FLUIDIGM CORP

FORM 10-K
(Annual Report)

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2012

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 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 ☒

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 ☒

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

Indicate by check mark whether the registrant has submitted electronically 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 ☒ 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. ☐

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

Large accelerated filer ☐ Accelerated filer ☒

Non-accelerated filer ☐ (Do not check if a smaller reporting company) Smaller reporting company ☐

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

As of June 29, 2012, 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 $288,181,741 (based on a closing sale price of $15.04 per share as reported for the NASDAQ Global Market on June 29, 2012). For purposes of this calculation, shares of common stock beneficially owned by the registrant's officers and directors as of June 29, 2012 and shares of common stock held by persons who held more than 10% of the outstanding common stock of the registrant as of June 29, 2012 (based solely upon Schedule 13G filings made with the SEC)

have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of executive officer or affiliate status 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 28, 2013 was 25,274,351.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement relating to its 2013 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K where indicated.

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Fluidigm Corporation

Fiscal Year 2012
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 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 results of operations, business strategies, financing plans, competitive position, industry environment, potential growth opportunities, 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," "should," "will," "would," or similar expressions and the negatives of those terms.

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

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

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PART I

ITEM 1. BUSINESS

Overview

We develop, manufacture, and market microfluidic systems for growth markets, such as single-cell genomics, applied genotyping, and sample preparation for targeted resequencing, in the life science and agricultural biotechnology, or Ag-Bio, industries. Our proprietary microfluidic systems consist of instruments and consumables, including integrated fluidic circuits, or IFCs, assays, and other reagents. These systems are designed to significantly simplify experimental workflow, increase throughput, and reduce costs, while providing the excellent data quality demanded by customers. In addition, our proprietary technology enables genetic analysis that in many instances was previously impractical. We actively market four microfluidic systems, including thirteen different commercial IFCs for nucleic acid analysis, as well as three families of assay chemistries, to leading academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and Ag-Bio companies. We have sold approximately 685 systems to customers in over 30 countries worldwide.

To achieve and exploit advances in life science research, Ag-Bio, pharmaceutical and biotechnology drug development, and clinical research, laboratories need robust systems that deliver high-throughput and simpler workflows at decreased costs. Our microfluidic systems are designed to overcome many of the limitations of conventional laboratory systems by integrating a vast number of fluidic components on a single microfabricated IFC. Our technology enables our customers to perform and measure thousands of sophisticated biochemical reactions on samples smaller than the content of a single cell, while utilizing minute volumes of reagents and samples. Our scalable systems enable rapid preparation of multiple samples in parallel for next-generation DNA sequencing, as well as the isolation, processing, and gene expression profiling of individual cells at low cost.

We have successfully commercialized our BioMark, BioMark HD, and EP1 systems for genetic analysis, our C $_1$ Single-Cell Auto Prep system for single-cell sample preparation for targeted gene expression and mRNA sequencing, and our Access Array system for sample preparation for targeted next-generation DNA sequencing. Researchers and clinicians have successfully employed our products to help achieve breakthroughs in a variety of fields, including single-cell gene expression, gene regulation, genetic variation, cellular function, and applied genetics. These include using our microfluidic 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 believe our Access Array system resolves a critical workflow bottleneck that exists in all commercial next-generation DNA sequencing platforms and provides fast, simple, low-cost preparation of samples for targeted resequencing. In addition, our C $_1$ Single-Cell Auto Prep system provides an easy and highly reproducible sample preparation workflow, enabling rapid exploration of unique attributes of individual cells without the technical variability and costs of manual workflows. We expect that the versatility of our microfluidic technology will enable us to develop additional applications across a wide variety of markets.

We have grown our total revenue from $33.6 million in 2010 to $52.3 million in 2012. Our product margin has increased from 62% in 2010 to 70% in 2012. We have incurred significant net losses since our inception, including net losses of $19.0 million in 2012.

Our Target Markets

The current markets for our products include life science research, clinical research, and Ag-Bio.

Life Science Research

Our primary area of focus within life science research is genetic analysis, the study of genes and their functions. The sum total of the hereditary material of an organism is known as its genome, which is commonly

organized into functional units known as genes. Analysis of variations in genomes, genes, and gene activity in and between organisms can provide tremendous insight into their health and functioning. There are several forms of genetic analysis in use today, including gene expression analysis, genotyping, and DNA sequencing.

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 polymerase chain reaction, or 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 identify the number of copies of DNA present in a sample.

The scale of genetic research varies widely. At one end, researchers sometimes examine a limited number of genetic variations in a relatively small population. At the other end, researchers may perform genome-wide association studies where hundreds of thousands of possible genetic variations are examined across thousands or tens of thousands of samples. Researchers are rarely able to discover scientifically relevant information by examining just a few genetic variations because of the inherent complexity of biological systems. In contrast, the result of many genome-wide association studies is simply the identification of a more limited set of genetic variations that need to be examined in a larger population. As a result, some of the most productive life science research is done at a mid-multiplex scale, where tens or hundreds of genetic variations are examined in hundreds or thousands of samples.

We target the following specific areas of life science research, and our products are used for mid-multiplex research or applications of a similar scale:

Gene Expression Analysis and Genotyping . Typically, the process of gene expression involves the generation of ribonucleic acid copies, or RNA copies, of specific regions of the genome by a process known as transcription. Such RNA copies are known as messenger RNAs, or mRNAs. mRNAs may then be translated by the cell into a protein which may affect the activity of the cell or the larger organism. One prevalent form of gene expression analysis measures the levels of mRNA in an individual cell to determine how the activity of particular genes or sets of genes affect the cell or the organism.

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. In SNP genotyping studies, statistical analyses are performed to determine whether a SNP or group of SNPs are associated with a particular genetic trait, such as propensity for a disease. Haplotyping is an application of genotyping in which SNPs located at different loci on the same chromosome are studied simultaneously.

Our BioMark HD system performs, among other functions, high-throughput gene expression analysis, including targeted single-cell gene expression analysis, and SNP genotyping, and our EP1 system performs, among other functions, SNP genotyping. Competing technologies, such as pre-formatted arrays, bead arrays, and microarrays, are limited and inflexible because they require nucleic acid sequences on the device to be pre-specified when the chip or other consumable is manufactured. In contrast, our microfluidic systems allow researchers to utilize and easily tailor their assays to meet their experimental needs, which can shorten the analytical cycle for a given study to hours instead of weeks. We believe our systems also offer meaningful cost savings because they operate on nanoliter volumes of reagents and samples, which represents a small percentage of the amount required by conventional systems.

Single-Cell Genomics . Single-cell genomics is a rapidly emerging area of genetic research that requires specialized tools and techniques to harvest and process individual cells with sufficient sensitivity and reproducibility. Genetic research typically involves the analysis of samples containing thousands of cells and many different cell types. When such samples are studied using traditional gene expression analysis, the results obtained reflect a rough average of the activity of all of the cells in the sample. Recently, researchers have

demonstrated that this approach often masks critical differences in gene expression levels between different cell types and even between individual cells of the same type. In addition, in the fields of in-vitro fertilization and stem cell research, researchers are often required to examine single cells because the number of cells available for analysis is inherently limited. The scope of this research has often been constrained because the small amount of genetic material in a single cell prevents conventional methods from analyzing the activity of more than a few genes. Furthermore, large numbers of samples are required to confidently determine the heterogeneous signatures of sub-populations of cells and large research studies like these can be prohibitively expensive or impractical when performed on conventional platforms. Single-cell genomic researchers need to conduct a high number of tests on a large volume of individual cells, which in combination translates into thousands of experiments that must be accurate, fast, simple, and low cost.

The integrated workflow and precision of our systems enable researchers to perform gene expression analysis on single cells on a scale that is impractical with conventional systems due to the cost, experimental variability, and the large amount of biological sample required to initiate the study. We launched our C 1 Single-Cell Auto Prep system in June 2012, which applies our technology to, among other things, rapidly and reliably isolate, process, and profile individual cells for genomic analysis. Together, our C 1 and BioMark HD systems improve single-cell analytic workflow for expression analysis by allowing researchers to extract, reverse transcribe, amplify, and ultimately detect and analyze cell activity using just one technology, reducing the variability caused by multi-platform technical errors.

In addition, our systems are able to precisely separate the limited amount of sample material extractable from a biological specimen into individual cells, and then accurately assay each such individual cell. The high-throughput of our systems allows researchers to analyze thousands of cells in this manner. For example, our BioMark HD system can deliver over 46,000 single cell data points in one day and high-throughput configurations of our system can generate over 110,000 data points per day. Providing the combination of high-throughput and data quality necessary for targeted single-cell gene expression analysis presents significant challenges that we believe most conventional systems are unable to address in a practical manner.

Sample Preparation for Next-Generation DNA Sequencing . Through a process known as nucleic acid sequencing, researchers are able to determine the particular order of nucleotide bases that comprise all or a portion of a particular genome. For example, in the last few years, researchers have begun to use next-generation DNA sequencers to rapidly and cost-effectively sequence portions of genomes and identify genetic variations that correlate with particular characteristics. Next-generation DNA sequencing technologies have dramatically reduced the cost and processing time for genetic sequencing, but to be utilized effectively, require large numbers of unique samples.

Next-generation DNA sequencing requires new sample preparation methodologies, including adding identification tags to each segment of each individual sample that is to be sequenced. These sample preparation and tagging processes, known as target enrichment, are complex and require precise measurement and manipulation of minute quantities of DNA and reagents. Using conventional methods, this preparation and tagging must be done separately for each individual sample being processed, a laborious process that could take several days or more for a typical validation study. The streamlined workflow and flexibility of our Access Array system address this critical workflow bottleneck by allowing samples from up to 48 individuals to be prepared and tagged in approximately four hours.

In addition, researchers are increasingly analyzing the transcriptome at greater depth to uncover new mechanisms of cell development, metabolism, and disease using a technique called mRNA sequencing. Most standard methods for analyzing the transcriptome, such as microarrays and next-generation DNA sequencing, are impractical for single-cell analysis because those technologies require large numbers of cells for analysis and are based on complex workflows that are low-throughput and variable. The mRNA sequencing workflow on our C 1 Single-Cell Auto Prep system was specifically optimized for high-throughput single-cell analysis and provides an easy, end-to-end workflow for detailed transcriptome analysis of up to 96 single cells to rapidly study differential transcriptome profiles of diverse cell populations.

Digital PCR . Digital PCR allows researchers to detect nucleic acid sequences that are present in sample concentrations that are too small to be accurately measured by conventional methods. Digital PCR typically relies on standard PCR techniques, but increases their sensitivity by dividing a sample into hundreds or thousands of smaller samples and then performing a PCR assay on each such sample. The ability to count the presence or absence of amplification in this assay format allows for absolute quantitative measurement capabilities. As a result, digital PCR can perform more precise detection of rare mutations, or copy number measurements, as compared to real-time qPCR.

