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

FORM 10-K
(Mark One)

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2017

Or

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

For the transition period from to
Commission file number: 001-34180

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 Number)**

7000 Shoreline Court, Suite 100
South San Francisco, California 94080
(Address of principal executive offices) (Zip Code)
(650) 266-6000
Registrant's telephone number, including area code
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $0.001 Par Value per Share	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 of 1933, as amended. Yes ¨ No x
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended. Yes ¨ No x
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 x No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x
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	x
Non-accelerated filer	¨ (Do not check if a smaller reporting company)	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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ¨ No x

As of June 30, 2017, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant was approximately $87,539,609 (based on a closing sale price of $4.04 per share as reported for the NASDAQ Global Select Market on June 30, 2017). 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.
The number of shares of the registrant's common stock, $0.001 par value per share, outstanding as of February 9, 2018 was 38,812,314.

DOCUMENTS INCORPORATED BY REFERENCE
Portions of the registrant's Definitive Proxy Statement relating to the Annual Meeting of Stockholders are incorporated by reference into Part III of this Annual Report on Form 10-K where indicated. Such Definitive Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the registrant's fiscal year ended December 31, 2017.

Fluidigm Corporation
Fiscal Year 2017
Form 10-K
Annual Report

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Special Note Regarding Forward-looking Statements and Industry Data

This Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or Exchange Act, that are based on our management's beliefs and assumptions and on information currently available to our management. The forward-looking statements are contained principally in the sections entitled "Business," "Risk factors," and "Management's discussion and analysis of financial condition and results of operations." Forward-looking statements include information concerning our possible or assumed future cash flow, revenue, sources of revenue and results of operations, cost of product revenue and product margin, operating and other expenses, unit sales and the selling prices of our products, business strategies, financing plans, expansion of our business, competitive position, industry environment, potential growth opportunities, market growth expectations, and the effects of competition. 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,' "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.

"Fluidigm," the Fluidigm logo, "Access Array," "Advanta," "Biomark," "C1," "Callisto," "Cell-ID," "CyTOF," "D3," "Delta G "Digital Array," "Dynamic Array," "EP1," "EQ," "FC1," "Flex Six," "Helios," "High-Precision 96.96 Genotyping," "Hyperion Mass Cytometry," "IMC," "Juno," "Maxpar," "MCD," "MSL," "Nanoflex" "Open App," "Polaris," "qdPCR 37K," "Script Bu Hub," "Singular," "SNP Trace" and "SNP Type" are trademarks or registered trademarks of Fluidigm Corporation. Other service marks, trademarks and trade names referred to in this Form 10-K are the property of their respective owners.

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

We create, manufacture, and market innovative technologies and tools for life sciences research. We sell instruments and consumables, including integrated fluidic circuits, or IFCs, assays and reagents, to academic institutions, clinical research laboratories, and biopharmaceutical, biotechnology, and agricultural biotechnology, or Ag-Bio, companies and contract research organizations, or CROs. Our technologies and tools are directed at the analysis of deoxyribonucleic acid, or DNA, ribonucleic acid, or RNA, and proteins in a variety of different sample types, from individual cells to bulk tissue.

We were a pioneer in the application of microfluidics to enable high-throughput and highly-multiplexed polymerase chain reactions, or PCR, for genetic analysis, as well as a field known as single-cell genomics, in which the genetic composition of individual cells is assayed. Our suspension and imaging mass cytometry systems enable the highly-multiplexed analysis of cellular surface and intracellular proteins in both blood and tissue.

Researchers have successfully employed our products to help achieve breakthroughs in a variety of fields, including single-cell gene and protein expression, gene regulation, genetic variation, cellular function and applied genetics. These breakthroughs include using our systems to help detect life-threatening mutations in cancer cells, discover cancer associated biomarkers, provide new insights into immune-modulated disease, analyze the genetic composition of individual stem cells and assess the quality of agricultural products, such as seeds or livestock.

Our Technology

Multi-Layer Soft Lithography

Our IFCs are manufactured using multi-layer soft lithography technology, or 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 Helios system, which is an enhanced version of our CyTOF 2 system, 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 CyTOF technology with imaging capability to enable simultaneous interrogation of 4 to 37 protein markers in the spatial context of the tissue microenvironment.

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 have also developed specialized software to manage and analyze the unusually large amounts of data produced by our systems. 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. We offer Fluidigm Cytobank, our cloud-based platform of analytical tools, for use with the Helios system.

Assays and Reagents

We manufacture metal-conjugated antibodies for use with our Helios system to allow detection of up to approximately 37 protein targets simultaneously in a single cell. 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, or 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 chemistries such as TaqMan, 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.

Products

We market innovative technologies and life-science tools, including preparatory and analytical instruments for High Throughput Genomics, Single Cell Genomics, Mass Cytometry 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 System	Mass cytometry instrument that performs high-parameter single-cell protein analysis by analyzing cells labeled with a panel of reagents conjugated to stable metal isotopes.	Single-Cell Protein Analysis
Hyperion Imaging System	The Hyperion Imaging System brings together imaging capability with proven high-parameter CyTOF technology to enable the simultaneous detection of 4 to 37 metal-tagged protein markers in the spatial context of the tissue microenvironment.	Highly multiplexed protein imaging of tissue heterogeneity across a breadth of pathologies (diseases) including tumors, diabetes, immune diseases and infection

Hyperion Tissue Imager	The Hyperion Tissue Imager scans tissues at 1 micron resolution for detection using CyTOF technology. It can be purchased as an upgrade for the Helios system to enable imaging capability. When the Hyperion Tissue Imager is connected to the Helios system, it creates a fully functional Hyperion Imaging System.	Highly multiplexed protein imaging of tissue heterogeneity across a breadth of pathologies (diseases) including tumors, diabetes, immune diseases and infection
Assays and Reagents:		

Product	Product Description	Applications
Maxpar Reagents	Pre-conjugated metal-labeled antibodies for functional and phenotypic profiling of single cells, application specific panel kits, and reagents for custom antibody labeling and nucleic acid staining.	Single-Cell Protein Analysis
High Throughput Genomics		
Preparatory Instruments:		
Access Array System	A modular, flexible system that automates amplicon-based library preparation of up to 480 amplicons across 48 unique samples per processing run. The resulting barcoded libraries are ready for targeted DNA sequencing on next-generation sequencing (NGS) platforms from Illumina®, Ion Torrent®, and other suppliers.	Library preparation for targeted DNA sequencing on NGS systems
Juno System	An integrated system that automates the preparation of amplicon-based libraries for targeted DNA next-generation sequencing, as well as the preparation of samples for genomic analysis. Additionally, Juno automates workflows for PCR-based gene expression and genotyping by assembling and controlling reactions at the nanoliter scale, and enabling preamplification within the IFC for the genotyping of challenging and low-concentration DNA samples.	Library preparation for targeted DNA sequencing on NGS systems. End-Point PCR, SNP Genotyping and Gene Expression, and digital PCR
Analytical Instruments:		
Biomark HD System	Real-time PCR analytical instrument for high-throughput gene expression analysis, single-cell targeted gene expression analysis, microRNA analysis, SNP genotyping, and digital PCR.	SNP Genotyping, Digital PCR, and Gene Expression, including Single-Cell Targeted Gene Expression
EP1 System	End-point PCR analytical instrument that performs high-throughput SNP genotyping and end-point digital PCR.	SNP Genotyping and Digital PCR
Integrated Fluidic Circuits (IFCs):		
LP IFCs	Library Preparation IFCs to support targeted DNA sequencing of 48 or 192 samples on next generation sequencing instruments.	Library preparation for targeted DNA next-generation sequencing
Juno Genotyping IFC	IFC that incorporate preamplification for genotyping of 96 samples and 96 markers on a single run.	Low concentration DNA samples

Dynamic Array IFCs	IFCs based on matrix architecture, allowing users to (i) individually assay up to 48 samples against up to 48 assays, (ii) individually assay up to 96 samples against up to 96 assays, or (iii) individually assay up to 192 samples against up to 24 assays.	Real-time qPCR, End-Point PCR, SNP Genotyping and Gene Expression, including Single-Cell Targeted Gene Expression
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.	Digital PCR, Copy Number Variation and Variant Detection

Product	Product Description	Applications
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:		
Delta Gene and SNP Type Assays	Custom designed assays for specific nucleic acid regions of interest, providing optimized assays, content, and services to users of Biomark and EP1 systems at lower cost as compared to other commercially available chemistries.	Gene Expression, Single-Cell Targeted Gene Expression, and SNP Genotyping
Access Array Target-Specific Primers and Targeted Sequencing Prep Primers	Custom designed amplicon-library preparation assays for use with Access Array IFCs on the Access Array or Juno systems.	Targeted Sequencing with Next-Generation DNA Sequencing
Targeted DNA Seq Library Assays	Custom designed amplicon-library preparation assays for use with LP IFCs on the Access Array or Juno systems.	
Single Cell Genomics		
Preparatory Instrument:		
C1 System	Sample preparation system that rapidly and reliably isolates and processes individual cells for genomic analysis.	Single-Cell Targeted Gene Expression, Single-Cell microRNA Analysis, Single-Cell mRNA Sequencing (Full Length and End-Counting), Single-Cell Targeted DNA Sequencing, Single-Cell Whole Exome Sequencing, and Single-Cell Whole Genome DNA Sequencing, Single-Cell Epigenetics
Preparatory Analytical Instruments:		
Polaris System	System and IFC that enables single cell contextual studies by facilitating active/live cell selection, isolation, imaging, dosing, and cell culturing workflows.	Functional Genomics Using Single-Cell mRNA Sequencing
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 Targeted Gene Expression, Single-Cell microRNA Analysis, Single-Cell mRNA Sequencing (Full Length and End-Counting), Single-Cell Targeted DNA Sequencing, Single-Cell Whole Exome DNA Sequencing, and Single-Cell Whole Genome DNA Sequencing. Additional customer and 3rd-party developed applications available through Fluidigm Script Hub
Polaris IFC	IFC that actively selects, captures and cultures up to 48 single-cells for up to 24 hours. It integrates media exchange, dosing and time course studies followed by cell lysis, reverse transcriptions and library preparation for single cell mRNA sequencing.	Functional Genomics of Single Cells

Market Opportunity

The current markets for our products include genomics and proteomics, predominantly among academic life science research customers, but also in various applied markets customers, such as clinical research laboratories, biopharmaceutical companies, biorepositories and agricultural biotechnology entities.

Markets:

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 DNA sequencing.

- Genotyping involves the analysis of DNA variations across individual genomes. There are multiple forms of variants, including single nucleotide polymorphism, or 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, or 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.

- DNA sequencing 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, and typically improves with target enrichment, such as complex sample preparation and tagging processes. Researchers are increasingly using next-generation DNA sequencers to rapidly and cost-effectively sequence portions of genomes, which is important for the identification of genetic variations that correlate with particular phenotypes.

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, or 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 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. 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 does not alone 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 diagnostics, to diagnose and 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. 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.

Customer Types:

Academic Life Science Research. A large portion of global life science research takes place in academic settings, including universities, publicly or philanthropically funded institutes, research hospitals and government-funded agencies. The activities conducted by these customers spans the entire range of products and services and are generally directed at producing new basic or translational biology insights for publication or presentation in peer-reviewed journals and forums. Many of the key breakthroughs in biological science employed or modified by clinical research laboratories, biopharmaceutical and other applied markets transpire first in the academic research setting.

Clinical Research Laboratories. Recent advances in genetic analysis technology are increasingly being used for clinical research applications. Techniques such as SNP genotyping, gene expression analysis, targeted DNA sequencing and other genetic correlation studies, have been developed to identify disease susceptibility and to diagnose, classify and monitor disease progression. Prognostics and diagnostics based on measuring these genetic markers have the potential to be much more accurate and robust than conventional diagnostics. The validation and translation of prognostics and diagnostics into clinically available tests often requires life science automation systems that are able to measure multiple biomarkers efficiently in a large number of patient samples.

Biopharmaceuticals and Biotechnology. Biopharmaceutical companies use production scale genomic and proteomic analytical methods in numerous phases of the discovery, development and the approval process of a therapeutic agent. These methods also may be used in companion diagnostics to attempt to reduce adverse events and identify patient populations that may more effectively respond to a therapeutic agent.

Biorepositories. Advancements in biology have led to an increased dependence on biorepositories to store genetic material for future testing and analysis. Flaws in the identity and quality of biorepository specimens are costly and result in erroneous data. To ensure sample integrity, biorepositories require cost-effective, simple and high-throughput techniques to identify DNA samples and ensure traceability throughout the banking and downstream analytical processes.

Agricultural Biotechnology. Ag-Bio applies scientific techniques, including genetic analysis techniques, such as SNP genotyping and DNA sequencing, to study and improve desired characteristics in plants, animals and microorganisms. Genetic analysis techniques have become increasingly useful in Ag-Bio applications, including wildlife population studies, agricultural quality control, and commercial genetic engineering and identification. Ag-Bio customers require systems that can quickly and accurately analyze a large number of samples, such as tissue from livestock populations or seeds from a production lot, in a high-throughput and cost-efficient manner.

Fluidigm's Strategy

Key elements of our strategy include:

- **Offer innovative, differentiated products to researchers based on our microfluidic and mass cytometry technologies.**

Our microfluidic technologies enable a scalable and sensitive solution in fields requiring high-throughput genomic analysis, whether this be for the analysis of gene expression profiles, genotyping or library preparation in advance of gene sequencing. Microfluidic solutions also enable single-cell genomic analysis across a broad menu of applications. Mass cytometry is a leading solution to analyze many cell-surface and intracellular proteins simultaneously in cell suspensions and tissues. Our products enable innovative methods to characterize cells and other sample types not commonly achieved with other technology analogues.

- **Expand addressable markets through attention to assay content, workflow efficiency, software improvements, and desirable strategic partnerships**.

Our strategy devotes attention to building out applications, workflows and analytics to allow our customers better productivity, increasing the value of our toolsets. We have internally-developed and externally-partnered to enable our C1 system to enable the widest breadth of single-cell applications currently in the marketplace. Our content development strategy also includes our high-throughput genomics platforms for gene expression, genotyping and sequencing library preparations as well as our mass cytometry franchise. Our future assay development will leverage both in-house informatics as well as externally-partnered solutions to drive towards sample-to-answer functionality across all our platforms.

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 companies and academic institutions who need reliable life science automation solutions or enabling new genomics and mass cytometry technologies for research or commercial purposes.

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.

As of December 31, 2017, we had 163 people employed in sales, technical support, and marketing, including 82 sales representatives and applications specialists located in the field.

Customers

We sell our instruments to leading academic research institutions, translational research and medicine centers, cancer centers, clinical research laboratories, and biopharmaceutical, biotechnology and Ag-Bio companies. No single customer represented more than 10% of our total revenue for 2017, 2016, or 2015.

Manufacturing

Our manufacturing operations are primarily located in Singapore and Canada. Our facility in Singapore manufactures our genomics instruments, several of which are assembled at facilities of our contract manufacturers in Singapore, with testing and calibration of the assembled products performed at 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 for commercial sale, as well as for internal research and development purposes, are manufactured at our facility in Canada. We also manufacture assays and reagents at our facilities in the United States.

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 the nickel sampler cone and certain metal isotopes used with, our Helios system; specially developed laser 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 developed a high-throughput C1 IFC (HT IFC) for handling up to 800 medium sized cell types applied to the work-flows of the Fluidigm installed base instruments. In the area of mass cytometry, we developed an initial prototype imaging mass cytometer instrument in 2016, and successfully launched the commercial Hyperion Imaging System in October 2017. The imaging mass cytometer 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 37 proteins. We also developed metal-labeled antibodies compatible with formalin fixed paraffin embedded tissue samples, to be used with the Hyperion. We also invest significantly in research and development efforts to expand our single-cell and production genomics applications. For example, we continue to develop and commercialize various panel sets for cancer research for use with our systems. We successfully launched in 2017 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.

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

Our research and development expenses were $30.8 million, $38.4 million, and $39.3 million in 2017, 2016, and 2015, respectively. As of December 31, 2017, 100 of our employees were engaged in research and development activities.

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 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, 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 eCommerce 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, 2017, we owned or licensed over 630 patents and we had approximately 180 pending patent applications worldwide. Our patents have expiration dates ranging from 2018 to 2034.

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, or 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., which subsequently became a PerkinElmer company, referred to as Caliper.

- 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 2017 and 2030.

- 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 2019 and 2027.

- In May 2011, we entered into a license agreement with Caliper to license Caliper's existing patent portfolio in certain fields. The license agreement will terminate with the last-to-expire of the licensed patents. As later amended, the license agreement provides for certain royalty payments until mid-2018 for our existing products at the time of amendment and their future equivalents.

Instrumentation and Digital PCR. On June 30, 2011, we settled litigation and entered into a series of patent cross-license and sub-license agreements with Life Technologies Corporation (now part of Thermo Fisher Scientific) and its subsidiary Applied Biosystems, LLC, referred to as Life. The agreements involve a cross-license concerning our imaging readers and other patent filings and certain of Life's patent families relating to methods and instruments for conducting nucleic acid amplification, such as with PCR; a sub-license that provides us access to certain of Life's digital PCR patents; and a sublicense that provides Life access to certain of our non-core technology patents licensed from Caltech. In July 2011, pursuant to the terms of the agreements, we paid Life $2.0 million in connection with our exercise of an option to preclude Life from initiating litigation under its patents existing as of June 30, 2011 against our customers for two years and against our company, with respect to our current products and equivalent future products, for four years, subject to certain exceptions. In November 2017, we settled pending litigation with Life and, pursuant to the terms of the settlement, one of the patent license agreements was amended to provide Life with a fully paid-up license under the patents covered by such agreement, subject to certain field of use restrictions. The license agreement will terminate with the last-to-expire of the licensed patents, which is expected to be in 2028.

Mass Cytometry. Some of the intellectual property rights covering our mass cytometry products were subject to a license agreement, referred to as the Original License Agreement, between Fluidigm Canada Inc., referred to as Fluidigm Canada, and PerkinElmer Health Sciences, Inc., referred to as 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, or ICP-based mass cytometry, including the analysis of elemental tagged materials in connection therewith, referred to as the Patents, and a non-exclusive license for reagents outside the field of ICP-based mass cytometry. On November 4, 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 December 2025, unless earlier terminated pursuant to the terms of the license agreement.

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 advisors.

Government Regulation

Our 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 for use in clinical practice in the diagnosis of disease or other conditions, and they are labeled for research use only. Accordingly, they are subject only to limited, specific regulation with respect to labeling by the U.S. Food and Drug Administration, or FDA. In particular, while FDA regulations require that research use only products be labeled, “For Research Use Only. Not for use in diagnostic procedures,” or RUO products, the regulations do not subject such products to the FDA’s broader pre- and post-market controls for medical devices.

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 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 premarket and postmarket control as medical devices, unless an exemption applies, we would be required to obtain either prior 510(k) clearance or prior pre-market approval from the FDA before commercializing the product. The FDA classifies medical devices into one of three classes. Devices deemed to pose lower risk to the patient are placed in either class I or II, which, unless an exemption applies, requires the manufacturer to submit a pre-market notification requesting FDA clearance for commercial distribution pursuant to Section 510(k) of the FFDCA. 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, or 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 premarket 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, or 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. 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.

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, or RoHS, and the Waste Electrical and Electronic Equipment Directive, or WEEE, 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 RoHS 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 majority of our revenue was generated within the United States and Europe and a majority of our long-lived assets were located within the United States, in Singapore and in Canada. Total revenue received from customers outside the United States totaled $56.1 million, or 55% of our total revenue, in 2017, compared to $51.8 million, or 50% of our total revenue, in 2016, and $59.3 million, or 52% of our total revenue, in 2015. Please see Note 11 to our audited consolidated financial statements for additional information regarding

geographic areas.

Seasonality

In 2011, 2012, 2014 and 2015, our product revenue was higher in the fourth quarter of the year than in the first quarter of the next year reflecting numerous factors, including, among others, seasonal variations in customer operations and customer budget and capital spending cycles. However, this trend did not occur in 2013 and 2016 with an increase in revenue in the first quarters of 2014 and 2017, respectively.

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 cancelable prior to shipment without penalty. Accordingly, backlog at any given time is not a meaningful indicator of future sales.

Employees

As of December 31, 2017, we had 505 employees, of which 100 work in research and development, 101 work in general and administrative, 141 work in manufacturing, and 163 work in sales, technical support, and marketing. None of our employees are represented by a labor union nor are they subject to a collective bargaining agreement.

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 7000 Shoreline Court, Suite 100, 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, or SEC. Our SEC reports can be accessed through the investor relations page of our website located at http://investors.fluidigm.com/sec.cfm. The SEC also maintains an Internet site at www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers that electronically file with the SEC. Additionally, a copy of this Annual Report on Form 10-K is located at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330.

We webcast our earnings calls and certain events we participate in or host with members of the investment community on our investor relations page of our website. Corporate governance information, including our board committee charters, code of ethics, and corporate governance principles, is also available on our investor relations page of our website located at http://investors.fluidigm.com/corporate-governance.cfm.

In addition to SEC filings, press releases, public conference calls, and webcasts, we use our website (www.fluidigm.com), corporate Twitter account (@Fluidigm), Facebook page (https://www.facebook.com/Fluidigm), and LinkedIn page (https://www.linkedin.com/company/fluidigm-corporation) as channels of distribution of information about our company, our products, our planned financial and other announcements, our attendance at upcoming investor and industry conferences, and other matters. It is possible that the information we post on our website and through these social media accounts could be deemed material information. We may use these channels to comply with our disclosure obligations under Regulation FD. Therefore, investors should monitor our website and our social media accounts in addition to following our press releases, SEC filings, public conference calls, and webcasts.

The contents of our website and the information we post through social media 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 references to our websites are intended to be inactive textual references only.

