funded by the US government.
- Continued revenue growth in base business (excluding COVID-19 related revenue) in 2021 despite headwinds from the COVID-19 pandemic: Annual revenue of $130.6 million in 2021 declined 5 percent from $138.1 million in 2020. Base product and service revenue increased 12 percent to $112.4 million, compared with $100.1 million for 2020.
- Developed COVID-19 related applications to address COVID-19 pandemic testing needs with microfluidics as well as in immune profiling of patients and populations with mass cytometry.
    - After receiving Emergency Use Authorization ("EUA") from the U.S. Food and Drug Administration ("FDA") for our Advanta™ Dx SARS-CoV-2 RT-PCR Assay in August 2020, in January 2021, we received the CE-IVD mark for our saliva-based Advanta Dx SARS-CoV-2 Assay allowing for commercial sales of this CE-IVD commercial kit in Europe.
    - Announced in December 2021 that the Advanta Dx SARS-CoV-2 RT-PCR assay on the Company's Biomark platform detects the Omicron variant of COVID-19.
    - Mass cytometry products were utilized for government sponsored national COVID-19 immune profiling studies in the United States and Europe as well as publications and reviews.
- Successfully completed all milestones related to our contract with the National Institutes of Health ("NIH") for a project under the NIH Rapid Acceleration of Diagnostics ("RADx") program, and received the total contract value of $34 million.
- Completed development of a new microfluidics instrument for our OEM partner, Olink Holding AB, which successfully launched in 2021.

Executive Compensation Highlights

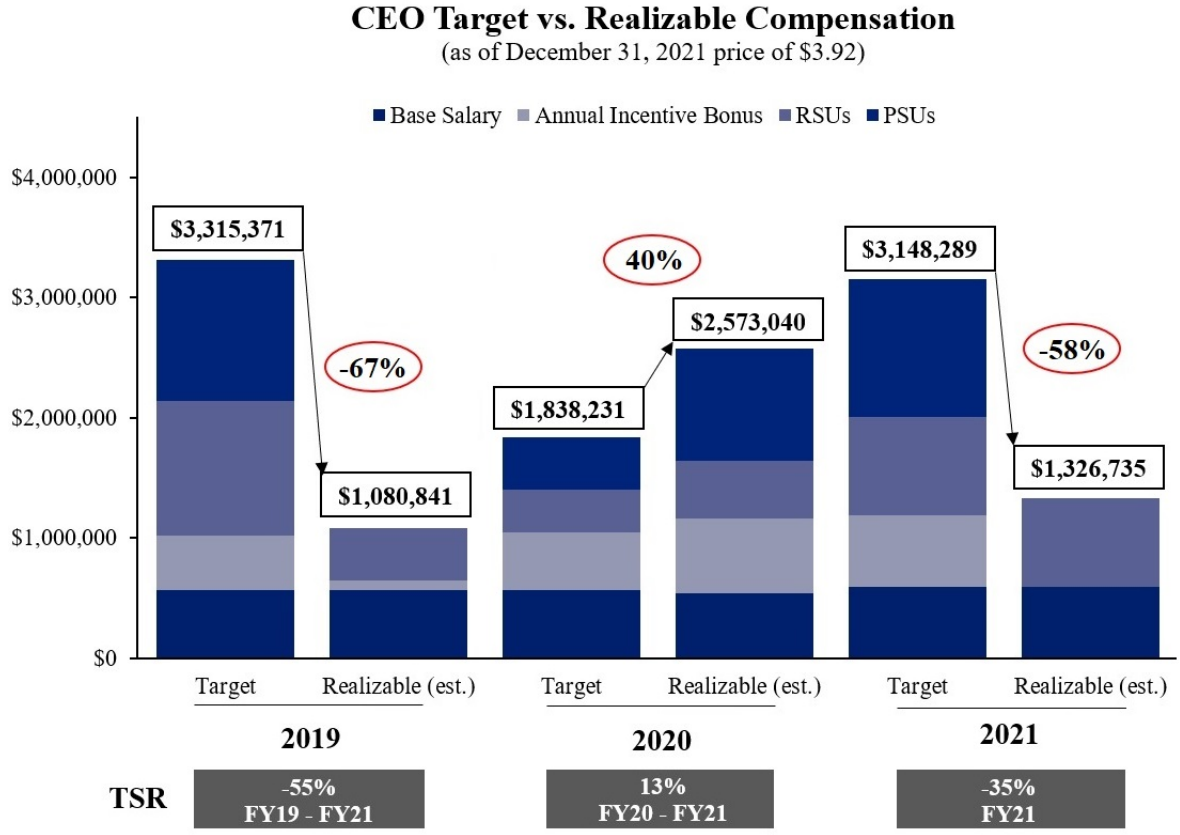
In 2021, the Compensation Committee took the following actions to align executive compensation with Company performance and the short- and long-term interests of stockholders:

- Granted performance-based restricted stock unit awards ("PSUs") contingent upon total stockholder return ("TSR") over a three-year performance period relative to the companies in the Russell 3000 Index (the "Russell 3000").
- Weighted the PSU component of the annual long-term incentive compensation ("LTI") grants at 51%, with the remaining 49% of annual LTI granted in time-based RSUs.
- Determined that all of the PSU awards granted in 2019 were forfeited based on the Company's cumulative three-year TSR for the performance period beginning January 1, 2019 and ending December 31, 2021.
- Established the 2021 annual executive cash incentive program pursuant to our Executive Bonus Plan (the "2021 Cash Incentive Program"), which measured annual performance based on predefined financial and strategic goals with potential adjustments based on each executive's individual strategic goals and contributions.
- Set rigorous goals related to revenue under the 2021 Cash Incentive Program, which revenue goals were not achieved for fiscal year 2021. Because the threshold goal was not achieved, no bonuses were paid under our 2021 Cash Incentive Program.

Company Performance and Pay Alignment

The structure of the Company's compensation program coupled with the Compensation Committee's processes and decision-making ensure a strong tie between Company performance and executive pay. This is especially illustrated by the compensation outcomes for the Company's executive officers over the last several years. Changes in stock price and performance over the vesting or performance period of LTI cause the value ultimately received by the executive to differ from the target grant value. The measurement of realizable pay includes such changes when comparing pay received, or trending to be received, to the target pay granted.

The following chart illustrates the degree to which our CEO's realizable pay has been impacted by changes in the stock price and Company performance after the grant date, illustrating the significant alignment of our executive compensation program with TSR.



Notes:

- Target pay is defined as the sum of base salary, target bonus opportunity, and the grant date value of the annual LTI program granted during the respective year (i.e., the closing price of our common stock on the date of grant for RSUs and PSUs).
- Realizable pay is defined as the sum of base salary, actual bonus earned, RSUs granted in the respective year, and PSUs granted in the respective year at actual or current projected payout levels (as of Q4 2021, 2019 cycle earned at 0%, 2020 cycle at 157%, and 2021 cycle at 0% of target). LTI values calculated using the Company's closing stock price of $3.92 as of December 31, 2021.
- 2020 pay excludes supplemental retention RSUs granted in May 2020.

2021 Advisory Vote on Executive Compensation

Our Board has adopted the recommendation of our stockholders to hold annual advisory votes on the compensation of our NEOs, or "say-on-pay" votes. At our 2021 annual meeting of stockholders, approximately 97.3% of the stockholder votes cast were in favor of our 2020 executive compensation program, representing the third straight year of consecutive improvement in the results of our annual say-on-pay vote. Our 2021 compensation program continues the stockholder alignment measures implemented in 2020 and prior years in response to stockholder feedback, and we believe the results of last year's say-on-pay vote reflect stockholders' approval of these measures. We continue to seek active engagement with stockholders on our

executive compensation program and remain committed to employing compensation governance best practices and achieving pay-for-performance alignment.

Listening to Our Stockholders

Our management team and Board members regularly engage with stockholders to learn their views on important issues such as corporate governance and executive compensation. In advance of our 2021 annual meeting of stockholders, as in prior years, members of our management team extended invitations to discuss our proxy statement—including the compensation discussion and analysis and our executive compensation program—to institutional stockholders representing a significant percentage of our outstanding shares. The purpose of these discussions is to gain insight and perspective into our executive compensation programs and policies as disclosed in our proxy statement.

Based on the feedback received from stockholders during our engagement efforts, the Compensation Committee has made significant changes to our executive compensation program and we have enhanced our disclosures to provide a better picture of our current program.

Compensation Component	Our Prior Practice	Investor Feedback	What We Did in Response to Investor Feedback
Type of Equity Awards	Our equity awards granted to our executive officers were predominantly time-based.	Equity awards should include a meaningful amount of performance-based awards in addition to time-based awards.	In 2020, we increased the portion of annual long-term compensation in PSUs to 55% of total LTI (from 51% in 2019, 25% in 2018, and 0% in 2017).
Clawback Policy	We had not adopted a clawback policy prior to 2018.	Incentive compensation should be subject to a clawback.	In 2018, we adopted a clawback policy that is applicable to our CEO and all officers who report directly to the CEO, including our NEOs.
Stock Ownership Guidelines	Prior to 2018, we had not adopted stock ownership guidelines.	Executive officers and non-employee members of the Board should be subject to stock ownership guidelines.	In 2018, we adopted stock ownership guidelines for our CEO, our other senior executive officers, and the non-employee members of the Board. We review these guidelines annually.

Executive Compensation Governance Highlights

We believe that the following executive compensation-related practices, which were in effect during 2021, serve our stockholders' long-term interests:

What we do

- *Maintain an executive compensation program designed to align pay with performance*
- *Balance near- and long-term strategic objectives by providing a mix of cash and equity incentives*
- *Deliver the majority of compensation in the form of at-risk, variable pay*
- *Grant performance-based equity awards—more than half of the equity awards granted to our NEOs under our annual LTI program in 2021 are subject to performance conditions over a 3-year period*
- *Benchmark compensation levels against a peer group of companies operating in similar industries and of a similar size and business complexity*
- *Reference the market median when reviewing compensation for our executive officers*
- *Maintain stock ownership guidelines for our executive officers and directors*
- *Maintain an incentive compensation clawback policy*
- *Prohibit hedging and pledging of our common stock by our directors, officers, and others with access to material nonpublic information*
- *Conduct an annual assessment to identify and mitigate risk in compensation programs*
- *Hold an annual stockholder advisory vote*
- *Welcome and initiate direct engagement with stockholders*
- *Align compensation with the interests of stockholders*
- *Engage an independent consultant to advise on executive pay matters*
- *Maintain an all-independent Compensation Committee that meets in executive session without members of management present*

What we don't do

- *Make mid-cycle adjustments to long-term performance criteria*
- *Allow excessive severance benefits or single trigger change in control payments*
- *Offer tax gross-ups to any of our executive officers*
- *Pay dividends on unvested equity awards*
- *Offer supplemental executive retirement plans*
- *Guarantee salary increases or bonuses for our executive officers*
- *Provide uncapped award opportunities*
- *Encourage excessive risk taking in our incentive plan designs*

Compensation Philosophy and Objectives

The Compensation Committee is responsible for establishing, implementing, and monitoring our compensation philosophy. The Compensation Committee seeks to ensure that the total compensation paid to our executive officers is fair and reasonable.

The primary goal of our executive compensation program is to ensure that we attract, hire, and retain talented and experienced executive officers who are motivated to achieve or exceed our corporate goals. We seek to have an executive compensation program that fosters synergy among our management team, incentivizes our executive officers to achieve our short-term and long-term goals, and fairly rewards our executive officers for corporate and individual performance. In determining the form and amount of compensation payable to our executive officers, we are guided by the following objectives and principles:

• ***Team-oriented approach to establishing compensation levels.***	We believe that it is critical that our executive officers work together as a team to achieve overall corporate goals rather than focusing exclusively on individual departmental objectives.
• ***Compensation should relate to performance.***	We believe that executive compensation should be directly linked to corporate as well as individual performance, with an emphasis on performance-based compensation.
• ***Equity awards help executive officers think like stockholders.***	We believe that our executive officers' total compensation should have a significant equity component because stock-based awards help reinforce the executive officers' long-term interest in our overall performance and align the interests of our executive officers with the interests of our stockholders.
• ***Total compensation opportunities should be competitive.***	We believe that our total compensation programs should be competitive so that we can attract, retain, and motivate talented executive officers who will help us to perform better than our competitors.