We were the first to introduce and successfully commercialize a digital PCR system. With our BioMark HD and EP1 systems, digital PCR has been used for a number of different applications, including absolute quantification, determination of genomic copy number variation, and detection of rare mutations. We were also the first to commercialize a qdPCR system that combines digital and quantitative real-time PCR to provide real-time analysis of digital PCR reactions with high levels of throughput and precision.

Agricultural Biotechnology

Genetic analysis techniques, such as SNP genotyping, genotyping by sequencing, and genotyping by real-time PCR analysis, 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 cost-efficient manner. Due to these demands, commercially viable genetic analysis tools in Ag-Bio must be inexpensive, easy to use, and able to provide extremely high-throughput.

The high-throughput, streamlined, and flexible workflow of our systems allows customers to genotype a set of samples in less time and cost than with traditional systems. Our platforms span the breadth of Ag-Bio applications, from low-to-mid SNP genotyping for parentage identification and marker-assisted selection on our EP1 and BioMark HD systems, to targeted resequencing for novel SNP discovery and validation of our Access Array system.

Clinical Research

Recent advances in genetic analysis technology are increasingly being used for clinical applications. Techniques such as SNP genotyping, gene expression analysis, and other genetic correlation studies are used to identify disease susceptibility and to diagnose, classify, and monitor disease progression. Research relating to molecular diagnostic tests based on measuring these genetic markers have the potential to be much more accurate and robust than conventional diagnostics. Validating these research findings and translating them 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.

Our existing microfluidic systems are able to measure certain nucleic acid biomarkers that are commonly used in these tests, and in the future, we expect to develop additional systems to measure other relevant biomarkers. We believe that the high-throughput, flexibility, and simplified workflow of our microfluidic systems could make them an attractive solution for validating and commercializing a wide range of molecular diagnostic tests being developed by researchers. Our microfluidic systems have not been cleared or approved by the U.S. Food and Drug Administration, or FDA, for use in any molecular diagnostic tests and we cannot currently market them for the purpose of performing molecular diagnostic tests.

Products

We actively market four microfluidic systems, including thirteen different commercial IFCs for nucleic acid analysis, as well as three families of assay chemistries. Our systems are based on one or more IFCs designed for particular applications and include specialized reagents, instrumentation, and software. All of our systems include IFC controllers (either stand-alone or embedded) that control the activation of valves and loading of reagents onto the IFC. Each IFC controller comes with software to control IFC and instrument operations for particular applications. We further provide an extensive set of protocols and application notes with all of our systems to support specific scientific applications. All of our systems are designed to be compatible with standard laboratory automation equipment.

Our primary product offerings are summarized in the table below:

Product	Product Description	Applications
Instruments		
BioMark HD System	Real-time PCR instrument, bundled analysis software, and chip loading platforms	SNP Genotyping, Digital PCR and Gene Expression, including Targeted Single-Cell Gene Expression
C 1 Single-Cell Auto Prep System	Sample preparation system for single-cell genomics that facilitates the isolation, processing, and profiling of individual cells	Gene Expression, including Targeted Single-Cell Gene Expression, and Single-Cell mRNA Sequencing
EP1 System	End-point PCR instrument, bundled analysis software, and chip loading platforms	SNP Genotyping and Digital PCR
Access Array System	Sample preparation system for targeted resequencing that facilitates parallel amplification of up to 48 amplicons across 48 unique samples	Targeted Resequencing with Next-Generation DNA Sequencing
Consumables		
Dynamic Array IFCs		
48.48 Dynamic Array IFC	IFC based on matrix architecture, allowing users to individually assay 48 samples against 48 reagents, generating up to 2,304 real-time qPCR reactions simultaneously	Real-time qPCR, SNP Genotyping and Gene Expression, including Targeted Single-Cell Gene Expression
96.96 Dynamic Array IFC	IFC based on matrix architecture, allowing users to individually assay 96 samples against 96 reagents, generating up to 9,216 real-time qPCR reactions simultaneously	Real-time qPCR, SNP Genotyping and Gene Expression, including Targeted Single-Cell Gene Expression
High Precision 96.96 Genotyping IFC	IFC that enables high sample throughput which can deliver more than 36,000 data points in a day with a minimum call rate of 99.9%, a level of precision that is vital to production and human genomics laboratories	SNP Genotyping

Product	Product Description	Applications
192.24 Dynamic Array IFC for Genotyping	IFC that allows users to genotype 192 samples against 24 assays in a single run, generating up to 4,608 parallel reactions	SNP Genotyping
192.24 Dynamic Array IFC for Gene Expression (expected to be commercially available in March 2013)	IFC that enables high sample throughput of 576 samples across 24 genes in an 8-hour day	Gene Expression
FLEXsix Gene Expression IFC (expected to be commercially available in May 2013)	IFC that utilizes a new architecture which incorporates six 12 X 12 partitions that can be organized in any configuration, in up to six separate experimental runs	Gene Expression
Digital Array IFCs		
12.765 Digital Array IFC	IFC based on partitioning architecture, allowing users to divide samples into up to 765 chambers in each of the 12 panels for up to 9,180 reactions per IFC	Digital PCR, Gene Expression, Copy Number Variation and Mutation Detection
48.770 Digital Array IFC	IFC based on partitioning architecture, allowing users to divide samples into up to 770 chambers in each of the 48 panels for up to 36,960 reactions per IFC	Digital PCR, Gene Expression, Copy Number Variation and Mutation Detection
qdPCR 37K IFCs	IFC that combines digital and quantitative real-time PCR to provide real-time analysis of up to 36,960 digital PCR reactions per IFC with high-throughput and precision, performing at a 99.9% success rate, which is critical in high-sensitivity applications, such as rare mutation detection, GMO testing, and aneuploidy detection	Digital PCR
C_1 Single-Cell Auto Prep Array IFCs	IFC that captures and prepares individuals cells for genomic analysis, and uses integrated thermal and pneumatic controls at nanoliter scale to enable the performance of all steps of the single-cell gene expression without intervention workflow	Sample Preparation for Targeted Single-Cell Gene Expression
Access Array IFCs	IFC that facilitates parallel amplification, barcoding, and tagging of 48 unique samples and is designed to enable recovery of reaction products from the IFC for sequencing	Targeted Resequencing with Next-Generation DNA Sequencing

Product	Product Description	Applications
DELTAgene and SNPtype Assays	Custom designed assays for specific nucleic acid regions of interest, providing optimized assays, content, and services to users of BioMark systems at lower costs as compared to other commercially available chemistries	Gene Expression and SNP Genotyping
Access Array Target-Specific Primers	Allows for fast, simple and inexpensive preparation of up to 480 amplicons per sample at a time	Targeted Resequencing with Next-Generation DNA Sequencing

The BioMark HD System

Our BioMark HD system performs high-throughput gene expression analysis, targeted single-cell gene expression analysis, SNP genotyping, and digital PCR using Fluidigm DELTAgene and SNPtype assays, other chemistries, and Fluidigm Dynamic Array and Digital Array IFCs.

The BioMark HD system includes real-time PCR device components that comprise a fast thermal cycler for PCR and a fluorescence reader that can detect the results of reactions over time. Our IFC controllers for the BioMark HD system fully automate the setup of Dynamic Array and Digital Array IFCs for real-time qPCR-based experiments and include software for implementing and tracking experiments. Our BioMark HD reader controls the PCR process and detects the fluorescent signals generated using a white light source, emission and excitation filters, precision lenses, a fast thermal cycler and a digital camera. We also offer various software packages that provide data analysis, annotation, and archival following data collection. Our analysis software shows data as a color-coded map of every position on the IFC, such as for amplification curves, and as numeric tabular data.

The C $_1$ Single-Cell Auto Prep System

Our C $_1$ Single-Cell Auto Prep system enables rapid and reliable isolation, processing, and profiling of individual cells for genomic analysis for key applications, such as targeted single-cell gene expression and single-cell mRNA analysis, using our C $_1$ Single-Cell Auto Prep Array IFCs and C $_1$ reagent kit. Our C $_1$ Single-Cell Auto Prep system includes software that features pipetting templates, easy import/export functionality, predefined experiment layouts, and a selection of data viewing options. Coupled with the BioMark HD system, the C $_1$ Single-Cell Auto Prep system streamlines gene expression analysis to support up to 96 individual cells across 96 transcripts for candidate gene studies or quality control of complementary DNA, or cDNA, libraries prior to mRNA sequencing.

The EP1 System

The EP1 system performs SNP genotyping using Fluidigm SNPtype assays or TagMan assays, and end-point digital PCR using TaqMan assays, and Fluidigm Dynamic Array and Digital Array IFCs. Because of its high-throughput and focus on SNP genotyping, the EP1 system is a preferred choice by our Ag-Bio customers for field implementation.

The IFC controllers for the EP1 system fully automate the setup of IFCs for end-point SNP genotyping and digital PCR experiments, and include software for implementing and tracking experiments. Our EP1 reader detects fluorescent signals generated in our IFCs using a light source, emission and excitation filters, precision lenses, and a digital camera. Our FC1 cycler performs fast thermal cycling for IFCs and enables up to 12 Dynamic Array IFCs to be run per day. We also offer various software packages that provide data analysis, annotation, and archival following data collection. Our analysis software shows data as color-coded map of every position on the chip, cluster maps showing results for every assay, and as numeric tabular data.

The Access Array System

The Access Array system is used with the Access Array IFC to enable automated sample preparation, barcoding, and tagging of targeted resequencing libraries, at a cost of $10 per sample or less. The Access Array system can be used in conjunction with our BioMark HD system to provide real-time monitoring of amplification steps.

The Access Array system is comprised of two IFC controllers and a single stand-alone thermal cycler. This system can load Access Array IFCs, amplify and tag the regions of interest, and recover the sample for loading into a next-generation DNA sequencer. We provide optimized barcoding primers, or Access Array Barcode Libraries, for use with Roche, Life Technologies, and Illumina sequencing platforms. When used with the Access Array IFC, the barcode library enables the user to pool products of different samples, perform amplification of all samples in parallel, and then sequence the pooled samples as a single sample. We also offer the Access Array Content Service to provide validated custom primer sets for users.

Technology

Our products are based on a tiered set of related proprietary technologies that we have either developed internally or licensed from third parties.

Multi-Layer Soft Lithography

Our IFCs are manufactured using a technology known as multi-layer soft lithography, or MSL technology. Using MSL technology, we are able to create valves, chambers, channels, and other fluidic components on our IFCs at high density. We combine these components in complex arrangements that allow nanoliter quantities of fluids or drops to be precisely manipulated within the IFC. Unlike most prior microfluidic technologies, our IFCs do not rely on electricity, magnetism, or similar approaches to control fluid movement. Rather, they control fluid flow with valves. The most important components on our IFCs are our NanoFlex valves, which are created by the intersection of two channels on adjacent layers. When the valve is open, fluid is able to flow through the lower or “flow” channel. When the upper or “control” channel is pressurized, the material separating the two channels is deflected into the lower channel, closing the valve and stopping fluid flow. If pressure is removed from the control channel, the channels return to their original form, and the valve is again open. The elastomeric properties of microfluidic IFC cores allow our NanoFlex valves to form a reliable seal and cycle through millions of openings and closings.