Executive Officers

The following table sets forth the names, ages (as of March 1, 2018) and positions of our executive officers:

Name	Age	Position
Stephen Christopher Linthwaite	46	President, Chief Executive Officer, and Director
Vikram Jog	61	Chief Financial Officer
Steven C. McPhail	64	Chief Commercial Officer
Nicholas Khadder	44	Senior Vice President, General Counsel, and Corporate Secretary
Jennifer Lee	54	Vice President, Controller, and Principal Accounting Officer

Stephen Christopher Linthwaite joined Fluidigm as President and Chief Operating Officer in August 2016 and has served as our President, Chief Executive Officer, and Director since October 2016. From August 2003 to April 2016, Mr. Linthwaite held various managerial positions at Thermo Fisher Scientific Inc., a life sciences company, and prior to its acquisition by Thermo Fisher, at Life Technologies Corporation, a life sciences company, including President, Genetic Sciences Division, from December 2014 to April 2016, President, Genetic Analysis Platform, from September 2011 to December 2014, and various other managerial positions at Invitrogen prior to the creation of Life Technologies through a merger of Invitrogen and Applied Biosystems. Prior to joining Invitrogen, Mr. Linthwaite held various strategic consulting roles. Mr. Linthwaite served on the board of directors of Claritas Genomics, Inc. from December 2014 to April 2016. Mr. Linthwaite received a M.B.A. from the University of Virginia (Darden) School of Business, and a B.A. in Foreign Affairs from the University of Virginia. Prior to business school, Mr. Linthwaite served on active duty in the U.S. Army as an armor officer.

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.

Steven C. McPhail joined Fluidigm as General Manager, Production Genomics in May 2015 and became our Chief Commercial Officer in August 2016. From December 2014 to March 2015, Mr. McPhail was vice president, special projects at Quintiles Transnational Corporation, a biopharmaceutical development and commercial outsourcing services firm. From February 2003 to August 2012, Mr. McPhail was President and Chief Executive Officer of Expression Analysis, Inc., a genomic services company that was acquired by Quintiles Transnational Corporation in August 2012, where Mr. McPhail was President of the post-acquisition operation until December 2014. Prior to Expression Analysis, Inc., Mr. McPhail held various staff and management positions at companies in the diagnostic, biotechnology, and medical device markets, including ArgoMed Inc., Xanthon, Inc., TriPath Imaging Inc., Dynex Technologies, Inc., and Abbott Laboratories. Mr. McPhail serves on the Board of Visitors of NC Children's Hospital and on the Board of Trustees of the Carolinas chapter of the Crohn's and Colitis Foundation of America as well as ImproveCareNow, a quality improvement network designed to improve the care and outcomes of children with inflammatory bowel disease. Mr. McPhail received a B.S. in Biology from San Diego State University.

Nicholas Khadder has served as our Senior Vice President, General Counsel, and Corporate Secretary since June 2016. 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.

Jennifer Lee has served as Vice President, Controller, and Principal Accounting Officer since May 2016. From 1996 to May 2016, Ms. Lee held various finance leadership roles at Genentech, Inc., a biotechnology company that was acquired by Roche Holdings, Inc., in March 2009, including Director of Commercial Finance from 2010 to May 2016, Director of General Audit from 2008 to 2009, Director of Collaborations Finance and Royalties from 2006 to 2008 and Associate

Director of External Reporting from 2000 to 2006. Prior to joining Genentech, Ms. Lee held staff and managerial roles at Pacific Gas and Electric Company and Arthur Andersen & Co. Ms. Lee received her B.S. in accounting from San Francisco State University and her M.B.A. from Golden Gate University. Ms. Lee is also a certified public accountant.

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 Form 10-K. If any of the risks or uncertainties we face were to occur, the trading price of our securities could decline, and you may lose all or part of your investment.

Risks Related to Fluidigm's Business and Strategy

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

Our total revenue was $101.9 million in 2017, $104.4 million in 2016, and $114.7 million in 2015. The decrease in overall revenue over this period was due in significant part to decreasing sales of single-cell genomics instruments, driven by a combination of factors including changes in customer demand, increased competition, and performance issues in certain IFCs used in our C1 systems.

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. For example, in 2011, 2012, 2014 and 2015, we experienced higher sales in the fourth quarter than in the first quarter of the next fiscal year. Although this was not the case in the fourth quarter of 2013 compared to the first quarter of 2014, this seasonal historical trend continued in 2014 and 2015 with a decrease in revenue in the first quarters of 2015 and 2016, respectively. However, sales increased slightly in the first quarter of 2017 compared to the fourth quarter of 2016. Additionally, for the quarters ended March 31, 2015 and September 30, 2015, we experienced year-over-year revenue growth rates that were substantially lower than revenue growth rates experienced in other periods since our initial public offering, and we experienced a year-over-year decline in revenue for the quarters ended September 30, 2017, June 30, 2017, March 31, 2017, September 30, 2016, June 30, 2016 and September 30, 2015, and for the years ended December 31, 2017, 2016 and 2015. 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. Variability in our quarterly or annual results of operations, mix of product revenue, or rates of revenue growth, if any, may lead to volatility in our stock price as research analysts and investors respond to these fluctuations. These fluctuations are due to numerous factors that are difficult to forecast, including: fluctuations in demand for our products; changes in customer budget cycles and capital spending; 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; 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; 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; 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; 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 return to 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 $60.5 million, $76.0 million, and $53.3 million during the years 2017, 2016, and 2015, respectively. As of December 31, 2017, we had an accumulated deficit of $500.2 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. 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.

Due to our negative revenue growth in 2016 and 2015, we implemented certain operational efficiency and cost-savings initiatives beginning in the first quarter of 2017 intended to align our resources with our product strategy, reduce our operating expenses, and manage our cash flows. These cost efficiency initiatives have included targeted workforce reductions, optimizing our facilities, and reducing excess space. Further actions such as these may be required on an ongoing basis to optimize our organization. For example, we may need to decrease or defer capital expenditures and development activities or implement further operating expense reduction measures. Such measures may impair our ability to invest in developing, marketing and selling new and existing products. Furthermore, if our efficiency and cost reduction efforts are unsuccessful, our cash position could be negatively impacted and we may, among other things, be required to seek additional sources of financing. 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. Because of the numerous risks and uncertainties associated with our commercialization efforts and future product development, we are unable to predict when we will become profitable, and we may never become profitable. Even if we do achieve profitability, we may not be able to sustain or increase our profitability.

If we require additional funds in the future, we may not be able to obtain such funds on acceptable terms, or at all. If we raise funds by issuing equity securities, our stockholders could experience dilution. Debt financing, 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. If we do not have, or are not able to obtain sufficient funds, we may have to 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 may also have to reduce marketing, customer support, research and development or other resources devoted to our products.

We have significant outstanding convertible debt, and may be required to repay, refinance or restructure such debt before 2021. 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, which we refer to as our Original Notes. In March 2018, we entered into privately negotiated transactions with certain holders of our Original Notes to exchange approximately $125.0 million in aggregate principal amount of the Original Notes for approximately $125.0 million in aggregate principal amount of our new 2.75% Exchange Convertible Senior Notes due 2034, which we refer to as our Exchange Notes, and together with the Original Notes, the Notes. Immediately following the note exchange transaction, approximately $76.3 million in aggregate principal amount of Original Notes remained outstanding. The Notes accrue interest at a rate of 2.75% per year, payable semi-annually in arrears on February 1 and August 1 of each year. The Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the Notes. Holders of the Original Notes may require us to repurchase all or a portion of their Original 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 Notes plus accrued and unpaid interest. Holders of the Exchange Notes may require us to

repurchase all or a portion of their Exchange Notes on each of February 6, 2023, February 6, 2026, and February 6, 2029 at a repurchase price in cash equal to 100% of the accreted principal amount (i.e., up to 120% of the outstanding principal amount) of the Exchange Notes plus accrued and unpaid interest. If we undergo a fundamental change, as defined in the terms of each of the applicable series of Notes, (i) holders of the Original Notes may require us to repurchase the Original Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the Notes plus accrued and unpaid interest and (ii) holders of the Exchange Notes may require us to repurchase the Exchange Notes in whole or in part for cash at a repurchase price equal to 100% of the accreted principal amount (i.e., up to 120% of the outstanding principal amount) of the Exchange Notes plus accrued and unpaid interest. If we refinance the debt owed under the 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.

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 or protein expression analysis, single nucleotide polymorphism genotyping, or SNP genotyping, polymerase chain reaction, or PCR, digital PCR, other nucleic acid detection, flow cytometry, cell imaging, and additional applications using well established laboratory techniques, as well as newer technologies such as bead encoded arrays, microfluidics, nanotechnology, high-throughput DNA sequencing, microdroplets, 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. For example, companies such as 10X Genomics, Inc., Affymetrix, Inc. (now part of Thermo Fisher Scientific Inc.), Agena Bioscience, Inc., Agilent Technologies, Inc., Becton, Dickinson and Company, Bio-Rad Laboratories, Inc., Cellular Research, Inc. (now a part of Becton, Dickinson and Company), Danaher Corporation, Illumina, Inc., Life Technologies Corporation (now part of Thermo Fisher Scientific Inc.), LGC Limited, Luminex Corporation, Millipore Corporation, NanoString Technologies, Inc., PerkinElmer, Inc. (through its acquisition of Caliper Life Sciences, Inc.), RainDance Technologies, Inc. (acquisition by Bio-Rad Laboratories, Inc. pending), Roche Diagnostics Corporation, Sony Corporation, Thermo Fisher Scientific Inc., WaferGen Bio-systems, Inc., Cytek Biosciences, Inc., Akoya Biosciences, Inc., Innova Biosciences Ltd., QIAGEN N.V., 1CellBio, Inc., Berkeley Lights, Inc., and Mission Bio, Inc. have products that compete in certain segments of the market in which we sell our products. In addition, we have in recent quarters experienced increased competition in the single-cell genomics market, including new product releases from 10X Genomics, Inc. and WaferGen Bio-systems, Inc., as well as the acquisition of Cellular Research by Becton Dickinson and Company and an announced exclusive partnership between Illumina, Inc. and Bio-Rad Laboratories, Inc. In addition, due to the release of our Hyperion imaging mass cytometry system, we now are exposed to competition from companies offering imaging-based systems, specialized reagents and/or services including Carl Zeiss Inc., Leica Biosystems, Nikon Corporation, Olympus America Inc., Roche Diagnostics Corporation, PerkinElmer, Inc., Agilent Technologies, Inc., IonPath Inc., Zellwerk GmbH, Bruker Corporation, Shimadzu Corporation, NanoString Technologies, Inc., and Neogenomics (Multiomyx).

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.

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. Our commercial organization has undergone significant changes in 2016 and 2017, and we are in the early stages of establishing sales of our products for many key applications. 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.

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 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 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 very 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.

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.

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 next-generation DNA sequencing 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.

Our business depends on research and development spending levels of academic, clinical research, and governmental research institutions, biopharmaceutical, biotechnology, and Ag-Bio companies, and CROs, 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 be derived primarily from sales of our systems, IFCs, assays, and reagents to academic institutions, clinical research laboratories that use our technology to develop tests, and biopharmaceutical, biotechnology, Ag-Bio companies and CROs worldwide. Our success will depend upon their demand for and use of our products. Accordingly, the spending policies of these customers could 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, 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 may fluctuate substantially due to reductions and delays in research and development expenditures by these customers. For example, reductions in capital and operating expenditures by these customers may result in lower than expected sales of our systems, IFCs, assays, and reagents. These reductions and delays may result from factors that are not within our control, such as:

- changes in economic conditions;
- natural disasters;
- changes in government programs that provide funding to research institutions and companies;
- changes in the regulatory environment affecting life science and Ag-Bio companies engaged in research and commercial activities;
- differences in budget cycles across various geographies and industries;
- market-driven pressures on companies to consolidate operations and reduce costs;
- mergers and acquisitions in the life science and Ag-Bio 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, 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 genomics analytical and preparatory instruments and IFCs for commercial sale at our facility in Singapore, our mass cytometry instruments for commercial sale at our facility in Canada, and our assays and reagents for commercial sale at our headquarters in the United States. 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.

We generate a substantial portion of our revenue internationally and are subject to various risks relating to such international activities, which could adversely affect our sales and operating performance. In addition, 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.

During the years 2017, 2016, and 2015, approximately 55%, 49%, and 52%, 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 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 RoHS and WEEE directives, which regulate the use of certain hazardous substances in, and require the collection, reuse, and recycling of waste from, products we manufacture;
- required compliance with anti-bribery laws, such as the U.S. Foreign Corrupt Practices Act and U.K. Bribery Act, data privacy requirements, labor laws, and anti-competition regulations;
- export or import restrictions;
- laws and business practices favoring local companies;
- longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- unstable economic, political, and regulatory conditions;
- 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.

If one or more of these risks occurs, it could require us to dedicate significant resources to remedy, and if we are unsuccessful in finding a solution, our financial results will suffer.

During June 2016, the referendum by British voters to exit the European Union ("Brexit") adversely impacted global markets and resulted in a sharp decline of the British pound sterling against the US dollar. In February 2017, the British Parliament voted in favor of allowing the British government to begin the formal process of Brexit, and the United Kingdom submitted its required notice under the applicable treaties that it intended to leave the European Union in March 2017, which initiated a negotiation process between the United Kingdom and the European Union that could last up to two years. In the short-term, volatility in the British pound sterling could continue as the United Kingdom negotiates its anticipated exit from the European Union. In the longer term, any impact from Brexit on our United Kingdom operations will depend, in part, on the outcome of tariff, trade, regulatory, and other negotiations.

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. For example, for the years ended December 31, 2017, 2016, and 2015, we experienced foreign currency losses of $0.1 million, $1.5 million, and $1.6 million, respectively. Fluctuations in currency exchange rates could have an adverse impact on our financial results in the future.

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, 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.

We are dependent on single and sole source suppliers for some of the components and materials used in our products, and the loss of any of these suppliers could harm our business.

We rely on single and sole source suppliers for certain components and materials used in our products. 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.

- Specialized pneumatic and electronic components for our C1, Callisto, Juno, and Polaris systems are available from a limited number of sources.

- The electron multiplier detector included in the Hyperion/Helios systems and certain metal isotopes used with the Hyperion/Helios systems are purchased from sole source suppliers.

- The movement stage included in the Hyperion imaging mass cytometer system is purchased from a sole source supplier.

- The nickel sampler cone used with the Hyperion/Helios systems is purchased from single source suppliers and is available from a limited number of sources.

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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;
- we may not be able to obtain adequate supply or services in a timely manner or on commercially reasonable terms;
- our suppliers or service providers may make errors in manufacturing or assembly of components that could negatively affect the efficacy of our products or cause delays in shipment of our products; and

- our suppliers or service providers may encounter capacity constraints or financial hardships unrelated to our demand for components or services, which could inhibit their ability to fulfill our orders and meet our requirements.

We have in the past experienced quality control and supply problems with some of our suppliers, such as manufacturing errors, 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 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.

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 institutions, clinical research laboratories that use our technology to develop tests, and biopharmaceutical, biotechnology, and Ag-Bio companies 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.

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 DNA sequencing 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.

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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.

Impairment of our goodwill or other intangible assets could materially and adversely affect our business, operating results, and financial condition.

As of December 31, 2017, we had approximately $178.3 million of goodwill and net intangible assets, including approximately $104.1 million of goodwill and $74.2 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., or DVS, in February 2014. 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.

The carrying amounts of goodwill and intangible assets are affected whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. We review goodwill and indefinite lived intangible assets for impairment at least annually and more frequently under certain circumstances. Other intangible assets that are deemed to have finite useful lives will continue to be amortized over their useful lives but must be reviewed for impairment when events or changes in circumstances indicate that 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 declines in our stock price or market capitalization, declines in our market share or revenues, 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. In particular, these or other adverse events or changes in circumstances may affect the estimated undiscounted future operating cash flows expected to be derived from our goodwill and intangible assets. We have recently experienced substantial declines in our stock price, and continued weakness or further declines in our stock price increase the likelihood that we may be required to recognize impairment charges. 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. We cannot provide assurances that we will not in the future be required to recognize impairment charges.

Our business operations are dependent upon our new senior management team and the ability of our other new employees to learn their new roles. If we are unable to recruit and retain key executives, scientists, and technical support personnel, we may be unable to achieve our goals.

Our performance is substantially dependent on the performance of our senior management, which has substantially changed over the last few years, including, for example, a change in our chief executive officer in October 2016. In addition to our chief executive officer, several other members of our senior management team have started at Fluidigm since mid-2016. As new employees gain experience in their roles, we could experience inefficiencies or a lack of business continuity due to loss of historical knowledge and a lack of familiarity of new employees with business processes, operating requirements, policies and procedures, and we may experience additional costs as new employees learn their roles and gain necessary experience. It is important to our success that these key employees quickly adapt to and excel in their new roles. If they are unable to do so, our business and financial results could be materially adversely affected. In addition, the loss of the services of any member of our senior management 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, if any, and could have a material adverse effect on 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. We do not maintain fixed term employment contracts or significant key man life insurance with any of our employees.

Additionally, to expand our research and product development efforts, we need to retain and recruit key scientists skilled in areas such as molecular and cellular biology, assay development, 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.

Our efficiency and cost-savings initiatives could be disruptive to our operations and adversely affect our results of operations and financial condition, and we may not realize some or all of the anticipated benefits of these initiatives in the time frame anticipated or at all.

Beginning in the first quarter of 2017, we implemented efficiency and cost-savings initiatives intended to stabilize our business operations and return to growth. We identified areas for cost efficiencies including targeted workforce reductions and optimizing our facilities, and reducing excess space. Other initiatives may also include decreasing or deferring capital expenditures and development activities. The implementation of these efficiency and cost-savings initiatives, including the impact of workforce reductions, 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. In addition, our ability to complete our efficiency and cost-savings initiatives and achieve the anticipated benefits within the expected time frame is subject to estimates and assumptions and may vary materially from our expectations, including as a result of factors that are beyond our control. Furthermore, our efforts to stabilize our business and return to growth may not be successful.

To use our products, our Biomark, EP1, and Helios 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, and Helios 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 PCR, or qPCR. Leading suppliers of reagents for real-time qPCR reactions include Life Technologies Corporation (now part of Thermo Fisher Scientific)

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.

If we seek to be regulated as a medical device manufacturer by the U.S. Food and Drug Administration, or FDA, and foreign regulatory authorities, and seek approval and/or clearance for our products, the regulatory approval process would take significant time and expense and could fail to result in FDA clearance or approval for the intended uses we believe are commercially attractive. If our products were successfully approved and/or cleared, we would be subject to ongoing and extensive regulatory requirements, which would increase our costs and divert resources away from other projects. If we obtained FDA clearance or approval and we failed to comply with these requirements, our business and financial condition could be adversely impacted.

Our products are currently labeled, promoted and sold to academic institutions, life sciences laboratories, biopharmaceutical, biotechnology, Ag-Bio companies and CRO's for research use only, or RUO, and are not designed for, or intended to be used for, diagnostic tests or as medical devices as currently marketed. Before we can begin 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 (PMA) from the FDA, unless an exception applies.

We may in the future register with the FDA as a medical device manufacturer and list some of our products with the FDA pursuant to an FDA Class I listing for general purpose laboratory equipment. We are currently assessing whether and when to make an initial registration. While this regulatory classification is exempt from certain FDA requirements, such as the need to submit a premarket notification commonly known as a 510(k), and some of the requirements of the FDA’s Quality System Regulations, or QSRs, we would be subject to ongoing FDA “general controls,” which include compliance with FDA regulations for labeling, inspections by the FDA, complaint evaluation, corrections and removals reporting, promotional restrictions, reporting adverse events or malfunctions for our products, and general prohibitions against misbranding and adulteration.

In addition, we may in the future submit 510(k) premarket notifications to the FDA to obtain FDA clearance of certain of our products on a 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 modifications or improvements to such products. We could also be subject to additional FDA post-marketing obligations for such products, any or all of which would increase our costs and divert resources away from other projects. If we sought and received regulatory clearance or approval and are not able to maintain regulatory compliance with applicable laws, we could be prohibited from marketing our products for use as, or in the performance of, clinical diagnostics and/or could be subject to enforcement actions, including warning letters and adverse publicity, fines, injunctions, and civil penalties; recall or seizure of products; operating restrictions; and criminal prosecution.

In addition, we could decide to seek similar regulatory clearance or approval for certain of our products in countries outside of the United States. Sales of such products outside the United States will likely be subject to foreign regulatory requirements, which can vary greatly from country to country. As a result, the time required to obtain clearances or approvals outside the United States may differ from that required to obtain FDA clearance or approval

and we may not be able to obtain foreign regulatory approvals on a timely basis or at all. Clearance or approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other countries or by the FDA. In Europe, we would need to comply with the Medical Device Directive 93/42 EEC and/or the In Vitro Diagnostics Directive 98/79/EC, which are required to market medical devices in the European Union. In addition, the FDA regulates exports of medical devices. Failure to comply with these regulatory requirements or obtain and maintain required approvals, clearances and certifications could impair our ability to commercialize our products for diagnostic use outside of the United States.

Our products could become subject to regulation as medical devices by the FDA or other regulatory agencies before we have obtained 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 for 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 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, or 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 LDT manufacturers, but would seek further public discussion on an appropriate oversight approach, and give Congress an opportunity to develop a legislative solution. 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 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 of the product indicate that the manufacturer knows its product is, or intends for its product to be, used for clinical diagnostic purposes. These circumstances may include written or verbal 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.

If the FDA modifies its approach to our products labeled and intended for RUO, or otherwise 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 purposes, before we have obtained regulatory clearance or approval to market our products for diagnostic 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, if the FDA determines that our products labeled for RUO were intended, based on a review of the totality of circumstances, for use in clinical investigation or diagnosis, those products could be considered 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, or RoHS, and the Waste Electrical and Electronic Equipment Directive, or WEEE, 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 requirements may become subject to 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.

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.

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 Global Select Market, or NASDAQ, the SEC or other regulatory authorities, which would require additional financial and management resources.

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 believe that our existing cash and cash equivalents will be sufficient to meet our anticipated cash requirements for at least the next 18 months. We have continued to experience losses and, if that trend continues, we may need to seek additional sources of financing. In addition, we may need to raise substantial additional capital for various purposes, including:

- expanding the commercialization of our products;
- funding our operations;
- 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;
- the effectiveness of our recent efficiency and cost-savings initiatives;

- 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.

We cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all. If we raise additional funds by issuing equity securities, our stockholders may experience dilution. Debt financing, 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. 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 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, or other resources devoted to our products, or cease operations. Any of these factors could harm our operating results.

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

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. We recently completed a review of our European corporate structure and tax positions and, based upon our existing business operations, we restructured our European intercompany transactions, which increased our income tax liability. From time to time, we may review our corporate structure and tax positions in other international jurisdictions and such review may result in additional 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. Legislation commonly referred to as the 2017 Tax Cuts and Jobs Act was enacted in the United States on December 22, 2017 and introduced a number of changes to U.S. federal income tax, the consequences to us of which have not yet been fully determined and which could have material impact on the value of our deferred tax assets, could result in significant one-time charges in the current or future taxable years, and could increase our future U.S. tax expense. 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.