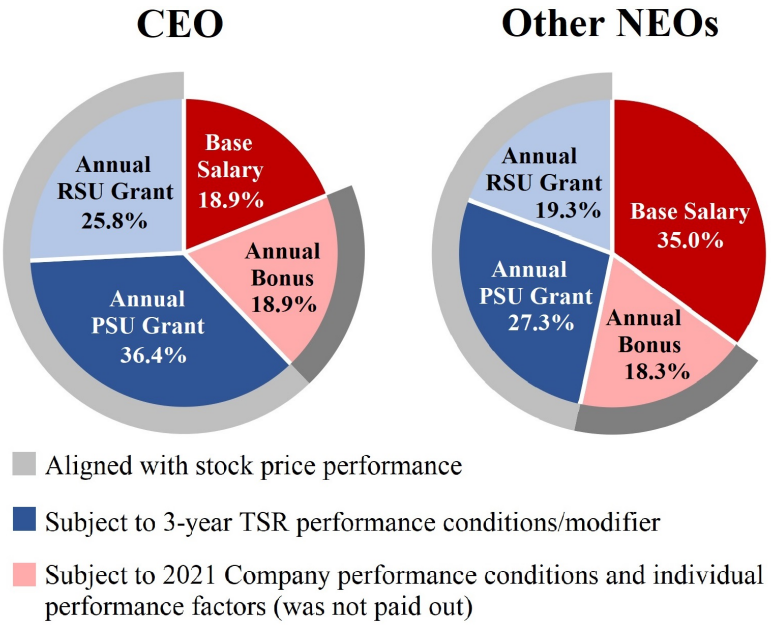
We consider total cash and equity compensation for our executive officers, consisting of base salary, cash incentive bonuses, and equity awards, at approximately the 50th percentile of our peer group as a general guideline for the appropriate level of total cash and equity compensation. An individual executive may be compensated above or below the guideline percentage based on factors such as performance, job criticality, experience, skill set, direct retention concerns, and the constant fluctuation of the peer market. For 2021, we considered equity incentives for our executive officers at approximately the 50th percentile of our peer group as a general guideline for the appropriate level of equity compensation, but we did not attempt to benchmark equity compensation to any specific percentile. For new executive officer hires, we establish initial cash and equity compensation through arm's length negotiation at the time we hire the individual executive officer, taking into account his or her position, qualifications, experience, prior salary level, the compensation of our other executive officers, and the most recent compensation survey of our peer group.

Our Compensation Committee has not adopted any formal or informal policies or guidelines for allocating compensation between cash and non-cash compensation, among different forms of non-cash compensation, or with respect to long-term and short-term performance. The determination of our Compensation Committee as to the appropriate use and weight of each component of executive compensation is subjective, based on its views of the relative importance of each component in meeting our overall objectives and factors relevant to the executive officer.

Pay and Performance Alignment in Our Target Compensation Mix

The Compensation Committee believes in a pay-for-performance compensation philosophy and intends to deliver a majority of target total executive pay opportunities through the annual cash incentive program and LTI. The charts below compare the percentage breakdown of target total direct compensation—comprising annual base salary, target cash incentive

opportunity, and target LTI award—for 2021 for our CEO compared to our other NEOs. As illustrated below, 81% of our CEO's target compensation is "at-risk" in the form of annual cash incentive and LTI. For the other NEOs, 65% of target compensation is at-risk or variable. For purposes of the pie charts below and the table in the section entitled "*Elements of Executive Compensation*," we consider compensation to be at-risk or variable if the compensation: (i) is earned subject to performance-based conditions or (ii) varies as a result of performance, including stock price performance over time.



Compensation Process

Role of the Compensation Committee

The Compensation Committee has principal responsibility for reviewing our executive compensation structure, evaluating the performance of our executive officers relative to our corporate objectives, and considering and approving executive compensation. The fundamental responsibilities of our Compensation Committee are to:

- assist the Board in providing oversight of our compensation policies, plans, and benefit programs;
- assist the Board in discharging its responsibilities relating to oversight of the compensation of our executive officers (including officers reporting under Section 16 of the Exchange Act);
- review and approve or make recommendations to the Board with respect to executive officer compensation, plans, policies, and programs; and
- administer our equity compensation plans for executive officers and employees.

Our Compensation Committee:

- is made up of solely independent directors;
- meets in executive session without members of management present;
- engages an independent consultant to advise on executive pay matters;
- reviews its charter on a regular basis; and
- regularly reviews the realizable pay of the CEO and other executive officers in light of the Company's performance to ensure alignment of pay with performance.

In determining each executive officer's compensation, our Compensation Committee reviews our corporate financial performance and financial condition and assesses the performance of the individual executive officers. Individual executive officer performance is evaluated by our CEO, in the case of other executive officers, and by the Compensation Committee, in the case of our CEO. Our CEO does not participate in Compensation Committee or Board deliberations regarding his own compensation. Our CEO meets with the Compensation Committee to discuss executive compensation matters and to make recommendations to the Compensation Committee with respect to other executive officers. The Compensation Committee may modify individual compensation components for executive officers and is not bound to accept the CEO's recommendations. The Compensation Committee (or, in some cases, the independent members of the Board) makes all final compensation decisions for our executive officers. In addition, it is the Compensation Committee's practice to consult with the independent members of the Board prior to making material changes to our compensation policies.

Although we generally make many compensation decisions in the first quarter of the calendar year, the compensation evaluation process is ongoing. Compensation discussions and decisions are designed to promote our fundamental business objectives and strategy. Evaluation of management performance and rewards is performed annually or more often as needed.

Role of the Independent Compensation Consultant

Our Compensation Committee is authorized to engage the services of outside consultants. The Compensation Committee continued to engage Meridian Compensation Partners, LLC, an independent compensation consulting firm ("Meridian"), as its compensation consultant for 2021 to review our executive compensation program, assess the competitiveness of such program, and advise our Compensation Committee on matters related to executive compensation. During 2021, Meridian assisted the Compensation Committee by providing the following services:

- assisting us in confirming and updating an appropriate peer group of companies for purposes of benchmarking our levels of compensation;
- gathering and analyzing compensation data from available compensation surveys;
- advising us on policies related to executive officer and director stock ownership and structuring of such policies relative to peer group companies' publicly disclosed policies;
- conducting a twice yearly review of compliance and regulation updates related to executive compensation;
- assisting us in assessing the competitiveness of our executive officer compensation program; and
- providing guidance and direction concerning changes in peer market executive compensation standards in response to the COVID-19 pandemic.

Meridian served at the discretion of and reported directly to the Compensation Committee. The Committee assessed Meridian's independence, taking into account, among other things, the independence standards and factors set forth in Exchange Act Rule 10C-1 and the applicable Nasdaq Listing Standards, and concluded that there were no conflicts of interest with respect to the work that Meridian performed for the Compensation Committee in 2021. In 2021, Meridian provided the Committee with various market benchmarking analyses (e.g., review of the benchmarking peer group, executive target pay benchmarking) and other relevant market perspectives in support of the Committee's discussion and decisions.

Use of Competitive Market Data

As directed by our Compensation Committee, Meridian developed an industry- and revenue size-appropriate peer group for purposes of benchmarking pay levels and practices for Committee review and approval. The benchmarking peer group includes companies in the medical device and biotechnology research-related industries that were comparable to us with respect to revenue. The benchmark companies considered by the Compensation Committee and Meridian as part of their executive compensation assessments (the "Peer Group") were as follows:

Alphatec Holdings	Invitae	Pacific Biosciences of California
AtriCure	LeMaitre Vascular	Quanterix
CareDx	Luminex	Repligen
Codexis	Meridian Bioscience	SeaSpine Holdings
Cutera	Mesa Laboratories	SurModics
Enzo Biochem	Nanostring Technologies	Twist Bioscience
GenMark Diagnostics	Natera	Veracyte
Harvard Bioscience	OraSure Technologies	

With Meridian's assistance, the Compensation Committee used data from the Peer Group's public filings and Radford's Global Technology Survey to establish a competitive market range (+/- 15% of the median) within which individual pay could be positioned. Meridian provided the Compensation Committee with an analysis that identified the competitive market median range for each executive officer based on their respective, or substantially similar, positions at companies within the Peer Group. In cases where the data from the Peer Group was unavailable or insufficient, a competitive market median range was derived from survey data reflecting companies of comparative size and business profile.

Elements of Executive Compensation and Related Variability (At-Risk) Profile

This section describes each component of compensation we pay to our executives.

Element	Description	Objective	Variability (At-Risk) Profile
Base Salary	Fixed cash compensation	Provide competitive, fixed compensation to attract and retain exceptional executive talent	Low
Annual Cash Incentive Program	Annual cash compensation with payouts tied to financial results and individual performance	Increase alignment with stockholders by providing a direct financial incentive to achieve annual corporate financial goals	Moderate to High
RSUs	Awards vest 25% on the first anniversary of the grant date and then in equal quarterly installments over the next 3 years	Provide alignment with stockholders and promote retention through the 4-year service-vesting requirement	Moderate
PSUs	Awards vest after 3 years subject to relative TSR performance against the Russell 3000	Provide performance incentives and align executives' interests with stockholders by rewarding sustained share price performance and promote retention through the service-vesting requirement	High

Base Salary

We pay an annual base salary to each of our executive officers in order to provide them with a fixed rate of cash compensation during the year. Our executive compensation philosophy is team-oriented as our success is dependent on our management team's ability to work together to accomplish our corporate objectives. Therefore, we seek to provide our non-CEO executive officers with generally comparable levels of base salary.

2021 Base Salary. The Compensation Committee annually reviews the base salaries of our executive officers, including the NEOs, and makes adjustments to base salaries as it determines to be necessary or appropriate. In early 2021, our Compensation Committee reviewed our executive officers' base salaries in light of 2020 performance ratings, Meridian's analysis identifying the median base salary ranges for each of our executive officers compared to their respective—or substantially similar—positions in the Peer Group or Radford's Global Technology Survey, and general compensation trends in our industry. Based on this review, the Committee decided in early March 2021 to make moderate market-driven increases to the base salaries of our executive officers in 2021. The Committee determined that Mr. Linthwaite's base salary, which had not been increased since 2018, would be increased by 5% retroactive to January 1, 2021. The increases to base salary for our other executive officers became effective on July 1, 2021.

The following table reflects the highest annualized base salaries for each of our NEOs for each of the past two fiscal years:

Named Executive Officer	2020 Base Salary	2021 Base Salary	2021 Base Salary Percentage Change
Stephen Christopher Linthwaite *Former President and CEO*	$564,720	$595,000	5%
Vikram Jog *Chief Financial Officer*	$376,765	$391,836	4%
Colin McCracken *Former Chief Commercial Officer*	$345,311	$387,299	12%
Bradley Kreger *Senior Vice President, Global Operations*	$338,000	$351,520	4%
Nicholas Khadder *Senior Vice President, General Counsel, and Secretary*	$347,471	$357,895	3%

Annual Cash Incentive Program

Our cash incentive program, which is adopted annually by the Compensation Committee pursuant to our Executive Bonus Plan, is intended to provide a significant portion of our executive officers' potential compensation. In contrast to the longer term incentives of equity incentive awards, our cash incentive program is designed to ensure that our executive officers are

focused on our near-term performance—generally as measured by revenue and cash goals established in our annual operating plan—and on working together to achieve key identified corporate objectives, typically weighted toward financial objectives, during the applicable year. We believe the program supports our "pay-for-performance" culture.

2021 Cash Incentive Program. In early 2021, our Compensation Committee, in conjunction with Meridian, reviewed our annual cash incentive program to ensure its focus on the Company's strategic imperatives and alignment with stockholder interests. The Committee structured the 2021 Cash Incentive Program with the financial objectives of incentivizing revenue growth and cash management (as measured by non-GAAP net loss), as well as achievement of quarterly strategic objectives.

Target incentive opportunities for the executive officers are reviewed annually to ensure they are competitive as compared to our Peer Group. The 2021 base salary, target cash incentive percentage, and target cash incentive amount for each NEO are set forth in the table below:

Named Executive Officer	Annualized Base Salary	Target Cash Incentive as a % of 2021 Base Salary	Target Cash Incentive Amount
Stephen Christopher Linthwaite	$595,000	100.0%	$595,000
Vikram Jog	$391,836	55.0%	$215,510
Colin McCracken	$387,299	55.0%	$213,014
Bradley Kreger	$351,520	50.0%	$175,760
Nicholas Khadder	$357,895	50.0%	$178,947

Cash Incentive Program Structure. Our 2021 Cash Incentive Program was based on the achievement of two financial performance metrics—revenue and non-GAAP net loss—together with up to four quarterly strategic objectives determined by the Compensation Committee. Funding of the 2021 Cash Incentive Program was conditioned upon the Company's exceeding its threshold (minimum) revenue goal of $139.7 million for 2021. Provided the revenue threshold was exceeded, the degree of achievement of each goal would determine the funding of the 2021 Bonus Program, with each element representing up to the percentage of the total pool set forth below.

Financial Goals		**Strategic**
Revenue	**Net Loss**	**Objectives**
50%	30%	20%

Corporate Performance Goals. Corporate performance goals are generally established each year as part of the Company's annual operating plan process, which is overseen and approved by the Board. The 2021 Cash Incentive Program was designed so that the bonus pool would fund at 100% if the Company achieved the revenue target of $174.6 million and the non-GAAP net loss target of ($15.8) million, with minimum thresholds of 80% of target revenue and 80% of target net loss that had to be achieved in order to fund on a sliding scale up to 100%. If performance exceeded the target levels, the pool would be funded on a sliding scale based on the amount by which actual results exceeded the targets, up to a funding cap of 200% for substantial over-performance relative to the revenue target, and up to a funding cap of 150% for substantial over-performance relative to the net loss target. No cash incentives would be paid unless the minimum threshold revenue and net loss conditions were satisfied.

Cash Incentive Awards. In February 2022, the Compensation Committee reviewed our performance against the revenue and net loss targets. In evaluating corporate performance relative to 2021 objectives, the Committee determined that the requirements for the 2021 Cash Incentive Program had not been achieved for the threshold revenue target. Accordingly, the program was not funded and no bonuses were paid for 2021.

Committee Discretion. Under the Executive Bonus Plan, the Compensation Committee retains discretion to pay or eliminate bonuses irrespective of achievement of the pre-established goals. We believe that maintaining this flexibility is helpful in ensuring that executive officers are neither rewarded nor penalized as a result of unusual circumstances not foreseeable at the time the goals were developed. The Committee did not exercise such discretion in respect of the 2021 Cash Incentive Program and no bonuses were paid thereunder.