The elastomer we currently use for our commercial products is a form of silicone rubber known as polydimethylsiloxane, or PDMS, but we have researched other materials with different properties for specific purposes. PDMS is transparent, which allows the fluids and their contents to be easily monitored with a variety of existing optical technologies, such as bright field, phase contrast, or fluorescence microscopy. The gas permeability of PDMS allows the reliable metering of fluids with near picoliter precision by eliminating the bubble problems encountered by most other microfluidic technologies. In essence, we are able to pump fluids into closed reaction chambers at sufficient pressure to drive any air out of the chamber directly through the chamber walls. This gas permeability also supports maintenance of cells in cell culture conditions. PDMS offers a favorable environment for many biochemical reactions, including PCR and cell culture.

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. For research purposes, we have created devices with both substantially smaller and larger features. Although our manufacturing is based on standard semiconductor manufacturing technologies and techniques, we have also developed novel processes for mold fabrication that enable mass production of high density IFCs with nanoliter volume features. These processes are sufficiently robust such that new microfluidic designs can often be built using existing fabrication techniques, allowing for rapid innovation of new IFC designs without needing manufacturing process or equipment changes.

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.

Microfluidic Components . The first level of our IFC technology is a library of components that perform basic microfluidic functions. We have proven designs for numerous elements, such as pumps, mixers, separation columns, control logic, and reaction chambers. These are readily integrated to create circuits capable of performing a wide range of biochemical reactions. Even when it is necessary to integrate multiple elements to perform a particularly complex reaction, the area taken up on a circuit for a single reaction is small compared to our typical overall IFC core size of three centimeters by three centimeters. As a result, we are routinely able to develop IFCs that perform thousands of reactions per square centimeter.

Architectures . 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 first of these is the Dynamic Array IFC, a matrix architecture that allows multiple different samples and multiple different reagents to be loaded onto a single IFC and then combined so that there is an isolated reaction between each sample and each reagent. The primary advantage of this architecture is that each sample and reagent is only handled by a pipette once per IFC rather than once per reaction, as is the case with conventional technologies. For example, a single 96.96 Dynamic Array IFC can perform a total of 9,216 unique reactions between 96 samples and 96 reagents with only 192 pipetting steps, compared to approximately 18,432 pipetting steps with conventional technologies. In addition, the configuration of the IFC can be changed. For instance, our 192.24 Dynamic Array IFC for genotyping allows reactions between 192 samples and 24 assays. Our targeted next-generation DNA sequencing sample preparation architecture allows us to bring similar benefits to reactions which require export of the reaction product and more complex (multi-step) reactions. For example, our Access Array IFC amplifies 48 genetic regions on each of 48 samples and exports each prepared sample. Our Digital Array IFC architecture allows a sample to be split into hundreds to hundreds of thousands of sub-samples. Separate reactions can then be conducted on each of the smaller sub-samples. Our cell processor architecture automates cell seeding, culture, combinatorial dosing with multiple reagents, and export for further analysis. For example, our C $_1$ Single-Cell Auto Prep Array IFC enables the capture of many single cells from a flow stream, as well as the execution of molecular biology protocols on each individual cell in parallel.

Interface and Handling Carriers . 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, including existing robotic pipetting systems, bar code readers, plate handling systems, and other equipment. The core elastomeric block at the center of our IFC is surrounded by the frame, that delivers samples and reagents to the blocks. The frames, or carriers, also transmit the pressure and control signals from our instruments to the IFC.

Technological Advances . In our research and development laboratory, we have built and tested fully functional Digital Array IFCs capable of performing 200,000 assays, over five-fold more than our 48.770 Digital Array IFC. We also designed an IFC architecture and built a system to automate laboratory protocols that require one or more column chromatography steps. The IFC can generate high quality sequencing libraries for bacterial and human DNA samples using a commercially available sequencing library preparation kit.

Software and Instrumentation

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. Our BioMark HD system consists of a custom fast thermal cycler packaged with a sophisticated fluorescence imaging system. Our FC1 cycler is a custom thermal cycler capable of very rapid cycling: 45 cycles in 30 minutes. Our EP1 instrument is a fluorescence reader designed for end-

point imaging, suitable for genotyping and digital PCR applications. All of these instruments are designed to be easily introduced into standard automated lab environments.

We have developed specialized software to manage and analyze the unusually large amounts of data produced by our systems. Our BioMark HD system's gene expression analysis software automatically measures individual real-time qPCR reactions from fluorescent images and generates amplification threshold crossing values, allowing researchers to readily perform complete normalized comparative gene expression analysis across large numbers of samples and assays. Similarly, our SNP genotyping analysis software automatically clusters fluorescent intensities from individual genotype reactions and makes genotype calls across individual and multiple IFC runs. Our digital PCR analysis software automatically calculates absolute copy number and copy number ratios from digital PCR experiments. Our melting curve analysis software supports genotyping from data collected on the BioMark HD system.

More recently, we developed bioinformatic tools for single-cell genomics for our C $_1$ Single-Cell Auto Prep and BioMark HD systems, called the SINGuLAR Analysis Toolset, to facilitate the analysis and visualization of single-cell gene expression data.

Assays Design and Protocols

Our DELTAgene and SNPtype assay products consist of assay design and custom content delivery systems for gene expression and genotyping, respectively. We believe our assay design and content delivery systems represent an improvement over conventional pre-defined panels by allowing customization based on cellular pathways or biological areas of interest while lowering up-front costs of experiments. These offerings provide low-cost alternatives to chemistries such as TaqMan, and allow customers to use IFCs in more flexible ways. By specifying genes or SNP sites of interest and matching them to region specific primers, customers using our existing systems are able to amplify specific genetic regions of interest at reduced cost without sacrificing data quality.

PCR assay reagents need to be specific to the gene targets of interest. Since our systems analyze many gene targets at once, the process of designing a set of assays may delay the implementation experiments or require the use of expensive pre-designed assays. To address this issue, we developed a computational method for rapid-turn PCR assay design. This process allows us to provide customers with validated assays for their targets of interest. We have commercialized this service for our BioMark HD, EP1, and Access Array system customers through our DELTAgene and SNPtype assays and our Access Array Target-Specific primers.

We also provide protocols to guide our customers in the use of our products with commonly available molecular biology reagents for the analysis of their specific sample types.

Sales and Marketing

We distribute our microfluidic 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 domestic and international sales force informs our current and potential customers of current product offerings, new product introductions, technological advances in our microfluidic systems and workflows, and notable research being performed by our customers or ourselves. As our primary point of contact in the marketplace, our sales force focuses on delivering a consistent marketing message and high level of customer service, while also attempting to help us better understand our customer needs. As of December 31, 2012, we had 82 people employed in sales, sales and technical support, and marketing, including 42 sales representatives and technical pre-sales specialists located in the field. We intend to significantly expand our sales, support, and marketing efforts in the future.

Our sales and marketing efforts are targeted at laboratory directors and principal investigators at leading companies and institutions who need reliable life science automation solutions for their business or commercial purposes. We seek to increase awareness of our products among our target customers through regular contact,

participation in tradeshows, customer site seminars, academic conferences, and dedicated company gatherings attended by prominent users and prospective customers from various institutions.

Our systems are relatively new to the market place and require a capital investment. As a result, 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.

Single-Cell Genomics Collaborations

In May 2012, in collaboration with the Broad Institute, we announced the launch of the Single-Cell Genomics initiative, or SCGi, a new research center dedicated to accelerating the development of research methods and discoveries in mammalian single-cell genomics. The SCGi is expected to facilitate collaborative development by single-cell genomics researchers of novel single-cell, microfluidic approaches for gene expression profiling, RNA/DNA sequencing, and epigenetic analysis, and to develop and disseminate new application workflows, reagents, bioinformatics tools, and data sets to the greater scientific community. The SCGi is located at the Broad Institute in Cambridge, Massachusetts, and will feature a complete suite of our single-cell tools, protocols, and technologies, most notably the BioMark HD system.

In December 2012, in collaboration with the Genome Institute of Singapore, or GIS, an institute under the umbrella of the Agency for Science, Technology and Research, we announced the establishment of the Single-Cell ‘Omics Center, or SCOC, the first research center in Asia exclusively dedicated to accelerating the understanding of how individual cells work, and how diagnosis and treatment might be enhanced through insight derived from single cells. The SCOC is expected to provide integrated analytics for single-cell genomic applications to the region’s single-cell genomics researchers. The SCOC is located in dedicated laboratory space at GIS facilities in Biopolis, Singapore, and will feature the full capabilities of our C $_1$ Single-Cell Auto Prep and BioMark HD systems for targeted single-cell gene expression analytics and validation.

Customers

We have sold our C $_1$ Single-Cell Auto Prep, BioMark, BioMark HD, EP1, and Access Array systems to leading academic institutions, clinical laboratories, and pharmaceutical, biotechnology and Ag-Bio companies. We have sold approximately 685 systems to customers in over 30 countries. No single customer represented more than 10% of our total revenue for 2012, 2011, or 2010.

Manufacturing

Our microfluidic systems and instrumentation for commercial sale, as well as for internal research and development purposes, are manufactured at our facilities in Singapore. We also manufacture IFCs for research and development and our assay chemistries at our headquarters in South San Francisco, California.

We established our primary manufacturing facility in Singapore to take advantage of the skilled workforce, supplier and partner network, lower operating costs, and government support available there. Our microfluidic system manufacturing process includes photolithography and fabrication technologies that are very similar to those used in the fabrication of semiconductor chips. As a result, we are able to hire from a pool of skilled manpower created by the existing semiconductor industry in Singapore. Similarly, the Singapore semiconductor industry has created a broad network of potential suppliers and partners for our manufacturing operations. We are able to locally source a large proportion of the raw materials required in our processes and have been able to collaborate with local engineering companies to develop enabling technologies chip fabrication.

Our manufacturing operations in Singapore have been supported by grants from the Singapore Economic Development Board, or EDB, which provides incentive grant payments for research, development and manufacturing activity in Singapore. Our arrangements with EDB require us to maintain manufacturing and research and development presence in Singapore.

We expect that our existing manufacturing capacity for instrumentation and IFCs is sufficient to meet our needs at least through the third quarter of 2013 and, with anticipated modifications for additional capacity, through 2014. However, we are considering developing additional capacity to ensure that all or most of our products are produced by at least two different facilities. We believe that having dual sources for our products would help mitigate the potential impact of a production disruption at any one of our facilities and that such redundancy may be required by our customers in the future. We have not determined the timing or location of any additional manufacturing capacity.