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

The global credit and financial markets have in recent years experienced 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. 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 which do not include our customers may reduce the resources available for government grants and related funding for life science, Ag-Bio, 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.

If we are unable to integrate future acquisitions successfully, our operating results and prospects could be harmed.

In addition to our acquisition of DVS, we may make additional acquisitions 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. Our acquisition of DVS was our first acquisition of another company. 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; 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.

If we are unable to expand our direct sales and marketing force or distribution capabilities to adequately address our customers' needs, our business may 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 develop and substantially expand our direct sales force and to increase the scope of our marketing efforts. Our products are technically complex and used for highly specialized applications. As a result, we believe it is necessary to develop a direct sales force that includes people with specific scientific backgrounds and expertise, and a marketing group with technical sophistication. Competition for such employees is intense. In addition, we have experienced significant changes in our sales organization in recent quarters due to reorganizations and changes in leadership. We may not be able to attract and retain personnel or be able to build an efficient and effective sales and marketing force, which 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.

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

We have considered 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.

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, referred to as 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.

For example, the U.S.-based Financial Accounting Standards Board, referred to as FASB, is currently working together with the International Accounting Standards Board, referred to IASB, on several projects to further align accounting principles and facilitate more comparable financial reporting between companies who are required to follow U.S. GAAP under SEC regulations and those who are required to follow International Financial Reporting Standards outside of the United States. These efforts by the FASB and IASB may result in different accounting principles under U.S. GAAP that may result in materially different financial results for us in areas including, but not limited to, principles for recognizing revenue and lease accounting. Additionally, significant changes to U.S. GAAP resulting from the FASB’s and IASB’s efforts may require that we change how we process, analyze and report financial information and that we change financial reporting controls. Additionally, the FASB issued new guidance relating to Revenue from Contracts with Customers which supersedes nearly all existing U.S. GAAP revenue recognition guidance. The new guidance is effective for our fiscal year 2018. We adopted ASU 2014-09 in the first quarter of 2018 using the modified retrospective method. The adoption is not expected to have a material impact on our consolidated financial statements. Under the modified retrospective method, periods prior to the adoption of ASU 2014-09 are not restated and the cumulative effect of initially applying the new standard is reflected in the opening balance of retained earnings as of January 1, 2018. Additional disclosures are required for significant differences between the reported results under the new standard and those that would have been reported under the legacy standard. While we continue to evaluate the effect of the new standard on our ongoing financial reporting, we currently do not expect the cumulative effect of the new standard to be material. We continue to identify the appropriate changes to our business processes, systems, and controls to support revenue recognition and disclosure under the new standard.

It is not clear if or when these 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.

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, referred to as the “Code,” imposes an annual limitation on the amount of taxable income that may be offset if a corporation experiences an “ownership change” as defined in Section 382 of the Code. An ownership change occurs when a company’s “five-percent shareholders” (as defined in Section 382 of the Code) collectively increase their ownership in the company by more than 50 percentage points (by value) over a rolling three-year period. Additionally, various states have similar limitations on the use of state net operating losses, referred to as our NOL's, following an ownership change.

If we experience an ownership change, our ability to use our NOLs, any loss or deduction attributable to a “net unrealized built-in loss” and other tax attributes, which we refer to as tax benefits, could be substantially limited, and the timing of the usage of the tax benefits could be substantially delayed, which could significantly impair the value of the tax benefits. There is no assurance that we will be able to fully utilize the tax benefits and we could be required to record an additional valuation allowance related to the amount of the tax benefits that may not be realized, which could adversely impact our results of operations.

We believe that these tax benefits are a valuable asset for us. However, legislation commonly known as the 2017 Tax Cuts and Jobs Act includes a decrease in the U.S. federal corporate income tax rate from 35% to 21%, and our tax benefits will be revalued at the newly enacted rate. We do not expect this to have a material impact on our financial statements because we currently maintain a full valuation allowance on our U.S. deferred tax assets; however, this reduction in the U.S. federal corporate income tax rate results in a corresponding reduction in the value of our tax benefits. On November 21, 2016, our board of directors approved a tax benefit preservation plan, or Tax Benefit Preservation Plan, in an effort to protect our tax

benefits during the effective period of the tax benefit preservation plan. Our board of directors elected to let the Tax Benefit Preservation Plan expire in August 2017 based on its determination, in consultation with our management and tax advisors, that our NOLs were not at material risk of limitation based on an ownership change pursuant to Section 382. Our board of directors will continue to monitor our NOLs, however, and could elect to adopt a similar plan if it believes a potential risk exists that our NOLs could be limited. Any future 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.

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 whom we do business. Litigation could result in substantial legal fees and could adversely affect the scope of our patent protection. The outcome of any litigation or other proceeding is inherently uncertain and might not be favorable to us, and we might not be able to obtain licenses to technology that we require. Even if such licenses are obtainable, they may not be available at a reasonable cost. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our product margins or financial position. Further, we could encounter delays in product introductions, or interruptions in product sales, as we develop alternative methods or products.

As we move into new markets and applications for our products, incumbent participants in such markets may assert their patents and other proprietary rights against us as a means of impeding our entry into such markets or as a means to extract substantial license and royalty payments from us. Our commercial success may depend in part on our non-infringement of the patents or proprietary rights of third parties. Numerous significant intellectual property issues have been litigated, and will likely continue to be litigated, between existing and new participants in our existing and targeted markets. For example, some of our products provide for the testing and analysis of genetic material, and patent rights relating to genetic materials remain a developing area of patent law. A recent U.S. Supreme Court decision held, among other things, that claims to isolated genomic DNA occurring in nature are not patent eligible, while claims relating to synthetic DNA may be patent eligible. We expect the ruling will result in additional litigation in our industry. In addition, third parties may assert that we are employing their proprietary technology without authorization, and if they are successful in making such claims, we may be forced to enter into license agreements, pay additional royalties or license fees, or enter into settlements that include monetary obligations or restrictions on our business.

Our customers have been sued for various claims of intellectual property infringement in the past, and we expect that our customers will be involved in additional litigation in the future. In particular, our customers may become subject to lawsuits claiming that their use of our products infringes third-party patent rights, and we could become subject to claims that we contributed to or induced our customer's infringement. In addition, our agreements with some of our suppliers, distributors, customers, and other entities with whom 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 whom such employees may have been previously affiliated.

Many of our employees were previously employed at universities or other life science or Ag-Bio 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 whom our employees may have been previously affiliated. Litigation may be necessary to defend against these claims. For example, we were a defendant in litigation brought against us and one of our non-executive employees by Thermo Fisher Scientific Inc. (Thermo) alleging, among other claims, misappropriation of proprietary information and breach of contractual and fiduciary obligations. While we resolved our dispute with Thermo in July 2017, if we fail in defending against similar claims brought in the future we could be subject to injunctive relief against us. A 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 similar claims brought in the future, 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., or Fluidigm Canada, an Ontario corporation and wholly-owned subsidiary of Fluidigm Sciences, was party to an interim license agreement, now expired, with Nodality, Inc., or 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 the 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 may be subject to information technology failures, including data protection breaches and cyber-attacks, that could disrupt our operations, damage our reputation and adversely affect our business, operations, and financial results.

We rely on our 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. Although we have implemented security controls to protect our information technology systems, experienced programmers or hackers may be able to penetrate our security controls, and develop and deploy viruses, worms, and other malicious software programs that compromise our confidential information or that of third parties and cause a disruption or failure of our information technology systems. Any such compromise of our information technology systems could result in the unauthorized publication of our confidential business or proprietary information, result in the unauthorized release of customer, supplier or employee data, result in a violation of privacy or other laws, expose us to a risk of litigation, or damage our reputation. 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.

Third parties with which we conduct business have access to certain portions of our sensitive data. In the event that these third parties do not properly safeguard our data that they hold, security breaches could result and negatively impact our business, operations, and financial results.

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 may fluctuate significantly, particularly if holders of substantial amounts of our stock attempt to sell, and holders may have difficulty selling their shares based on current trading volumes of our stock. In addition, numerous other factors could result in substantial volatility in the trading price of our stock.

Our stock is currently traded on 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, 2017, we had 38,787,251 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 63.3% of such shares and one stockholder beneficially owned 30.6% of our outstanding common stock. Sales of large numbers of shares by any of our large stockholders could adversely affect our trading price, particularly given our relatively small historic trading volumes. If stockholders holding shares of our common stock sell, indicate an intention to sell, or if it is perceived that they will sell, substantial amounts of their common stock in the public market, the trading price of our common stock could decline. Moreover, if there is no active trading market or if the volume of trading is limited, holders of our common stock may have difficulty selling their shares. In addition, the concentration of ownership of our outstanding common stock (approximately 63.3% held by our top four stockholders) means that a relatively small number of stockholders have significant control over the outcomes of stockholder voting.

In addition, the trading price of our common stock may be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. These factors include:

- actual or anticipated quarterly variation in our results of operations or the results of our competitors;
- 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, Ag-Bio, and CRO sectors;
- failure to complete significant sales;
- manufacturing disruptions that could occur if we were unable to successfully expand our production in our current or an alternative facility;
- any future sales of our common stock or other securities in connection with raising additional capital or otherwise;
- any major change to the composition of our board of directors or management; 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. If any of our stockholders were to bring a lawsuit against us, the defense and disposition of the lawsuit could be costly and divert the time and attention of our management and harm our operating results.

If securities or industry analysts publish unfavorable research about our business 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, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us.

We have never paid cash dividends on our capital stock, and we do not anticipate paying any cash dividends in the foreseeable future.

We have paid no cash dividends on any of our classes of capital stock to date and currently intend to retain our future earnings to fund the development and growth of our business. In addition, we may become subject to covenants under future debt arrangements that place restrictions on our ability to pay dividends. As a result, capital appreciation, if any, of our common stock will be stockholders' sole source of gain for the foreseeable future.

Risks Related to Our Outstanding Convertible Notes

Our outstanding convertible notes are effectively subordinated to our secured debt and any liabilities of our subsidiaries.

Our outstanding Original Notes and Exchange Notes, which, collectively, we refer to as our "Notes", rank:

- senior in right of payment to any of our indebtedness that is expressly subordinated in right of payment to the Notes;
- equal in right of payment to all of our liabilities that are not so subordinated;
- effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and
- structurally junior to all indebtedness and other liabilities (including trade payables) of our subsidiaries.

In February 2014, we completed our offering of our Original Notes with an aggregate outstanding principal amount of $201.3 million. In March 2018, we completed an exchange of approximately $125.0 million in aggregate principal amount of our Original Notes for approximately $125.0 million in aggregate principal amount of our Exchange Notes, leaving approximately $76.3 million in aggregate principal amount of Original Notes outstanding. In the event of our bankruptcy, liquidation, reorganization, or other winding up, our assets that secure debt ranking senior in right of payment to the Notes will be available to pay obligations on the Notes only after the secured debt has been repaid in full from these assets, and the assets of our subsidiaries will be available to pay obligations on the Notes only after all claims senior to the Notes have been repaid in full. There may not be sufficient assets remaining to pay amounts due on any or all of the Notes then outstanding. The indentures governing the Notes do not prohibit us from incurring additional senior debt or secured debt, nor do they prohibit our subsidiaries from incurring additional liabilities.

The Notes are our obligations only and some of our operations are conducted through, and a portion of our consolidated assets are held by, our subsidiaries.

The Notes are our obligations exclusively and are not guaranteed by any of our operating subsidiaries. A portion of our consolidated assets is held by our subsidiaries. Accordingly, our ability to service our debt, including the Notes, depends in part on the results of operations of our subsidiaries and upon the ability of such subsidiaries to provide us with cash, whether in the form of dividends, loans, or otherwise, to pay amounts due on our obligations, including the Notes. Our subsidiaries are separate and distinct legal entities and have no obligation, contingent or otherwise, to make payments on the Notes or to make any funds available for that purpose. In addition, dividends, loans, or other distributions to us from such subsidiaries may be subject to contractual and other restrictions and are subject to other business and tax considerations.

Recent and future regulatory actions and other events may adversely affect the trading price and liquidity of the Notes.

We expect that many investors in, and potential purchasers of, the Notes will employ, or seek to employ, a convertible arbitrage strategy with respect to the Notes. Investors would typically implement such a strategy by selling short the common stock underlying the Notes and dynamically adjusting their short position while continuing to hold the Notes. Investors may also implement this type of strategy by entering into swaps on our common stock in lieu of or in addition to short selling the common stock. As a result, any specific rules regulating equity swaps or short selling of securities or other governmental action that interferes with the ability of market participants to effect short sales or equity swaps with respect to our common stock could adversely affect the ability of investors in, or potential purchasers of, the Notes to conduct the convertible arbitrage strategy that we believe they will employ, or seek to

employ, with respect to the Notes. This could, in turn, adversely affect the trading price and liquidity of the Notes.

The SEC and other regulatory and self-regulatory authorities have implemented various rules and taken certain actions, and may in the future adopt additional rules and take other actions, that may impact those engaging in short selling activity involving equity securities (including our common stock). Such rules and actions include Rule 201 of SEC Regulation SHO, the adoption by the Financial Industry Regulatory Authority, Inc. and the national securities exchanges of a “Limit Up-Limit Down” program, the imposition of market-wide circuit breakers that halt trading of securities for certain periods following specific market declines, and the implementation of certain regulatory reforms required by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Although the direction and magnitude of the effect that Regulation SHO, FINRA, securities exchange rule changes, and implementation of the Dodd-Frank Act may have on the trading price and the liquidity of the Notes will depend on a variety of factors, many of which cannot be determined at the date of this report, past regulatory

actions (such as certain emergency orders issued by the SEC in 2008 prohibiting short sales of stock of certain financial services companies) have had a significant impact on the trading prices and liquidity of convertible debt instruments. Any governmental or regulatory action that restricts the ability of investors in, or potential purchasers of, the Notes to effect short sales of our common stock, borrow our common stock, or enter into swaps on our common stock or increases the costs of implementing an arbitrage strategy could adversely affect the trading price and the liquidity of the Notes.

Volatility in the market price and trading volume of our common stock could adversely impact the trading price of the Notes.

The stock market in recent years has experienced significant price and volume fluctuations that have often been unrelated to the operating performance of companies. The market price of our common stock could fluctuate significantly for many reasons, including in response to the risks described in this report, or for reasons unrelated to our operations, such as reports by industry analysts, investor perceptions or negative announcements by our customers, competitors or suppliers regarding their own performance, as well as industry conditions and general financial, economic and political instability. The market price of our common stock could also decline as a result of sales of a large number of shares of our common stock in the market, particularly sales by our directors, executive officers, employees, and significant stockholders, and the perception that these sales could occur may also depress the market price of our common stock. A decrease in the market price of our common stock would likely adversely impact the trading price of the Notes. The market price of our common stock could also be affected by possible sales of our common stock by investors who view the Notes as a more attractive means of equity participation in us and by hedging or arbitrage trading activity that we expect to develop involving our common stock. This trading activity could, in turn, affect the trading price of the Notes.

We may still incur substantially more debt or take other actions which would intensify the risks discussed above.

We are not restricted under the terms of the indentures governing the Notes from incurring additional debt, securing existing or future debt, recapitalizing our debt, or taking a number of other actions that are not limited by the terms of the indentures governing the Notes that could have the effect of diminishing our ability to make payments on the Notes when due. Any failure by us or any of our significant subsidiaries to make any payment at maturity of indebtedness for borrowed money in excess of $15 million or the acceleration of any such indebtedness in excess of $15 million would, subject to the terms of the applicable indenture governing the Notes, constitute a default under the indenture. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the Notes when required.

We may not have the ability to raise the funds necessary to repurchase the Notes upon specified dates or upon a fundamental change, and our future debt may contain limitations on our ability to repurchase the Notes.

Holders of the Notes have the right to require us to repurchase all or a portion of their Notes on certain dates or upon the occurrence of a fundamental change at a repurchase price equal to, for the Original Notes, 100% of the principal amount of the Original Notes to be repurchased or, for Exchange Notes, 100% of the accreted principal amount (i.e., up to 120% of the outstanding principal amount) of the Exchange Notes to be repurchased, plus, in each case, accrued and unpaid interest, if any. We may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of Notes surrendered therefor.

In addition, our ability to repurchase the Notes may be limited by law, regulatory authority, or agreements governing our future indebtedness. Our failure to repurchase Notes at a time when the repurchase is required by the applicable indenture would constitute a default under the applicable indenture. A default under the applicable indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the

repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the Notes when required.

Holders of Notes are not entitled to any rights with respect to our common stock, but they are subject to all changes made with respect to them to the extent our conversion obligation includes shares of our common stock.

Holders of Notes are not entitled to any rights with respect to our common stock (including, without limitation, voting rights and rights to receive any dividends or other distributions on our common stock) prior to the conversion date with respect to any Notes they surrender for conversion, but they are subject to all changes affecting our common stock. For example, if an amendment is proposed to our certificate of incorporation or bylaws requiring stockholder approval and the record date for

determining the stockholders of record entitled to vote on the amendment occurs prior to the conversion date with respect to any Notes surrendered for conversion, then the holder surrendering such Notes will not be entitled to vote on the amendment, although such holder will nevertheless be subject to any changes affecting our common stock.

We have made only limited covenants in the indentures governing the Notes, and these limited covenants may not protect a noteholder's investment.

The indentures governing the Notes do not:

- require us to maintain any financial ratios or specific levels of net worth, revenues, income, cash flows, or liquidity and, accordingly, does not protect holders of the Notes in the event that we experience adverse changes in our financial condition or results of operations;
- limit our subsidiaries' ability to guarantee or incur indebtedness that would rank structurally senior to the Notes;
- limit our ability to incur additional indebtedness, including secured indebtedness;
- restrict our subsidiaries' ability to issue securities that would be senior to our equity interests in our subsidiaries and therefore would be structurally senior to the Notes;
- restrict our ability to repurchase our securities;
- restrict our ability to pledge our assets or those of our subsidiaries; or
- restrict our ability to make investments or pay dividends or make other payments in respect of our common stock or our other indebtedness.

Furthermore, the indentures governing the Notes contain only limited protections in the event of a change of control. We could engage in many types of transactions, such as acquisitions, refinancings, or certain recapitalizations, that could substantially affect our capital structure and the value of the Notes and our common stock but may not constitute a "fundamental change" that permits holders to require us to repurchase their Notes or a "make-whole fundamental change" that permits holders to convert their Notes at an increased conversion rate. For these reasons, the limited covenants in the indentures governing the Notes may not protect a noteholder's investment in the Notes.

The increase in the conversion rate for Notes converted in connection with a make-whole fundamental change or provisional redemption may not adequately compensate noteholders for any lost value of the Notes as a result of such transaction or redemption.

In the case of the Original Notes, if (i) a make-whole fundamental change occurs prior to February 6, 2021, or (ii) upon our issuance of a notice of provisional redemption, under certain circumstances, we will increase the conversion rate by a number of additional shares of our common stock for the Original Notes converted in connection with such events. In the case of the Exchange Notes, if (i) a make-whole fundamental change occurs prior to February 6, 2023, or (ii) upon voluntary conversion of the Exchange Notes prior to the issuance of a notice of provisional redemption, under certain circumstances, we will increase the conversion rate by a number of additional shares of our common stock for the Exchange Notes converted in connection with such events. The increase in the conversion rate for Notes converted in connection with such events may not adequately compensate noteholders for any lost value of the notes as a result of such transaction or redemption. In addition, if the price of our common stock in the transaction is greater than (i) $180.00 per share (in the case of the Original Notes) or (ii) $100 per share (in the case of the Exchange Notes) or (i) less than $39.96 per share (in the case of the Original Notes) or (ii) less than $2.00 per share (in the case of the Exchange Notes) (in each case, subject to adjustment), no additional shares will be added to the conversion rate for the

applicable series of notes. Moreover, in no event will the conversion rate per $1,000 principal amount of Notes as a result of this adjustment exceed (i) 25.0250 shares of common stock (in the case of the Original Notes) and (ii) 134.9730 shares of common stock (in the case of the Exchange Notes), in each case, subject to adjustment.

Our obligation to increase the conversion rate for Notes converted in connection with such events could be considered a penalty, in which case the enforceability thereof would be subject to general principles of reasonableness and equitable remedies.

The conversion rate of the Notes may not be adjusted for all dilutive events.

The conversion rate of the Notes is subject to adjustment for certain events, including, but not limited to, the issuance of certain stock dividends on our common stock, the issuance of certain rights or warrants, subdivisions, combinations, distributions of capital stock, indebtedness, or assets, cash dividends and certain issuer tender or exchange offers. However, the conversion rate will not be adjusted for other events, such as a third-party tender or exchange offer or an issuance of common stock for cash, that may adversely affect the trading price of the Notes or our common stock. An event that adversely affects the value of the Notes may occur, and that event may not result in an adjustment to the conversion rate.

Some significant restructuring transactions may not constitute a fundamental change, in which case we would not be obligated to offer to repurchase the Notes.

Upon the occurrence of a fundamental change, a holder of Notes has the right to require us to repurchase the Notes. However, the fundamental change provisions will not afford protection to holders of Notes in the event of other transactions that could adversely affect the Notes. For example, transactions such as leveraged recapitalizations, refinancings, restructurings, or acquisitions initiated by us may not constitute a fundamental change requiring us to repurchase the Notes. In the event of any such transaction, the holders would not have the right to require us to repurchase the Notes, even though each of these transactions could increase the amount of our indebtedness, or otherwise adversely affect our capital structure or any credit ratings, thereby adversely affecting the holders of Notes.

In addition, absent the occurrence of a fundamental change or a make-whole fundamental change as described under changes in the composition of our board of directors will not provide holders with the right to require us to repurchase the Notes or to an increase in the conversion rate upon conversion.

We cannot assure noteholders that an active trading market will develop or be maintained for the Notes.

We do not intend to apply to list our outstanding Notes on any securities exchange or to arrange for quotation on any automated dealer quotation system. In addition, the liquidity of the trading market in the Notes and the market price quoted for the Notes may be adversely affected by changes in the overall market for this type of security and by changes in our financial performance or prospects or in the prospects for companies in our industry generally. As a result, we cannot assure noteholders that an active trading market will develop or be maintained for the Notes. If an active trading market does not develop or is not maintained, the market price and liquidity of the Notes may be adversely affected. In that case, noteholders may not be able to sell the Notes at a particular time or at a favorable price.