Long-Term Incentive Compensation

The largest component of our executive compensation program is long-term equity incentive awards. We believe that equity awards are an effective means of aligning the interests of executive officers and stockholders, rewarding executive officers for the Company's success over the long term, and providing executive officers an incentive to remain with us. We

have historically granted equity awards to new executive officers upon the commencement of their employment and consider additional grants to existing executive officers annually, based on our overall corporate performance, individual performance, and the executive officers' existing equity grants and equity holdings.

2021 LTI Grants

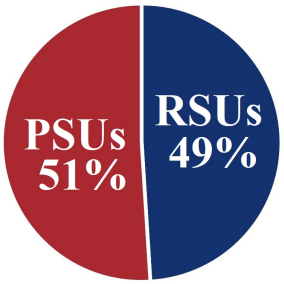
In 2021, the Compensation Committee granted 51% of target long-term incentive compensation to NEOs in the form of PSUs and 49% in the form of time-based RSUs. The LTI awards granted to our NEOs in 2021 are set forth below.

	Annual LTI Program	
Named Executive Officer	**RSUs[1]**	**PSUs**
Stephen Christopher Linthwaite	186,667	194,286
Vikram Jog	50,089	52,133
Colin McCracken	65,792	68,478
Bradley Kreger	38,111	39,667
Nicholas Khadder	39,387	40,994

(1) RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on May 20, 2022 and 1/16th of such shares vesting every three months thereafter until fully vested.

2021 Annual LTI Program Design

Mix of LTI for 2021



- **All LTI** is subject to the executive officer's continued service through the applicable vesting date(s).
- **RSUs** generally vest 25% on the first anniversary of the grant date and then in equal installments on a quarterly basis over the next three years.
- **PSUs** have two vesting components that must be met before the award vests: (i) a performance-based component and (ii) a time-based component. PSUs become eligible to vest at the end of three years subject to the Company's relative TSR performance against the Russell 3000. The Compensation Committee established threshold, target and maximum relative TSR performance levels and established a payout percentage curve that relates each level of performance to a payout expressed as a percentage of the target PSUs, as illustrated in the table below:

	Relative TSR Rank	**% PSUs Earned[1]**
Below Threshold	< 25th Percentile	0%
Threshold	25th Percentile	50%
Target	50th Percentile	100%
Maximum	75th Percentile	200%

(1) The number of PSUs that become eligible to vest (if any) will be linearly interpolated for relative TSR performance between the 25th and 50th percentile and for relative TSR performance between the 50th percentile and 75th percentile.

In the event of a change in control occurring before December 31, 2023, the performance period will end on the date of the closing of the change in control and the PSUs will vest based on the greater of (i) target and (ii) actual relative TSR rank over the shortened performance period, using an ending price equal to the per share amount payable to Company stockholders in the change in control.

2021 LTI Considerations

The Compensation Committee approved the annual LTI award opportunities for our NEOs other than the CEO based on the CEO's recommendations and the factors described above in *Compensation Philosophy and Objectives*. In approving Mr. Linthwaite's annual LTI award opportunity, the Compensation Committee contemplated the same factors as well as other considerations including:

- the Company's performance during Mr. Linthwaite's tenure as CEO;
- the Board's desire to retain his leadership;
- targeted market positioning as compared to an appropriately sized benchmarking peer group; and
- strengthened alignment of Mr. Linthwaite interests with those of the Company's stockholders.

Further, PSUs would only be earned upon the Company's sustained relative TSR performance over three years. As indicated above, the realizable value of these PSUs aligns directly with stockholders, demonstrating the Compensation Committee's commitment to linking pay with performance.

No Payouts for the 2019 PSU Grants

Following the end of the performance period beginning January 1, 2019 and ending December 31, 2021, the Compensation Committee determined that the Company's cumulative 3-year TSR for the performance period was below threshold (25th percentile of the Relative TSR Rank vs. Russell 3000) at approximately the 11th percentile of the Russell 3000; accordingly, no such PSUs were earned or vested.

Response to Stockholder Feedback

In 2019, one of our largest stockholders expressed uncertainty as to whether relative TSR performance against the Russell 3000 was the most appropriate metric for the PSUs granted to our executive officers and suggested a reexamination of the design for future PSU grants.

In response to the stockholder feedback, our Compensation Committee directed its independent compensation consultant, Meridian, to analyze potential changes to our PSU design for the upcoming 2020 LTI grants, including the feasibility of using an industry-specific relative TSR index in lieu of the Russell 3000 and the replacement of relative TSR with one or more absolute metrics.

The Compensation Committee then carefully considered the results of Meridian's analysis, evaluating various alternatives, and determined that we would continue to use TSR as the performance measure for the PSUs granted to our executive officers in 2020, and that we would continue to use the Russell 3000 as the relative TSR comparator for such PSUs. The Committee made this determination, in part, because it believes that:

- TSR encourages long-term strategic focus on creation of stockholder value beyond executives' financial and operational targets;
- the current PSU design requires the Company to out-perform a broad market index; and
- the analysis did not support a compelling reason to select an industry-specific comparison group over the Russell 3000.

The Compensation Committee also noted that, because the current PSU design was adopted in 2018 and no payouts had yet been realized, no conclusion could yet be reached as to its efficacy as a measure of the Company's performance.

Our Compensation Committee will continue to consider our stockholders' views when making future decisions regarding the structure and implementation of our executive compensation program.

Guidelines and Policies

Executive Officer Stock Ownership Guidelines

Our Board has approved stock ownership guidelines for our executive officers to further align their interests with the interests of our stockholders.

Pursuant to the guidelines, our CEO is expected to accumulate and hold a number of shares of our common stock equal to the lesser of (i) that number of shares with a value equal to three times his annual base salary or (ii) 265,300 shares and to maintain this minimum amount of stock ownership throughout his tenure as CEO. Under the guidelines, our other key executive officers, including our NEOs other than the CEO, are expected to accumulate and hold a number of shares of our common stock equal to the lesser of (i) that number of shares with a value equal to his or her annual base salary or (ii) the number of shares determined by dividing his or her then-current annual base salary by $6.14 and to maintain this minimum amount of stock

ownership throughout his or her tenure as a covered key executive officer. For purposes of determining share ownership under the guidelines, shares owned includes shares owned outright and vested in-the-money stock options, but does not include value or shares attributable to unvested time vesting restricted stock, unvested and/or out-of-the money stock options and/or unearned performance shares.

Our key executive officers, including our CEO and our other NEOs, are expected to achieve the applicable level of ownership by the end of the fiscal year that follows the five-year anniversary of the date he or she becomes covered by the guidelines.

In the event such an executive officer falls out of compliance with the guidelines at any time, he or she will be required to maintain 50% of the shares (net of tax and exercise costs) acquired through vesting or exercise of awards until the guidelines are again satisfied. The guidelines include a once-met-always-met policy such that each executive officer covered by our guidelines will be deemed to satisfy the guideline if they hold at least the number of shares that, as of the first measurement date they comply with the guidelines, was equal to the guideline value (i.e., following the initial compliance, the policy for each executive officer will reset to the lesser of the guideline value or the number of shares that originally satisfied the guideline).

Clawback Policy

Our Board has adopted a compensation clawback policy pursuant to which we may seek the recovery of performance-based cash and equity incentive compensation paid to our CEO and to all officers who report directly to the CEO, including our NEOs. The clawback policy provides that if (i) we restate our financial statements as a result of a material error; (ii) the amount of cash incentive compensation or performance-based equity compensation that was paid or is payable based on achievement of specific financial results paid to a participant would have been less if the financial statements had been correct; (iii) no more than two years have elapsed since the original filing date of the financial statements upon which the incentive compensation was determined; and (iv) our Compensation Committee unanimously concludes, in its sole discretion, that fraud or intentional misconduct by such participant caused the material error and it would be in our best interests to seek from such participant recovery of the excess compensation, then our Compensation Committee may, in its sole discretion, seek repayment from such participant.

No Hedging or Pledging

The Company's Insider Trading Policy prohibits all officers, directors, and other employees with access to sensitive Company information from engaging in any form of hedging transaction (derivatives, equity swaps, forwards, etc.) in the Company's stock, including, among other things, short sales and transactions involving publicly traded options. In addition, such officers, directors, and employees are prohibited from holding the Company's stock in margin accounts and from pledging the Company's stock as collateral for loans. We believe that these policies further align the interests of our officers and directors with those of our stockholders.

Other Benefits

Change of Control and Severance Plan

Each of our executive officers participates in our 2020 Change of Control and Severance Plan adopted in August 2020 (the "Severance Plan"), which provides for specified payments and benefits if the executive officer's employment is terminated for a reason other than for cause, death or disability, or if the executive officer's employment is terminated by the executive officer for good reason, with the payments and benefits provided generally greater if such termination occurs in connection with a change of control. The terms of our executive officers' participation in the Change of Control and Severance Plan are described under the section entitled "*Potential Payments upon Termination or Change of Control.*"

Our Board concluded that it is in the best interests of our Company and our stockholders to provide assurances of specified benefits to certain of our employees, including our executive officers, whose employment is subject to being involuntarily terminated other than for death, disability, or cause or voluntarily terminated for good reason under the circumstances described in the plan. Our Board determined to provide such executive officers with certain severance benefits upon their termination of employment without cause outside of the change of control context in order to provide executive officers with enhanced financial security and incentive to remain with our Company. In addition, we believe that providing for acceleration of equity awards if an executive officer is terminated following a change of control transaction aligns the executive officer's interest more closely with those of other stockholders when evaluating the transaction rather than putting the executive officer at risk of losing the benefits of those equity incentives.

In determining the amount of cash payments, benefits coverage, and acceleration of vesting to be provided to executive officers upon termination, our Board considered the following factors:

- the expected time required for an executive officer to find comparable employment following a termination event;
- feedback received from potential candidates for executive officer positions at our Company as to the level of severance payments and benefits they would require in order to leave other employment and join our Company;
- in the context of a change of control, the amount of vesting acceleration that would align the executive officer's interests more closely with the interests of stockholders when considering a potential change of control transaction; and
- the period of time following a change of control during which management positions are evaluated and subject to a heightened risk of elimination.

In connection with the hiring of Dr. Egholm, and Mr. Kim, our Board approved certain enhanced severance benefits for Dr. Egholm and Mr. Kim. These benefits were negotiated by these executives with members of the Board, and were set at levels that our Board believed were necessary to recruit them to our company. For a detailed description of these benefits, please see "2022 Management Agreements" section below.

Split Dollar Life Insurance

The Company entered into an agreement with our former Chief Executive Officer, Mr. Linthwaite, to pay the full amount of the premium of a life insurance policy covering him with an initial face amount of $2,500,000. We entered into this agreement for the purposes of ensuring Mr. Linthwaite's focus on increasing value for the stockholders. The value of the Company's payment of such premiums is treated as taxable income to Mr. Linthwaite. In the event of Mr. Linthwaite's death, Mr. Linthwaite's designated beneficiaries will receive $2,000,000 of the proceeds from the life insurance policy, and the Company will receive the remainder of the proceeds. The Company is entitled to 100% of the policy's cash value, less any policy loans and unpaid interest or prior cash withdrawals. Pursuant to the Separation Agreement entered into with Mr. Linthwaite, the agreement will terminate 30 months following the effective date of Mr. Linthwaite's resignation as Chief Executive Officer of the Company.

Employee Benefits

Executive officers are eligible to participate in all of our employee health and welfare plans, such as medical, dental, vision, group life, disability, accidental death and dismemberment insurance, as well as our 401(k) or comparable non-U.S. retirement plan, in each case on the same basis as our other employees, subject to applicable law. Subject to applicable limits, we match contributions made to U.S.-based employees' 401(k) defined contribution plans up to a maximum of $3,000 per year. We also provide vacation and other paid holidays to all employees, including our executive officers, which we believe are comparable to those provided at peer companies.

Accounting and Tax Considerations

Deductibility of Executive Compensation

Section 162(m) of the Internal Revenue Code of 1986, as amended (the "Code"), places a limit of $1,000,000 on the amount of compensation that we can deduct as a business expense in any year with respect to our CEO and certain of our other executive officers. While the Compensation Committee considers the deductibility of compensation as a factor in making compensation decisions, the Committee retains the flexibility to provide compensation that is consistent with our goals for our executive compensation program even if such compensation is not fully tax deductible.

Taxation of Nonqualified Deferred Compensation

Section 409A of the Code imposes additional taxes on certain non-qualified deferred compensation arrangements that do not comply with its requirements. These requirements regulate an individual's election to defer compensation and the individual's selection of the timing and form of distribution of the deferred compensation. Section 409A generally also provides that distributions of deferred compensation only can be made on or following the occurrence of certain events (i.e., the individual's separation from service, a predetermined date, a change in control, or the individual's death or disability). For certain executive officers, Section 409A requires that such individual's distribution commence no earlier than six months after such officer's separation from service. We have endeavored to structure our compensation arrangements to be exempt from or to comply with Section 409A and will continue to do so. Further, we do not offer tax gross-ups related to Section 409A to any of our executive officers.

Accounting for Stock-Based Compensation

The impact of accounting treatment is considered in developing and implementing our compensation programs, including the accounting treatment as it applies to amounts awarded or paid to our executive officers.