We rely on a limited number of suppliers for certain components and materials used in our products. While we are in the process of qualifying additional sources of supply, we cannot predict how long that qualification process will last. If we were to lose one or more of our limited source suppliers, it would take significant time and effort to qualify alternative suppliers. Key components in our products that are supplied by sole or limited source suppliers include a specialized polymer 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 C $_1$ Single-Cell Auto Prep system, and certain raw materials for our DELTAgene and SNPtype assays and Access Array Target-Specific primers. With respect to many of our suppliers, we are neither a major customer, nor do we have long term supply contracts. These suppliers may therefore give other customers' needs higher priority than ours, and we may not be able to obtain adequate supply in a timely manner or on commercially reasonable terms.

Research and Development

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

New Product and Application Development

The largest component of our current research and development effort is in the areas of new products and new applications.

Cell Culture System . With the support of a grant from the California Institute of Regenerative Medicine, or CIRM, in an aggregate amount of $750,000, we have developed a prototype microfluidic cell culture system that enables researchers to independently control the conditions for multiple cell cultures, allowing sequential dosing of a variety of factors and then extraction of the cells for further analysis. In 2011, CIRM awarded us with an additional $1.9 million grant over three years to further advance research in this area and to deliver useable prototypes to a limited number of stem cell research laboratories.

Assay and Reagent Development . We intend to enhance our SNPtype genotyping assays, DELTAgene gene expression assays, and Access Array Target-Specific primer sets with improved performance and features. For genotyping, we plan to improve our SNPtype bioinformatic pipelines to support additional types of mutations, improve assay design rates for difficult areas of the genome, and offer it in additional formats. For gene expression, we intend to lower sample preparation reagents with lower costs and to increase the multiplexing to enable analysis of larger sets of genes. We currently support most major third party commercial sequencing platforms, and we plan to provide reagents necessary to support Access Array Target-Specific primer sets for new major platforms as they are developed.

Integrated Fluidic Circuit and Instrument Architectures . We intend to develop additional products to strengthen the capabilities of our existing Dynamic Array, Digital Array and C 1 Single-Cell Auto Prep Array IFC product families. We intend to design IFC architectures that are more flexible and cost effective for researchers with smaller numbers of assays or smaller numbers of samples. We also plan to evaluate next-generation instruments architectures supporting these new IFC formats for our existing markets and with features potentially suitable for clinical markets. With respect to IFCs for use with our C 1 Single-Cell Auto Prep system, we are developing two additional IFCs that are optimized for the capture of small cells, such as embryonic stem cells, to support targeted single-cell gene expression analysis for up to 96 gene targets and whole transcriptome analysis, respectively. We also plan to support diverse staining solutions to enable customers to monitor cell viability, cell type, and cell cycles on our C 1 Single-Cell Auto Prep Array IFCs.

Single-Cell Genomics Applications. In December 2012, we introduced the mRNA sequencing application on our C 1 Single-Cell Auto Prep system, which provides researchers with an easy, end-to-end workflow for detailed transcriptome analysis of up to 96 single cells to rapidly study differential expression profiles of diverse cell populations. We intend to expand the menu of single-cell applications available on our C 1 Single-Cell Auto Prep system to include, among others, micro RNA and DNA analysis protocols. Our micro RNA analysis protocol is expected to allow scientists to quantify micro RNA expression to better understand the regulation of gene expression. Our DNA analysis protocol, with its related reagent kit and analysis tools, is expected to support whole genome amplification from individual cells for DNA analysis. We also intend to introduce a suite of software tools, including open source and fully integrated software packages, to specifically support single-cell analysis. We are developing gene expression reference data sets of individual cells from diverse cell populations that will be made to the broader scientific community and will be used to support new user training, develop new analysis tools, and assist in the establishment of applicable quality standards.

Process Development

The second component of our research and development effort is process development. We 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 prototype fabrication facility at our Singapore manufacturer fabricates prototype IFCs working closely with product development teams in South San Francisco, California. This process development team's focus is to improve fabrication processes for the production line. We invest in manufacturing automation, process changes, and design modifications which historically have significantly improved yields and lowered the manufacturing costs of our IFCs.

Our research and development expenses were $16.6 million, $13.9 million, and $13.0 million in 2012, 2011, and 2010, respectively. As of December 31, 2012, 58 of our employees were engaged in research and development activities.

Competition

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, and additional applications. For example, companies such as Affymetrix, Inc., Agilent Technologies, Inc., Bio-Rad Laboratories, Inc., Illumina, Inc., Life Technologies Corporation, LGC Limited, Luminex Corporation, NanoString Technologies, Inc., PerkinElmer, Inc. (through its acquisition of Caliper Life Sciences, Inc.), RainDance Technologies, Inc., Roche Applied Science (a division of Roche Diagnostics Corporation), Sequenom, Inc., and WaferGen Bio-Systems, Inc. have products that compete in certain segments of the market in which we sell our products. In addition, a number of other companies and academic groups are in the process of developing novel technologies for life science markets.

The life science automation industry is highly competitive and expected to grow more competitive with the increasing knowledge gained from ongoing research and development. Many of our competitors are either

publicly traded or are divisions of publicly traded companies and 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.

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.

To successfully compete with existing products and future technologies, we need to demonstrate to potential customers that the cost savings and performance of our technologies and products, as well as our customer support capabilities, are superior to those of our competitors. The regular introduction of new and innovative offerings is necessary to continue to differentiate our company from other, larger enterprises. Additionally, a well staffed commercial team “in the field” is required 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 in the genetics fields are desirable to demonstrate both innovation and applicability of our products. These relationships create the need for retention of a large and talented specialized staff, and occasionally require the placement of products or supplies on a temporary basis at a customer facility to demonstrate applicability of our tool to a specific scientific application.

Intellectual Property

Strategy and Position

Our core technology originated at the California Institute of Technology, or Caltech, in the laboratory of Professor Stephen Quake, who is a co-founder of Fluidigm. Dr. Quake, his students, and their collaborators pioneered the application of MSL technology in the field of microfluidics. In particular, Dr. Quake’s laboratory developed technologies that enabled the production of specialized valves and pumps capable of controlling fluid flow at nanoliter volumes. In a series of transactions, we exclusively licensed from Caltech the relevant patent filings relating to these developments. We have also entered into additional exclusive and non-exclusive licenses for related technologies from various companies and academic institutions.

Our patent strategy is to seek broad patent protection on new developments in microfluidic technology and then later file patent applications covering new implementations of the technology and new microfluidic circuit architectures utilizing the technology. As these technologies are implemented and tested, we file new patent applications covering scientific methodology enabled by our technology. Additionally, where appropriate, we file

new patent applications covering instrumentation and software that are used in conjunction with our microfluidic systems.

We have developed our own portfolio of issued patents and patent applications directed to commercial products and technologies in development. Our portfolio covers methods and devices for isolating, culturing, and analyzing single cells; technologies for processing and preparing DNA samples for next-generation DNA sequencing; high-density and reusable IFCs for performing genotyping and measuring gene expression with massive multiplexing, and techniques for using these IFCs; and associated instrumentation and software for controlling and reading our IFCs and analyzing the data obtained from them. We also have over 35 patents and patent applications pending relating to devices, techniques, and applications for digital PCR, including methodologies for measuring copy number variation and noninvasively diagnosing prenatal genetic abnormalities.

As of February 28, 2013, we owned or licensed over 250 patents, most of which issued in the United States, and we had approximately 265 pending patent applications worldwide, including approximately 100 in the United States. Our patents have expiration dates ranging from 2018 to 2030. The U.S. issued patents we have licensed from Caltech expire between 2017 and 2031 and the U.S. issued patents we have licensed from other parties expire between 2019 and 2030.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. Our patents may not enable us to obtain or keep any competitive advantage. Our pending U.S. and foreign patent applications may not issue as patents or may not issue in a form that will be advantageous to us. Any patents we have obtained or do obtain may be challenged by re-examination, opposition, or other administrative proceeding, or may be challenged in litigation, and such challenges could result in a determination that the patent is invalid. In addition, competitors may be able to design alternative methods or devices that avoid infringement of our patents. To the extent our intellectual property protection offers inadequate protection, or is found to be invalid, we are exposed to a greater risk of direct competition. If our intellectual property does not provide adequate protection against our competitors' products, our competitive position could be adversely affected, as could our business. Both the patent application process and the process of managing patent disputes can be time consuming and expensive. 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.

In addition to pursuing patents on our technology, 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. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure. Monitoring unauthorized disclosure is difficult, and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate.

Our commercial success may depend in part on our non-infringement of the patents or proprietary rights of third parties. Third parties have asserted and may assert in the future that we are employing their proprietary technology without authorization. Competitors may assert that our products infringe their intellectual property rights as part of a business strategy to impede our successful entry into those markets. In addition, our competitors and others may have patents or may in the future obtain patents and claim that use of our products infringes these patents. We could incur substantial costs and divert the attention of our management and technical personnel in defending against any of these claims. Parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize, and sell products, and could result in the award of substantial damages against us. In the event of a successful claim of infringement against us, we may be required to pay damages and obtain one or more licenses from third parties, or be prohibited from selling certain products. We may not be able to obtain these licenses at a reasonable cost, if at all.

License Agreements

We have entered into several significant exclusive, co-exclusive, and non-exclusive licenses to patents and patent applications owned by various academic institutions, and have additional intellectual property agreements with a range of institutions and companies.

Our license agreement with Caltech provides us with an exclusive, worldwide license to certain patents and related intellectual property, as well as the right to prosecute licensed patent filings worldwide at our expense and to initiate any infringement proceedings. Caltech retains the right to use the licensed materials for noncommercial educational and research purposes, as well as any rights necessary to comply with the statutory rights of the U.S. government. We have issued shares of our common stock to Caltech and we agreed to pay to Caltech royalties based on sales revenue of licensed products on a country-by-country basis with a minimum annual royalty. 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.

Our license agreements with Harvard University allow sublicenses (i) provided we can demonstrate that we have added significant value to the patent rights to be sublicensed and that such sublicense also contains a substantial and essentially simultaneous license to intellectual property owned by us, or (ii) when such patent rights are necessary to practice other Harvard University patent rights exclusively licensed to us which are also being licensed. We have issued shares of our common stock to Harvard and we agreed to pay to Harvard royalties based on sales revenue of licensed products on a country-by-country basis with a minimum annual royalty. Harvard is responsible for filing and maintaining all licensed patents, but we must reimburse Harvard for our share of its related patent prosecution expenses. We have the right to prosecute any infringement of our licensed patent rights. The license agreement will terminate with the last-to-expire of the licensed patents.

On June 30, 2011, we settled certain litigation and entered into a series of patent cross-license and sub-license agreements with Life Technologies Corporation and its Applied Biosystems, LLC subsidiary, referred to as Life, relating to various patent rights of the two companies. Specifically, 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. The agreements provide for various royalty payments by each of the parties, including a royalty on certain Life instruments. 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 customer's 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 May 2011, we entered into a license agreement with Caliper Life Sciences, Inc., which subsequently became a PerkinElmer company, referred to as Caliper, to license Caliper's existing patent portfolio in certain fields, including non-invasive prenatal diagnostics, and obtained an option to extend the license to cover additional fields. Under the agreement, we made an up-front payment of $0.6 million, which is subject to adjustment, and will have royalty obligations commencing 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.