Any adverse rating of the Notes may cause their trading price to fall.

We do not intend to seek a rating on the Notes. However, if a rating service were to rate the Notes and if such rating service were to lower its rating on the Notes below the rating initially assigned to the Notes or otherwise announces its intention to put the Notes on credit watch, the trading price of the Notes could decline.

Holders of Notes may be subject to tax if we make or fail to make certain adjustments to the conversion rate of the Notes even though they do not receive a corresponding cash distribution.

The conversion rate of the Notes is subject to adjustment in certain circumstances, including the payment of cash dividends. If the conversion rate is adjusted as a result of a distribution that is taxable to our common stockholders, such as a cash dividend, a noteholder may be deemed to have received a dividend subject to U.S. federal income tax without the receipt of any cash. In addition, a failure to adjust (or to adjust adequately) the conversion rate after an event that increases a noteholder's proportionate interest in us could be treated as a deemed taxable dividend to you. If (i) a make-whole fundamental change occurs prior to February 6, 2021 (in the case of the Original Notes) or (ii) prior to February 6, 2023 (in the case of the Exchange Notes) or (x) upon our issuance of a notice of provisional redemption (in the case of the Original Notes) or (y) upon voluntary conversion of the Exchange Notes prior to the issuance of a notice of provisional redemption (in the case of the Exchange Notes), under some circumstances, we will increase the conversion rate for Notes converted in connection with the make-whole fundamental change or provisional redemption. Such increase may also be treated as a distribution subject to U.S. federal income tax as a dividend. For a non-U.S. holder, any deemed dividend would be subject to U.S. federal withholding tax at a 30% rate, or such lower rate as may be specified by an applicable treaty, which may be set off against subsequent payments on the Notes.

Any conversions of the Notes will dilute the ownership interest of our existing stockholders, including holders who had previously converted their notes.

Any conversion of some or all of the notes will dilute the ownership interests of our existing stockholders. The initial conversion price under the Exchange Notes is approximately $7.8775 as compared to approximately $55.94 under the Original Notes. As a result, each of the outstanding Exchange Notes is initially convertible into 126.9438 shares of our common stock per $1,000 principal amount while our outstanding Original Notes are initially convertible into 17.8750 shares of our common stock per $1,000 principal amount. Issuances of shares of common stock upon conversion of our Notes could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. In addition, the existence of the Notes may encourage short selling by market participants because the conversion of the Notes could depress the price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease approximately 81,500 square feet of office and laboratory space at our headquarters in South San Francisco, California under a lease that expires in April 2020. Additionally, we lease office, laboratory and manufacturing space in Singapore of approximately 52,000 square feet and in Ontario, Canada of approximately 44,000 square feet under leases that expire in June 2022 and March 2026, respectively. As of December 31, 2017, we also leased office space in Japan, China, United Kingdom and France, with various expiration dates through February 2026. We believe that our existing office, laboratory, and manufacturing space, together with additional space and facilities available on commercially reasonable terms, will be sufficient to meet our current needs through 2018. In addition, we believe that our properties are in good condition and are adequate and suitable for their purposes.

ITEM 3. LEGAL PROCEEDINGS

On December 21, 2015, Thermo Fisher Scientific, Inc. (Thermo) filed a complaint in the Circuit Court for the County of Kalamazoo of Michigan against one of its former employees who had recently been hired by us alleging, among other claims, misappropriation of proprietary information and breach of contractual and fiduciary obligations to

Thermo while still an employee of Thermo. On November 23, 2016, Thermo amended its complaint to add us as a party to the litigation, making various commercial and employment-related claims and seeking damages and injunctive relief. In July 2017, we entered into a settlement agreement with Thermo. Pursuant to the terms of the settlement agreement, we agreed to pay Thermo a one-time payment of $3.0 million in exchange for a release and dismissal of all claims with prejudice upon payment of the settlement. In August 2017, we paid the settlement of $3.0 million and received an insurance recovery payment of $1.0 million related to this matter.

Additionally, 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. The following table sets forth the range of high and low closing sales prices of our common stock for the periods indicated:

Year ended December 31, 2017	High	Low
First Quarter	$8.33	$4.90
Second Quarter	$5.95	$3.66
Third Quarter	$5.49	$2.71
Fourth Quarter	$6.45	$4.46
Year ended December 31, 2016	**High**	**Low**
First Quarter	$10.12	$5.47
Second Quarter	$10.91	$8.20
Third Quarter	$10.72	$7.88
Fourth Quarter	$8.12	$4.34

We had approximately 90 stockholders of record as of February 9, 2018; however, because many of our outstanding shares are held in accounts with brokers and other institutions, we believe we have more beneficial owners. 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 Securities and Exchange Commission 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 shows a comparison from December 31, 2012 through December 31, 2017 of the cumulative total return for our common stock, the NASDAQ Composite Total Return Index and the NASDAQ US Benchmark Medical Equipment Index, each of which assumes 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, 2017.

ITEM 6. SELECTED FINANCIAL DATA

The following selected financial data should be read in conjunction with the consolidated financial statements and related notes thereto appearing elsewhere in this Form 10-K. We have derived the consolidated statement of operations data for the years ended December 31, 2017, 2016, and 2015 and consolidated balance sheet data as of December 31, 2017 and December 31, 2016 from audited consolidated financial statements included elsewhere in this Form 10-K. The consolidated statement of operations data for the years ended December 31, 2014 and 2013 and the consolidated balance sheet data as of December 31, 2015, December 31, 2014, and December 31, 2013 were derived from audited consolidated financial statements that are not included in this Form 10-K.

	Year Ended December 31,				
	2017	2016	2015	2014	2013
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Total revenue	$101,937	$104,446	$114,712	$116,456	$71,183
Loss from operations	(58,360)	(73,190)	(50,155)	(51,836)	(18,653)
Net loss	(60,535)	(75,985)	(53,315)	(52,830)	(16,526)
Net loss per share, basic and diluted	(1.84)	(2.62)	(1.86)	(1.90)	(0.65)

	December 31,				
	2017	2016	2015	2014	2013
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents, and short and long-term investments	$63,136	$59,430	$101,465	$142,800	$86,286
Working capital (1)	71,565	76,334	123,433	133,440	89,354
Total assets (2)	287,351	306,395	370,050	406,506	116,915
Total long-term debt (2)	195,238	194,951	194,673	194,402	—
Total stockholders' equity	30,935	53,233	114,901	150,419	96,414

(1) Working capital excludes deferred revenue.
(2) $1.0 million and $1.1 million of debt issuance costs of Convertible notes were previously included in Total assets reclassified to Total long-term debt as a deduction in December 31, 2015 and December 31, 2014, respectively.

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

The following discussion and analysis 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

We create, manufacture, and market innovative technologies and tools for life sciences research. We sell instruments and consumables, including integrated fluidic circuits, or IFCs, assays and reagents, to academic institutions, clinical research laboratories, and biopharmaceutical, biotechnology, and agricultural biotechnology, or Ag-Bio, companies and contract research organizations, or CROs. Our technologies and tools are directed at the analysis of deoxyribonucleic acid, or DNA, ribonucleic acid, or RNA, and proteins in a variety of different sample types, from individual cells to bulk tissue.

We were a pioneer in the application of microfluidics to enable high-throughput and highly-multiplexed polymerase chain reactions, or PCR, for genetic analysis, as well as a field known as single-cell genomics, in which the genetic composition of individual cells is assayed. In February 2014, we purchased DVS Sciences, Inc., whose mass cytometry system enables the highly-multiplexed analysis of cellular surface and intracellular proteins in both blood and tissue.

Researchers have successfully employed our products to help achieve breakthroughs in a variety of fields, including single-cell gene and protein expression, gene regulation, genetic variation, cellular function and applied genetics. These breakthroughs include using our systems to help detect life-threatening mutations in cancer cells, discover cancer associated biomarkers, analyze the genetic composition of individual stem cells and assess the quality of agricultural products, such as seeds or livestock.

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, Canada and South San Francisco, California. Our facility in Singapore manufactures our genomics instruments, several of which are assembled at facilities of our contract manufacturers in Singapore, with testing and calibration of the assembled products performed at 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 for commercial sale, as well as for internal research and development purposes, are manufactured at our facility in Canada. We also manufacture assays and reagents at our facilities in the United States.

Our total revenue was $101.9 million in 2017, $104.4 million in 2016, and $114.7 million in 2015. We have incurred significant net losses since our inception in 1999 and, as of December 31, 2017, our accumulated deficit was $500.2 million.

At the end of 2016, we began reallocating our resources based on revenue contribution and growth expectations across our target markets, including a reorganization of our sales team and commercial leadership. As part of this shift and

due to our negative revenue growth in 2016 and 2015, we implemented certain operational efficiency and cost-savings initiatives beginning in the first quarter of 2017 intended to align our resources with our product strategy, reduce our operating expenses, and manage our cash flows. In 2017, we focused on right-sizing our workforce, facilities consolidation, vendor negotiation, and other operating expense reductions. Our operating expenses decreased by $21.3 million, or 16%, to $110.3 million for 2017 compared to $131.6 million for 2016. On August 10, 2017, we sold 9.1 million shares of our common stock through an “at-the-market” equity offering program, for aggregate net proceeds of approximately $28.8 million, which provides us with additional financial flexibility and enables us to reinvest in growth.

Recent Developments

In February 2014, we closed an underwritten public offering of $201.3 million in aggregate principal amount of our 2.75% Senior Convertible Notes due 2034, which we refer to as our “Original Notes.” In March 2018, we entered into privately negotiated transactions with certain holders of our Original Notes to exchange approximately $125.0 million in aggregate principal amount of the Original Notes for approximately $125.0 million in aggregate principal amount of our new 2.75%

Exchange Convertible Senior Notes due 2034, which we refer to as our "Exchange Notes," and collectively with the Original Notes, the "Notes". Following the exchange transaction, approximately $76.3 million in aggregate principal amount of Original Notes remained outstanding. Our board of directors determined that the private exchange transaction was in the best interest of the company and our stockholders following substantial review with management and our financial advisors concerning the amount of our outstanding indebtedness relative to the market capitalization of our common stock and, in particular, obligations under the indenture for the Original Notes that could require us to repurchase the Original Notes over three years beginning in 2021 at a repurchase price equal to the aggregate principal amount of the Original Notes (approximately $201.3 million prior to the exchange). The principal differences between the Original Notes and the Exchange Notes are the following:

- The date on which we may be first required to repurchase the Exchange Notes has been extended to February 2023, compared to February 2021 under the Original Notes. In addition, while the applicable cash repurchase price for the Original Notes is 100% of the outstanding principal amount, the cash repurchase price for the Exchange Notes is based on a formula that would result in the Exchange Notes being redeemed for up to an amount equal to 120% of the outstanding principal amount, plus, in each case, accrued and unpaid interest.
- The initial conversion price under the Exchange Notes is approximately $7.8775, as compared to approximately $55.94 under the Original Notes. As a result, each of the outstanding Exchange Notes is initially convertible into 126.9438 shares of our common stock per $1,000 principal amount, while the Original Notes are initially convertible into 17.8750 shares of our common stock per $1,000 principal amount.
- Under the supplement indenture for the Exchange Notes, we may at any time cause the then-outstanding Exchange Notes to be converted into shares of our common stock at the then-applicable Exchange Note conversion price if the volume weighted average price of our common stock is at least 110% of the applicable Exchange Note conversion price on each applicable trading day over a period specified in the supplement indenture for the Exchange Notes. Under the indenture for the Original Notes, we may only redeem the Original Notes for cash under certain circumstances during the period from February 6, 2018 through February 6, 2021.
- Under certain circumstances such as a “fundamental change” (as defined in the applicable indenture) that occurs prior to (i) February 6, 2021 in the case of the Original Notes and (ii) February 6, 2023 in the case of the Exchange Notes, holders of the Notes are entitled to a “make-whole” premium that will result in an increase in the applicable conversion rate. Under the terms of the Exchange Notes (but not the Original Notes), holders will be entitled to receive additional shares reflecting the economic equivalent of approximately two years of additional coupon payments, subject to certain limitations, in connection with a voluntary conversion by the noteholder prior to our exercise of our early conversion option.

The foregoing summaries of the Original Notes, the Exchange Notes, and the recently completed exchange transaction 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 Securities and Exchange Commission with respect to the Exchange Notes and the exchange, and investors should refer to the text of the Second Supplemental Indenture, dated March 6, 2018, between the Company and U.S. Bank National Association and the Form of Global Note included in the Second Supplemental Indenture, which are filed or incorporated by reference as Exhibits 4.6 and 4.7, respectively, with this Annual Report on Form 10-K. With respect to the Original Notes, of which approximately $76.3 million in aggregate principal amount remains outstanding, investors should refer to the text of the Indenture, dated as of February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association, the First Supplemental Indenture, dated as of February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association, and the Form of Global Note included in the First Supplemental Indenture which are filed or incorporated by reference as Exhibits 4.2, 4.3 and 4.4, respectively, with this Annual Report on Form 10-K.

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 these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs, and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Changes in accounting estimates may occur from period to period. Accordingly, actual results could differ significantly from the estimates made by our management. We evaluate our estimates and assumptions on an ongoing basis. To the extent that there are material differences between these estimates and actual results, our future financial statement presentation, financial condition, results of operations, and cash flows will be affected.

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 consolidated financial condition and results of operations. Our accounting policies are more fully described in Note 2 of the notes to our audited consolidated financial statements.

Revenue Recognition

We generate revenue primarily from sales of our products and services. Our product revenue consists of sales of our mass cytometry, high-throughput genomics and single-cell genomics instruments and consumables, including IFCs, assays, and other reagents. Our service revenue consists of post-warranty service contracts, preventive maintenance plans, instrument parts, training, and installation. We also receive revenue from our license agreements with third parties.

We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price to the customer is fixed or determinable, and collectability is reasonably assured. Revenue from the sales of our products that are not part of multiple element arrangements are recognized when no significant obligation remains undelivered and collection is reasonably assured, which is generally when delivery has occurred. Delivery occurs when there is a transfer of title and risk of loss passes to the customer. Payments received in advance of revenue recognition are classified as deferred revenue in the consolidated balance sheet.

The evaluation of these revenue recognition criteria requires significant management judgment. For instance, we use judgment to assess collectability based on factors such as the customer's creditworthiness and past collection history, if applicable. If we determine that collection is not reasonably assured, revenue recognition is deferred until receipt of payment. We also use judgment to assess whether a price is fixed or determinable by, among other things, reviewing contractual terms and conditions related to payment.

Certain of our sales contracts involve the delivery of multiple products or services within contractually binding arrangements. Multiple-deliverable sales transactions typically consist of the sale and delivery of one or more instruments and consumables together with one or more of our installation, training and/or customer support services. Significant judgment is sometimes required to determine the appropriate accounting for such arrangements, including whether the deliverables specified in a multiple element arrangement should be treated as separate units of accounting for revenue recognition purposes and, if so, how the related sales price should be allocated among the elements, when to recognize revenue for each element, and the period over which revenue should be recognized.

For sales contracts that include multiple deliverables, we allocate the contract consideration at the inception of the contract to each unit of accounting based upon their relative selling prices. We may use our best estimate of selling price for individual deliverables when vendor specific objective evidence or third-party evidence is unavailable. A delivered item is considered to be a separate unit of accounting when it has value to the customer on a stand-alone basis.

Our products are typically delivered within a short time frame, generally within one to three months, of the contract date. Service contracts are entered into for terms of one to three years, following the expiration of the warranty period.

Our products are generally sold without the right of return. Accruals are provided for estimated warranty expenses at the time the associated revenue is recognized. We use judgment to estimate these accruals and, if we were to experience an increase in warranty claims or if costs of servicing our products under warranty were greater than our estimates, our cost of product revenue could be adversely affected in future periods.

License and royalty revenue from license agreements is recognized when received, which is generally in the quarter following the quarter in which the corresponding sales occur.

Changes in judgments and estimates regarding application of these revenue recognition guidelines as well as changes in facts and circumstances could result in a change in the timing or amount of revenue recognized in future periods.

Stock-Based Compensation

We recognize compensation costs for all stock-based awards, including stock options, restricted stock units and stock purchased under our Employee Stock Purchase Plan (ESPP), based on the grant date fair value of the award. Stock-based compensation cost for restricted stock units granted to employees is measured based on the closing fair market value of our common stock on the date of grant. 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 significant 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.

Our board of directors sets the terms, conditions, and restrictions related to our ESPP and the grant of stock options and restricted stock units, including the number of shares underlying the grants and the vesting criteria. With respect to performance-based stock awards, depending on the extent to which the vesting criteria are met, our board of directors determines the number of shares that vest under the grants.

The resulting compensation costs of our equity awards are recognized over the period during which an employee is required to provide service in exchange for the award, usually a time-based vesting period. We amortize the fair value of stock-based compensation on a straight-line basis over the requisite service periods. For performance-based stock awards, stock-based compensation expense is recognized over the requisite service period when the achievement of each individual performance milestone becomes probable. Historically, certain of our stock awards were granted to officers with vesting acceleration features based upon the achievement of certain performance milestones. The timing of the attainment of these milestones affected the timing of expense recognition since we recognize compensation expense only for the portion of stock options that are expected to vest.

The calculated fair value of our stock options could change significantly if we determine that another method is more reasonable, or if another method for calculating these input assumptions is prescribed by authoritative guidance. Higher volatility and longer expected terms result in an increase in stock-based compensation expense determined at the date of grant. Stock-based compensation expense affects our cost of product revenue, research and development expense, and selling, general and administrative expense.

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 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. Significant management judgment is required in determining our provision for income taxes, our deferred tax assets and liabilities, and any valuation allowance recorded against our deferred tax assets. Our provision for income taxes generally consists of tax expense/benefit related to current period earnings/losses. As part of the process of preparing our consolidated financial statements, we continuously monitor the circumstances impacting the expected realization of our deferred tax assets for each jurisdiction. We consider all available evidence, including historical operating results in each jurisdiction, expectations and risks associated with estimates of future taxable income, and ongoing prudent and feasible tax planning strategies in assessing the need for a valuation allowance. To the extent a deferred tax asset cannot be recognized, a valuation allowance is established to reduce our deferred tax assets to the amount that is more likely than not to be realized. These deferred tax assets primarily consist of net operating loss carryforwards, research and development tax credits, and stock-based compensation. We intend to maintain such valuation allowance until sufficient evidence exists to support its reduction. Our deferred tax liabilities primarily consist of book and tax basis differences in fixed assets and acquired identifiable intangible assets. 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 will be reflected in the income tax provision.

The 2017 Tax Cuts and Jobs Act (the Tax Act) was enacted in December 2017. The Tax Act introduced a broad range of tax reform measures that significantly changed the U.S. federal income tax laws. The main provisions of the Tax Act that may have significant impacts on us include the permanent reduction of the corporate income tax rate from 34% to 21% effective for tax years including or commencing on January 1, 2018, a one-time transition tax on post-1986 foreign unremitted earnings, a provision for global intangible low-taxed income (GILTI), a deduction for foreign-derived intangible income (FDII), a repeal of the corporate alternative minimum tax, limitations of various business deductions, modifications of the maximum deduction of net operating loss with no carryback but indefinite carryforward provision, and limitations on the deductibility of executive compensation. Many provisions of the Tax Act are effective in tax years beginning after December 31, 2017.

We have remeasured our deferred taxes as of December 31, 2017, to reflect the reduced federal tax rate of 21% that will apply in future periods when these deferred taxes are settled or realized. Accordingly, our gross deferred tax assets, which primarily include our net operating loss carryforwards, decreased by $29.9 million with a corresponding decrease in our valuation allowance. There was no net impact on our income tax provision from the remeasurement of existing deferred taxes due to a full valuation allowance. In addition, the Tax Act requires companies to pay a one-time transition tax for accumulated foreign earnings not previously subject to U.S. income tax. We have reviewed the accumulated undistributed foreign earnings after previously taxed income and currently we do not anticipate a transition tax liability due to our estimated aggregate foreign deficit. We will examine the impact of the Tax Act that are applicable in 2018 related to base erosion anti-abuse tax (BEAT), GILTI and other provisions that could affect our effective tax rate in the future. We will continue to monitor changes in state and local tax laws to determine if state and local tax authorities intend to conform or deviate from changes to the U.S. federal tax legislation as a result of the Tax Act.

The SEC staff issued Staff Accounting Bulletin No. 118 (SAB 118) to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Act and allows the registrant to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. We have made reasonable estimates to reflect the impacts of the Tax Act and recorded provisional amounts, in accordance with SAB 118, for the remeasurement of deferred taxes and the one-time transition tax as of December 31, 2017.

We continue to analyze additional information and new guidance issued by relevant authorities related to the Tax Act, which could impact the determination of the net deferred taxes subject to the remeasurement, the related impact to the assessment of our valuation allowance and the one-time transition tax. The prospects of supplemental legislation or regulatory processes to address questions that arise because of the Tax Act, or evolving technical interpretations of the tax law, may cause the final impact from the Tax Act to differ materially from the recorded amounts. We will finalize and record any adjustments related to the Tax Act within the one year measurement period provided under SAB 118.

As of 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 and state taxes that may be due upon future repatriation of earnings is not expected to be significant. In addition, we currently do not anticipate any significant impact from the one-time transition tax liability under the Tax Act due to our estimated aggregate foreign deficit.

Our Development and Expansion Incentive, or DEI, in Singapore was terminated in 2017 and we did not benefit from the reduced tax rate of 5% for qualifying income in Singapore because certain milestones were not met. In addition, the capital allowance provision under the Singapore Productivity and Innovation Credit Scheme ended in 2017. Due to the termination of our DEI and capital allowance deduction, we released the valuation allowance and are subject to the statutory tax rate for Singapore.

Inventory Valuation

We record adjustments to inventory for potentially excess, obsolete, slow-moving, or impaired goods in order to state inventory at its net realizable value. The business environment in which we operate is subject to rapid changes in technology and customer demand. We regularly review inventory for excess and obsolete products and components, taking into account product life cycle and development plans, product expiration and quality issues, historical experience, and our current inventory levels. If actual market conditions are less favorable than anticipated, additional inventory adjustments could be required.