Risk Management Considerations

In setting compensation, our Compensation Committee strives to create incentives that encourage a level of risk-taking consistent with our business strategy and to encourage a focus on building long-term value that does not encourage excessive risk-taking. In connection with its oversight of compensation-related risks, our Compensation Committee has reviewed our compensation programs and practices for employees, including executive and non-executive programs and practices. In its review, our Compensation Committee evaluated whether our policies and programs encourage unnecessary or excessive risk-taking and controls, and how such policies and programs are structured with respect to risks and rewards, as well as controls designed to mitigate any risks. As a result of this review, our Compensation Committee determined that any risks that may result from our compensation policies and practices for our employees are not reasonably likely to have a material adverse effect on the Company.

Compensation Committee Report

The Compensation Committee oversees the Company's compensation policies, plans, and benefit programs. The Committee has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management. Based on such review and discussions, the Committee has recommended to the Board that the Compensation Discussion and Analysis be included in this proxy statement.

The Compensation Committee

Gerhard F. Burbach (Chair)
Bill W. Colston
Martin D. Madaus

The Compensation Committee Report does not constitute soliciting material, and shall not be deemed to be filed or incorporated by reference into any other filing by the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent the Company specifically incorporates the Compensation Committee Report by reference therein.

SUMMARY COMPENSATION TABLE FOR 2021

The following table provides information regarding the compensation of our CEO, Chief Financial Officer, and each of the next three most highly compensated executive officers during 2021. We refer to these individuals as our NEOs elsewhere in this report.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)[1]	Option Awards ($)[1]	Non-Equity Incentive Plan Compensation ($)[2]	All Other Compensation ($)	Total ($)
Stephen Christopher Linthwaite	2021	595,000	—	2,677,147	—	—	39,515[3]	3,311,663
Former President and CEO	2020	536,484	—	2,600,852	—	624,016	39,515	3,800,867
	2019	564,720	—	3,024,338	—	84,482	39,515	3,713,055
Vikram Jog	2021	384,300	—	718,364	—	—	3,000[4]	1,105,664
Chief Financial Officer	2020	347,783	—	775,978	—	316,465	3,000	1,443,226
	2019	362,274	—	982,911	—	43,260	3,000	1,391,445
Colin McCracken	2021	387,866[5]	—	943,584	—	—	54,903[6]	1,386,353
Former Chief Commercial Officer	2020	318,780[7]	—	922,678	—	307,004	108,992[8]	1,657,454
	2019	246,800[9]	—	1,504,474	—	35,326	125,164[10]	1,911,764
Bradley Kreger	2021	344,760	—	546,586	—	—	3,000[4]	894,346
Senior Vice President, Global Operations	2020	312,000	—	824,878	—	245,621	3,000	1,385,499
	2019	325,000	—	982,911	—	41,388	3,000	1,352,299
Nicholas Khadder	2021	352,683	—	564,876	—	—	3,000[4]	920,559
Senior Vice President, General Counsel, and Secretary	2020	293,770	—	611,250	—	135,010	10,499[11]	1,050,529
	2019	347,471	—	907,304	—	—	3,000	1,257,775

(1) Amounts represent the aggregate grant date fair value of equity awards granted to the NEO in the year indicated, calculated in accordance with FASB ASC Topic 718 without regard to estimated forfeitures. Under FASB ASC Topic 718, the provisions of the PSU awards related to TSR are considered a market condition and are valued using a Monte Carlo simulation pricing model to incorporate the market condition effects at our grant date. The grant date fair value of time-based RSUs equals the fair value of the Company's stock on the grant date. As PSUs have the potential to pay out at 200% of target, PSUs have a higher grant date fair value than time-based RSUs. For the Company, on average, the grant date fair value of PSUs has been approximately 170% of the grant date fair value of the Company's stock. The grant date fair value of Mr. Linthwaite's 2021 PSU award was $1,865,146 and the value of the maximum potential payout for such PSUs was $2,292,575. The grant date fair value of the 2021 PSU award issued to Mr. Jog was $500,477 and the value of the maximum potential payout was $615,169. The grant date fair value of the 2021 PSU award issued to Mr. McCracken was $657,389 and the value of the maximum potential payout was $808,040. The grant date fair value of the 2021 PSU award issued to Mr. Kreger was $380,803 and the value of the maximum potential payout was $468,071. The grant date fair value of the 2021 PSU award issued to Mr. Khadder was $393,542 and the value of the maximum potential payout was $483,729.

(2) The amounts in this column represent total performance-based bonuses earned pursuant to our annual cash incentive program under the Executive Bonus Plan for service rendered during the applicable year. A portion of such amounts were paid subsequent to year end. For a description of our annual cash incentive program, please see the section entitled "Annual Cash Incentive Program" under "Compensation Discussion and Analysis" above.

(3) Consists of Company contributions of $3,000 made to Mr. Linthwaite's 401(k) defined contribution plan, $27,500 of payments made by the Company for life insurance policy premiums, and $9,015 of payments made by the Company in disability insurance premiums.

(4) Consists of Company contributions made to the applicable NEO's 401(k) defined contribution plan.

(5) Based on conversion of Canadian Dollars ("CAD") to US Dollars ("USD") from January 1, 2021 to June 25, 2021 at a rate of 1 CAD to 0.7983 USD, and conversion of British Pounds ("GBP") to USD from June 26, 2021 to December 31, 2021 at a rate of 1 GBP to 1.3663 USD, the average exchange rates for the period beginning January 1, 2021 to December 31, 2021

(6) Consists of Company contributions of $27,934 made to Mr. McCracken's registered retirement savings plan and pension plan, $19,471 of payments made by the Company for relocation expenses, $2,998 of payments made by the Company for car allowance, and $4,500 of payments made by the Company for living expenses.

(7) Based on conversion of CAD to USD at a rate of 1 CAD to 0.7464 USD, the average exchange rate for the period beginning January 1, 2020 to December 31, 2020.

(8) Consists of Company contributions of $10,162 made to Mr. McCracken's registered retirement savings plan, $1,930 of payments made by the Company for relocation expenses, $5,500 of payments made by the Company for car allowance, $49,500 of payments made by the Company for living expenses, and $7,700 of payments made by the Company for education and tuition amounts for Mr. McCracken's dependent child, and includes advance payments made to Mr. McCracken of $3,000 for car allowance, $27,000 for living expenses, and $4,200 for education and tuition amounts for Mr. McCracken's dependent child for the period covering January 1, 2021 to June 30, 2021.

(9) Based on conversion of British Pounds ("GBP") to USD from March 1, 2019 to August 31, 2019 at a rate of 1 GBP to 1.2774 USD, and conversion of CAD to USD from September 1, 2019 to December 31, 2019 at a rate of 1 CAD to 0.7539 USD, the average exchange rates for the period beginning January 1, 2019 to December 31, 2019.

(10) Consists of Company contributions of $13,715 made to Mr. McCracken's UK pension plan from March 1, 2019 to August 31, 2019, $1,900 of payments made by the Company for Canadian comprehensive medical coverage premiums from September 1, 2019 to December 31, 2019, $64,615 of payments made by the Company for relocation expenses, $6,860 of payments made by the Company for car allowance, $31,500 of payments made by the Company for living expenses, and $6,574 of payments made by the Company for education and tuition amounts for Mr. McCracken's dependent child.

(11) Consists of Company contributions of $3,000 made to Mr. Khadder's 401(k) defined contribution plan, and payments of $4,826 for payout of accumulated vacation and $2,673 for payout of accumulated floating holidays. Such payouts were made in respect of Mr. Khadder's resignation in March 2020, prior to his rejoining the Company on April 27, 2020.

GRANTS OF PLAN BASED AWARDS

The following table presents information concerning each grant of an award made to an NEO in 2021 under any plan.

Name	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards ($)[1]			Estimated Future Payments Under Equity Incentive Plan Awards (#)			All Other Stock Awards: Number of Shares of Stock or Units (#)[2]	Grant Date Fair Value of Stock and Option Awards ($)[3]
		Threshold	Target	Maximum	Threshold	Target	Maximum		
Stephen Christopher Linthwaite	3/4/2021[4]	535,500	595,000	1,487,500	—	—	—	—	—
	6/20/2021	—	—	—	97,143	194,286	388,572	—	1,865,146
	4/20/2021	—	—	—	—	—	—	186,667	812,001
Vikram Jog	3/4/2021[4]	193,959	215,510	538,774	—	—	—	—	—
	6/20/2021	—	—	—	26,067	52,133	104,266	—	500,477
	4/20/2021	—	—	—	—	—	—	50,089	217,887
Colin McCracken	3/4/2021[4]	187,612	208,457	521,144	—	—	—	—	—
	6/20/2021	—	—	—	34,239	68,478	136,956	—	657,389
	4/20/2021	—	—	—	—	—	—	65,792	286,195
Bradley Kreger	3/4/2021[4]	158,184	175,760	439,400	—	—	—	—	—
	6/20/2021	—	—	—	19,834	39,667	79,334	—	380,803
	4/20/2021	—	—	—	—	—	—	38,111	165,783
Nicholas Khadder	3/4/2021[4]	161,053	178,947	447,368	—	—	—	—	—
	6/20/2021	—	—	—	20,497	40,994	81,988	—	393,542
	4/20/2021	—	—	—	—	—	—	39,387	171,333

(1) The target amounts shown in this column reflect our annual incentive plan awards provided under our 2021 Cash Incentive Program. The maximum amounts in this column reflect the greatest payouts that could be made if pre-established maximum performance levels were met or exceeded. Actual 2021 Cash Incentive Program payouts are reflected in the non-equity incentive plan compensation column of the Summary Compensation Table.

(2) Represents awards granted under our 2011 Plan.

(3) All amounts reported represent the grant date fair value of the equity awards, calculated in accordance with FASB ASC Topic 718 without regard to estimated forfeitures. See Note 13 of the notes to our audited consolidated financial statements included in our Form 10-K for a discussion of assumptions made in determining the grant date fair value.

(4) Corresponds to the date on which our Compensation Committee set the target cash incentive amounts payable to each of our executive officers pursuant to our 2021 Cash Incentive Program. Under our 2021 Cash Incentive Program, payouts were conditioned upon achievement of Company and individual performance goals, as discussed in the section of our Compensation Discussion and Analysis titled “2021 Cash Incentive Program — Cash Incentive Program Structure.”

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END FOR 2021

The following table presents information concerning unexercised options and unvested stock awards outstanding as of December 31, 2021 for each NEO. Each outstanding equity award was granted pursuant to our 2011 Plan except where indicated. Vesting in all instances is subject to the NEO's continued service through the applicable vesting date.

	Stock Options					Stock Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock that Have Not Vested (#)	Market Value of Shares or Units of Stock that Have Not Vested ($)[1]	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)[1]
Stephen Christopher	140,000[2]	—	—	4.99	11/8/2026	15,626(3)	61,254	—	—
Linthwaite	189,500[4]	—	—	6.16	2/13/2027	34,410(5)	134,887	—	—
	70,000[6]	—	—	5.13	9/20/2027	69,501(7)	272,444	—	—
	89,533[8]	5,967	—	6.33	3/19/2028	155,000[9]	607,600	—	—
	—	—	—	—	—	186,667[10]	731,735	—	—
	—	—	—	—	—	—	—	114,607[11]	449,259
	—	—	—	—	—	—	—	151,012[12]	591,967
	—	—	—	—	—	—	—	194,286[13]	761,601
Vikram Jog	87,400[4]	—	—	6.16	2/13/2027	4,502[3]	17,648	—	—
	3,444[6]	—	—	5.13	9/20/2027	11,185[5]	43,845	—	—
	6,609[6]	—	—	5.13	9/20/2027	21,517[7]	84,347	—	—
	1,541[6]	—	—	5.13	9/20/2027	45,000[9]	176,400	—	—
	2,073[6]	—	—	5.13	9/20/2027	50,089[10]	196,349	—	—
	8,941[6]	—	—	5.13	9/20/2027	—	—	37,247[11]	146,008
	967[6]	—	—	5.13	9/20/2027	—	—	46,750[12]	183,260
	25,784[8]	1,716	—	6.33	3/19/2028	—	—	52,133[13]	204,361
Colin McCracken	—	—	—	—	—	15,587[14][15]	61,101	—	—
	—	—	—	—	—	9,188[15]	36,017	—	—
	—	—	—	—	—	21,517[7]	84,347	—	—
	—	—	—	—	—	60,000[9]	235,200	—	—
	—	—	—	—	—	65,792[10]	257,905	—	—
	—	—	—	—	—	—	—	25,500[11]	99,960
	—	—	—	—	—	—	—	46,750[12]	183,260
	—	—	—	—	—	—	—	68,478[13]	268,434
Bradley Kreger	91,668[16]	8,332	—	5.90	4/30/2028	6,250[14][17]	24,500	—	—
	—	—	—	—	—	11,185[5]	43,845	—	—
	—	—	—	—	—	21,517[7]	84,347	—	—
	—	—	—	—	—	50,000[9]	196,000	—	—
	—	—	—	—	—	38,111[10]	149,395	—	—
	—	—	—	—	—	—	—	37,247[11]	146,008
	—	—	—	—	—	—	—	46,750[12]	183,260
	—	—	—	—	—	—	—	39,667[13]	155,495
Nicholas Khadder	—	—	—	—	—	30,000[9]	117,600	—	—
	—	—	—	—	—	40,625[18]	159,250	—	—
	—	—	—	—	—	39,387[10]	154,397	—	—
	—	—	—	—	—	—	—	40,994[13]	160,696

(1) Based on the closing price of our common stock of $3.92 per share on December 31, 2021, as reported on the Nasdaq Global Select Market, and the number of RSUs and PSUs that had not vested as of December 31, 2021.