Government Regulation

Pursuant to its authority under the Federal Food, Drug and Cosmetic Act, or FFDCA, the FDA has jurisdiction over medical devices, which are defined to include, among other things, in vitro diagnostic products, or IVDs. Our products are currently labeled and sold for research purposes only, and we sell them to academic

institutions, life sciences and clinical laboratories, and pharmaceutical and biotechnology companies for non-diagnostic 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 as IVD medical devices by the 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 June 2011, the FDA issued a draft guidance document intended to clarify the types of in vitro diagnostic products that are properly labeled "for research use only." The draft 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, or other requirements if the circumstances surrounding the distribution of the product indicate that the manufacturer knows its product is being used by customers for diagnostic uses. These circumstances may include 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.

For example, 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 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 while we obtain premarket clearance or approval from the FDA. There would be no assurance that we could ever obtain such clearance or approval.

Changes to a device that have received PMA approval typically require a new PMA or PMA supplement. Changes to a device that received 510(k) clearance which could significantly affect its safety or effectiveness, or that would constitute a major change in its intended use, require a new 510(k) clearance or possibly PMA approval. The FDA requires each manufacturer to make this determination initially, but the FDA can review any of these decisions and may disagree. If the FDA disagreed with our determination not to seek a new 510(k) clearance for a change to a previously marketed product, the FDA could require us to seek a new 510(k) clearance or pre-market approval. The FDA also could require us to cease manufacturing and/or recall the modified device until 510(k) clearance or pre-market approval was obtained. Also, in these circumstances, we could be subject to warning letters, adverse publicity, significant regulatory fines or penalties, seizure or injunctive action, or criminal prosecution.

In some cases, our customers or collaborators 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. However, the FDA could assert jurisdiction over some or all LDTs, which may impact our customers' uses of our products or the sale of our products for LDT uses. A significant change in the way that the FDA regulates our products or the

LDTs that our customers develop may require us to change our business model in order to maintain compliance with these laws. The FDA held a meeting in July 2010, during which it indicated that it intends to reconsider its policy of enforcement discretion and to begin drafting a new oversight framework for LDTs.

If our products become subject to regulation as a medical device, we would become subject to additional FDA requirements, and we could be subject to unannounced inspections by the FDA and other governmental authorities, which could increase our costs of doing business. Specifically, manufacturers of medical devices must comply with various requirements of the FFDCA and its implementing regulations, including:

- the Quality System Regulation, which covers the methods and documentation of the design, testing, control, manufacturing, labeling, quality assurance, packaging, storage, and shipping of our product;
- labeling regulations;
- medical device reporting, or MDR, regulations;
- correction and removal regulations; and
- post-market surveillance regulations, which include restrictions on marketing and promotion.

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.

Our failure to comply with applicable FDA regulatory requirements, or our failure to timely and adequately respond to inspectional observations, could result in enforcement action by the FDA, which may include the following sanctions:

- fines, injunctions, and civil penalties;
- recall or seizure or our products;
- operating restrictions, partial suspension, or total shutdown of production;
- delays in clearance or approval, or failure to obtain approval or clearance of future product candidates or product modifications;
- restrictions on labeling and promotion;
- adverse publicity, warning letters, fines, or injunctions;
- withdrawal of previously granted clearances or approvals; and
- criminal prosecution.

International sales of medical devices are subject to foreign government regulations, which vary substantially from country to country. The primary regulatory environment in Europe is that of the European Union, or EU, which includes most of the major countries in Europe. Currently, 27 countries make up the EU. Other countries, such as Switzerland, have voluntarily adopted laws and regulations that mirror those of the EU with respect to medical devices. The EU has adopted numerous directives and standards regulating the design, manufacture, clinical trials, labeling, and adverse event reporting for medical devices. Devices that comply with the requirements of a relevant directive will be entitled to bear the CE conformity marking, indicating that the device conforms to the essential requirements of the applicable directives and, accordingly, can be commercially distributed throughout Europe. 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, regulations in each country may vary substantially which can affect timelines of introduction. Additionally, we understand that RUO products, such as ours, are not currently subject to regulation as medical devices in the EU or by agencies comparable to the FDA in other countries.

Property and Environmental Matters

We lease approximately 30,000 square feet of office and laboratory space at our headquarters in South San Francisco, California under a lease that expires in April 2015, and approximately 8,000 square feet of additional

office space in South San Francisco, California under a lease that expires in September 2013. We also lease approximately 28,000 square feet of manufacturing and office space at our facility in Singapore under leases with varying expiration dates through October 2014; office space in Paris, France under a lease that expires in April 2015; office space in Tokyo, Japan under a lease that expires in November 2013; office space in Osaka, Japan under a lease that expires in September 2014; and office space in Shanghai, China under a lease that expires in March 2016. 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 needs through 2013.

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. Given the small volume of such materials used or generated at our facilities, we do not expect our compliance efforts to have a material effect on our capital expenditures, earnings, and competitive position. 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 Information

During the last three years, a majority of our revenue was generated within North America and Europe and a majority of our long-lived assets are located within the United States and Singapore. Product revenue received from customers outside the United States totaled $24.2 million, or 47% of our total product revenue, in 2012, compared to $18.9 million, or 47% of our total product revenue, in 2011, and $13.8 million, or 45% of our total product revenue, in 2010. Please see Note 14 of the notes to our audited consolidated financial statements for additional information for geographic areas.

Seasonality

In 2009, 2010, and 2011, 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.

Employees

As of December 31, 2012, we had 278 employees, of which 58 work in research and development, 52 work in general and administrative, 86 work in manufacturing, and 82 work in sales, sales and technical support, and marketing. None of our employees are represented by a labor union or are the subject of 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. 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/governance.cfm. The contents of our website are not incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our website are intended to be inactive textual references only.

Executive Officers

The following table sets forth the names, ages (as of February 28, 2013) and positions of our executive officers:

Name	Age	Position
Gajus V. Worthington	43	President, Chief Executive Officer, and Director
Vikram Jog	56	Chief Financial Officer
Robert C. Jones	58	Executive Vice President, Research and Development
William M. Smith	61	Executive Vice President, Legal Affairs, General Counsel, and Secretary
Fredric Walder	55	Chief Operating Officer
Mai Chan (Grace) Yow	54	Executive Vice President, Worldwide Manufacturing and Managing Director of Fluidigm Singapore Pte. Ltd.

Gajus V. Worthington is a co-founder of Fluidigm and has served as our President, Chief Executive Officer and a director since our inception in June 1999. From May 1994 to April 1999, Mr. Worthington held various staff and management positions at Actel Corporation, a public semiconductor corporation that was sold to Microsemi Corporation in 2010. Mr. Worthington received a B.S. in Physics and an M.S. in Electrical Engineering from Stanford University.

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., 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 Life Technologies, Inc., 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.

Robert C. Jones has served as our Executive Vice President, Research and Development since August 2005. From August 1984 to July 2005, Mr. Jones held various managerial and research and development positions at Applied Biosystems, a laboratory equipment and supplies manufacturer that was a division of Applera Corporation, including: Senior Vice President Research and Development from April 2001 to August 2005; Vice President and General Manager Informatics Division from 1998 to 2001; and Vice President PCR Business Unit from 1994 to 1998. Mr. Jones received a BSEE in Electrical Engineering and an MSEE in Computer Engineering from the University of Washington.

William M. Smith has served as our Executive Vice President, Legal Affairs since February 2012, and as General Counsel and our Secretary since May 2000. From May 2000 to February 2012, Mr. Smith served as our Vice President, Legal Affairs and served as a director from May 2000 to April 2008. Mr. Smith served as an associate and then as a partner at the law firm of Townsend and Townsend and Crew, LLP from 1985 through April 2008. Mr. Smith received a J.D. and an M.P.A. from the University of Southern California and a B.A. in Biology from the University of California, San Diego.

Fredric Walder has served as our Chief Operating Officer since December 2012. From May 2010 to December 2012, Mr. Walder served as our Chief Business Officer. From August 1992 to April 2010, he served in various senior executive positions at Thermo Fisher Scientific, a laboratory equipment and supplies manufacturer, including as Senior Vice President, Customer Excellence from November 2006 to April 2010, and Division President, Thermo Electron Corporation from January 2000 to November 2006. Mr. Walder holds a B.S. in Chemistry from the University of Massachusetts.

Mai Chan (Grace) Yow has served as Executive Vice President, Worldwide Manufacturing of Fluidigm Singapore Pte. Ltd., our Singapore subsidiary, since February 2012, and as Managing Director of Fluidigm Singapore Pte. Ltd. since March 2006. Ms. Yow served as Vice President, Worldwide Manufacturing, from March 2006 to February 2012. From June 2005 to March 2006, Ms. Yow served as General Manager of Fluidigm Singapore Pte. Ltd. From August 2004 to May 2005, Ms. Yow served as Vice President Engineering (Asia) for Kulicke and Soffa, a public semiconductor equipment manufacturer. From March 1991 to July 2004, Ms. Yow served as Director, Assembly Operations, Plant Facilities and EHS, for National Semiconductor Singapore, a semiconductor fabrication subsidiary of National Semiconductor Corporation. Ms. Yow received a B.E. in Electronic Engineering from Curtin University, a Certificate in Management Studies from the Singapore Institute of Management, and a Diploma in Electrical Engineering from Singapore Polytechnic.

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.

Emerging market opportunities may not develop as quickly as we expect, limiting our ability to successfully market and sell our products, or our product development and strategic plans relating to such markets may change and our entry into these emerging markets may be delayed, if it occurs at all.

The application of our technologies to single-cell genomics, digital polymerase chain reaction, or digital PCR, and sample preparation for next-generation DNA sequencing are 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. For example, we launched our C 1 Single-Cell Auto Prep system in June 2012, which applies our technology to, among other things, improve single-cell analytic workflow for single-cell genomics. The future growth of the single-cell genomics market and the success of our new system 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 analysis. If the market for single-cell genomics, digital PCR, and sample preparation for next-generation DNA sequencing do not develop as we expect, our business may be adversely affected. Additionally, our success in these emerging markets may depend to a large extent on our ability to successfully market and sell products using our technologies. 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 emerging markets.

Our financial results may vary significantly from quarter-to-quarter due to a number of factors, which may lead to volatility in our stock price.

Our quarterly revenue and results of operations have varied in the past and may continue to vary significantly from quarter-to-quarter. For example, in 2009, 2010, and 2011, we experienced higher sales in the fourth quarter than in the first quarter of the next fiscal year. In addition, revenue from sales of our instruments

relative to sales of our consumables may fluctuate or deviate significantly from expectations. The variability in our quarterly results of operations, including revenue from sales of our instruments relative to our consumables, may lead to volatility in our stock price as research analysts and investors respond to these quarterly 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; changes in our pricing and sales policies or the pricing and sales policies of our competitors; our ability to design, manufacture and deliver products to our customers in a timely and cost-effective manner; quality control or yield problems in our manufacturing operations; our ability to timely obtain adequate quantities of the components used in our products; 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 quarter-to-quarter financial results could be significantly impacted.