Impairment of Goodwill, Intangible Assets and Long-lived Assets

Goodwill and other indefinite-lived intangible assets 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. Screening for and assessing whether impairment indicators exist, or if events or changes in circumstances have occurred, including a decline in our stock price or market capitalization, declines in our market shares or revenue, operating fundamentals, rapid changes in technology, competition, general economic conditions or other matters, requires significant judgment. An impairment charge may occur as a result of future goodwill and intangible asset impairment tests. The decreases in revenue and stock price that have occurred in the past and may occur in the future could make such impairment more likely to result. If impairment is deemed to exist, we would write-down the recorded value of these intangible assets to their fair values. If and when these write-downs occur, they could harm our results of operations. 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 then conduct a two-step test for impairment of goodwill. In the first step, we compare the fair value of our reporting unit to its carrying value. If the fair value of our reporting unit exceeds the carrying value of the net assets, goodwill is not considered impaired and no further analysis is required. If the carrying value of the net assets exceeds the fair value of the reporting unit, then the second step of the impairment test must be performed in order to determine the implied fair value of the goodwill. If the carrying value of the goodwill exceeds the implied fair value, then an impairment loss equal to the difference would be recorded.

We evaluate our finite-lived intangible assets and other long-lived assets 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 intangible 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.

Results of Operations

The following table presents our historical consolidated statements of operations data for the years ended December 31, 2017, 2016, and 2015, and as a percentage of total revenue for the respective years (in thousands):

	Year Ended December 31,					
	2017		2016		2015	
Revenue:						
Total revenue	$101,937	100 %	$104,446	100 %	$114,712	100 %
Costs and expenses:						
Cost of product revenue	45,039	44	41,110	39	43,001	37
Cost of service revenue	4,916	5	4,899	5	3,629	3
Research and development	30,826	30	38,415	37	39,264	34
Selling, general and administrative	79,516	78	93,212	89	82,959	72
Gain on escrow settlement	—	—	—	—	(3,986)	(3)
Total costs and expenses	160,297	157	177,636	170	164,867	144
Loss from operations	(58,360)	(57)	(73,190)	(70)	(50,155)	(44)
Interest expense	(5,824)	(6)	(5,820)	(6)	(5,808)	(4)
Gain from sale of investment in Verinata	—	—	—	—	2,330	2
Other income (expense), net	385	1	(1,167)	(1)	(1,157)	(1)
Loss before income taxes	(63,799)	(62)	(80,177)	(77)	(54,790)	(47)
Benefit from income taxes	3,264	3	4,192	4	1,475	1
Net loss	$(60,535)	(59)%	$(75,985)	(73)%	$(53,315)	(46)%

Revenue

We generate revenue primarily from sales of our products and services, and license agreements. Our product revenue consists of sales of instruments and consumables, including IFCs, assays and reagents. Our service revenue consists of post-warranty service contracts, preventive maintenance plans, instrument parts, installation and training.

The following table presents our revenue by source for each period presented (in thousands):

	Year Ended December 31,			Change	
	2017	2016	2015	2017	2016
Revenue:					
Instruments	$42,505	$46,834	$58,455	(9)%	(20)%
Consumables	41,894	42,169	43,685	(1)%	(3)%
Product revenue	84,399	89,003	102,140	(5)%	(13)%
Service revenue	17,348	15,205	12,315	14 %	23 %
License revenue	190	238	257	(20)%	(7)%
Total revenue	$101,937	$104,446	$114,712	(2)%	(9)%

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

	Year Ended December 31,						Change	
	2017		2016		2015		2017	2016
United States	$45,820	45 %	$52,637	51 %	$55,404	48 %	(13)%	(5)%
Europe	32,642	32 %	29,739	28 %	36,772	32 %	10 %	(19)%
Asia-Pacific	20,005	20 %	18,478	18 %	16,967	15 %	8 %	9 %
Other	3,470	3 %	3,592	3 %	5,569	5 %	(3)%	(36)%
Total revenue	$101,937	100%	$104,446	100%	$114,712	100%	(2)%	(9)%

Our license revenue is generated primarily in the United States.

We sell our products and services to leading academic research institutions, clinical research laboratories, and biopharmaceutical, biotechnology and Ag-Bio companies. Revenue from our five largest customers was 14%, 15% and 13% of total revenue in 2017, 2016 and 2015, respectively.

Total Revenue

Total revenue decreased by $2.5 million, or 2%, to $101.9 million for 2017 compared to $104.4 million for 2016, primarily due to a decrease of $4.6 million in product revenue, partially offset by a $2.1 million increase in service revenue. The revenue decrease was predominantly in the United States, partially offset by increases in Europe and Asia-Pacific. Revenue in the United States decreased by $6.8 million, or 13%, for 2017 compared to 2016. The decrease in the United States was mainly attributable to lower instrument sales and particularly our C1 systems, partially offset by an increase in service revenue. Revenues in Europe and Asia-Pacific increased by $2.9 million and $1.5 million, or 10% and 8%, respectively, for 2017 compared to 2016. The increases in Europe and Asia-Pacific were primarily driven by higher mass cytometry product sales, partially offset by a decrease in sales of our single-cell genomics products. Revenue in the Other area was relatively flat for 2017 compared to 2016.

Total revenue decreased by $10.3 million, or 9%, to $104.4 million for 2016 compared to $114.7 million for 2015 primarily due to a decrease of $13.1 million in product revenue, partially offset by a $2.9 million increase in service revenue. Total revenue decreased in all geographic areas, except Asia-Pacific for 2016 compared to 2015. The revenue decrease was predominantly in Europe due to lower instrument sales. The revenue increase in Asia-Pacific was largely attributable to a $5.5 million or 97% increase in our revenue in China, offset by a decrease of sales in the rest of the area in Asia-Pacific, primarily Japan, for 2016 compared to 2015.

Due to the volatility in currency exchange rates, future fluctuations in currency exchange rates could have an adverse impact on our financial results.

Product Revenue

Product revenue decreased by $4.6 million, or 5%, to $84.4 million for 2017 compared to $89.0 million for 2016. Instrument revenue decreased by $4.3 million, or 9%, to $42.5 million for 2017 compared to 2016, predominately due to lower unit sales of our genomics instruments and particularly our C1 systems, partially offset by higher unit sales of our mass cytometry instruments. Consumables revenue decreased by $0.3 million, or 1%, to $41.9 million for 2017 compared to 2016, largely attributable to decreased unit sales of single-cell genomics IFCs and lower average selling prices for most IFCs, partially offset by increased unit sales of mass cytometry reagents.

Product revenue decreased by $13.1 million, or 13%, to $89.0 million for 2016 compared to $102.1 million for 2015. Instrument revenue decreased by $11.6 million, or 20%, to $46.8 million for 2016 compared to 2015, primarily due to lower unit sales across most instrument systems, primarily our genomic instruments and particularly our C1 systems. Consumables revenue decreased by $1.5 million, or 3%, to $42.2 million for 2016 compared to 2015, largely attributable to decreased unit sales from IFCs and particularly Access Array IFCs, and to a lesser extent, lower average selling prices for most IFCs. The decrease was partially offset by increased sales from Helios consumables.

We expect the average selling prices of our products to fluctuate over time based on market conditions, product mix, and currency fluctuations. In addition, our total revenue and product revenue decreased in 2017 compared to 2016 and decreased in 2016 compared to 2015, and we cannot provide assurance concerning future revenue growth, if any.

Service Revenue

Service revenue increased by $2.1 million, or 14%, to $17.3 million for 2017 compared to 2016. Service revenue increased by $2.9 million, or 23%, to $15.2 million for 2016 compared to 2015. The increases in both 2017 and 2016 were primarily due to an increase in instruments under post-warranty service contracts as a result of growth in our installed base, particularly mass cytometry instruments. Revenue from post-warranty service contracts generally lags changes our instrument revenue by one year. In addition, other fee-for-service offerings, including training, installation, parts, labor and preventive maintenance, increased during 2017 and 2016.

License Revenue

License revenue remained consistently flat at $0.2 million for 2017, 2016 and 2015.

Cost of Product and Service Revenue

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. Cost of service revenue includes direct labor hours, overhead and instrument parts.

The following table presents our cost of product and service revenues and product and service margins for each period presented (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Cost of product revenue	$45,039	$41,110	$43,001
Cost of product revenue as % of product revenue	53 %	46 %	42 %
Product margin	47 %	54 %	58 %
Acquisition-related amortization expense	$11,200	$11,200	$11,200
Acquisition-related amortization expense as % of product revenue	13 %	13 %	11 %

Cost of service revenue	4,916	4,899	3,629
Cost of service revenue as % of service revenue	28 %	32 %	29 %
Service margin	72 %	68 %	71 %

Cost of product revenue increased by $3.9 million, or 10%, to $45.0 million for 2017 compared to $41.1 million for 2016. Cost of product revenue decreased by $1.9 million, or 4%, to $41.1 million for 2016 compared to $43.0 million for 2015.

Cost of product revenue includes the amortization of acquired intangibles assets resulting from our acquisition of DVS, which was $11.2 million for each of 2017, 2016 and 2015.

Product margin decreased 7 percentage points during 2017 compared to 2016, primarily driven by increased genomics unit product costs from lower production volumes, higher excess and obsolete inventory expense and, to a lesser extent, lower average selling prices across most of the products and higher acquisition-related intangible amortization costs as a percentage of product revenue, partially offset by a favorable product mix. Product margin decreased 4 percentage points during 2016 compared to 2015, primarily driven by higher acquisition-related intangible amortization costs as a percentage of product revenue and, to a lesser extent, lower average selling prices for certain genomics instruments and lower consumables capacity utilization.

Cost of service revenue was generally flat at $4.9 million for 2017 and 2016, and increased by $1.3 million, or 35%, from $3.6 million for 2015.

Service margin increased 4 percentage points during 2017 compared to 2016, mainly due to lower labor costs driven by greater efficiency. Service margin decreased 3 percentage points during 2016 compared to 2015, mainly due to higher material and labor costs due to unfavorable product support plan mix.

Operating Expenses

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

	Year Ended December 31,			2017 vs. 2016 change	2016 vs. 2015 change
	2017	2016	2015		
Research and development	$30,826	$38,415	39,264	(20)%	(2)%
Selling, general and administrative	79,516	93,212	82,959	(15)%	12 %
Gain on escrow settlement	—	—	(3,986)	— %	100 %
Total operating expenses	$110,342	$131,627	$118,237		

Research and Development

Research and development expense consists primarily of personnel and independent contractor costs, prototype and material expenses and other allocated facilities, and information technology expenses. We have made substantial investments in research and development since our inception. 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 decreased by $7.6 million, or 20%, to $30.8 million for 2017 compared to $38.4 million for 2016. The decrease in research and development expense for 2017 was primarily attributable to our cost-savings initiatives in 2017, including headcount and compensation savings of $3.6 million. In addition, product materials and supplies costs decreased by $3.1 million mainly due to fewer projects in 2017 driven by our strategic realignment and focus.

Research and development expense decreased by $0.8 million, or 2%, to $38.4 million for 2016 compared to $39.3 million for 2015. The decrease in research and development expense for 2016 was primarily due to a decrease in product materials and supplies of $1.8 million resulting from higher-cost projects in the prior year, including investments in our Imaging Mass Cytometry system. The decrease was partially offset by an increase in headcount and compensation related costs of $1.0 million.

We believe that our continued investment in research and development is essential to our long-term competitive position and that these expenses may increase in future periods.

Selling, General and Administrative

Selling, general and administrative expense consists primarily of personnel costs for our sales, marketing and administrative employees, facilities, depreciation and professional services, such as legal and accounting services.

Selling, general and administrative expense decreased by $13.7 million, or 15%, to $79.5 million for 2017 compared to $93.2 million for 2016. This decrease for 2017 was primarily due to our cost-savings initiatives in 2017, including infrastructure and facilities savings of $3.4 million. In addition, we had lower legal expenses of $6.2 million mainly attributable to the settlements of previously pending litigations in 2017, a decrease in outside services of $1.5 million, a decrease in travel expenses of $1.2 million and a decrease in recruiting costs of $1.1 million.

Selling, general and administrative expense increased by $10.3 million, or 12%, to $93.2 million for 2016 compared to $83.0 million for 2015. The increase for 2016 was primarily due to higher headcount and compensation-related costs of $9.7 million and an increase in legal and outside services costs of $1.7 million. The increase was partially offset by a decrease in trade shows and marketing costs of $1.1 million.

It may become necessary for us to reinvest a portion of these cost savings in business infrastructure and operations to build on our strategic development and long-term growth, and therefore, our operating expenses may increase in future periods.

Gain on Escrow Settlement

Approximately 885,000 shares of Fluidigm common stock were deposited into escrow, or Escrowed Shares, in connection with our acquisition of DVS in February 2014. The Escrowed Shares comprised a portion of the merger consideration and were being held in escrow to secure indemnification obligations under the merger agreement. Under the terms of the merger agreement, fifty percent (50.0%) of the aggregate shares subject to the indemnification escrow were eligible for release on March 13, 2015, or the Initial Release Date, and the balance of the shares were eligible for release on August 13, 2015, provided that in each case shares would have continued to be held in escrow in amounts that we reasonably determined in good faith to be necessary to satisfy any claims for which we had delivered a notice of claim which had not been fully resolved between us and the representative of the former stockholders of DVS, or Stockholder Representative. Prior to the Initial Release Date, we submitted escrow claim notices under the terms of the merger agreement, which were objected to by the Stockholder Representative. In July 2015, we entered into a settlement agreement with the Stockholder Representative regarding the claims pursuant to which the parties agreed to release approximately 80% of the Escrowed Shares to the former stockholders of DVS, and the remaining approximately 20% of the Escrowed Shares, or 170,107 shares, to us, which were canceled and returned to the status of authorized and unissued shares. On the settlement date, the 170,107 shares had a value of approximately $4.0 million, which was recorded to gain on escrow settlement during the quarter ended September 30, 2015.

Interest Expense and Other Income (Expense), Net

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

	Year Ended December 31,			2017 vs. 2016 change	2016 vs. 2015 change
	2017	2016	2015		
Interest expense	$(5,824)	$(5,820)	$(5,808)	— %	— %
Gain from sale of investment in Verinata	—	—	2,330	— %	(100)%
Other income (expense), net	385	(1,167)	(1,157)	133 %	(1)%
Total	$(5,439)	$(6,987)	$(4,635)		

On February 4, 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034, or the Original Notes. As discussed above under Recent Developments, in March 2018, we entered into privately negotiated transactions with certain holders of our Original Notes to exchange approximately $125.0 million in aggregate principal amount of the Original Notes for approximately $125.0 million in aggregate principal amount of our new 2.75% Exchange Convertible Senior Notes due 2034, leaving approximately

$76.3 million in aggregate principal amount of Original Notes outstanding. The Notes accrue interest at a rate of 2.75% per year, payable semi-annually in arrears on February 1 and August 1 of each year, with such accrual commencing on August 1, 2014 for the Original Notes and February 1, 2018 for the Exchange Notes. The Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the Notes.

Interest expense was $5.8 million for each of the years ended December 31, 2017, 2016 and 2015.

Gain from Sale of Investment in Verinata

In February 2013, Illumina, Inc. acquired Verinata Health, Inc. (Verinata) for $350 million in cash and up to an additional $100 million in milestone payments through December 2015. In March 2013, we received cash proceeds of $3.1 million in exchange for our ownership interest in Verinata, resulting in a gain of $1.8 million. During 2014, we received cash proceeds of $0.3 million from the escrow account related to the acquisition. We recorded these amounts as "Gain from sale of investment in Verinata" in the accompanying consolidated statements of operations for the years ended December 31, 2013 and 2014. The final milestones related to the sale of Verinata to Illumina were met in December 2015 and, accordingly, we recorded our share of these milestone payment obligations in the amount of $2.3 million in Other Assets and Gain from sale of investment in Verinata in the accompanying consolidated statement of operations for the year ended December 31, 2015. In January 2016, we received payment of this amount.

Other Income (Expense), Net

Other income, net of $0.4 million for 2017 was mainly due to the net favorable effects of foreign exchange rate changes during 2017. Other expenses, net of $1.2 million for both 2016 and 2015 were mainly associated with losses from revaluation of certain foreign currency denominated assets and liabilities.

Benefit from Income Taxes

We recorded a tax benefit of $3.3 million, or an effective tax rate benefit of 5.1%, for the year ended December 31, 2017. This tax benefit was primarily attributable to amortization of our acquisition-related deferred tax liability and release of the valuation allowance in Singapore.

We recorded a tax benefit of $4.2 million, or an effective tax rate benefit of 5.2%, for the year ended December 31, 2016. This tax benefit was primarily attributable to amortization of our acquisition-related deferred tax liability, net income tax benefit from our foreign operations and release of unrecognized tax benefits.

We recorded a tax benefit of $1.5 million, or an effective tax rate benefit of 2.6% for the year ended December 31, 2015. The tax benefit was principally due to the amortization of our acquisition-related deferred tax liability, partially offset by net income tax expense from our foreign operations and unrecognized tax benefits.

Liquidity and Capital Resources

Sources of Liquidity

As of December 31, 2017, our principal sources of liquidity consisted of $58.1 million of cash and cash equivalents and $5.1 million of short-term investments.

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

	Year Ended December 31,		
	2017	2016	2015
Cash flow summary:			
Net cash used in operating activities	$(24,098)	$(39,138)	$(34,733)
Net cash provided by investing activities	17,658	45,102	25,744
Net cash provided by financing activities	28,997	116	5,340
Net increase (decrease) in cash and cash equivalents	23,011	5,928	(4,596)

Net Cash Used in Operating Activities

We derive cash flows from operations primarily from cash collected from the sale of our products and services, and license agreements. Our cash flows from operating activities are also significantly influenced by our use of cash for operating expenses and working capital to support the business. We have historically experienced negative cash flows from operating activities as we have expanded our business and built our infrastructure domestically and internationally.

Net cash used in operating activities in 2017 was $24.1 million and consisted of net loss of $60.5 million less non-cash adjustments of $27.2 million, plus net change in assets and liabilities of $9.2 million. Non-cash items primarily included

amortization of developed technology of $11.2 million, stock-based compensation expense of $9.1 million, and depreciation and amortization of $7.4 million. The net change in assets and liabilities was primarily driven by a decrease in inventory, an increase in deferred revenue, an increase in other liabilities and a decrease in prepaid expenses and other current assets.

Net cash used in operating activities in 2016 was $39.1 million and consisted of net loss of $76.0 million less non-cash adjustments of $32.1 million, plus net change in assets and liabilities of $4.7 million. Non-cash items primarily included stock-based compensation expense of $13.9 million, amortization of developed technology of $11.2 million, and depreciation and amortization of $6.7 million. The net change in assets and liabilities was primarily driven by a decrease in accounts receivable, offset by an increase in inventory and a decrease in accounts payable.

Net cash used in operating activities in 2015 was $34.7 million and consisted of net loss of $53.3 million less non-cash adjustments of $26.9 million, plus net change in assets and liabilities of $8.3 million. Non-cash items primarily included stock-based compensation expense of $16.8 million, amortization of developed technology of $11.2 million, and depreciation and amortization of $4.9 million, partially offset by a $4.0 million gain on escrow settlement and $2.3 million gain from the sale of investment in Verinata. The net change in assets and liabilities was primarily driven by an increase in inventory and accounts receivable, offset by a net decrease in liabilities.

Net Cash Provided by Investing Activities

Our primary investing activities consist of purchases, sales, and maturities of our short-term investments and to a much lesser extent, capital expenditures for manufacturing, laboratory, computer equipment and software to support our infrastructure and work force. We expect to continue to incur costs for capital expenditures for demonstration units and loaner equipment to support our sales and service efforts, and computer equipment and software to support our business operations. However, we may choose to decrease or defer certain capital expenditures and development activities, while further optimizing our organization.

Net cash provided by investing activities in 2017 was $17.7 million, which included proceeds from sales and maturities of investments of $25.6 million, offset by purchases of investments of $6.3 million and capital expenditures of $1.6 million to support our commercial and manufacturing operations.

Net cash provided by investing activities in 2016 was $45.1 million, which included proceeds from sales and maturities of investments of $86.4 million and proceeds from the sale of investment in Verinata of $2.3 million, offset by purchases of investments of $38.6 million and capital expenditures of $5.1 million to support our commercial and manufacturing operations.

Net cash provided by investing activities in 2015 was $25.7 million, which included proceeds from sales and maturities of investments of $103.3 million, offset by purchases of investments of $67.0 million, purchase of patents from PerkinElmer and other intangibles of $6.7 million; and capital expenditures of $4.0 million to support growth in our commercial and manufacturing operations.

Net Cash Provided by Financing Activities

We generated cash from financing activities of $29.0 million during 2017 primarily from the sale of our common stock through an "at-the-market" equity offering program. We generated cash from financing activities of $0.1 million during 2016 and $5.3 million during 2015 from proceeds received in connection with the exercise of options for our common stock.

Capital Resources

At December 31, 2017 and December 31, 2016, our working capital, excluding deferred revenues, was $71.6 million and $76.3 million, respectively, including cash and cash equivalents of $58.1 million and $35.0 million, respectively, and short-term investments of $5.1 million and $24.4 million, respectively.

On August 10, 2017, we sold 9.1 million shares of our common stock through an “at-the-market” equity offering program, for aggregate net proceeds of approximately $28.8 million. We plan to use the net proceeds from this offering for general corporate purposes and working capital.

As of December 31, 2017, we have an effective shelf registration statement on file with the Securities and Exchange Commission (SEC) that allows us to issue certain securities from time to time in one or more offerings up to an aggregate offering price of $95 million, after subtracting our $30 million "at-the-market" equity offering program completed in 2017.

Each issuance under the shelf registration will require us to file a prospectus supplement identifying the amount and terms of the securities to be issued.

As discussed above under Recent Developments, on March 6, 2018, we exchanged approximately $125.0 million in aggregate principal amount of our Original Notes for approximately $125.0 million in aggregate principal amount of our new Exchange Notes in a series of privately negotiated transactions with certain holders of our Original Notes. Following the exchanges, $76.3 million in aggregate principal amount of our Original Notes remain outstanding. Our board of directors determined that the private exchange transaction was in the best interest of the company and our stockholders following substantial review with management and our financial advisors concerning the amount of our outstanding indebtedness relative to the market capitalization of our common stock and, in particular, obligations under the indenture for the Original Notes that could require us to repurchase the Original Notes over three years beginning in 2021 at a repurchase price equal to the aggregate principal amount of the Original Notes (approximately $201.3 million prior to the exchange).