(2) The option vests over four years, with 1/4th of the total number of shares subject thereto vesting on October 19, 2017 and 1/48th of such shares vesting monthly thereafter until fully vested.

(3) The RSUs vest over four years, with 1/16th of the total number of shares subject thereto vesting on August 20, 2018 and 1/16th of such shares vesting every three months thereafter until fully vested.

(4) The option vests over four years, with 5/16th of the total number of shares subject thereto vesting on March 1, 2018 and 1/48th of such shares vesting monthly thereafter until fully vested.
(5) The RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on February 20, 2020 and 1/16th of such shares vesting every three months thereafter until fully vested.
(6) The option vests over four years, with 1/12th of the total number of shares subject thereto vesting on February 20, 2018 and 1/12th of such shares vesting every three months thereafter until fully vested.
(7) The RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on February 20, 2021 and 1/16th of such shares vesting every three months thereafter until fully vested.
(8) The option vests over four years, with 1/4th of the total number of shares subject thereto vesting on March 19, 2019 and 1/48th of such shares vesting monthly thereafter until fully vested.
(9) These Retention RSUs vest over three years, with one half of the total number of shares subject thereto vesting on May 20, 2021 and 1/4th of such shares vesting every twelve months thereafter until fully vested.
(10) The RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on May 20, 2022 and 1/16th of such shares vesting every three months thereafter until fully vested.
(11) These PSUs became eligible to vest at the end of three years subject to the Company's relative TSR performance against the Russell 3000 Index as of the beginning of 2019 during the performance period from January 1, 2019 to December 31, 2021. In early 2022, the Compensation Committee determined that the Company's cumulative 3-year TSR for the performance period was below threshold; accordingly, none of these PSUs were earned or vested.
(12) These PSUs become eligible to vest at the end of three years subject to the Company's relative TSR performance against the Russell 3000 Index as of the beginning of 2020 during the performance period from January 1, 2020 to December 31, 2022. The percentage of PSUs that vest will depend on our relative position at the end of the performance period and can range from 0% to 200% of the number of units granted.
(13) These PSUs become eligible to vest at the end of three years subject to the Company's relative TSR performance against the Russell 3000 Index as of the beginning of 2021 during the performance period from January 1, 2021 to December 31, 2023. The percentage of PSUs that vest will depend on our relative position at the end of the performance period and can range from 0% to 200% of the number of units granted.
(14) Represents RSUs granted under our 2017 Inducement Award Plan (the "2017 Inducement Plan").
(15) The RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on May 20, 2020 and 1/16th of such shares vesting every three months thereafter until fully vested.
(16) The option vests over four years, with 1/4th of the total number of shares subject thereto vesting on April 2, 2019 and 1/48th of such shares vesting monthly thereafter until fully vested.
(17) The RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on May 20, 2019 and 1/16th of such shares vesting every three months thereafter until fully vested.
(18) The RSUs vest over four years, with 1/4th of the total number of shares subject thereto vesting on May 20, 2021 and 1/16th of such shares vesting every three months thereafter until fully vested.

OPTION EXERCISES AND STOCK VESTED IN 2021

The following table provides additional information about the value realized by the NEOs upon the vesting of RSU awards during the year ended December 31, 2021. No option awards were exercised during the year ended December 31, 2021.

	Stock Awards	
Name	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting ($)[1]
Stephen Christopher Linthwaite	335,610	1,920,134
Vikram Jog	99,737	570,875
Colin McCracken	93,249	522,819
Bradley Kreger	88,179	495,549
Nicholas Khadder	54,375	300,068

(1) Value realized on vesting of stock awards is based on the closing price of our common stock on the vesting date and does not necessarily reflect actual proceeds received.

Pension Benefits & Nonqualified Deferred Compensation

We do not provide a pension plan for our employees and no NEOs participated in a nonqualified deferred compensation plan during the fiscal year ended December 31, 2021.

2022 Management Agreements

Linthwaite. As noted above, Mr. Linthwaite resigned from his position as President and Chief Executive Officer pursuant to the terms of the Transition Agreement. In connection with entering into the Transition Agreement, we agreed to reimburse Mr. Linthwaite for the cost or reasonable attorneys' fees incurred in connection with the review and negotiation thereof, up to a maximum of $50,000. Mr. Linthwaite agreed to continue in his position as President and Chief Executive Officer to the Company for the period of time set forth in the Transition Agreement, and Mr. Linthwaite's resignation from such positions became effective as of April 4, 2022 (the "Linthwaite Separation Date"). The Transition Agreement includes a limited release in favor of the Company.

In connection with this resignation as President and Chief Executive Officer, and pursuant to the terms of the Transition Agreement, Mr. Linthwaite and the Company entered into a Separation Agreement and Release (the "Separation Agreement"). Pursuant to the Separation Agreement, Mr. Linthwaite is entitled to receive (A) a $200,000 lump sum cash transaction bonus, and (B) the severance benefits payable under Section 4 of the Company's 2020 Change of Control and Severance Plan (the "Severance Plan"), which are: (i) cash payments in an amount equal to $1,190,000, less applicable withholdings, paid in equal installments over 24 months; (ii) eligibility for COBRA premium reimbursements for up to 12 months following the Linthwaite Separation Date; and (iii) reasonable outplacement services in accordance with any applicable Company policy in effect as of the Linthwaite Separation Date. Mr. Linthwaite remains eligible to receive enhanced benefits under Section 5 of the Severance Plan in the event of a Change of Control (as defined in the Severance Plan) occurring within 3 months of the Linthwaite Separation Date, but any such benefits payable will be reduced by the benefits described in the immediately foregoing sentence (other than the referenced transaction bonus). In addition, the Separation Agreement provides that the Company will waive the time-based vesting component with respect Mr. Linthwaite's PSUs which are eligible to vest based on a relative TSR performance component for the performance period ending December 31, 2022, such that, such PSUs will remain outstanding and eligible to vest to the extent of achievement of the performance component alone. The Separation Agreement also provides that the Company will assign to Mr. Linthwaite and reimburse him for payment of premiums paid by him to maintain the split dollar life insurance policy insuring his life for 30 months following the Linthwaite Separation Date. The Separation Agreement includes a general release of claims in favor of the Company and a customary mutual nondisparagement provision. If any of the severance and other benefits provided for under the Separation Agreement or otherwise payable to Mr. Linthwaite constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code and could be subject to excise tax under Section 4999 of the Internal Revenue Code, then the payments will be delivered in full or delivered as to such lesser extent which would result in no portion of such benefits being subject to excise tax, whichever results in the greater amount of after-tax benefits to Mr. Linthwaite.

Following the Linthwaite Separation Date, we entered into the Consulting Agreement with Mr. Linthwaite. Pursuant to the Consulting Agreement, Mr. Linthwaite will provide consulting services to the Company through November 30, 2022. Pursuant to the Consulting Agreement, Mr. Linthwaite will receive a monthly fee of $25,000 during the term of the Consulting

Agreement. Additionally, if Mr. Linthwaite provides services in excess of 60 hours in a month, then his monthly fee will be increased by $350 per each hour in excess of 60 hours. During the term of the Consulting Agreement, the Company will reimburse Mr. Linthwaite for reasonable expenses, and Mr. Linthwaite will vest in his outstanding Company equity awards in accordance with the terms and conditions of the awards and the Separation Agreement and Consulting Agreement.

Pursuant to the terms of the Separation Agreement and the Consulting Agreement, if the Company terminates Mr. Linthwaite's consulting relationship prior to November 30, 2022, (i) any unpaid consulting fees that would otherwise have been paid through the first 6 months following the Linthwaite Separation Date will be due and payable, and (ii) Mr. Linthwaite's equity awards that would otherwise vest through November 30, 2022 will vest on an accelerated basis as if he had provided services through November 30, 2022. Following the termination of his consulting relationship, Mr. Linthwaite must sign a supplemental release of claims in favor of the Company in order to continue to receive the severance and benefits provided under the Separation Agreement.

Egholm. In January 2022, Dr. Egholm entered into the Egholm Letter pursuant to which he was appointed Chief Executive Officer of the Company in April 2022.

The compensation terms for the Egholm Letter were approved by the Board on terms and conditions that the Board believed were necessary to recruit Dr. Egholm to the Company, would align his interests with the Company's stockholders, and would provide incentives for him to drive growth in the Company's business following the closing of the Preferred Equity Transactions (as defined below) over the long-term. In setting the compensation terms for the Egholm Letter, the Board considered several key factors, including, a market analysis prepared by Meridian, Dr. Egholm's past experiences, his expected future contributions to the Company, the Company's historical executive compensation practices, and compensation structure that will best align Dr. Egholm's interests with those of our stockholders, including Casdin and Viking. Accordingly, the Board approved a compensation package for Dr. Egholm that was heavily weighted in long-term equity incentives (primarily in the form of time-based stock options pursuant to which Dr. Egholm will realize value only if the value of the Common Stock increases following the date that he joins the Company and he remains employed with the Company).

Pursuant to the Egholm Letter, he is an at-will employee of the Company. He receives an annual base salary of $500,000, and is eligible to receive an annual bonus with a target level of 100% of his base salary.

Dr. Egholm received nonqualified stock options (the "Egholm Option Award") to purchase 4,529,773 shares of Common Stock with a per share exercise price of $3.99. Subject to his continued employment with the Company through the applicable vesting date, 25% of the shares subject to the Egholm Option Award will vest on the first anniversary of the vesting commencement date, and the remaining 75% of the shares subject to the Egholm Option Award will vest in equal monthly installments thereafter.

Dr. Egholm also received 786,049 restricted stock units (the "Egholm RSU Award"). Subject to his continued employment with the Company, 25% of the Egholm RSU Award will vest in equal annual installments over a four-year period, beginning on the first anniversary of the vesting commencement date. Additionally, effective April 4, 2022, the compensation committee also approved an additional grant of 632 restricted stock units, which have the same vesting terms as indicated above.

If Dr. Egholm's employment is terminated due to his death or "disability" (as defined in the Severance Plan), a number of unvested shares underlying the Egholm Option Award and the Egholm RSU Award (if any) that otherwise would vest during the period between the termination date and the one-year anniversary of the termination date immediately will vest.

Pursuant to the terms of Egholm, he will be a participant in the Severance Plan, and eligible to receive benefits at the same level and subject to the same terms and conditions as described with respect to Mr. Linthwaite below, except that, in addition, in a "Non-COC Involuntary Termination" Dr. Egholm will be entitled to receive an additional 12 months of vesting acceleration of his Company equity awards.

Kim. In January 2022, Mr. Kim entered into the Kim Letter pursuant to which he was appointed Chief Operating Officer of the Company in April 2022.

The compensation terms for the Kim Letter were approved by the Board on terms and conditions that the Board believed were necessary to recruit Mr. Kim to the Company, would align his interests with the Company's stockholders, and would provide incentives for him to drive growth in the Company's business following the closing of the Preferred Equity Transactions over the long-term. In setting the compensation terms for the Kim Letter, the Board considered similar factors as it considered for setting the compensation terms for the Egholm Letter.

Pursuant to the Kim Letter, Mr. Kim is an at-will employee of the Company. He receives an annual base salary of $400,000, and is eligible to receive an annual bonus with a target level of 55% of his base salary. In addition, the Company will reimburse Mr. Kim for relocation expenses up to $150,000.

Mr. Kim received nonqualified stock options (the "Kim Option Award") to purchase 1,617,775 shares of Common Stock, with an exercise price per share of $3.99. Subject to his continued employment with the Company through the applicable vesting date, 25% of the shares subject to the Kim Option Award will vest on the first anniversary of the vesting commencement date, and the remaining 75% of the shares subject to the Kim Option Award will vest in equal monthly installments thereafter.

Mr. Kim also received 280,732 restricted stock units (the "Kim RSU Award"). Subject to his continued employment with the Company, 25% of the Kim RSU Award will vest in equal annual installments over a four-year period, beginning on the first anniversary of the vesting commencement date. Additionally, effective April 4, 2022, the compensation committee also approved an additional grant of 226 restricted stock units, which have the same vesting terms as indicated above.

If Mr. Kim's employment is terminated due to his death or "disability" (as defined in the Severance Plan), a number of unvested shares underlying the Kim Option Award and Kim RSU Award (if any) that otherwise would vest during the period between the termination date and the one-year anniversary of the termination date immediately will vest.

The Kim Option Award and Kim RSU Award (if any) will be subject to the terms of the Company's Inducement Plan.

Pursuant to the terms of the Kim Letter, he will be a participant in the Severance Plan, and eligible to receive benefits at the same level and subject to the same terms and conditions as described with respect to our executive officers as described below, except that in a "Non-COC Involuntary Termination," Mr. Kim will be entitled to receive 12 months of vesting acceleration of his Company equity awards.

Retention Program

In January 2022, the Board approved a retention compensation program for certain of our named executive officers, and certain other members of our executive leadership team. The retention program provides for a lump sum cash payment if the named executive officer remains employed with us through December 31, 2022. The cash payment is $293,877 in the case of Vikram Jog, $279,685 in the case of Colin McCracken, and $268,421 in the case of Nicholas Khadder. If the employment with the Company of a participant in the retention program terminates for any reason prior to December 31, 2022, then he or she will forfeit any rights to the cash payment.