The foregoing factors, as well as other factors, could materially and adversely affect our quarterly and annual results of operations. 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 revenue shortfall could magnify the adverse impact of such revenue shortfall on our results of operations. We expect that our sales will continue to fluctuate on a 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 a limited operating history and have incurred significant losses in each fiscal year since our inception, including net losses of $19.0 million, $22.5 million, and $16.9 million during the years 2012, 2011, and 2010, respectively. As of December 31, 2012, we had an accumulated deficit of $240.8 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 may continue to incur substantial operating and net losses and negative cash flow from operations. We expect that our selling, general, and administrative expenses will continue to increase due to the additional operational and reporting costs associated with being a public company. We anticipate that our business will generate operating losses until we successfully implement our commercial development strategy and generate significant additional revenue to support our level of operating expenses. 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 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 microfluidic systems 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 new products or enhance existing products would have a substantial adverse effect on our business and results of operations.

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

Our success depends, in part, 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 microfluidic technology is relatively new, and most potential customers have limited knowledge of, or experience with, our products. Prior to adopting our microfluidic 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.

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.

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 laboratories, and pharmaceutical, biotechnology and agricultural biotechnology, or 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 requires 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.

The life science research and Ag-Bio 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, targeted single-cell gene expression analysis, genotyping, PCR, digital PCR, other nucleic acid detection, 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 Affymetrix, Inc., Agilent Technologies, Inc., Bio-Rad Laboratories, Inc., Illumina, Inc., Life Technologies Corporation, LGC Limited, Luminex Corporation, NanoString Technologies, Inc., PerkinElmer, Inc. (through its acquisition of Caliper Life Sciences, Inc.), RainDance Technologies, Inc., Roche Applied Science (a division of Roche Diagnostics Corporation), Sequenom, Inc., and WaferGen Bio-systems, Inc. have products that compete in certain segments of the market in which we sell our products. In addition, a number of other companies and academic groups are in the process of developing novel technologies for life science markets.

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 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. Additionally, we may be faced with false advertising, unfair competition, or unlawful trade practices from our competitors. For example, on November 6, 2012, we filed a complaint in federal district court in the Northern District of California against NanoString Technologies, Inc., or NanoString, alleging claims of false advertising, unfair competition, and unlawful trade practice in violation of the Lanham Act and corresponding sections of the California Business & Professions Code. Prosecuting the lawsuit may be costly and can impose a significant burden on management and employees, and there can be no assurances that a favorable outcome will be obtained in the litigation. Such competitive pressures could cause harm to our business, operating results and financial condition. Our failure to compete effectively could materially and adversely affect our business, financial condition and results of operations.

Our business depends on research and development spending levels of academic, clinical, and governmental research institutions, and pharmaceutical, biotechnology, and Ag-Bio companies, 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 microfluidic systems and IFCs to academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and Ag-Bio companies 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 the federal government budget sequestration, 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 microfluidic systems and IFCs. 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.

We may not be able to develop new products or enhance the capabilities of our existing microfluidic 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 single-cell genomics, gene expression analysis, genotyping, and digital PCR, as well as potential markets for our products such as high-throughput DNA sequencing and molecular diagnostics 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.

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

We manufacture and assemble all of our instruments and IFCs for commercial sale at our facility in Singapore and our assays for commercial sale at our headquarters in South San Francisco, California. No other manufacturing or assembly facilities are currently available to us, particularly facilities of the size and scope required by our Singapore operations. Our facilities and the equipment we use to manufacture our instruments, IFCs, and assays would be costly to replace and could require substantial lead time 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. 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.

The current leases for our manufacturing facility in Singapore expire at various times through October 2014 and our current lease for office and laboratory space at our headquarters in South San Francisco expires in April 2015. If we are unable to secure new leases upon the expiration of our current leases or if either of our facilities becomes otherwise unavailable to us, and we are required to move our operations to a new manufacturing facility, we will incur significant expense in connection with the establishment of a new facility. A move would be administratively and logistically challenging and would delay and otherwise adversely affect our manufacturing activities and business operations. We cannot provide assurances that we will be able to secure new leases on our existing manufacturing facilities or a new manufacturing facility on acceptable terms, if at all.

We are dependent on single 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 source suppliers for certain components and materials used in our products. We do not have long term contracts with our suppliers of these components and materials. The loss of the single source suppliers of any of the following components and/or materials would require significant time and effort to locate and qualify an alternative source of supply:

- The IFCs used in our microfluidic systems are fabricated using a specialized polymer that is available from a limited number of sources. In the past, we have encountered quality issues that have reduced our manufacturing yield or required the use of additional manufacturing processes.
- The reader for our BioMark system requires specialized custom camera lenses, fiber light guides and other components that are available from a limited number of sources.
- Specialized pneumatic and electronic components for our C $_1$ Single-Cell Auto Prep system are available from a limited number of sources.
- The raw materials for our DELTAgene and SNPtype assays and Access Array Target-Specific primers.

Our reliance on these suppliers also subjects us to other risks that could harm our business, including the following:

- we may be subject to increased component costs;
- we may not be able to obtain adequate supply in a timely manner or on commercially reasonable terms;
- our suppliers may make errors in manufacturing components that could negatively affect the efficacy of our products or cause delays in shipment of our products; and
- our suppliers may encounter financial hardships unrelated to our demand for components, 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. Any interruption or delay in the supply of components or materials, or our inability to obtain components or materials 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.

We may experience development or manufacturing problems or delays that could limit the 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. In addition, 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. If we are unable to keep up with demand for our products by successfully manufacturing 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.

All of our instruments and 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.

In addition, 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.

Our products could become subject to regulation as medical devices by the U.S. Food and Drug Administration, or FDA, or other regulatory agencies in the future.

Our products are currently labeled and sold to academic institutions, life sciences laboratories, and pharmaceutical, biotechnology, and Ag-Bio companies for research purposes only, and not as diagnostic tests or medical devices. As products labeled for research use only, and used by our customers for research purposes only, they are subject only to limited regulation as medical devices by the FDA under 21 Code of Federal Regulations Section 809.10(c) with respect to their labeling. Research use only products are not currently subject to regulation as medical devices by comparable agencies of other countries. However, if we change the labeling of our products in the future to include indications for human diagnostic applications or medical uses, or we have knowledge that our customers are using our products for diagnostic purposes, our products or related applications could be subject to additional regulation as in vitro diagnostic devices, such as under the FDA's pre- and post-market regulations for medical devices. For example, if we wish to label and market our products for use in performing clinical diagnostics, we would first need to obtain FDA pre-market clearance or approval (depending on any product's specific intended use and any such modified labeling claims), unless otherwise exempt from clearance or approval requirements. Obtaining FDA clearance or approval can be expensive and uncertain, and generally takes several months to years to obtain, and may require detailed and comprehensive scientific and clinical data. Notwithstanding the expense, these efforts may never result in FDA clearance or approval. Even if we were to obtain regulatory approval or clearance, it may not be for the uses we believe are important or commercially attractive.

Further, the FDA may expand its jurisdiction over our products or the products of our customers, which could impose restrictions on our ability to market and sell our products. For example, our customers may 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 LDTs. However, the FDA could assert jurisdiction over some or all LDTs, which may impact our customers' uses of our products. A significant change in the way that the FDA regulates our products or any LDTs that our customers develop may require us to change our business model in order to maintain compliance with these laws. The FDA held a meeting in July 2010, during which it indicated that it intends to reconsider its policy of enforcement discretion and to begin drafting a new oversight framework for LDTs. Additionally, in June 2011 the FDA issued a draft guidance document intended to clarify the types of in vitro diagnostic products that are properly labeled "for research use only." The draft 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, or other 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, offered for clinical diagnostic uses. These circumstances may include written or verbal marketing claims regarding a product's performance in clinical applications and a manufacturer's provision of technical support for clinical applications. If the FDA imposes significant changes to the regulation of LDTs, or modifies its approach to our products labeled for

research use only, but which may be used by our customers for clinical use, it could reduce our revenue or increase our costs and adversely affect our business, prospects, results of operations or financial condition.

We may be required to proactively achieve compliance with certain FDA regulations and to conform our manufacturing operations to the FDA's good manufacturing practice regulations for medical devices, known as the Quality System Regulation, or QSR, as part of our contracts with customers or as part of our collaborations with third parties. In addition, we may voluntarily seek to conform our manufacturing operations to the QSR. For clinical diagnostic products that are regulated as medical devices, the FDA enforces the QSR through periodic unannounced inspections of registered manufacturing facilities. If we are required to comply with the QSR, the failure to take satisfactory corrective action in response to an adverse QSR inspection could result in enforcement actions, including a public warning letter, a shutdown of manufacturing operations, a product recall, civil or criminal penalties or other sanctions, which could in turn cause our sales and business to suffer.

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, particularly Gajus V. Worthington, our president and chief executive officer. Additionally, to expand our research and product development efforts, we need 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. 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.

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. In addition, our research and product development efforts could 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.

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

In the future, we may make 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. 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.

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

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 2012, 2011, and 2010, approximately 47%, 47%, and 45%, respectively, of our product 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 overseas operations and develop opportunities in other international areas. Engaging in international business inherently involves a number of difficulties and risks, including:

- required compliance with existing and changing foreign regulatory requirements and laws;
- 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.

In addition, 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, it would become more costly in U.S. dollars for us to manufacture our products in Singapore.

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.

If we are unable to manage our anticipated growth effectively, our business could be harmed.

The rapid growth of our business has placed a significant strain on our managerial, operational, and financial resources and systems. To execute our anticipated growth successfully, we must continue to attract and retain qualified personnel and manage and train them effectively. We must also upgrade our internal business processes and capabilities to create the scalability that a growing business demands.

We believe our facilities located in Singapore and South San Francisco, California, are sufficient to meet our short-term manufacturing needs. The current leases for our facilities in Singapore expire at various times through October 2014 and our current lease for office and laboratory space at our headquarters in South San Francisco expires in April 2015. In order to meet long-term demand for our microfluidic systems, we believe that we will need to add to our existing manufacturing space in Singapore or move all of our manufacturing facilities to a new location in Singapore in 2014. Such a move will involve significant expense in connection with the establishment of new clean rooms, the movement and installation of key manufacturing equipment, and modifications to our manufacturing process, and we cannot assure you that such a move would not delay or otherwise adversely affect our manufacturing activities. We cannot provide assurances that we will be able to secure a lease on a new manufacturing facility on acceptable terms, if at all.

Further, our anticipated growth will place additional strain on our suppliers and manufacturing facilities, resulting in an increased need for us to carefully monitor quality assurance. Any failure by us to manage our growth effectively could have an adverse effect on our ability to achieve our development and commercialization goals.

Our products could have unknown 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 microfluidic systems utilize novel and complex technology applied on a nanoliter scale 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 microfluidic systems, these risks may increase. We generally provide warranties that our microfluidic systems will meet performance expectations and will be free from defects. We also provide warranties relating to other parts of our microfluidic systems. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins.