We believe our existing cash, cash equivalents, and investments will be sufficient to meet our working capital and capital expenditure needs for at least the next 18 months. However, we may experience lower than expected cash generated from operating activities or greater than expected capital expenditures, cost of revenue, or operating expenses, and we may need to raise additional capital to fund our operations, further our research and development activities, or acquire or invest in a business. 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 associated with litigation or disputes relating to intellectual property rights or otherwise, 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, and the effect of competing technological and market developments. In the future, we may acquire businesses or technologies from third parties, and we may decide to raise additional capital through debt or equity financing to the extent we believe this is necessary to successfully complete these acquisitions.

If we require additional funds in the future, we may not be able to obtain such funds on acceptable terms, or at all. If we raise additional funds by issuing equity securities, our stockholders could experience dilution. Debt financing, 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. If we do not have, or are not able to obtain, sufficient funds, we may have to 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.

Due to our negative revenue growth in 2016 and 2015, we implemented certain operational efficiency and cost-savings initiatives beginning in the first quarter of 2017 intended to align our resources with our product strategy, reduce our operating expenses, and manage our cash flows. These cost efficiency initiatives included targeted workforce reductions, optimizing our facilities, and reducing excess space. In 2017, we focused on right-sizing our workforce, facilities consolidation, vendor negotiation, and other operating expense reductions. Our operating expenses decreased by $21.3 million, or 16%, to $110.3 million for 2017 compared to $131.6 million for 2016.

Off-Balance Sheet Arrangements

Since our inception, we have not had any off-balance sheet arrangements as defined in Item 303(a)(4) of the Securities and Exchange Commission’s Regulation S-K.

Contractual Obligations and Commitments

The following summarizes our contractual obligations as of December 31, 2017 (in thousands):

	Payments Due by Period				
	Total	**Less than 1 Year**	**1-3 Years**	**3-5 Years**	**Thereafter**
Long term debt obligations	$290,261	$5,534	$11,069	$11,069	$262,589
Operating lease obligations	12,127	3,220	4,826	2,146	1,935
Purchase obligations	1,344	1,325	19	—	—
Total	$303,732	$10,079	$15,914	$13,215	$264,524

Debt obligations include the principal amount of the Notes and interest payments to be made under the Notes. Although the Notes mature in 2034, they can be converted into cash and shares of our common stock prior to maturity if certain conditions are met. See Note 6 to our consolidated financial statements for additional information regarding the terms of the Notes.

Our operating lease obligations, net of sublease income, relate to leases for our current headquarters and leases for manufacturing and office space for our foreign subsidiaries. Purchase obligations consist of contractual and legally binding commitments to purchase goods and services.

We lease facilities and equipment under non-cancelable lease agreements expiring at various times through 2026. Our lease payments are expensed on a straight-line basis over the life of the leases. Rental expense under operating leases, net of amortization of lease incentive, totaled $4.7 million, $6.3 million and $5.2 million for 2017, 2016 and 2015, respectively.

We have entered into several license and patent agreements. Under these agreements, we pay annual license maintenance fees, nonrefundable 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.

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 years ended December 31, 2017 and 2016, we experienced foreign currency losses of $0.1 million and $1.5 million, respectively. 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 $58.1 million at December 31, 2017. These amounts were held primarily in cash on deposit with banks and money market funds which are short-term. We had $5.1 million in investments at December 31, 2017 held primarily in U.S. government agency securities. The contractual maturity periods of $5.1 million of our investments are within one year from December 31, 2017. Cash and cash equivalents and investments are held for working capital purposes. Due to the short-term nature of these investments, we believe that we do not have any material exposure to changes in the fair value of our investment 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
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Report of Independent Registered Public Accounting Firm

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 accompanying consolidated balance sheets of Fluidigm Corporation and its subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of operations, of comprehensive loss, of stockholders' equity, and of cash flows for each of the three years in the period ended December 31, 2017, including the related notes and financial statement schedule 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, 2017, 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, 2017 and 2016, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2017 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, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

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

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ PricewaterhouseCoopers LLP

San Jose, California
March 8, 2018

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

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

	December 31, 2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	$58,056	$35,045
Short-term investments	5,080	24,385
Accounts receivable (net of allowances of $391 and $502 at December 31, 2017 and 2016, respectively)	15,049	14,610
Inventories	15,088	20,114
Prepaid expenses and other current assets	1,528	2,517
Total current assets	94,801	96,671
Property and equipment, net	12,301	16,525
Other non-current assets	7,541	9,291
Developed technology, net	68,600	79,800
Goodwill	104,108	104,108
Total assets	$287,351	$306,395
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$4,211	$3,967
Accrued compensation and related benefits	10,535	3,996
Other accrued liabilities	8,490	12,374
Deferred revenue, current	10,238	9,163
Total current liabilities	33,474	29,500
Convertible notes, net	195,238	194,951
Deferred tax liability	16,919	21,140
Deferred revenue, non-current	4,960	4,315
Other non-current liabilities	5,825	3,256
Total liabilities	256,416	253,162
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.001 par value, 10,000 shares authorized, no shares issued and outstanding at either December 31, 2017 or 2016	—	—
Common stock: $0.001 par value, 200,000 shares authorized at December 31, 2017 and 2016; 38,787 and 29,208 shares issued and outstanding at December 31, 2017 and 2016, respectively	39	29
Additional paid-in capital	531,666	493,441
Accumulated other comprehensive loss	(574)	(760)
Accumulated deficit	(500,196)	(439,477)
Total stockholders' equity	30,935	53,233
Total liabilities and stockholders' equity	$287,351	$306,395

See accompanying notes

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

	Year Ended December 31,		
	2017	2016	2015
Revenue:			
Product revenue	$84,399	$89,003	$102,140
Service revenue	17,348	15,205	12,315
License revenue	190	238	257
Total revenue	101,937	104,446	114,712
Costs and expenses:			
Cost of product revenue	45,039	41,110	43,001
Cost of service revenue	4,916	4,899	3,629
Research and development	30,826	38,415	39,264
Selling, general and administrative	79,516	93,212	82,959
Gain on escrow settlement	—	—	(3,986)
Total costs and expenses	160,297	177,636	164,867
Loss from operations	(58,360)	(73,190)	(50,155)
Interest expense	(5,824)	(5,820)	(5,808)
Gain from sale of investment in Verinata	—	—	2,330
Other income (expense), net	385	(1,167)	(1,157)
Loss before income taxes	(63,799)	(80,177)	(54,790)
Benefit from income taxes	3,264	4,192	1,475
Net loss	(60,535)	(75,985)	(53,315)
Net loss per share, basic and diluted	$(1.84)	$(2.62)	$(1.86)
Shares used in computing net loss per share, basic and diluted	32,980	29,008	28,711

See accompanying notes

FLUIDIGM CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31,		
	2017	2016	2015
Net loss	$(60,535)	$(75,985)	$(53,315)
Other comprehensive income (loss), net of tax			
Foreign currency translation adjustment	183	314	(327)
Unrealized gain (loss) on available-for-sale securities, net	3	70	(23)
Other comprehensive income (loss)	186	384	(350)
Comprehensive loss	$(60,349)	$(75,601)	$(53,665)

See accompanying notes

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

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive (Loss)/Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2014	28,341	$ 28	$461,362	$ (794)	$(310,177)	$150,419
Issuance of common stock through equity incentive plans, net	673	1	5,302	—	—	5,303
Gain on escrow settlement	(170)	—	(3,986)	—	—	(3,986)
Stock-based compensation expense	—	—	16,830	—	—	16,830
Net loss	—	—	—	—	(53,315)	(53,315)
Other comprehensive loss	—	—	—	(350)	—	(350)
Balance at December 31, 2015	28,844	29	479,508	(1,144)	(363,492)	114,901
Issuance of common stock through equity incentive plans, net	364	—	75	—	—	75
Stock-based compensation expense	—	—	13,858	—	—	13,858
Net loss	—	—	—	—	(75,985)	(75,985)
Other comprehensive income	—	—	—	384	—	384
Balance at December 31, 2016	29,208	29	493,441	(760)	(439,477)	53,233
Issuance of common stock through equity incentive plans, net	488	1	156	—	—	157
At-the-market offering	9,091	9	28,793	—	—	28,802
Cumulative-effect of new accounting standard	—	—	184	—	(184)	—
Stock-based compensation expense	—	—	9,092	—	—	9,092
Net loss	—	—	—	—	(60,535)	(60,535)
Other comprehensive income	—	—	—	186	—	186
Balance at December 31, 2017	38,787	$ 39	$531,666	$ (574)	$(500,196)	$30,935

See accompanying notes.

FLUIDIGM CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2017	**2016**	**2015**
Operating activities			
Net loss	$(60,535)	$(75,985)	$(53,315)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	7,409	6,738	4,915
Stock-based compensation expense	9,092	13,858	16,830
Amortization of developed technology	11,200	11,200	11,200
Other non-cash items	(603)	252	137
Loss on disposal of property and equipment	135	87	87
Gain from escrow settlement	—	—	(3,986)
Gain from sale of investment in Verinata	—	—	(2,330)
Changes in assets and liabilities:			
Accounts receivable	(554)	10,521	(2,762)
Inventories	4,596	(3,387)	(3,741)
Prepaid expenses and other assets	1,583	(457)	(1,127)
Accounts payable	585	(2,271)	769
Deferred revenue	1,636	(274)	2,613
Other liabilities	1,358	580	(4,023)
Net cash used in operating activities	(24,098)	(39,138)	(34,733)
Investing activities			
Purchases of investments	(6,276)	(38,594)	(66,973)
Proceeds from sales and maturities of investments	25,550	86,431	103,369
Proceeds from sale of investment in Verinata	—	2,330	—
Purchases of intangible assets	(50)	—	(6,670)
Purchases of property and equipment	(1,566)	(5,065)	(3,982)
Net cash provided by investing activities	17,658	45,102	25,744
Financing activities			
Proceeds from issuance of common stock	29,015	—	—
Proceeds from exercise of stock options	100	227	5,491
Payments for taxes related to net share settlement of equity awards	(118)	(111)	(151)
Net cash provided by financing activities	28,997	116	5,340
Effect of foreign exchange rate fluctuations on cash and cash equivalents	454	(152)	(947)
Net increase (decrease) in cash and cash equivalents	23,011	5,928	(4,596)
Cash and cash equivalents at beginning of period	35,045	29,117	33,713
Cash and cash equivalents at end of period	$58,056	$35,045	$29,117
Supplemental disclosures of cash flow information			
Cash paid for interest	$5,534	$5,534	$5,538
Cash paid for income taxes, net of refunds	$245	$355	$189

See accompanying notes

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2017
1. Description of Business

Fluidigm Corporation (we, our, or us) was incorporated in the State of California in May 1999 to commercialize microfluidic technology initially developed at the California Institute of Technology. In July 2007, we were reincorporated in Delaware. Our headquarters are located in South San Francisco, California.

We create, manufacture, and market innovative technologies and tools for life sciences research. We sell instruments and consumables, including integrated fluidic circuits, or IFCs, assays and reagents, to academic institutions, clinical research laboratories, and biopharmaceutical, biotechnology, and agricultural biotechnology, or Ag-Bio, companies and contract research organizations, or CROs. Our technologies and tools are directed at the analysis of deoxyribonucleic acid, or DNA, ribonucleic acid, or RNA, and proteins in a variety of different sample types, from individual cells to bulk tissue.

2. Summary of Significant Accounting Policies

Basis of Presentation and Consolidation

The accompanying consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (U.S. GAAP) and include the accounts of our wholly-owned subsidiaries. As of December 31, 2017, we had wholly-owned subsidiaries in Singapore, Canada, the Netherlands, Japan, France, the United Kingdom, China, and Germany. All subsidiaries, except for Singapore, use their local currency as their functional currency. The Singapore subsidiary uses the U.S. dollar as its functional currency. All intercompany transactions and balances have been eliminated in consolidation.

Certain prior period amounts in the consolidated statements of cash flows were reclassified to conform with the current period presentation. Payments for cash settled equity awards were reclassified from Proceeds from issuance of common stock under financing activities to Changes in other liabilities under operating activities in the consolidated statements of cash flows. Proceeds from exercise of stock options and Payments for taxes related to net share settlement of equity awards, which were previously included in the Proceeds from issuance of common stock are presented as separated line items under financing activities in the consolidated statements of cash flows. 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. 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. The adjustments resulting from the foreign currency translations are recorded in accumulated other comprehensive loss, a separate component of stockholders’

equity. Income and expense accounts are translated at monthly average exchange rates during the year.

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 and long-term investments are comprised of notes from government-sponsored agencies. 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.

Fair Value of Financial Instruments

Our financial instruments consist primarily of cash and cash equivalents, investments, accounts receivable, accounts payable, and convertible notes. Our cash equivalents, investments, accounts receivable, and accounts payable have short maturity or payment periods. Accordingly, their carrying values approximated their fair values at December 31, 2017 and 2016. The convertible notes are presented at their carrying value, with fair value disclosures made in Note 4. 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 investments and convertible notes are generally classified as Level II because their value is based on valuations using significant inputs derived from or corroborated by observable market data. Depending on the security, the income and market approaches are used in the model driven valuations. Inputs of these models include recently executed transaction prices in securities of the issuer or comparable issuers and yield curves.

Accounts Receivable

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 single customer represented more than 10% of total revenue for 2017, 2016, or 2015, and no single customer represented more than 10% of total accounts receivable at December 31, 2017, 2016, or 2015.

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

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. Finished goods that are used for research and development are expensed as consumed or depreciated over their period of use. Provisions for slow-moving, excess, and obsolete inventories 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 and Long-Lived Assets

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 using the straight-line method 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 five years; and office furniture and fixtures, five years.

Depreciation expense for the years ended December 31, 2017, 2016 and 2015 was $5.9 million, $5.1 million and $3.6 million, respectively.

We evaluate our long-lived assets 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 long-lived assets for any of the periods presented herein.

Investment, at Cost

In February 2013, Illumina, Inc. acquired Verinata Health, Inc. (Verinata), a privately-held company, for $350 million in cash and up to an additional $100 million in milestone payments through December 2015. In March 2013, we received cash proceeds of $3.1 million in exchange for our ownership interest in Verinata resulting in a gain of $1.8 million. During 2014, we received cash proceeds of $0.3 million from the escrow account related to the acquisition. We recorded these amounts as Gain from sale of investment in Verinata in the accompanying consolidated statements of operations for the years ended December 31, 2013 and 2014. The final milestones related to the sale of Verinata to Illumina were met in December 2015 and, accordingly, we recorded our share of these milestone payment obligations in the amount of $2.3 million in Other Assets and Gain from sale of investment in Verinata in the accompanying consolidated statement of operations for the year ended December 31, 2015. In January 2016, we received payment of $2.3 million and it was recorded in net cash provided by investing activities in the consolidated statement of cash flows.

Intangible Assets

Our intangible assets include developed technology, patents and licenses. We evaluate our intangible assets 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 intangible 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 on intangible assets for any of the periods presented herein.

Product Warranties

We generally provide a one-year warranty on our instruments. We accrue for estimated warranty obligations at the time of product shipment. We periodically review our warranty liability and record adjustments based on the terms of warranties provided to customers, and historical and anticipated warranty claim experience. This expense is recorded as a component of cost of product revenue in the consolidated statements of operations.

Revenue Recognition

We generate revenue from sales of our products, services and license agreements. Our products consist of instruments and consumables, including IFCs, assays, and reagents. Our service revenue consists of post-warranty service contracts, preventive maintenance plans, instrument parts, installation, and training.

We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price to the customer is fixed or determinable, and collectability is reasonably assured. We assess collectability based on factors such as the customer's creditworthiness and past collection history, if applicable. If collection is not reasonably assured, revenue recognition is deferred until receipt of payment. We also assess whether a price is fixed or determinable by, among other things, reviewing contractual terms and conditions related to payment. Delivery occurs when there is a transfer of title and risk of loss passes to the customer. Revenue excludes taxes collected from our customers.

Product and Service Revenue

Certain of our sales contracts involve the delivery of multiple products and services within contractually binding arrangements. Multiple-deliverable sales transactions typically consist of the sale and delivery of one or more instruments and consumables together with one or more of our installation, training and/or customer support services. Significant judgment is sometimes required to determine the appropriate accounting for such arrangements, including whether the deliverables specified in a multiple element arrangement should be treated as separate units of accounting for revenue recognition purposes and, if so, how the related sales price should be allocated among the elements, when to recognize revenue for each element, and the period over which revenue should be recognized.

For sales contracts that include multiple deliverables, we allocate the contract consideration at the inception of the contract to each unit of accounting based upon its relative selling price. We may use our best estimate of selling price for
individual deliverables when vendor specific objective evidence or third-party evidence is unavailable. A delivered item is considered to be a separate unit of accounting when it has value to the customer on a stand-alone basis.

Our products, other than service contracts, are typically delivered within a short time frame, generally within one to three months of the contract date. Service contracts are entered into for terms of one to three years, following the expiration of the warranty period.

Our products are generally sold without the right of return. Amounts received before revenue recognition criteria are met are classified in the consolidated balance sheets as deferred revenue or customer deposits, depending on the terms of the arrangement.

License Revenue

License and royalty revenue from license agreements is recognized when received, which is generally in the quarter following the quarter in which the corresponding sales occur.

Shipping and Handling Costs

Shipping and handling costs incurred for product shipments are included within cost of product revenue in the consolidated statements of operations.

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 $1.8 million, $2.3 million and $2.9 million during 2017, 2016, and 2015, respectively.

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.

Stock-Based Compensation

We account for stock options and restricted stock units granted to employees and directors and stock purchases under ESPP based on the fair value of the awards. We recognize stock-based compensation expense on a straight-line basis over the requisite service periods. For performance-based stock awards, stock-based compensation expense is recognized over the requisite service period when the achievement of each individual performance goal becomes probable.

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, 2017, 2016, and 2015 are as follows (in thousands):

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) on Investments	Accumulated Other Comprehensive Income (Loss)
Ending balance at December 31, 2015	$(1,072)	$ (72)	$ (1,144)
Change during the year	314	70	384
Ending balance at December 31, 2016	(758)	(2)	(760)
Change during the year	183	3	186
Ending balance at December 31, 2017	$(575)	$ 1	$ (574)

Immaterial amounts of unrealized gains and losses have been reclassified into the consolidated statement of operations for the years ended December 31, 2017, 2016 and 2015.

Goodwill, Intangible Assets and Other Long-Lived Assets

Goodwill, which has an indefinite useful life, represents the excess of cost over fair value of net assets acquired. Our identifiable intangible assets are typically comprised of acquired core technologies, licensed technologies, license agreements and patents. The cost of identifiable intangible assets with finite lives is generally amortized on a straight-line basis over the assets' respective estimated useful lives.

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. 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 then conduct a two-step test for impairment of goodwill. In the first step, 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 exceed its fair value, then the second step of the impairment test must be performed in order to determine the implied fair value of the goodwill. If the carrying value of the goodwill exceeds its implied fair value, then an impairment loss equal to the difference would be recorded.

We evaluate our finite-lived intangible assets and other long-lived assets for indicators of possible impairment when events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If any indicator of impairment exists, we assess the recoverability of the affected intangible asset 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.

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 and 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,		
	2017	2016	2015
Stock options, restricted stock units and performance awards	3,501	4,622	3,905
Convertible notes	3,598	3,598	3,598
Total	7,099	8,220	7,503

Recent Accounting Changes and Accounting Pronouncements

Adoption of New Accounting Guidance

In July 2015, the FASB issued ASU 2015-11 Inventory (Topic 330): Simplifying the Measurement of Inventory, which changes the measurement principle for inventory from the lower of cost or market to the lower of cost or net realizable value. ASU 2015-11 defines net realizable value as estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. We adopted this standard in the first quarter of 2017. The adoption of this ASU did not have a material impact on our consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09 Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. This ASU simplified several aspects of the accounting for share-based payments, including changing the threshold to qualify for equity classification up to the employees' maximum

statutory tax rates, allowing an entity-wide accounting policy election to either estimate the number of awards that are expected to vest or account for forfeitures as they occur, and clarifying the classification on the statement of cash flows of employee taxes paid when an employer withholds shares for tax-withholding purposes. We adopted this standard in the first quarter of 2017 by recording the cumulative impact of applying this guidance to retained earnings. We also elected to account for forfeitures as they occur, as permitted by ASU 2016-09. The adoption of this ASU did not have a material impact on our consolidated financial statements. See Note 9 for the impact on deferred tax assets.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standard Update (ASU) 2014-09 regarding ASC (Topic 606) Revenue from Contracts with Customers. ASU 2014-09 and subsequent amendments provide principles for recognizing revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This ASU permits two methods of adoption, the full retrospective method applying the standard to each prior reporting period presented, or the modified retrospective method with a cumulative effect of initially applying the new standard recognized at the date of initial application. This ASU also allows entities to apply certain practical expedients at their discretion. The new standard will be effective for our fiscal year beginning January 1, 2018.

We adopted ASU 2014-09 in the first quarter of 2018 using the modified retrospective method. The adoption is not expected to have a material impact on our consolidated financial statements. The new standard's broader definition of variable consideration requires us to estimate and record certain payments from customers. This ASU requires that the transaction price received from customers be allocated to each separate and distinct performance obligation. We have determined that our service plans do not contain separate and distinct performance obligations. Therefore, the fees we receive for our service plans will be recognized as revenue ratably over the term of the service plan, which is our current practice. The requirement in the new standard is to capitalize incremental costs to obtain contracts with our customers and amortize those costs over the term of the contract. This is a change from our current practice of expensing sales commissions as incurred. We are utilizing the practical expedient provision permitting expensing of costs to obtain a contract when the expected amortization period is one year or less. Under the modified retrospective method, periods prior to the adoption of ASU 2014-09 are not restated and the cumulative effect of initially applying the new standard is reflected in the opening balance of retained earnings as of January 1, 2018. Additional disclosures are required for significant differences between the reported results under the new standard and those that would have been reported under the legacy standard. While we continue to evaluate the effect of the new standard on our ongoing financial reporting, we currently do not expect the cumulative effect of the new standard to be material. We continue to identify the appropriate changes to our business processes, systems, and controls to support revenue recognition and disclosure under the new standard.

In February 2016, the FASB issued ASU 2016-02 Leases (Topic 842). This ASU requires lessees to recognize a right-of-use asset and a lease liability on the balance sheet for all leases with the exception of short-term leases. For lessees, leases will continue to be classified as either operating or finance leases in the income statement. Lessor accounting under this ASU is similar to the current model but updated to align with certain changes to the lessee model. Lessors will continue to classify leases as operating, direct financing or sales-type leases. ASU 2016-02 will be effective for our fiscal year beginning January 1, 2019 and early adoption is permitted. We are currently evaluating the accounting, transition, and disclosure requirements of the standard. We have not yet determined whether we will elect early adoption of the standard and cannot currently estimate the financial statement impact of adoption.