Additionally, the retention compensation program provides that, in the event that the employment with the Company of a participant in the retention compensation program is terminated by the Company without "cause" (excluding by reason of death or "disability," as defined in the Severance Plan) (such a termination, a "Qualifying Termination") on or prior to January 15, 2023, the Company will amend such participant's award of performance-based restricted stock units that are eligible to vest based on (i) a relative TSR performance component in the performance period ending December 31, 2022, and (ii) a time-based vesting component to remove the time-based vesting component, such that, notwithstanding the termination of his or her service on or prior to January 15, 2023, such award will remain outstanding and eligible to vest to the extent of achievement of the performance component alone. Each of Messrs. Jog and McCracken hold this type of award.

Additionally, the Company granted each of Messrs. Jog, Khadder, and McCracken an award of restricted stock units covering 50,000 shares of the Company's Common Stock (the "Retention RSUs"). The Retention RSUs will be subject to the terms of our 2011 Equity Incentive Plan, as amended, and restricted stock unit award agreement thereunder. The Retention RSUs will be scheduled to vest on February 20, 2023 (the "Vesting Date"), subject to the individual's continued employment with the Company through that date. If the employment with the Company of a participant in the retention program is terminated in a Qualifying Termination prior to the Vesting Date, the Retention RSUs will become fully vested as of the termination date. If the participant's employment with the Company terminates for any reason other than a Qualifying Termination prior to the Vesting Date, then he or she forfeit any rights to the Retention RSUs.

The receipt of any termination benefits described in the retention program is conditioned upon the participant timely signing and not revoking a separation and release of claims agreement in substantially the form attached to the Severance Plan.

Potential Payments Upon Termination or Change of Control

The Compensation Committee has approved our Severance Plan under which our NEOs, other members of our executive leadership team, and certain other designated employees are eligible to receive severance benefits. We adopted the Severance Plan, which superseded the severance benefits provided under the Company's previous Change of Control and Severance Plan and prior employment and severance agreements, because we recognize that we will from time to time consider the possibility of an acquisition by another company, or another change of control transaction, and that such consideration can cause such executive officers to consider alternative employment opportunities.

We have entered into an individual participation agreement with each of our executive officers under the terms of the Severance Plan that provides for specified payments and benefits in the event of the participant's termination under the circumstances described below:

- Under the Severance Plan, if any executive's employment (other than Mr. Linthwaite's) is terminated outside of the period beginning 3 months before a change of control (as defined in the Severance Plan) and ending 12 months after a change of control (such period, the "Change of Control Period") for a reason other than cause or the executive's death or disability (as such terms are defined in the Severance Plan), then, subject to the Severance Conditions (as defined below), the executive will be entitled to receive the following severance benefits:
  - Continued payments (less applicable withholdings) totaling 75% of the executive's annual base salary in effect as of the date of termination in equal installments over a period of nine months (or, in the case of our CEO, 200% of his annual base salary paid in equal installments over a period of 24 months) following his termination.
  - Reimbursement of costs of continued health coverage for the executive, his or her spouse, and/or his or her dependents, as applicable, for a period of up to 9 months (or, in the case of our CEO, 12 months) following termination.
  - Reasonable outplacement services in accordance with any applicable policy of ours that is in effect as of the executive's termination (or if no such policy is in effect, as determined by us).
- Under the Severance Plan, if any executive's employment is terminated within the Change of Control Period either (i) by us for a reason other than cause or the executive's death or disability or (ii) by the executive for good reason (as defined in the executive's participation agreement under the Severance Plan), then, subject to the Severance Conditions, the executive will be entitled to receive the following severance benefits:
  - A lump-sum payment (less applicable withholdings) totaling 150% (or, in the case of our CEO, 250%) of the sum of (x) his or her annual base salary (as in effect immediately before termination or immediately before the change of control, whichever is higher) plus (y) the greater of (A) his or her annual target cash incentive (as in effect immediately before termination or immediately before the change of control, whichever is higher) or (B) the average of the annual cash incentives actually paid to him or her for the three fiscal years preceding the year in which his or her termination occurs.
  - A pro-rated payment of the executive's annual bonus in effect at the time of the Change of Control.
  - Reimbursement of costs of continued health coverage for the executive, his or her spouse, and/or his or her dependents, as applicable, for a period of up to 18 months (or, in the case of our CEO, 30 months) following termination.
  - 100% vesting acceleration of his or her then-outstanding and unvested equity awards, provided that, if an equity award is to vest and/or the amount of the award to vest is to be determined based on the achievement of performance criteria, then, unless otherwise provided in the applicable equity award agreement, 100% of such equity award will vest assuming the applicable performance criteria had been achieved at target levels for the relevant performance period(s).
  - Reasonable outplacement services in accordance with any applicable policy of ours that is in effect as of the executive's termination (or if no such policy is in effect, as determined by us), except that such outplacement services will be in no case less than the outplacement services provided under any applicable policy of ours that is in effect immediately prior to the applicable change of control.

To receive the Severance Plan benefits, an executive would also be required to sign and not revoke a separation and release of claims agreement in a form reasonably satisfactory to us within the period set forth in the Severance Plan and be in compliance with any confidentiality, proprietary information and inventions assignment agreement and any other appropriate agreement between the executive and us (together, the "Severance Conditions").

If any of the severance and other benefits provided for in the Severance Plan or otherwise payable to an executive ("280G Payments") constitute "parachute payments" within the meaning of Section 280G of the Internal Revenue Code and could be subject to excise tax under Section 4999 of the Internal Revenue Code, then the 280G Payments will be delivered in full or delivered as to such lesser extent which would result in no portion of such benefits being subject to excise tax, whichever results in the greater amount of after-tax benefits to such executive. The Severance Plan does not require us to provide any tax gross-up payment to any executive participating in the Severance Plan.

Subject to earlier termination in accordance with its terms and conditions, the Severance Plan will automatically terminate three years following its adoption by the Compensation Committee; however, if a change of control occurs, the expiration date of the Severance Plan will be extended automatically through the date 12 months following the change of control.

The following table describes the payments and benefits that each of our NEOs would be entitled to receive pursuant to the Severance Plan, assuming that each of the following triggers occurred on December 31, 2021: (i) his employment was terminated for a reason other than for "cause" or the NEO's death or "disability" more than 3 months prior to or after 12 months following a "change of control" and (ii) his employment was terminated for a reason other than for "cause" or the NEO's death or "disability" or by them for "good reason" within 3 months prior to or 12 months following a "change of control."

	Employment Terminated for Reason Other than Cause, Death, or Disability More Than 3 Months Prior to, or More Than 12 Months After, a Change of Control		Employment Terminated for Reason Other Than Cause, Death or Disability Within 3 Months Prior to or 12 Months After a Change of Control[1]		
Name	Severance Payments ($)	Health Care Benefits ($)	Equity Acceleration ($)[2]	Severance Payments ($)	Health Care Benefits ($)
Stephen Christopher Linthwaite	[3]	—	3,610,747	2,975,000[4]	73,446[5]
Vikram Jog	293,877[6]	22,034[7]	1,052,218	911,018[8]	44,067[9]
Colin McCracken	290,474[6]	2,916[10]	1,226,223	900,469[8]	5,832[11]
Bradley Kreger	263,640[6]	22,034[7]	982,850	790,920[8]	44,067[9]
Nicholas Khadder	268,421[6]	22,034[7]	591,944	805,263[8]	44,067[9]

(1) Includes termination of the NEO's employment by the Company or its successor without "cause" and termination by the NEO for "good reason."

(2) We estimate the value of the acceleration of options, PSUs and RSUs held by the NEO based on the closing stock price of our common stock of $3.92 per share on December 31, 2021, as reported on the Nasdaq Global Select Market, and the number of unvested in-the-money options and shares held by such NEO as of December 31, 2021. The number of PSUs accelerated are at target levels.

(3) Mr. Linthwaite's employment with the Company has terminated, effective as of April 4, 2022. Unless the Company experiences a Change of Control within 3 months of the Linthwaite Separation Date, he will not be eligible to receive benefits under the Severance Plan. The amount he would have received under the Severance Plan as of December 31, 2021 is $1,190,000. The terms of the Transition Plan with Mr. Linthwaite are described in "Management Agreements — Linthwaite."

(4) The amount shown is equal to (a) 250% of the sum of (x) Mr. Linthwaite's annual base salary as of December 31, 2021, plus (y) his annual target cash incentive as of December 31, 2021, plus (b) the maximum annual bonus amount that could be payable.

(5) The amount shown is equal to the cost of covering Mr. Linthwaite and his eligible dependents under our benefit plans for a period of 30 months, assuming that such coverage is timely elected under COBRA.

(6) The amount shown is equal to 75% of the NEO's annual base salary as of December 31, 2021.

(7) The amount shown is equal to the cost of covering the NEO and his eligible dependents under our benefit plans for a period of nine months, assuming that such coverage is timely elected under COBRA for such U.S.-based NEO.

(8) The amount shown is equal to (a) 150% of the sum of (x) the NEO's annual base salary as of December 31, 2021, plus (x) his annual target cash incentive as of December 31, 2021, plus (b) the maximum annual bonus amount that could be payable.

(9) The amount shown is equal to the cost of covering the NEO and his eligible dependents under our benefit plans for a period of 18 months, assuming that such coverage is timely elected under COBRA for such U.S.-based NEO.

(10) The amount shown is equal to the cost of covering Mr. McCracken and his eligible dependents under our U.K. benefit plans for a period of nine months. Based on conversion of British pounds sterling (GBP) to USD at a rate of 1 GBP to 0.7269 USD, the average exchange rates for the period beginning January 1, 2021 to December 31, 2021.

(11) The amount shown is equal to the cost of covering Mr. McCracken and his eligible dependents under our U.K. benefit plans for a period of 18 months. Based on conversion of GBP to USD at a rate of 1 GBP to 0.7269 USD, the average exchange rates for the period beginning January 1, 2021 to December 31, 2021

In addition to the benefits described above, our 2011 Plan and 2017 Inducement Plan provide for full acceleration of all outstanding options in the event of a change of control of our Company where the successor company does not assume our outstanding options and other awards in connection with such acquisition transaction. We estimate the value of this benefit for each NEO to be equal to the amount listed above in the column labeled "Equity Acceleration."

CEO PAY RATIO

Under rules adopted pursuant to the Dodd-Frank Act, we are required to calculate and disclose the total compensation paid to our median paid employee, as well as the ratio of the total compensation paid to the median employee as compared to the total compensation paid to our CEO (the "CEO Pay Ratio"). The paragraphs that follow describe our methodology and the resulting CEO Pay Ratio.

Measurement Date

We identified the median employee using our employee population on December 31, 2021 (including all employees, whether employed on a full-time, part-time, seasonal or temporary basis).

Consistently Applied Compensation Measure

Under the relevant rules, we are required to identify the median employee by use of a "consistently applied compensation measure" ("CACM"). We chose a CACM that closely approximates the annual target total direct compensation of our employees. Specifically, we identified the median employee by aggregating, for each employee as of December 31, 2021: (i) annual base pay, (ii) annual target cash incentive opportunity, and (iii) the grant date fair value for equity awards granted in 2021. In identifying the median employee, we converted compensation amounts paid in foreign currencies based on the applicable year-to-date average exchange rate as of December 31, 2021, and annualized the compensation values of permanent employees who joined our Company during 2021. Pursuant to the de minimis exemption, we excluded 12 employees based in Japan as of December 31, 2021. After excluding those individuals, we had 607 employees, 205 of whom were based in the United States.

Methodology and Pay Ratio

Once the median employee was identified, we calculated the median employee's annual target total direct compensation in accordance with the requirements of the Summary Compensation Table. Our median employee's compensation in 2021 as calculated using Summary Compensation Table requirements was $88,745. Our CEO's compensation in 2021 as reported in the Summary Compensation Table was $3,311,663. Therefore, our CEO Pay Ratio for 2021 is 37:1.

This information is being provided for compliance purposes and is a reasonable estimate calculated in a manner consistent with the SEC rules, based on our internal records and the methodology described above. The SEC rules for identifying the median compensated employee allow companies to adopt a variety of methodologies, to apply certain exclusions and to make reasonable estimates and assumptions that reflect their employee populations and compensation practices. Accordingly, the pay ratio reported by other companies may not be comparable to the pay ratio reported above, as other companies have different employee populations and compensation practices and may use different methodologies, exclusions, estimates and assumptions in calculating their own pay ratios. Neither the Compensation Committee nor management of the Company used the CEO Pay Ratio measure in making compensation decisions.

EQUITY COMPENSATION PLAN INFORMATION

The following table summarizes the number of outstanding options and RSUs granted to our employees, consultants, and directors, as well as the number of shares of common stock remaining available for future issuance, under our equity compensation plans as of December 31, 2021. A description of each of our equity compensation plans is incorporated by reference to Note 13 to the consolidated financial statements set forth in our Form 10-K.