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, our Access Array system is marketed as compatible with all 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.

To use our products, and our BioMark system 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, and our BioMark system 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, which represented 26% of our product revenue in 2012, involves real-time quantitative PCR, or qPCR. Leading suppliers of reagents for real-time qPCR reactions include Life Technologies Corporation and Roche Applied Science, 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.

We have limited experience in marketing, selling, and distributing our products, and 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 have limited experience in marketing, selling, and distributing our products. Our BioMark and EP1 systems for genomic analysis were introduced for commercial sale in 2006 and 2008, respectively. Our Access Array system for sample preparation was introduced for commercial sale in 2009, our BioMark HD system for genomic analysis was introduced for commercial sale in 2011, we began producing and selling assays for use with our IFCs in May 2011, and we launched our C $_1$ Single-Cell Auto Prep system for single cell sample preparation for single-cell analysis in June 2012. 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. We may not be able to attract and retain personnel or be able to build an efficient and effective sales and marketing force, which could 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 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 will require 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 will evaluate the need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. Moreover, if we are not able to comply with the requirements of Section 404 in a timely manner, 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 Market, or NASDAQ, the SEC or other regulatory authorities, which would require additional financial and management resources.

Risks associated with a company-wide implementation of an enterprise resource planning, or ERP, system may adversely affect our business and results of operations or the effectiveness of internal control over financial reporting.

We have been 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. Our business and results of operations may be adversely affected if we experience operating problems and/or cost overruns during the ERP implementation process, or if the ERP system and the associated process changes do not give rise to the benefits that we expect. Additionally, if we do not effectively implement the ERP system as planned or if the system does not operate as intended, it could adversely affect the effectiveness of our internal controls over financial reporting.

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. However, 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, in litigation or otherwise, any claims that we infringe third-party patents or violate other intellectual property rights;
- 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 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 debt or additional 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.

Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating losses, or NOLs, to offset future taxable income. If we undergo ownership changes, our ability to utilize NOLs could be limited by Section 382 of the Internal Revenue Code. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 of the Internal Revenue Code.

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 and/or to determine the scope, coverage and validity of others' proprietary rights. 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 gross margins. 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, and third parties may assert that we are employing their proprietary technology without authorization. For example, on June 4, 2008 we received a letter from Applied Biosystems, Inc., now Life Technologies Corporation, asserting that our BioMark system for gene expression analysis infringes upon U.S. Patent No. 6,814,934, or the '934 patent, and its foreign counterparts in Europe and Canada. In June 2011, we resolved this dispute by entering into a license agreement with Life Technologies Corporation which, among other matters, granted us a non-exclusive license to the '934 patent and its foreign counterparts.

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 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 and multi-layer soft lithography 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.

Our rights to use the technology we license are 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.

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. All of our instruments, including microfluidic systems, and IFCs for commercial sale 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, one of the licensors applied for a waiver of the domestic manufacturing requirement with respect to certain patents. 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 licensors requested a continued waiver of the domestic manufacturing requirement with respect to the relevant patents. If in the future it were to be determined that we are in violation of the domestic manufacturing requirement and additional waivers of such requirement were either not requested or not granted, then the U.S. government could exercise its march-in rights. In addition, these licenses contain provisions relating to compliance with this domestic manufacturing requirement. If it were determined that we are not in compliance with these provisions and such non-compliance constituted a material breach of the licenses, the licenses could be terminated. Either the exercise of march-in rights or the termination of one or more of our licenses could materially adversely affect our business, operations and 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.

Many of our employees were previously employed at universities or other life science or Ag-Bio companies, including our competitors or potential competitors. Although no claims against us are currently pending, we may be subject to claims that these employees or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights. A loss of key research personnel work product could hamper or prevent our ability to commercialize certain potential products, which could severely harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

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, including affiliated stockholders, who hold substantial blocks of our stock. As of December 31, 2012, we had 25,115,380 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 42% of such shares. Sales of large numbers of shares by any of our large stockholders could adversely affect our trading price, particularly given our relatively small historic trading volumes. If stockholders holding shares of our common stock sell, indicate an intention to sell, or if it is perceived that they will sell, substantial amounts of their common stock in the public market, the trading price of our common stock could decline. Moreover, if there is no active trading market or if the volume of trading is limited, holders of our common stock may have difficulty selling their shares.

In addition, the 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 clinical research 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 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.

Our directors, executive officers, and large stockholders have substantial control over and could limit your ability to influence the outcome of key transactions, including changes of control.

As of December 31, 2012, our current executive officers, directors, stockholders holding at least 5% of our outstanding stock, and their respective affiliates, collectively beneficially owned or controlled approximately 47% of the outstanding shares of our common stock. Accordingly, these executive officers, directors, large stockholders, and their respective affiliates, acting as a group, can have substantial influence over the outcome of corporate actions requiring stockholder approval, including the election of directors, any merger, consolidation or sale of all or substantially all of our assets, or any other significant corporate transactions. These stockholders may also delay or prevent a change of control of us, even if such a change of control would benefit our other stockholders. The significant concentration of stock ownership may adversely affect the trading price of our common stock due to investors' perception that conflicts of interest may exist or arise.

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 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, have contractual restrictions against paying cash dividends, and currently intend to retain our future earnings to fund the development and growth of our business. As a result, capital appreciation, if any, of our common stock will be stockholders' sole source of gain for the foreseeable future.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease approximately 30,000 square feet of office and laboratory space at our headquarters in South San Francisco, California under a lease that expires in April 2015, and approximately 8,000 square feet of additional office space in South San Francisco, California under a lease that expires in September 2013. We also lease approximately 28,000 square feet of manufacturing and office space at our facility in Singapore under leases with varying expiration dates through October 2014; office space in Paris, France under a lease that expires in April 2015; office space in Tokyo, Japan under a lease that expires in November 2013; office space in Osaka, Japan under a lease that expires in September 2014; and office space in Shanghai, China under a lease that expires in March 2016. 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 needs through 2013. In addition, we believe that our properties are in good condition and are adequate and suitable for their purposes.

ITEM 3. LEGAL PROCEEDINGS

On November 6, 2012, we filed a complaint against NanoString Technologies, Inc., or NanoString, in the United States District Court in the Northern District of California (Civil Action No. 12-5712), alleging claims of false advertising, unfair competition, and unlawful trade practice in violation of the Lanham Act and corresponding sections of the California Business & Professions Code. Our complaint seeks to enjoin NanoString from continuing to make or disseminate any of the false and misleading claims, misrepresenting and/or exaggerating the performance of its product in comparison with our BioMark system, to require NanoString to retract, remove, or correct the false and misleading advertising claims, and to recover damages and other relief for harm caused to us by NanoString. On January 4, 2013, NanoString answered the complaint, denying the allegations against it. The litigation is in the preliminary stages.

ITEM 4. MINE SAFETY DISCLOSURE

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 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, 2012	High	Low
First Quarter	$16.86	$12.28
Second Quarter	$16.29	$12.53
Third Quarter	$17.23	$12.55
Fourth Quarter	$17.23	$13.43

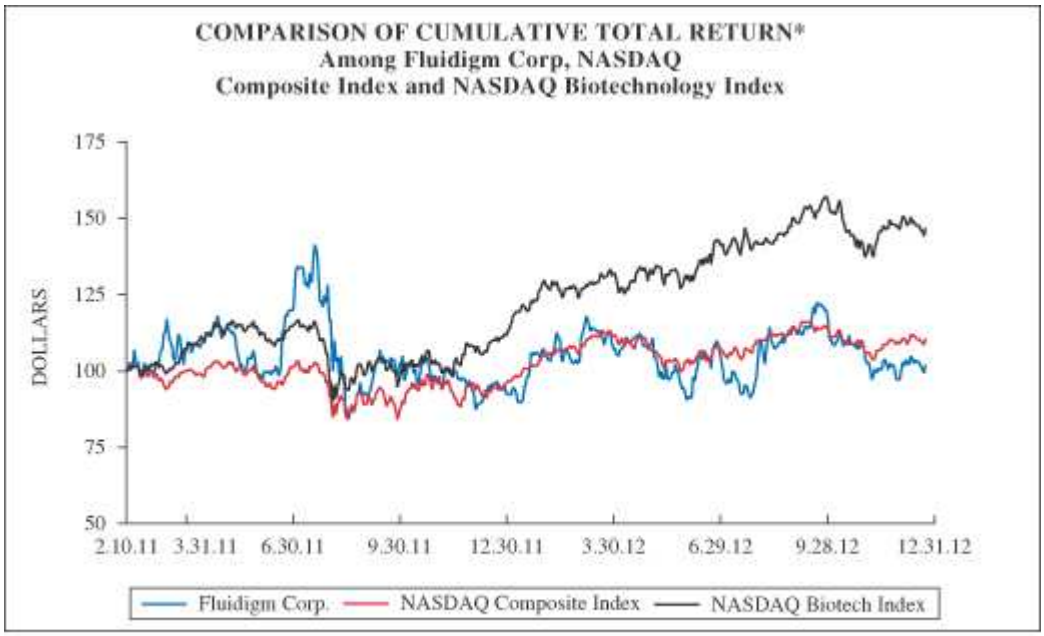
Year ended December 31, 2011	High	Low
February 10, 2011 through March 31, 2011	$16.97	$13.13
Second Quarter	$18.24	$13.50
Third Quarter	$20.20	$11.64
Fourth Quarter	$15.00	$12.05

We had approximately 130 stockholders of record as of February 28, 2013; 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 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 February 10, 2011 (the date our common stock commenced trading on the NASDAQ Global Market) through December 31, 2012 of cumulative total return for our common stock, the NASDAQ Composite Index, and the NASDAQ Biotechnology Index. Such returns are based on historical results and are not intended to suggest future performance. Data for the NASDAQ Composite Index and the NASDAQ Biotechnology Index assume reinvestment of dividends.



* $100 invested on February 10, 2011, including reinvestment of dividends

Sales of Unregistered Securities

None.

Use of Proceeds

On February 9, 2011, our registration statement on Form S-1 (File No. 333-170965) was declared effective for the initial public offering of our common stock, or IPO. Through December 31, 2012, the net proceeds from our IPO have been applied as follows: $5.0 million for the repayment of promissory notes issued in January 2011, $5.0 million for the repayment of our bank line of credit, $29.3 million for research and development expenses, $10.2 million for general corporate purposes including selling, general and administrative expenses, and litigation settlement expense, and $4.1 million for capital expenditures. On June 30, 2011, we paid $3.0 million in connection with the settlement of certain patent litigation with Life Technologies Corporation, or Life. In July 2011, we paid Life an additional $2.0 million in connection with our exercise of an option under the terms of our agreements with Life to limit or preclude certain patent litigation between the parties over a period of two to four years. Other than the aggregate payment of $5.0 million to Life, there has been no material change in the planned use of proceeds from our IPO from that described in the final prospectus filed with the SEC pursuant to Rule 424(b) on February 10, 2011.