In November 2016, the FASB issued ASU 2016-18 Statement of Cash Flows (Topic 230): Restricted Cash, a consensus of the FASB's Emerging Issues Task Force, amending the presentation of restricted cash within the statement of cash flows. The new guidance requires that restricted cash be included within cash and cash equivalents on the statement of cash flows. ASU 2016-18 will be effective for our fiscal year beginning January 1, 2018. We adopted this ASU in the first quarter of 2018. The adoption is not expected to have a material impact on our consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, Intangibles - Goodwill and Other (Topic 350): Simplifying The Test for Goodwill Impairment. The ASU eliminates the requirement for an entity to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, an entity performs its annual, or interim, goodwill impairment testing by comparing the fair value of a reporting unit with its carrying amount and recording an impairment charge for the amount by which the carrying amount exceeds the fair value. This ASU will be effective for

annual and interim goodwill impairment testing performed for our fiscal year beginning January 1, 2020, with early adoption permitted. We are currently evaluating the adoption of this ASU and cannot estimate the financial statement impact of adoption.

3. Goodwill and Intangible Assets, net

Goodwill

In connection with our acquisition of DVS in February 2014, we recognized goodwill of $104.2 million. The only change to goodwill after the Acquisition Date was an adjustment of $0.1 million to the deferred taxes liability resulting from the final tax analysis during the measurement period in 2014.

Goodwill is tested for impairment annually during the fourth quarter unless a triggering event requires an expedited analysis. During the fourth quarters of 2017 and 2016, we completed our annual impairment assessments and we concluded that goodwill was not impaired in any of these years.

Developed Technology

In connection with our acquisition of DVS in February 2014, we acquired developed technology with a gross fair value of $112.0 million. These acquired intangible assets are being amortized to cost of product revenue over their useful life of ten years. Related amortization expense for each of the years ended December 31, 2017, 2016 and 2015 was $11.2 million, respectively.

Patents

On June 28, 2013, we acquired certain patents, patent applications, and licenses from Helicos Biosciences Corporation (Helicos) relating to Helicos' next-generation sequencing technology. The rights acquired by us are subject to certain licenses and sublicenses granted by Helicos prior to or contemporaneously with our acquisition. The assets were acquired for $1.0 million and we incurred transaction costs of approximately $0.3 million. The patents, patent applications, and licenses have an alternative future use and, as a result, the acquired assets and transaction costs are capitalized as intangible assets and are included in other non-current assets. The acquired assets from Helicos are being amortized to research and development expense over their useful life of ten years. Related amortization expense was $0.1 million for each of the years ended 2017, 2016 and 2015.

On November 4, 2015, we entered into a patent purchase agreement with PerkinElmer Health Sciences, Inc. (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, between Fluidigm Canada Inc. and PerkinElmer. Accordingly, we have no further financial obligations to PerkinElmer under the Original License Agreement. The Patents are being amortized to cost of product revenue through their useful life. Related amortization expense for the years ended December 31, 2017, 2016 and 2015 was $0.9 million, $0.9 million and $0.1 million, respectively.

Licenses

In May 2011, we entered into an agreement with Caliper Life Sciences, Inc., which subsequently became a PerkinElmer company (Caliper), to license Caliper's existing patent portfolio in certain fields, including non-invasive prenatal diagnostics, and obtained an option to extend this license to cover additional fields. Additional payments are due if we exercise our option to extend the license. Under this agreement, we made an up-front payment of $0.6 million and our obligation to pay royalties to Caliper commenced in January 2012. In August 2011, we entered into an amendment to the agreement with Caliper and made an additional up-front payment of $0.5 million. Pursuant to the amendment, the rates for royalties payable to Caliper were substantially reduced and the period for which we are obligated to make royalty payments was shortened, with the last payment due in mid-2018 for our existing products at the time of amendment and their future equivalents. If any of our future products are determined to infringe Caliper's patents, the same reduced royalty rates will apply until the respective patents expire. The aggregate $1.1 million of payments to Caliper are being amortized to cost of product revenue on a straight-line basis through July 2018, when our royalty payment obligations are expected to terminate based upon our current utilization of the patents. We recognized $0.2 million in cost of product revenue during each year of 2017, 2016, and 2015, respectively. Our future royalty payments are not expected to be material.

Intangible assets include developed technology as a result of the DVS acquisition and other intangible assets included in Other non-current assets. Intangible assets, net were as follows (in thousands):

	December 31, 2017			
	Gross Amount	Accumulated Amortization	Net	Weighted-Average Amortization Period
Developed technology	$112,000	$(43,400)	$68,600	10.0 years
Patents and licenses	11,274	(5,721)	5,553	7.8 years
Total intangible assets, net	$123,274	$(49,121)	$74,153	

	December 31, 2016			
	Gross Amount	Accumulated Amortization	Net	Weighted-Average Amortization Period
Developed technology	$112,000	$(32,200)	$79,800	10.0 years
Patents and licenses	11,224	(4,533)	6,691	7.9 years
Total intangible assets, net	$123,224	$(36,733)	$86,491	

Based on the carrying value of intangible assets, net as of December 31, 2017, the annual amortization expense for intangible assets, net is expected to be as follows (in thousands):

Fiscal Year	Amortization Expense
2018	$ 12,334
2019	12,243
2020	12,242
2021	12,088
2022	12,004
Thereafter	13,242
Total	$ 74,153

4. 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, 2017					
	Carrying Amount	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-Term Marketable Securities
Assets:						
Cash	$20,129	$ —	$ —	$20,129	$20,129	$—
Available-for-sale:						
Level I:						
Money market funds	16,142	—	—	16,142	16,142	—
U.S. treasury securities	497	—	—	497	—	497
Level II:						
U.S. government and agency securities	26,369	—	(1)	26,368	21,785	4,583
Total	$63,137	$ —	$ (1)	$63,136	$58,056	$5,080

	December 31, 2016					
	Carrying Amount	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value	Cash and Cash Equivalents	Short-Term Marketable Securities
Assets:						
Cash	$13,984	$ —	$ —	$13,984	$13,984	$—
Available-for-sale:						
Level I:						
Money market funds	21,061	—	—	21,061	21,061	—
Level II:						
U.S. government and agency securities	24,388	1	(4)	24,385	—	24,385
Total	$59,433	$ 1	$ (4)	$59,430	$35,045	$24,385

The contractual maturity periods of $5.1 million of debt securities are within one year from December 31, 2017.

There were no transfers between Level I and Level II measurements during the year ended December 31, 2017, and there were no changes in the valuation techniques used.

Based on an evaluation of securities that were in a loss position, we did not recognize any other-than-temporary impairment charges for the years ended December 31, 2017, 2016, and 2015. None of our investments have been in a continuous loss position for more than 12 months. We concluded that the declines in market value of our available-for-sale securities investment portfolio were temporary in nature and did not consider any of our investments to be other-than-temporarily impaired.

The estimated fair value of the 2.75% Convertible Notes is based on a market approach (See Note 6 for Convertible Notes). The estimated fair value was approximately $166.2 million and $139.7 million (par value $201.3 million) as of December 31, 2017 and December 31, 2016, respectively, and represents a Level II valuation. When determining the estimated fair value of our long-term debt, we used a commonly accepted valuation methodology and market-based risk measurements that are indirectly observable, such as credit risk.

5. Balance Sheet Data

Cash and Cash Equivalents

Cash and cash equivalents consisted of the following as of December 31, 2017 and 2016 (in thousands):

	December 31,	
Cash and cash equivalents:	2017	2016
Cash	$20,129	$13,984
Money market funds	16,142	21,061
U.S. Government and agency securities	21,785	—
Total	$58,056	$35,045

Inventories

Inventories consisted of the following as of December 31, 2017 and 2016 (in thousands):

	December 31,	
Inventories:	2017	2016
Raw materials	$7,566	$8,919
Work-in-process	929	1,742
Finished goods	6,593	9,453
Total inventories, net	$15,088	$20,114

Property and Equipment

Property and equipment consisted of the following as of December 31, 2017 and 2016 (in thousands):

	December 31,	
Property and equipment:	2017	2016
Computer equipment and software	$4,179	$5,497
Laboratory and manufacturing equipment	20,069	23,670
Leasehold improvements	7,799	8,747
Office furniture and fixtures	1,892	2,084
Property and equipment, gross	33,939	39,998
Less accumulated depreciation and amortization	(21,646)	(24,084)
Construction-in-progress	8	611
Property and equipment, net	$12,301	$16,525

Product Warranties

We accrue for estimated warranty obligations at the time of product shipment. Management periodically reviews the estimated fair value of its warranty liability and records adjustments based on the terms of warranties provided to customers, historical and anticipated warranty claim experience. Activity for our warranty accrual for the years ended December 31, 2017 and 2016, which are included in other accrued liabilities, is summarized below (in thousands):

	Year Ended December 31,	
	2017	**2016**
Beginning balance	$1,023	$1,076
Accrual for current period warranties	695	885
Warranty costs incurred	(1,019)	(938)
Ending balance	$699	$1,023

6. Convertible Notes

On February 4, 2014, we closed an underwritten public offering of $201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (Original Notes) pursuant to an underwriting agreement, dated January 29, 2014. The Original Notes accrue interest at a rate of 2.75% per year, payable semi-annually in arrears on February 1 and August 1 of each year. The Original Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the Original Notes. The initial conversion rate of the Original Notes is 17.8750 shares of our common stock, par value $0.001 per share, per $1,000 principal amount of Original Notes (which is equivalent to an initial conversion price of approximately $55.94 per share). The conversion rate will be subject to adjustment upon the occurrence of certain specified events. Holders may surrender their Original Notes for conversion at any time prior to the stated maturity date. On or after February 6, 2018 and prior to February 6, 2021, we may redeem any or all of the Original Notes in cash if the closing price of our common stock exceeds 130% of the conversion price for a specified number of days, and on or after February 6, 2021, we may redeem any or all of the Original Notes in cash without any such condition. The redemption price of the Original Notes will equal 100% of the principal amount of the Original Notes plus accrued and unpaid interest. Holders may require us to repurchase all or a portion of their Original 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 Original Notes plus accrued and unpaid interest. If we undergo a fundamental change, as defined in the terms of the Original Notes, holders may require us to repurchase the Original Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the Original Notes plus accrued and unpaid interest.

In February 2014, we received $195.2 million, net of underwriting discounts, from the issuance of the Original Notes and incurred approximately $1.1 million in offering-related expenses. The underwriting discount of $6.0 million and the debt issuance costs of $1.1 million were recorded as offsets to the proceeds.

In February 2014, we used $113.2 million of the net proceeds to fund the cash portion of the consideration payable by us in connection with our acquisition of DVS (now Fluidigm Sciences Inc.). Interest expense related to the Original Notes was approximately $5.8 million during each of the years ended December 31, 2017, 2016 and 2015, respectively. Accrued interest related to the Original Notes as of December 31, 2017 and 2016 were both $2.3 million, respectively, which were included in Other current liabilities. Approximately $5.5 million of interest under the Original Notes were paid for each year ended December 31, 2017 and 2016, respectively.

The carrying values of the components of the convertible notes are as follows (in thousands):

	December 31,	
	2017	2016
Principal amount of Original Notes	$201,250	$201,250
Unamortized debt discount	(5,087)	(5,330)
Unamortized debt issuance cost	(925)	(969)
Net carrying value of convertible notes	$195,238	$194,951

In March 2018, we entered into privately negotiated transactions with certain holders of our Original Notes to exchange approximately $125.0 million in aggregate principal amount of the Original Notes for approximately $125.0 million in aggregate principal amount of our new 2.75% Exchange Convertible Senior Notes due 2034 (Exchange Notes), leaving approximately $76.3 million in aggregate principal amount of Original Notes outstanding (See Note 14 for Subsequent Event).

7. Commitments and Contingencies

Operating Leases

We have entered into various long-term non-cancelable operating lease agreements for equipment and facilities expiring at various times through March 2026. We lease office space under non-cancelable leases in the United States, Canada, Singapore, Japan, China, France and United Kingdom. Certain facility leases also contain rent escalation clauses. Our lease payments are expensed on a straight-line basis over the life of the leases. Rental expense under operating leases, net of amortization of lease incentives and sublease income for the years ended December 31, 2017, 2016 and 2015 was $4.7 million, $6.3 million and $5.2 million, respectively.

Future minimum lease payments and minimum sublease income under non-cancelable operating leases as of December 31, 2017 are as follows (in thousands):

Fiscal Year	Minimum Lease Payments	Minimum Sublease Income	Net Operating Leases
2018	$4,239	$(1,019)	$3,220
2019	4,140	(1,070)	3,070
2020	2,166	(410)	1,756
2021	1,273	—	1,273
2022	873	—	873
Thereafter	1,935	—	1,935
Total	$14,626	$(2,499)	$12,127

Other Commitments

In the normal course of business, we enter into various contractual and legally binding purchase commitments. As of December 31, 2017, these commitments were approximately $1.3 million.

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.

We incurred legal expenses between October 2015 and the third quarter of 2017 to defend claims by Thermo Fisher Scientific, Inc., (Thermo) against one of our employees. In December 2015, Thermo Fisher Scientific, Inc., (Thermo) filed a complaint in the Circuit Court for the County of Kalamazoo, Michigan against one of its former employees who had recently been hired by us alleging, among other claims, misappropriation of proprietary information and breach of contractual and fiduciary obligations to Thermo while such individual was still an employee of Thermo. In November 2016, Thermo amended its complaint to add us as a party to the litigation, making various commercial and employment-related claims and seeking damages and injunctive relief. In July 2017, we entered into a settlement agreement with Thermo. Pursuant to the terms of the settlement agreement, we agreed to pay Thermo a one-time

payment of $3.0 million in exchange for a release and dismissal of all claims with prejudice upon payment of the settlement. In August 2017, we paid the settlement of $3.0 million and received an insurance recovery payment of $1.0 million related to this matter.

Contingencies

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. 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.

8. Stock-Based Compensation

2011 Equity Incentive Plan

On January 28, 2011, our board of directors adopted the 2011 Equity Incentive Plan (the 2011 Plan) under which incentive stock options, non-statutory stock options, restricted stock units (RSUs), stock appreciation rights, performance units, and performance shares may be granted to our employees, directors, and consultants.

Incentive stock options and non-statutory stock options granted under the 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. If a participant owns stock representing more than 10% of the voting power of all classes of our stock on the grant date, an incentive stock option awarded to the participant will have a term of no more than five years from the date of grant and an exercise price of at least 110% 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.

Our board of directors sets the terms, conditions, and restrictions related to our ESPP and the grant of stock options and RSUs, including the number of restricted stock units to grant. Our board of directors also sets vesting criteria and, depending on the extent to which the criteria are met, our board of directors will determine the number of restricted stock units to be paid out. 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, subject to the employees' continued employment.

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.

As of December 31, 2017, the 2011 Plan had a total of 5.6 million shares authorized for future issuance, of which 2.3 million shares were available for future grants.

2009 Equity Incentive Plan and 1999 Stock Option Plan

Our 2009 Equity Incentive Plan (the 2009 Plan) terminated on the date the 2011 Plan was adopted, and the 1999 Stock Option Plan (the 1999 Plan) expired in 2009. Options granted or shares issued under the 2009 Plan and the 1999 Plan that were outstanding on the date the 2011 Plan became effective remained subject to the terms of their respective plans.

2017 Inducement Award Plan

On January 5, 2017, we adopted the Fluidigm Corporation 2017 Inducement Award Plan (the “Inducement Plan”) and reserved 2 million shares of the Company’s common stock for issuance pursuant to equity awards granted under the Inducement Plan. The Inducement Plan provides for the grant of equity-based awards and its terms are substantially similar to the 2011 Plan. In accordance with Rule 5635(c)(4) of the Nasdaq Listing Rules, awards under the Inducement Plan may only be made to individuals not previously employees or non-employee directors of the Company (or following such individuals’ bona

fide period of non-employment with the Company), as an inducement material to the individuals' entry into employment with the Company or in connection with a merger or acquisition, to the extent permitted by Rule 5635(c)(3) of the Nasdaq Listing Rules.

There were no material equity awards granted under the Inducement Plan in 2017. As of December 31, 2017, the Inducement Plan had a total of 2.0 million shares authorized for future issuance, of which 2.0 million shares were available for future grants.

2017 Employee Stock Purchase Plan

On August 1, 2017, our stockholders approved our 2017 Employee Stock Purchase Plan (ESPP) at the annual meeting of stockholders. Our ESPP offers U.S. and some non-U.S. employees the right to purchase shares of our common stock. Our ESPP 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 and may not purchase more than $25,000 of stock in any calendar year. The purchase price at which shares are sold under the ESPP is 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. Our first ESPP offering period began on October 1, 2017 with a shorter offering period ending on November 30, 2017.

As of December 31, 2017, 0.9 million shares were available for future issuance under the ESPP. Sales under the ESPP were 0.1 million shares of common stock at an average price of $5.20 per share for 2017.

Valuation and Expense Information

We use the Black-Scholes option-pricing model to estimate the fair value of stock options granted under our equity incentive plans and stock purchases under our ESPP. The weighted average assumptions used to estimate the fair value were as follows:

	Year Ended December 31,		
	2017	2016	2015
Stock options:			
Expected volatility	65.0 %	43.4 %	46.3 %
Expected term	4.2 years	6.0 years	5.9 years
Risk-free interest rate	1.7 %	1.4 %	1.8 %
Dividend yield	—	—	—
Weighted-average fair value per share	$2.97	$3.19	$13.89
ESPP shares:			
Expected volatility	74.4 %		
Expected term	0.4 years		
Risk-free interest rate	1.3 %		
Dividend yield	—		
Weighted-average fair value per share	$1.93		

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 life. Each of these inputs is subjective and generally requires significant judgment by us. Also required to compute the fair value calculation of options and ESPP shares is the fair value of the underlying common stock. We account for forfeitures as they occur.

We grant stock options at exercise prices not less than the fair value of our common stock at the date of grant.

The fair value of RSUs granted to employees was estimated on the date of grant by multiplying the number of shares granted by the fair market value of our common stock on the grant date.

Activity under the 2011 Plan, the 2009 Plan, the 1999 Plan and the Inducement Plan is as follows (in thousands, except per share amounts and terms):

Restricted Stock units:

	Number of Shares	Weighted-Average Grant Date Fair Value per Share
Balance at December 31, 2016	1,065	$ 15.31
RSUs granted	916	$ 5.73
RSUs vested	(445)	$ 15.57
RSUs canceled	(368)	$ 13.11
Balance at December 31, 2017	1,168	$ 8.55
Expected to vest at December 31, 2017	1,127	$ 8.59

The total intrinsic value of RSUs vested and released during the year ended December 31, 2017, 2016 and 2015 were approximately $2.3 million, $2.4 million and $1.8 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, 2017, the unrecognized compensation costs related to outstanding unvested RSUs under our equity incentive plans were $8.6 million. We expect to recognize those costs over a weighted average period of 2.4 years.

Stock options:

	Number of Shares	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Life (in Years)	Aggregate Intrinsic Value (1)
Balance at December 31, 2016	3,560	$ 16.62		
Options granted	1,364	$ 5.61		
Options exercised	(25)	$ 4.07		
Options canceled/forfeited	(2,735)	$ 16.33		
Balance at December 31, 2017	2,164	$ 10.41		
Vested at December 31, 2017	990	$ 15.15	4.9	$ 315
Expected to vest at December 31, 2017	1,149	$ 5.58	9.3	726

(1) Aggregate intrinsic value was calculated as the difference between the closing price per share of our common stock on the last trading day of 2017, which was $5.89, and the exercise price of the options, multiplied by the number of in-the-money options.

The total intrinsic value of options exercised during 2017, 2016 and 2015 was $0.1 million, $0.3 million and $13.7 million, respectively. As of December 31, 2017, the unrecognized compensation costs related to outstanding unvested options under our equity incentive plans were $3.7 million. We expect to recognize those costs over a weighted average period of 2.9 years.

The total stock-based compensation recognized during 2017, 2016, and 2015 was $9.1 million, $13.9 million and $16.8 million, respectively. There were no stock-based compensation tax benefits recognized during 2017, 2016 or 2015. Capitalized stock-based compensation costs were insignificant at December 31, 2017, 2016 and 2015.

In 2016, we granted 184,050 and 87,620 performance-based stock options and performance-based restricted stock units (each, a "performance award"), respectively, to executive officers and employees, which were accounted for as equity awards. The number of performance awards that ultimately vest depends on the achievement of certain performance criteria set by the Compensation Committee of the Company's Board of Directors. The performance-based stock options have an exercise price per share of $7.10. The Company recognizes stock-based compensation expense over the vesting period of the performance awards when achievement of the performance criteria becomes probable. We did not recognize any expense related to these performance awards in 2017 or 2016.

Stock Option Exchange Program

On August 23, 2017, we launched a one-time stock option exchange program (the Program), which eligible employees were able to exchange certain outstanding stock options (Eligible Options), whether vested or unvested, with an exercise price greater than $4.37 per share and greater than the closing price of a share of our common stock on the NASDAQ Global Select Market on the expiration date of the exchange offer (the Offer), for restricted stock units or stock options (New Awards) covering a lesser number of shares than were subject to the Eligible Options exchanged immediately before being canceled in the Offer. Non-employee members of our Board of Directors were not eligible to participate in the Program. The Program expired on September 20, 2017, with a closing price of $5.13 per share.

115 employees elected to surrender Eligible Options to purchase a total of 1,204,198 shares of our common stock, representing approximately 50.02% of the total shares of common stock underlying the Eligible Options. All surrendered options were canceled effective as of the expiration date, and immediately thereafter, in exchange for such surrendered options, we issued (i) new options to purchase an aggregate of 399,117 shares of our common stock with an exercise price of $5.13; and (ii) restricted stock units representing 54,944 shares of our common stock, each, pursuant to the terms of the Offer and our 2011 Equity Incentive Plan. The new awards granted under the Program generally vest over three years.

The Program did not result in a material incremental stock-based compensation expense because the fair value of the new awards was approximately equal to the fair value of the surrendered options immediately prior to the exchange date. The original fair value of the surrendered options plus the incremental stock-based compensation expense will be recognized over the vesting periods of the New Awards.