	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Equity compensation plans approved by security holders			
2009 Equity Incentive Plan[1]	—	—	—
2011 Equity Incentive Plan	8,940,560	$ 6.23	3,518,972
2017 Employee Stock Purchase Plan	—	—	2,633,013
Equity compensation plans not approved by security holders			
DVS Sciences, Inc. 2010 Equity Incentive Plan[2]	9,030	$ 1.76	—
2017 Inducement Award Plan[3]	234,677	$ 7.53	—
Total	9,184,267	$ 6.26	6,151,985

(1) The 2009 Plan was replaced by the 2011 Plan in February 2011. A total of 55,423 shares remaining available for grant under the 2009 Plan were transferred to the 2011 Plan and the 2009 Plan was terminated for any new grants.
(2) Represents awards assumed in connection with our acquisition of DVS Sciences, Inc. in February 2014.
(3) The 2017 Inducement Plan was terminated in June 2019 for any new grants.

RELATED PERSON TRANSACTIONS AND SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Related Person Transactions

Preferred Equity Transaction

On April 4, 2022, the Company, Casdin Private Growth Equity Fund II, L.P. and Casdin Partners Master Fund, L.P. (collectively, "Casdin") and Viking Global Opportunities Illiquid Investments Sub-Master LP and Viking Global Opportunities Drawdown (Aggregator) LP (collectively, "Viking" and, together with Casdin, the "Purchasers" and individually, a "Purchaser") completed the previously announced transactions contemplated by the Series B-1 Convertible Preferred Stock Purchase Agreement, dated January 23, 2022, by and between the Company and Casdin (the "Casdin Purchase Agreement"), and Series B-2 Convertible Preferred Stock Purchase Agreement, dated January 23, 2022 (the "Viking Purchase Agreement" and collectively, the "Purchase Agreements"), by and between the Company and Viking. On April 4, 2022, the Company issued and sold (a) to Casdin, 112,500 shares of the Company's newly designated Series B-1 Preferred Stock in exchange for $112.5 million, and (b) to Viking, 112,500 shares of the Company's newly designated Series B-2 Preferred Stock in exchange for $112.5 million (such transactions, collectively, the "Preferred Equity Transactions").

On January 23, 2022, the Company entered into (i) a Loan Agreement, dated and effective as of January 23, 2022, among the lenders party thereto affiliated with Casdin Private Growth Equity Fund II, L.P. and the Company (the "Casdin Loan Agreement") and (ii) a Loan Agreement, dated and effective as of January 23, 2022, among the lenders party thereto affiliated with Viking Global Investors LP and the Company (the "Viking Loan Agreement," and together with the Casdin Loan Agreement, the "Loan Agreements"). Each Loan Agreement provided for a $12.5 million term loan to the Company (each, a "Term Loan" and collectively, the "Term Loans"). The Term Loans were fully drawn on January 24, 2022. Upon the issuance of the Series B Preferred Stock pursuant to the Purchase Agreements, the Term Loan under the Casdin Loan Agreement automatically converted into an aggregate of 15,280 shares of Series B-1 Preferred Stock and the Term Loan under the Viking Loan Agreement automatically converted into an aggregate of 15,279 shares of Series B-2 Preferred Stock, in accordance with the terms of the Casdin Loan Agreement or the Viking Loan Agreement, as applicable. As a result of the Preferred Equity Transactions and the Term Loans, Casdin owns Series B-1 Preferred Stock that could convert into up to 37,582,346 shares of common stock, subject to certain limitations on voting, and Viking owns Series B-2 Preferred Stock that could convert into up to 37,582,052 shares of common stock, subject to certain limitations on voting and the Blocker (as defined in footnote 2 of the table below in the section entitled "*Security Ownership*." Please see item 8 of the *General Information* section entitled "*Are any shares subject to voting restrictions?*" regarding limitations on voting in excess of 19.9% for each of the Series B-1 Preferred Stock holders and the Series B-2 Preferred Stock holders. Casdin has designated Eli Casdin as the Series B-1 Preferred Director and Mr. Casdin is the managing member of Casdin.

On January 23, 2022, the Company entered into a Registration Rights Agreement with the Purchasers pursuant to which the Purchasers will have certain customary registration rights with respect to shares issued under the Loan Agreements and the Purchase Agreements, including (i) any shares of Common Stock acquired by any Holder (as defined in the Registration Rights Agreement) pursuant to the conversion of the Series B Preferred Stock in accordance with the Certificates of Designations and (ii) any shares of Common Stock acquired by any Holder pursuant to preemptive rights under the Purchase Agreements.

Each of the Certificate of Designations of the Series B-1 Preferred Stock and the Certificate of Designations of the Series B-2 Preferred Stock provides that, for so long as, in each case, (a) Casdin and its Permitted Transferees (as defined in the B-1 Certificate of Designations) continue to beneficially own shares of Series B-1 Preferred Stock that represent at least 7.5% of the outstanding shares of Common Stock, on an as converted basis (the "Casdin Ownership Percentage"), and (b) Viking and its Permitted Transferees (as defined in the B-2 Certificate of Designations) continue to beneficially own shares of Series B-2 Preferred Stock that represent at least 7.5% of the outstanding shares of Common Stock, on an as converted basis (the "Viking Ownership Percentage"), on the terms and subject to the conditions set forth in the respective Certificates of Designations, the holders of a majority of the outstanding shares of Series B-1 Preferred Stock and Series B-2 Preferred Stock will each have the right to nominate for election and to elect one member to the Board. The Certificates of Designations also provide that for so long as the Casdin Ownership Percentage and the Viking Ownership Percentage continue to be met or exceeded for such series of Series B Preferred Stock, each of the Preferred Directors will have certain consent rights over, among other things: (i) any increase in the number of directors on the Board 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 such term is defined in the Certificates of Designations), 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, (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 disposition 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.

Support Agreement

On March 29, 2022, the Company entered into a support agreement (the "Support Agreement") with Caligan Partners LP and each of the other persons and entities set forth on the signature pages to the Support Agreement (collectively, the "Caligan Group"). Among other matters, the Support Agreement provided that effective as of the consummation of the Preferred Equity Transactions (i) the Company would increase the size of its Board to eight and appoint Dr. Frank Witney to the Board to serve as a Class III director with a term expiring at the 2022 Annual Meeting, (ii) at the special meeting of the Company's stockholders called to consider the Preferred Equity Transactions (including any adjournments, postponements or other delays thereof), the members of the Caligan Group would cause all applicable securities of the Company that are beneficially owned by the members of the Caligan Group to be (a) present for quorum purposes; and (b) voted in the manner recommended by the Board on all proposals, (iii) the Company would nominate Dr. Witney for election at the 2022 Annual Meeting and recommend, support and solicit proxies for his election, and (iv) certain standstill restrictions to which the Caligan Group is subject will terminate.

Policy Concerning Audit Committee Approval of Related Person Transactions

Our Board and Audit Committee have adopted a formal written policy that our executive officers, directors, holders of more than 5% of any class of our voting securities, and any member of the immediate family of any of the foregoing persons, are not permitted to enter into any transaction with us for which disclosure would be required under Item 404 of Regulation S-K, referred to as a related person transaction, without the review and approval or ratification of our Audit Committee, or other independent members of our Board if it is inappropriate for our Audit Committee to review such transaction due to a conflict of interest. Any related person transaction must be presented to our Audit Committee for review, consideration and approval or ratification. In approving or rejecting any such related person transaction, our Audit Committee is to consider the relevant facts and circumstances available and deemed relevant to the Audit Committee, including, but not limited to, whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances and the extent of the related person's interest in the transaction.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, requires our directors, executive officers, and holders of more than 10% of our common stock to file with the SEC reports regarding their ownership and changes in ownership of our securities. We believe that our directors, executive officers, and 10% stockholders complied with all Section 16(a) filing requirements in 2021. In making these statements, we have relied upon examination of the filings made with the SEC and the written representations of our directors and executive officers.

SECURITY OWNERSHIP

Except as indicated by the footnotes below, the following table sets forth information as of April 18, 2021 concerning:

- Each person we believe to be the beneficial owner of more than five percent of our common stock or Series B Preferred Stock;
- Each of our directors and nominees for the Board;
- Each of our NEOs; and
- All of our directors and executive officers as a group.

Unless otherwise noted below, the address of each person listed on the table is c/o Standard BioTools Inc., 2 Tower Place, Suite 2000, South San Francisco, California 94080.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as otherwise indicated, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership is based on 77,252,135 shares of common stock outstanding at April 18, 2022. In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, we deemed outstanding shares of common stock subject to options held by that person that are currently exercisable, options held by that person that are exercisable within 60 days of April 18, 2022, RSUs that are scheduled to vest within 60 days of

April 18, 2022, and shares of common stock into which shares of Series B Preferred Stock are convertible. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person. There were 255,559 shares of our Series B Preferred Stock outstanding as of April 18, 2022.

The information provided in the table is based on our records, information filed with the SEC, and information provided to the Company, except where otherwise noted.

Name of Beneficial Owner	Common Shares Beneficially Owned	Percent of Common Shares Beneficially Owned	Preferred Shares Beneficially Owned	Percent of Preferred Shares Beneficially Owned
5% Stockholders:				
Entities affiliated with Casdin Capital, LLC[1]	37,582,346	32.7%	127,780	50.0002%
Entities affiliated with Viking Global Investors LP[2]	8,109,340	9.5%	127,779	49.9998%
Caligan Partners LP[3]	8,380,265	10.8%	—	—
Indaba Capital Management, L.P.[4]	7,585,905	9.8%	—	—
BlackRock, Inc.[5]	6,251,230	8.1%	—	—
PRIMECAP Management Company[6]	5,093,403	6.6%	—	—
RA Capital Management, L.P.[7]	4,651,177	6.0%	—	—
North Sound Trading, LP[8]	4,375,000	5.7%	—	—
Neuberger Berman Group LLC[9]	4,336,103	5.6%	—	—
The Vanguard Group[10]	3,867,671	5.0%	—	—
Orbimed[11]	3,819,348	4.9%	—	—
Directors and NEOs:				
Stephen Christopher Linthwaite[12]	970,056	1.2%	—	—
Michael Egholm[13]	5,000	*	—	—
Gerhard F. Burbach[14]	194,704	*	—	—
Eli Casdin[15]	37,582,346	32.7%	127,780	50.0002%
Laura M. Clague[16]	99,442	*	—	—
Bill W. Colston[17]	66,799	*	—	—
Martin Madaus	—	—		
Carlos V. Paya[18]	146,345	*	—	—
Frank Witney[19]	4,225	*	—	—
Vikram Jog[20]	366,648	*	—	—
Nicholas S. Khadder[21]	111,300	*	—	—
Bradley Kreger[22]	233,588	*	—	—
Colin McCracken[23]	118,072	*	—	—
All current directors and NEOs as a group (11 persons)[24]	39,898,525	51.6%		

*Less than one percent.

(1) According to a Schedule 13D filed jointly by Casdin Partners Master Fund, L.P. (“Casdin Master Fund”), Casdin Private Growth Equity Fund II, L.P. (“Casdin Private Growth Fund”), Casdin Capital, LLC (“Casdin Capital”), as investment adviser to Casdin Master Fund and Casdin Private Growth Fund, Casdin Partners GP, LLC (“Casdin Partners GP”), as the general partner of Casdin Master Fund, Casdin Private Growth Equity Fund II GP, LLC ("Casdin Private Growth GP"), as the general partner of Casdin Private Growth Fund, and Eli Casdin, as the managing member of Casdin Capital, Casdin Partners GP and Casdin Private Growth GP, shared voting and dispositive power is held with respect to 89,446 shares of Series B-1 Preferred Stock held by Casdin Master Fund and 38,334 shares of Series B-1 Preferred Stock held by Casdin Private Growth Fund. Reported shares include 37,582,346 shares of common stock issuable upon conversion of Series B-1 Preferred Stock and percentage of common stock beneficially owned is based on 114,834,481 outstanding shares. Casdin’s address is 1350 Avenue of the Americas, Suite 2600, New York, NY 10019.

(2) Represents (i) 5,433,258 shares of common stock that Viking Global Opportunities Illiquid Investments Sub-Master LP (the "Viking Hybrid Fund") has the right to acquire and (ii) 2,676,082 shares of common stock that Viking Global Opportunities Drawdown (Aggregator) LP (the "Viking Drawdown Fund") has the right to acquire, in each case, upon conversion of shares of Series B-2 Preferred Stock held by Viking and after giving effect to a provision in the B-2 Certificate of Designations which provides that neither Viking nor its affiliates shall be entitled to convert shares of Series B-2 Preferred Stock unless such conversion would not result in Viking, together with its affiliates, beneficially owning more than 9.5% of the total number of shares of common stock outstanding (the "Blocker"), and percentage of common stock beneficially owned is based on 8,109,340 outstanding shares. Accordingly, the amount of shares of common stock reported as beneficially owned by Viking set forth in the table above excludes shares of common stock that Viking does not currently have the right to acquire upon conversion of the Series B-2 Preferred Stock due to the Blocker (and applies the Blocker pro rata across Viking). Without giving effect to the Blocker, the Series B-2 Preferred Stock held by the Viking Hybrid Fund would be convertible into 25,179,995 shares of common stock and the Series B-2 Preferred Stock held by the Viking Drawdown Fund would be convertible into 12,402,056 shares of common stock, for an aggregate of 37,582,051 shares of common stock. The Viking Hybrid Fund has the authority to dispose of and vote the shares directly owned by it, which power may be exercised by its general partner, Viking Global Opportunities Portfolio GP LLC ("Hybrid Opportunities GP"), and by Viking Global Investors LP ("VGI"), which provides managerial services to the Viking Hybrid Fund. O. Andreas Halvorsen, David C. Ott and Rose Shabet, as Executive Committee members of Viking Global Partners LLC (the general partner of VGI) and Hybrid Opportunities GP, have shared authority to direct the voting and disposition of investments beneficially owned by VGI and Hybrid Opportunities GP. The Viking Drawdown Fund has the authority to dispose of and vote the shares directly owned by it, which power may be exercised by its general partner, Viking Global Opportunities Drawdown Portfolio GP LLC ("Drawdown Opportunities GP"), and by VGI, which provides managerial services to the Viking Drawdown Fund. O. Andreas Halvorsen, David C. Ott and Rose Shabet, as Executive Committee members of Viking Global Partners LLC (the general partner of VGI) and Drawdown Opportunities GP, have shared authority to direct the voting and disposition of investments beneficially owned by VGI and Drawdown Opportunities GP. Viking's address is c/o Viking Global Investors LP, 55 Railroad Avenue, Greenwich, Connecticut 06830.

(3) Information is as of March 29, 2022, the latest date for which information is available to the Company. According to a Schedule 13D/A filed jointly by Caligan Partners LP ("Caligan"), which identified itself as the investment manager of an affiliated fund and managed accounts, and David Johnson, the managing member of the general partner of Caligan, shared voting power and dispositive power with respect to all of such shares. Caligan's address is 590 Madison Avenue, New York, New York 10022.

(4) Information is as of December 31, 2021, the latest date for which information is available to the Company. According to a Schedule 13G/A filed jointly by Indaba Capital Management, L.P., IC GP, LLC ("IC GP"), Indaba's sole general partner, and Derek C. Schrier, the managing member of IC GP, shared voting and dispositive power is held with respect to all of such shares. Reported shares include 139,676 shares issuable upon conversion of our 5.25% Convertible Senior Notes due 2024 and percentage beneficially owned is based on 77,391,821 outstanding shares. Indaba's address is One Letterman Drive, Building D, Suite DM700, San Francisco, CA 94129.

(5) Information is as of December 31, 2021, the latest date for which information is available to the Company. According to a Schedule 13G/A filed by BlackRock, Inc., which identified itself as a parent holding company, sole dispositive power is held with respect to all of such shares and sole voting power is held with respect to 6,129,387 shares. BlackRock's address is 55 East 52nd Street, New York, NY 10055.

(6) Information is as of December 31, 2021, the latest date for which information is available to the Company. According to a Schedule 13G/A filed by PRIMECAP Management Company, which identified itself as an investment adviser, sole voting power and dispositive power is held with respect to all of such shares. PRIMECAP's address is 177 E. Colorado Blvd., 11th Floor, Pasadena, CA 91105.

(7) Information is as of March 14, 2022, the latest date for which information is available to the Company. According to a Schedule 13G filed jointly by RA Capital Management, L.P. ("RA Capital"), Peter Kolchinsky, Rajeev Shah, and RA Capital Healthcare Fund, L.P., shared voting and dispositive power is held with respect to all of such shares. The address for RA Capital and its affiliates is 200 Berkeley Street, 18th Floor, Boston, MAs 02116.

(8) Information is as of February 24, 2022, the latest date for which information is available to the Company. According to a Schedule 13G filed jointly by North Sound Trading, LP ("NST"), its general partner North Sound Management, Inc. ("NSM"), and Brian Miller, the sole owner of NSM, sole voting and dispositive power is held with respect to all of such shares. The principal business address for NST, NSM, and Mr. Miller is c/o North Sound Management, Inc., 115 East Putnam Avenue, Greenwich, CT 06830.

(9) Information is as of November 18, 2021, the latest date for which information is available to the Company. According to a Schedule 13D filed jointly by Neuberger Berman Group LLC ("NB Group"), Neuberger Berman Investment Advisers LLC ("NBIA"), Neuberger Berman Investment Advisers Holdings, LLC, Neuberger Berman Canada Holdings LLC, NB Acquisitionco ULC, Neuberger Berman Canada ULC ("NBCU"), Benjamin Nahum, Amit Solomon, Rand Gesing, and Pong Chan, which identified themselves as a group. NBIA, which identified itself as an investment adviser, shared dispositive power and voting power with respect to 3,459,561 of such shares and has been granted discretionary power, but not voting power, with respect to 823,514 of such shares and NBCU, which identified itself as an investment adviser, shared dispositive and voting power with respect to 53,028 of such shares. Neuberger Berman's address is 1290 Avenue of the Americas, New York, NY 10104. NBCU's address is 2 Bloor St East, Toronto, Ontario M4W 1A8, Canada.

(10) Information is as of December 31, 2021, the latest date for which information is available to the Company. According to a Schedule 13G filed by The Vanguard Group, which identified itself as an investment adviser, shared voting power is held with respect to

67,169 shares, sole dispositive power is held with respect to 3,744,688 shares, and shared dispositive power is held with respect to 122,983 shares. Vanguard's address is 100 Vanguard Blvd., Malvern, PA 19355.

(11) Information is as of December 31, 2021, the latest date for which information is available to the Company. According to a Schedule 13G/A filed jointly by OrbiMed Advisors LLC and OrbiMed Capital LLC ("OrbiMed Capital"), which identified themselves as investment advisors, shared voting power and dispositive power is held with respect to 402,477 shares and OrbiMed Capital holds sole voting power and sole dispositive power with respect to 3,416,871 shares. OrbiMed's address is 601 Lexington Avenue, 54th Floor, New York, NY 10022.

(12) Consists of 328,473 shares held by Mr. Linthwaite, options to purchase 495,000 shares of common stock that are exercisable within 60 days of April 18, 2022, and 146,583 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(13) Consists of 5,000 shares held by Mr. Egholm.

(14) Consists of 21,369 shares held by Mr. Burbach, options to purchase 128,791 shares of common stock that are exercisable within 60 days of April 18, 2022, 10,342 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022, and 34,202 shares subject to RSUs that are vested with respect to which Mr. Burbach has deferred settlement as described in "Compensation of Directors — RSUs in Lieu of Cash and RSU Deferral."

(15) Consists of 89,446 shares of Series B-1 Preferred Stock held of record by Casdin Master Fund and 38,334 shares of Series B-1 Preferred Stock held of record by Casdin Private Growth Fund. Mr. Casdin is the managing member of the general partners of Casdin Master Fund and Casdin Private Growth Fund and, as such, is deemed to have indirect beneficial ownership of such shares. Reported shares also reflect 37,582,346 shares of common stock issuable upon conversion of the Series B-1 Preferred Stock and percentage of common stock beneficially owned is based on 114,834,481 outstanding shares.

(16) Consists of options to purchase 54,441 shares of common stock that are exercisable within 60 days of April 18, 2022, and 45,001 shares subject to RSUs that are vested or scheduled to vest within 60 days of April 18, 2022 with respect to which Ms. Clague has deferred settlement as described in "Compensation of Directors — RSUs in Lieu of Cash and RSU Deferral."

(17) Consists of 15,700 shares held by Dr. Colston, options to purchase 40,757 shares of common stock that are exercisable within 60 days of April 18, 2022, and 10,342 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(18) Consists of 59,212 shares held by Dr. Paya, options to purchase 76,791 shares of common stock that are exercisable within 60 days of April 18, 2022, and 10,342 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(19) Reflects shares held by the First Amended and Restated Revocable Trust Agreement For the Franklin R. Witney and Catherine J. Caulfield-Witney Trust Agreement Dated September 25, 2009 (dated July 31, 2018) (of which Mr. Witney is a trustee).

(20) Consists of 134,211 shares held by Mr. Jog, 52,061 shares held by the Vikram and Pratima Jog Family Trust U/A dated June 23, 2009 (of which Mr. Jog is a trustee), options to purchase 138,475 shares of common stock that are exercisable within 60 days of April 18, 2022, and 41,901 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(21) Consists of 82,391 shares held by Mr. Khadder and 28,909 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(22) Consists of 91,308 shares held by Mr. Kreger, options to purchase 100,000 shares of common stock that are exercisable within 60 days of April 18, 2022, and 42,280 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(23) Consists of 65,103 shares held by Mr. McCracken and 52,969 shares subject to RSUs that are scheduled to vest within 60 days of April 18, 2022.

(24) Consists of 39,898,525 shares beneficially owned by current directors and NEOs, options held by current directors and NEOs to purchase 1,034,255 shares of common stock that are exercisable within 60 days of April 18, 2022, 354,010 shares subject to RSUs held by current directors and executive officers that are scheduled to vest within 60 days of April 18, 2022, and 68,861 shares subject to vested RSUs with respect to which settlement has been deferred.

OTHER MATTERS

We know of no other matters to be submitted at the 2022 Annual Meeting. If any other matters properly come before the 2022 Annual Meeting, it is the intention of the persons named in the proxy to vote the shares they represent as the Board may recommend. Discretionary authority with respect to such other matters is granted by a properly submitted proxy.

It is important that your shares be represented at the 2022 Annual Meeting, regardless of the number of shares that you hold. You are, therefore, urged to vote as promptly as possible to ensure your vote is recorded.

THE BOARD OF DIRECTORS

South San Francisco, California
April 29, 2022

BOARD OF DIRECTORS AND MANAGEMENT

Directors

Carlos Paya, M.D., Ph.D., *Chairman*
Former Chief Executive Officer, President and Director, Immune Design Corp.

Gerhard F. Burbach
Former President, Chief Executive Officer, and Director, Thoratec Corporation

Eli Casdin
Chief Investment Officer, Casdin Capital, LLC

Laura M. Clague
Chief Financial Officer, Travere Therapeutics, Inc.

Bill W. Colston, Ph.D.
Chief Executive Officer, Sestina Bio, LLC

Martin D. Madaus, Ph.D.
Former Chairman and CEO, Ortho-Clinical Diagnostics, Inc,

Frank Witney, Ph.D.
Former President and Chief Executive Officer, Affymetrix, Inc.,

Michael Egholm, Ph.D.
Chief Executive Officer and President

Executive Officers

Michael Egholm, Ph.D.
Chief Executive Officer and President

Vikram Jog
Chief Financial Officer

Jeremy Davis
Senior Vice President, Chief Commercial Officer

Nicholas Khadder
Senior Vice President, General Counsel, and Corporate Secretary

Hanjoon Alex Kim
Chief Operating Officer

Bradley Kreger
Senior Vice President, Global Operations

CORPORATE INFORMATION

Corporate Headquarters

Standard BioTools Inc.
2 Tower Place
Suite 2000
South San Francisco, California 94080

Annual Meeting

The Standard BioTools 2022 Annual Meeting of Stockholders will take place on Wednesday, June 15, 2022 at 8:30 a.m., Pacific time, at the Genesis SSF Performing Arts Center located at 1 Tower Place, South San Francisco, California 94080.

Independent Auditors

PricewaterhouseCoopers, LLP
San Jose, California

Legal Counsel

Wilson Sonsini Goodrich & Rosati, P.C.
Palo Alto, California

Stockholder Services

You may contact our transfer agent by writing Computershare Trust Company, N.A. at 462 South 4th Street, Suite 1600 Louisville, KY 40202. You may also contact our transfer agent by calling (800) 662-7232 or (781) 575-2879 or via its Investor Center at www-us.computershare.com/Investor/Contact.

Stock Exchange Information

Our common stock is traded on the Nasdaq Global Select Market under the symbol LAB.

Internet Address Information

Visit us online at www.fluidigm.com for more information about us and our products and services. The 2021 Annual Report and the 2022 Proxy Statement are available online by visiting www.proxyvote.com and typing in the control number as set forth either on the proxy card as to stockholders of record, or on the voting instruction form as to individuals who hold shares through a broker, bank, trustee, or other nominee.

ANNUAL REPORT ON FORM 10-K

Stockholders may receive a copy of our annual report on Form 10-K, including the financial statements and the financial statement schedules, free of charge upon written request. Please send such requests to Standard BioTools Inc., 2 Tower Place, Suite 2000, South San Francisco, California 94080, Attention: Corporate Secretary.

Special Note Regarding Forward-Looking Statements

These proxy materials and the accompanying CEO letter contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, that are based on our management's beliefs and assumptions and on information currently available to our management. Forward-looking statements include information concerning our expectations to accelerate growth and innovation; cost structure optimization; ability to achieve greater breadth and scale; expectations to realize new opportunities within mass cytometry and microfluidics; ability to improve the human condition; and other expectations for Standard BioTools following the closing of the $250 million strategic capital infusion in April 2022. Forward-looking statements include statements that are not historical facts and can be identified by terms such as "anticipate," "believe," "estimate," "expect," "intend," "seek," "plan," "potential," "continue," "should," "could," "will," "would," or similar expressions and the negatives of those terms.

Forward-looking statements are subject to numerous risks and uncertainties that could 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. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Factors that could materially affect our future results, performance, or achievements include, but are not limited to, interruptions or delays in the supply of components or materials for, or manufacturing of, Standard BioTools products; potential product performance and quality issues; intellectual property risks; competition; uncertainties in contractual relationships; reductions in research and development spending or changes in budget priorities by customers; and risks associated with international operations. In addition, investors in Standard BioTools should review the more detailed discussions of additional risks and uncertainties and other information affecting our business described under the caption "Risk factors" in our Fluidigm Corporation Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 8, 2022 and in our subsequent quarterly reports on Form 10-Q.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, 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.

Standard BioTools Inc.
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