9. Income Taxes

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

	Year Ended December 31,		
	2017	2016	2015
Domestic	$(56,885)	$(65,211)	$(46,757)
International	(6,914)	(14,966)	(8,033)
Loss before income taxes	$(63,799)	$(80,177)	$(54,790)

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

	Year Ended December 31,		
	2017	2016	2015
Current:			
Federal	$—	$—	$(30)
State	(17)	(14)	(14)
Foreign	(501)	286	(1,319)
Total current tax (expense) benefit	(518)	272	(1,363)
Deferred:			
State	—	—	—
Foreign	3,782	3,920	2,838
Total deferred benefit	3,782	3,920	2,838
Total benefit for income taxes	$3,264	$4,192	$1,475

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

	Year Ended December 31,		
	2017	2016	2015
Tax benefit at federal statutory rate	34.0 %	34.0 %	34.0 %
State tax expense, net of federal benefit	5.5	2.2	1.4
Foreign tax benefit (expense)	0.4	(0.7)	(1.9)
Change in valuation allowance	39.2	(31.2)	(28.6)
Federal research and development credit	1.9	1.3	2.6
Unrecognized tax benefit	(0.6)	(1.3)	(1.8)
Return to provision reconciliation	—	1.5	(1.2)
Impact of the Tax Act	(74.6)	—	—
Other, net	(0.7)	(0.6)	(1.9)
Effective tax rate	5.1 %	5.2 %	2.6 %

The Tax Act was enacted in December 2017. The Tax Act introduced a broad range of tax reform measures that significantly change U.S. federal income tax laws. Among other provisions, the Tax Act reduces the federal tax rate from 34% to 21% and imposes a one-time transition tax on post-1986 foreign unremitted earnings. We have remeasured our deferred taxes as of December 31, 2017 using the reduced U.S. federal tax rate of 21%. Accordingly, our gross deferred tax assets, which primarily include our net operating loss carryforwards, decreased by $29.9 million with a corresponding decrease in our valuation allowance. There is no net impact on our income tax provision from the remeasurement of existing deferred taxes due to a full valuation allowance. In addition, the Tax Act requires companies to pay a one-time transition tax for accumulated foreign earnings not previously subject to U.S. income tax. We have reviewed the accumulated undistributed foreign earnings after previously taxed income and currently we do not anticipate a transition tax liability due to our estimated aggregate foreign deficit. We have made reasonable estimates to reflect the impact of the Tax Act and recorded provisional amounts, in accordance with SAB 118, for the remeasurement of deferred taxes and the one-time transition tax as of December 31, 2017.

We continue to analyze additional information and new guidance issued by relevant authorities related to the Tax Act, which could impact the determination of the net deferred taxes subject to the remeasurement, the related impact to the assessment of our valuation allowance, and the one-time transition tax. The prospects of supplemental legislation or regulatory processes to address questions that arise because of the Tax Act, or evolving technical interpretations of the tax law, may cause the final impact from the Tax Act to differ materially from the recorded amounts. We will finalize and record any adjustments related to the Tax Act within the one-year measurement period provided under SAB 118.

As of 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 and state taxes that may be due upon future repatriation of earnings is not expected to

be significant. In addition, we currently do not anticipate any significant impact from the one-time transition tax liability under the Tax Act due to our estimated aggregate foreign deficit.

Our Development and Expansion Incentive, or DEI, in Singapore was terminated in 2017 and we did not benefit from the reduced tax rate of 5% for qualifying income in Singapore because certain milestones were not met. In addition, the capital allowance provision under the Singapore Productivity and Innovation Credit Scheme ended in 2017. Due to the termination of our DEI and capital allowance deduction, we released the valuation allowance and are subject to the statutory tax rate for Singapore.

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

	December 31,	
	2017	2016
Deferred tax assets:		
Net operating loss carryforwards	$91,701	$123,913
Reserves and accruals	3,927	4,281
Depreciation and amortization	5,591	712
Tax credit carryforwards	14,838	12,584
Stock-based compensation	5,994	7,057
Total gross deferred tax assets	122,051	148,547
Valuation allowance on deferred tax assets	(119,228)	(146,285)
Total deferred tax assets, net of valuation allowance	2,823	2,262
Deferred tax liabilities:		
Fixed asset and intangibles	(18,912)	(22,000)
Total deferred tax liabilities	(18,912)	(22,000)
Net deferred tax liability	$(16,089)	$(19,738)

Upon adoption of ASU 2016-09 (see Note 2), we recorded to the opening balance of retained earnings $9.3 million in deferred tax assets for previously unrecognized excess tax benefits that existed as of January 1, 2017, and a corresponding increase of $9.3 million in valuation allowances against these deferred tax assets as substantially all of our U.S. deferred tax assets, net of deferred tax liabilities, were subject to a full valuation allowance. The net impact to retained earnings as a result of these adjustments was zero.

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 deferred tax assets have been partially offset by a valuation allowance because we have incurred losses since our inception. The valuation allowance decreased by $27.1 million and increased by $22.1 million during 2017 and 2016, respectively. The change in valuation allowance during 2017 is mainly due to the change in Federal statutory rate from 34% to 21%, offset by a significant increase in the taxable loss in 2017. The change in valuation allowance during 2016 is primarily due to a significant increase in the taxable loss in 2016 and an increase in research development credits.

The valuation allowances of $119.2 million and $146.3 million as of December 31, 2017 and 2016, 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, California and Japan deferred tax assets relating to temporary differences, net operating losses and research and development credits are not realizable. As such, full valuation allowances have been applied against the deferred tax assets relating to jurisdictions of the federal U.S., the state of California and Japan.

A reconciliation of the beginning and ending amount of the valuation allowance for the years ended December 31, 2017, 2016, or 2015 is as follows (in thousands):

	Valuation Allowance
December 31, 2014	$110,167
Charges to earnings	—
Charges to other accounts	13,970
December 31, 2015	124,137
Charges to earnings	—
Charges to other accounts	22,148
December 31, 2016	146,285
Charges to earnings	830
Charges to other accounts	(27,887)
December 31, 2017	$119,228

As of December 31, 2017, we had net operating loss carryforwards for U.S. federal income tax purposes of $402.7 million, which expire in the years 2021 through 2038, and U.S. federal research and development tax credits of $8.3 million, which expire in the years 2021 through 2038. As of December 31, 2017, we had net operating loss carryforwards for state income tax purposes of $163.6 million, which expire beginning in 2018 through 2038, and California research and development tax credits of $10.4 million, which do not expire. As of December 31, 2017, we had foreign net operating loss carryforwards of $1.6 million, which expire in the years 2018 through 2038.

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 2015, we completed a Section 382 analysis for the period from our inception in May 1999 through December 31, 2015, which excluded the net operating loss carryforwards for DVS prior to the acquisition, and determined that an ownership change as defined under Section 382 occurred in November 2001, which resulted in a reduction to our U.S. federal net operating losses by $1.2 million. In 2016 and 2017, we continued the Section 382 analysis through December 31, 2017 and determined that an ownership change did not occur during the periods.

Uncertain Tax Positions

The aggregate changes in the balance of our gross unrecognized tax benefits during 2017, 2016, and 2015 were as follows (in thousands):

December 31, 2014	$7,672
Increases in balances related to tax positions taken during current period	1,049
Decreases in balances related to tax position taken during prior period	(59)
December 31, 2015	8,662
Increases in balances related to tax positions taken during a prior period	46
Increases in balances related to tax positions taken during current period	1,673
Decreases in balances related to tax positions taken during prior period	(1,048)
December 31, 2016	9,333
Increases in balances related to tax positions taken during a prior period	—
Increases in balances related to tax positions taken during current period	61
Decreases in balances related to tax positions taken during prior period	(2,077)
December 31, 2017	$7,317

Accrued interest and penalties related to unrecognized tax benefits were included in the income tax provision and are immaterial as of December 31, 2017 and 2016.

As of December 31, 2017, there are no 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.

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 2009 are open to examination in various foreign countries.

10. 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, the Company implemented a match formula of 100% up to $2,000 annually, following a 4-year vesting schedule. Employer matching contributions to the 401(k) plan for the year ended December 31, 2017, 2016 and 2015 was $0.5 million, $0.6 million and $0.5 million, respectively.

11. Information About Geographic Areas

We operate in one reporting segment that develops, manufacturers and commercializes tools for life sciences research. 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.

The following table represents our total revenue by geographic area of our customers for each year presented (in thousands):

	Year Ended December 31,		
	2017	2016	2015
United States	$45,820	$52,637	$55,404
Europe	32,642	29,739	36,772
Asia-Pacific	20,005	18,478	16,967
Other	3,470	3,592	5,569
Total	$101,937	$104,446	$114,712

Our license revenue is primarily generated in the United States.

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

	December 31,	
	2017	2016
United States	$3,500	$6,145
Singapore	5,167	6,830
Canada	3,481	3,503
Europe	125	43

Asia-Pacific	28	4
Total	$12,301	$16,525

Sales to customers in China represented 11% or $11.1 million, of total revenues for each of the years ended December 31, 2017 and 2016, respectively. For the year ended December 31, 2015, sales to China did not exceed 10%.

12. Shareholders' Equity

Tax Benefit Preservation Plan

On August 1, 2017, the Tax Benefit Preservation Plan (Tax Plan) dated as of November 21, 2016 expired and all of the preferred share purchase rights distributed to the holders of our common stock pursuant to the Tax Plan expired.

At-The-Market Offering

On August 3, 2017, we entered into a Sales Agreement with Cowen and Company, LLC (Cowen) to sell shares of our common stock having aggregate sales proceeds of up to $30 million, from time to time, through an “at-the-market” equity offering program under which Cowen would act as sales agent. Under the Sales Agreement, we set the parameters for the sale of shares, including the number of shares to be issued, the time period during which sales are requested to be made, limitation on the number of shares that may be sold in any one trading day and any minimum price below which sales may not be made.

On August 10, 2017, we sold 9.1 million shares of our common stock, $0.001 par value per share, through Cowen acting as our agent, for aggregate gross proceeds of $30 million. Our aggregate net proceeds from such sales were approximately $28.8 million, after deducting related expenses, including commissions to Cowen of approximately $0.7 million and issuance costs of approximately $0.5 million. These sales fully exhausted the shares that were available for sale under the Sales Agreement.

13. Quarterly Results of Operations (Unaudited)

Selected quarterly results of operations for the years ended December 31, 2017 and 2016 are as follows (in thousands, except for per share amounts):

2017	**First Quarter**	**Second Quarter**	**Third Quarter**	**Fourth Quarter**
Total revenue	$25,533	$23,912	$24,747	$27,745
Net loss	$(17,202)	$(16,933)	$(15,944)	$(10,456)
Net loss per share, basic and diluted	$(0.59)	$(0.58)	$(0.46)	$(0.27)
2016	**First Quarter**	**Second Quarter**	**Third Quarter**	**Fourth Quarter**
Total revenue	$29,003	$28,168	$22,191	$25,084
Net loss	$(19,884)	$(18,617)	$(19,787)	$(17,697)
Net loss per share, basic and diluted	$(0.69)	$(0.64)	$(0.68)	$(0.61)

14. Subsequent Event

On March 2, 2018, we entered into separate privately negotiated agreements with certain holders our Original Notes to exchange in a private placement (Exchange Transactions) approximately $125.0 million in aggregate principal amount of our Original Notes for approximately $125.0 million in aggregate principal amount of our Exchange Notes. Each $1,000 principal amount of Original Notes was exchanged for $1,000 principal amount of Exchange Notes. Approximately $76.3 million in aggregate principal amount of Original Notes will remain outstanding.

The issuance of the Exchange Notes in the Exchange Transactions closed on March 6, 2018 and in connection with the Exchange Transactions, we entered into a Second Supplemental Indenture (Supplemental Indenture) to the Indenture, dated February 4, 2014, with U.S. Bank National Association, as trustee (Base Indenture, and together with the Supplemental Indenture, the Indenture).

The Exchange Notes have an interest rate of 2.75% per year per $1,000, which accrue on the principal amount of Exchange Notes, payable in cash semi-annually in arrears on February 1 and August 1 of each year, beginning February 1, 2018, and will mature on February 1, 2034, unless earlier repurchased, redeemed or converted. The Exchange Notes have an initial conversion rate of 126.9438 shares of our common stock, par value $0.001 per share, per $1,000 principal amount (which is equivalent to an initial conversion price of approximately $7.88 per share), subject to adjustment, and are convertible into cash, shares of our common stock or a combination of cash and common stock, at our election. The Exchange Notes are convertible at the option of the holder at any time prior to the business day immediately preceding the maturity date for the Exchange Notes. The Exchange Notes are also convertible at our option upon certain conditions specified in the Indenture for the Exchange Notes (the issuer's conversion option).

Holders of the Exchange Notes have the right, at their option, to require us to purchase their Exchange Notes (i) on February 6, 2023, February 6, 2026 and February 6, 2029 or (ii) in the event of a "fundamental change" as defined in the Indenture, in each case, at a repurchase price equal to 100% of the accreted principal amount (i.e., up to 120% of the outstanding principal amount) of the Exchange Notes on the fundamental change repurchase date, plus accrued and unpaid interest. Holders who convert their Exchange Notes voluntarily prior to our exercise of the issuer's conversion option or in connection with a make-whole fundamental change prior to February 6, 2023 are entitled, 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. On or after February 6, 2022, we may elect to redeem all or any portion of the Exchange Notes at a redemption price equal to 100% of the accreted principal amount (i.e., up to 120% of the outstanding principal amount) of the Exchange Notes on the redemption date of the Exchange Notes, plus accrued and unpaid interest.

The Exchange Notes are our senior unsecured obligations and rank senior in right of payment to any of our indebtedness that is expressly subordinated in right of payment to the Exchange Notes, rank equally in right of payment with any of our unsecured indebtedness that is not so subordinated, are effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness and are structurally subordinated to all indebtedness and other liabilities of our subsidiaries.

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, 2017. 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, 2017, 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-15f) 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, 2017. 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, 2017.

The effectiveness of our internal control over financial reporting as of December 31, 2017 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, 2017 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

Not applicable.

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, 2017 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.

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, 2017				
Accounts receivable allowance	$502	$ 24	$(135)	$ 391
Year ended December 31, 2016				
Accounts receivable allowance	$103	$ 484	$(85)	$ 502
Year ended December 31, 2015				
Accounts receivable allowance	$120	$ 23	$(40)	$ 103

	In thousands			
	Balance at Beginning of Period	Additions/ Charged to Expense	Deductions	Balance at End of Period
Year ended December 31, 2017				
Warranty allowance	$1,023	$ 695	$(1,019)	$ 699
Year ended December 31, 2016				
Warranty allowance	$1,076	$ 885	$(938)	$ 1,023
Year ended December 31, 2015				
Warranty allowance	$1,178	$ 672	$(774)	$ 1,076

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 February 9, 2011.	10-K	3.2	3/28/2011
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	Indenture, dated February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.1	2/4/2014
4.3	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
4.4	Form of Global Note (included in Exhibit 4.3).	8-K	4.3	2/4/2014
4.5	Tax Benefit Preservation Plan, dated as of November 21, 2016, by and between Fluidigm Corporation and Computershare Inc., as Rights Agent.	8-K	4.1	11/22/2016
4.6	Second Supplemental Indenture, dated March 6, 2018, between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.2	3/6/2018
4.7	Form of Exchange Note (included in Exhibit 4.6).	8-K	4.3	3/6/2018
10.1	Form of Indemnification Agreement between Fluidigm Corporation and its directors and officers.	S-1/A	10.1	1/28/2011
10.2#	1999 Stock Option Plan of Fluidigm Corporation, as amended.	S-1	10.2	12/3/2010
10.2A#	Forms of agreements under the 1999 Stock Option Plan.	S-1	10.2A	12/3/2010
10.3#	2009 Equity Incentive Plan of Fluidigm Corporation, as amended.	S-1	10.3	12/3/2010
10.3A#	Forms of agreements under the 2009 Equity Incentive Plan.	S-1	10.3A	12/3/2010
10.4#	2011 Equity Incentive Plan of Fluidigm Corporation.	S-1/A	10.4	1/28/2011

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.4A#	Forms of agreements under the 2011 Equity Incentive Plan.	S-1/A	10.4A	1/28/2011
10.4B#	Amendments to the Fluidigm Corporation 2011 Equity Incentive Plan, 2009 Equity Incentive Plan, and 1999 Stock Option Plan and the DVS Sciences, Inc. 2010 Equity Incentive Plan.	8-K	10.2	8/2/2017
10.4C#	Forms of U.S. agreements under the 2011 Equity Incentive Plan.	SC TO-I	(d)(2)	8/23/2017
10.4D	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
10.4E	Rules of the Fluidigm Corporation 2011 Equity Incentive Plan for Options Granted to French Participants.	SC TO-I	(d)(4)	8/23/2017
10.4F	UK Sub-plan to the Fluidigm Corporation 2011 Equity Incentive Plan.	SC TO-I	(d)(5)	8/23/2017
10.4G#	Form of Restricted Stock Unit Agreement-Non-U.S. under the 2011 Equity Incentive Plan.	SC TO-I	(d)(6)	8/23/2017
10.4H#	Form of Stock Option Agreement-Non-U.S. under the 2011 Equity Incentive Plan.	SC TO-I	(d)(7)	8/23/2017
10.5†	Second Amended and Restated License Agreement by and between California Institute of Technology and Fluidigm Corporation, effective as of May 1, 2004.	S-1	10.5	12/3/2010
10.5A†	First Addendum, effective as of March 29, 2007, to Second Amended and Restated License Agreement by and between California Institute of Technology and Fluidigm Corporation effective as of May 1, 2004.	S-1	10.5A	12/3/2010
10.6†	Co-Exclusive License Agreement between President and Fellows of Harvard College and Fluidigm Corporation effective as of October 15, 2000.	S-1	10.6	12/3/2010
10.6A†	First Amendment to Co-Exclusive License Agreement between President and Fellows of Harvard College and Fluidigm Corporation effective as of October 15, 2000.	S-1	10.6A	12/3/2010
10.7†	Co-Exclusive License Agreement between President and Fellows of Harvard College and Fluidigm Corporation effective as of October 15, 2000.	S-1	10.7	12/3/2010
10.8†	Co-Exclusive License Agreement between President and Fellows of Harvard College and Fluidigm Corporation effective as of October 15, 2000.	S-1	10.8	12/3/2010
10.9†	Letter Agreement between President and Fellows of Harvard College and Fluidigm Corporation dated December 22, 2004.	S-1	10.9	12/3/2010
10.10#	Fluidigm Corporation 2017 Inducement Award Plan and related form agreements.	8-K	10.1	1/11/2017
10.11#	Offer Letter to Jennifer Lee date March 30, 2016.	8-K	10.1	5/23/2016
10.12	Reserved.			
10.13#	Amended and Restated Offer Letter to Steven C. McPhail, dated February 28, 2017.	10-K	10.13	3/3/2017
10.14#	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

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.15#†	Offer Letter to Stephen Christopher Linthwaite, dated July 14, 2016.	10-Q	10.1	11/9/2016
10.16#	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
10.17#	Offer Letter to Vikram Jog dated January 29, 2008.	S-1	10.17	12/3/2010
10.18	Reserved.			
10.19	Lease Agreement between ARE - San Francisco No. 17 LLC and Fluidigm Corporation, dated September 14, 2010, as amended September 22, 2010.	S-1/A	10.19	1/7/2011
10.19A	Second Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and Fluidigm Corporation, dated April 9, 2013.	10-Q	10.19A	5/9/2013
10.19B	Fourth Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and Fluidigm Corporation, dated June 4, 2014.	10-Q	10.3	8/4/2014
10.19C	Fifth Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and Fluidigm Corporation, dated September 15, 2014.	10-Q	10.2	11/6/2014
10.19D	Sixth Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and Fluidigm Corporation, dated December 8, 2015.	8-K	10.1	12/14/2015
10.19E	Seventh Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and Fluidigm Corporation, dated March 23,2017.	10-Q	10.1	5/9/2017
10.19F	Eighth Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and Fluidigm Corporation, dated August 2, 2017.	8-K	10.1	8/3/2017
10.20	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
10.21	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
10.22	Offer of Tenancy for Lease of Additional Space at Singapore Facility between Fluidigm Singapore Pte. Ltd. and HSBC Institutional Trust Services (Singapore) Limited, as trustee of Ascendas Real Estate Investment Trust, dated April 2, 2015.	10-Q	10.1	8/10/2015
10.23†	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
10.24#	Form of Award Agreement for purposes of the Retention Program.	8-K	10.1	2/10/2017
10.25#	Executive Bonus Plan.	10-K	10.25	3/28/2011
10.26	Reserved.			
10.27†	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

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.28†	Sublicense Agreement between DVS Sciences Inc. and Fluidigm Corporation, dated January 28, 2014.	10-Q/A	10.4	9/15/2014
10.29#	Separation Agreement and Release between Gajus V. Worthington and Fluidigm Corporation dated October 19, 2016.	8-K	99.1	10/24/2016
10.30	2017 Employee Stock Purchase Plan.	8-K	10.1	8/2/2017
10.31	Sales Agreement, dated as of August 3, 2017, between Fluidigm Corporation and Cowen and Company, LLC.	8-K	1.1	8/3/2017
10.32#	Fluidigm Corporation Change of Control and Severance Plan.	8-K	10.1	8/23/2017
10.33#	Endorsement Split-Dollar Life Insurance Agreement.	10-Q	10.5	11/7/2017
12.1	Computation of ratio of earnings to combined fixed charges and preference dividends.	Filed herewith		
21.1	Subsidiaries of Fluidigm Corporation.	10-K	21.1	3/3/2017
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 Executive Officer.	Filed herewith		
101.INS	XBRL Instance 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 the exhibit have been omitted 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 8, 2018

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 8, 2018
/s/ Vikram Jog **Vikram Jog**	Chief Financial Officer (Principal Financial Officer)	March 8, 2018
/s/ Jennifer Lee **Jennifer Lee**	Vice President, Controller (Principal Accounting Officer)	March 8, 2018
/s/ Samuel D. Colella **Samuel D. Colella**	Chairman of the Board of Directors	March 8, 2018
/s/ Nicolas M. Barthelemy **Nicolas M. Barthelemy**	Director	March 8, 2018
/s/ Gerhard F. Burbach **Gerhard F. Burbach**	Director	March 8, 2018
/s/ Patrick S. Jones	Director	

		March 8, 2018
Patrick S. Jones		
/s/ Carlos V. Paya	Director	March 8, 2018
Carlos V. Paya		

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