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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, 2012, 2011, and 2010 and consolidated balance sheet data as of December 31, 2012 and 2011 from audited consolidated financial statements included elsewhere in this Form 10-K. The consolidated statement of operations data for the fiscal years ended December 31, 2009 and December 27, 2008 and the consolidated balance sheet data as of December 31, 2010, December 31, 2009, and December 27, 2008 were derived from audited consolidated financial statements that are not included in this Form 10-K.

	Year Ended				
	December 31, 2012	December 31, 2011	December 31, 2010	December 31, 2009	December 27, 2008
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Total revenue	$ 52,334	$ 42,865	$ 33,560	$ 25,412	$ 15,347
Loss from operations	(18,071)	(18,566)	(14,573)	(18,037)	(29,543)
Net loss attributed to common stockholders	(19,024)	(32,370)	(16,902)	(19,128)	(29,499)
Net loss per share attributed to common stockholders, basic and diluted	(0.86)	(1.81)	(8.94)	(11.02)	(17.85)
Consolidated Balance Sheet Data:					
Cash, cash equivalents, and short and long-term investments	$ 83,677	$ 54,967	$ 5,723	$ 14,602	$ 17,796
Working capital	89,614	49,862	2,369	21,354	20,704
Total assets	113,732	79,326	24,801	32,153	32,354
Total long-term debt	—	10,138	14,700	14,461	15,212
Convertible preferred stock	—	—	184,550	183,845	167,538
Total stockholders' equity (deficit)	100,657	56,897	(189,167)	(173,619)	(158,339)

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. 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 develop, manufacture, and market microfluidic systems for growth markets, such as single-cell genomics, applied genotyping, and sample preparation for targeted resequencing, in the life science and agricultural biotechnology, or Ag-Bio, industries. Our proprietary microfluidic systems consist of instruments and consumables, including IFCs, assays, and other reagents. Our systems are designed to significantly simplify experimental workflow, increase throughput and reduce costs, while providing the excellent data quality demanded by our customers. In addition, our proprietary technology enables genetic analysis that in many instances was previously impractical. We actively market four microfluidic systems, including 13 different IFCs for nucleic acid analysis, and three families of assay chemistries, to leading academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and Ag-Bio companies. We have sold approximately 685 systems to customers in over 30 countries worldwide.

We have launched several product lines, including our BioMark system for gene expression analysis, genotyping, and digital polymerase chain reaction, or digital PCR, in 2006, our EP1 system for single nucleotide polymorphism, or SNP, genotyping, and digital PCR in 2008, our Access Array system for target enrichment in 2009, our BioMark HD real-time PCR system for high-throughput gene expression analysis, targeted single-cell gene expression analysis, SNP genotyping, and digital PCR in 2011, and our C $_1$ Single-Cell Auto Prep system for single cell sample preparation for single-cell analysis in June 2012. In addition, in May 2011, we launched assay products, including our DELTAgene assays for gene expression, our SNPtype assays for SNP genotyping, and our Access Array Target-Specific primers for targeted next-generation DNA sequencing. Our systems utilize one or more IFCs designed for particular applications and include specialized instrumentation and software, as well as assays and other reagents for certain applications.

We distribute our microfluidic 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 primarily located in Singapore. Our facility in Singapore manufactures our instruments and fabricates all of our IFCs for commercial sale and for our research and development purposes. Our South San Francisco facility fabricates IFCs for our research and development purposes, and manufactures our assays and produces other reagents for commercial sale.

From 2002 through 2011, we have received revenue from government grants. Our most significant grant relationship has been with the Singapore Economic Development Board, or EDB. The EDB, an agency of the Government of Singapore, promotes research, development, and manufacturing activities in Singapore and associated employment of Singapore nationals by providing incentive grants to companies conducting operations in Singapore that satisfy the requirements of EDB's government programs. Under our agreements with EDB, we were eligible to receive incentive grant payments from EDB, provided we satisfied certain agreed upon targets. Our agreements with EDB provided for incentive funding eligibility through May 2011. From January 1, 2010 through December 31, 2011, we recognized $1.2 million of grant revenue from EDB.

We have grown our total revenue from $33.6 million in 2010 to $52.3 million in 2012. We have incurred significant net losses since our inception in 1999 and, as of December 31, 2012, our accumulated deficit was $240.8 million.

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 from sales of our products, license and collaboration arrangements, and government grants. Our products consist of instruments and consumables, including IFCs, assays and other reagents, related to our microfluidic systems. Product revenue includes services for instrument installation, training, and customer support services.

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, including, but not limited to, reviewing contractual terms and conditions related to payment.

Certain of our sales contracts involve the delivery or performance of multiple products or services. Significant contract interpretation is sometimes required to determine the appropriate accounting for revenue from multiple element arrangements, including whether the deliverables should be treated as separate units of accounting for revenue recognition purposes, 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. Revenue recognition for contracts with multiple deliverables is based on the individual units of accounting determined to exist in the contract.

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

For transactions entered into prior to 2011 that include multiple elements, we allocated revenue to each unit of accounting based on its relative fair value, and recognized revenue for each unit of accounting when the applicable revenue recognition criteria were met. When objective and reliable evidence of fair value existed for the undelivered items but not for the delivered items, the residual method was used to allocate arrangement consideration. Under the residual method, the amount of arrangement consideration allocated to the delivered items equaled the total arrangement consideration less the aggregate fair value of the undelivered items. When we were unable to establish stand-alone value for delivered items or when fair value of undelivered items had not been established, revenue was deferred until all elements were delivered and services had been performed, or until fair value could objectively be determined for any remaining undelivered elements.

Our products are sold without the right of return. Accruals for estimated warranty expenses are provided 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.

We have entered into license and collaboration agreements with third parties that generally provide us with up-front and periodic milestone payments. Revenue from license agreements is recognized when received, upfront payments are generally recognized over the term of the underlying agreement and milestone payments are generally recognized based upon the achievement of the milestones as defined in the agreement.

Revenue from government grants relates to the achievement of agreed upon milestones and expenditures and is recognized in the period in which the related costs are incurred, provided that the conditions under which the government grants are awarded have been substantially met and only perfunctory obligations remain outstanding. With respect to the EDB grants, upon satisfaction of grant conditions, we received incentive grant payments equal to a portion of qualifying expenses we incurred in Singapore. Qualifying expenses included salaries, overhead, outsourcing and subcontracting expenses, operating expenses, and raw material purchases. Royalties paid are not qualifying expenses under the incentive grant program. We submitted requests to the EDB for incentive grant payments on a quarterly basis, which were subject to the EDB's review and our satisfaction of the grant conditions. Our first grant agreement with the EDB was completed in July 2010, at which time we submitted our final progress report and evidence of achievement of our development targets under the letter agreement. In October 2010, we received confirmation from EDB that all of our obligations under the first grant had been met and, in October 2010, we received our final grant payment relating thereto. Our second grant agreement with the EDB was completed in May 2011. Based on correspondence with EDB, we believe we have satisfied our obligations applicable to our EDB grant revenue through December 31, 2012.

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 measure the cost of employee services received in exchange for an award of equity instruments, including stock options and restricted stock units, based on the grant date fair value of the award. The fair value of options 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.

Our board of directors sets the terms, conditions, and restrictions related to 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 options, 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 costs of our equity awards, net of estimated forfeitures, 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 options, we recognize stock-based compensation over the requisite service periods using the accelerated attribution method.

Our common stock has a limited trading history because our common stock was not publicly traded until our initial public offering, or IPO, in February 2011. Accordingly, the expected volatility of our common stock is derived from the historical volatilities of several unrelated public companies within the life science industry. When selecting our industry peer companies, we consider our stage of development, size, and financial leverage. These historical volatilities are weighted based on certain qualitative factors and combined to produce a single volatility factor. 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. We estimate the expected lives of employee options using the "simplified" method as the midpoint of the expected time-to-vest and the contractual term.

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 lives 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.

We estimate our forfeiture rate based on an analysis of our actual forfeitures and we will continue to evaluate the appropriateness of the forfeiture rate based on actual forfeiture experience, analysis of employee turnover behavior, and other factors. Quarterly changes in the estimated forfeiture rate can have a significant effect on reported stock-based compensation expense, as the cumulative effect of adjusting the rate is recognized in the period the forfeiture estimate is changed. If a revised forfeiture rate is higher than the previously estimated forfeiture rate, an adjustment is made that will result in a decrease to the stock-based compensation expense recognized in the consolidated financial statements. If a revised forfeiture rate is lower than the previously estimated forfeiture rate, an adjustment is made that will result in an increase to the stock-based compensation expense recognized in the consolidated financial statements. The effect of forfeiture adjustments was insignificant during 2012, 2011, and 2010. We will continue to use judgment in evaluating the expected term, volatility, and forfeiture rate related to our stock-based compensation.

Also required to compute the fair value calculation of options is the fair value of the underlying common stock. We grant stock options at exercise prices not less than the fair value of our common stock at the date of grant. Prior to our IPO, our board of directors obtained contemporaneous valuations from an unrelated third-party valuation firm to determine the estimated fair value of common stock based on an analysis of relevant metrics, such as the price of the most recent convertible preferred stock sales to outside investors, the rights, preferences, and privileges of the convertible preferred stock, our operating and financial performance, the hiring of key personnel, the introduction of new products, the lack of marketability of the common stock, and additional factors relating to our business. There is inherent uncertainty in these estimates and if we or the valuation firm had made different assumptions, the amount of our stock-based compensation expense, net loss, and net loss per share amounts could have been significantly different. Following the completion of our IPO in February 2011,

the fair value of options granted is based on the closing price of our common stock on the date of grant as quoted on the NASDAQ Global Market.

Historically, certain of our stock options 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.

We recorded stock-based compensation of $4.1 million, $2.8 million, and $1.6 million during 2012, 2011, and 2010, respectively. As of December 31, 2012, we had $10.5 million of unrecognized stock-based compensation costs, which are expected to be recognized over an average period of three years.

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 basis. 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. We have recorded a full valuation allowance on our deferred tax assets due to uncertainties related to our ability to utilize our deferred tax assets in the foreseeable future. These deferred tax assets primarily consist of net operating loss carryforwards and research and development tax credits. We intend to maintain this valuation allowance until sufficient evidence exists to support its reduction. 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 income tax provision.

Effective January 1, 2010, we obtained approval for Pioneer Tax Status in Singapore. We do not expect this status to have a material impact on our business, operating results, or financial condition. We cannot predict whether Pioneer Tax Status will have a material impact on our business, operating results, or financial condition in future periods because the availability of the tax incentives will depend entirely on the long-term development of our business.

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.

Results of Operations

Revenue

We generate revenue from sales of our products, license and collaboration agreements, and government grants. Our product revenue consists of sales of instruments and related services, and consumables, including IFCs, assays and other reagents. We have entered into license and collaboration agreements and have received government grants to conduct research and development activities.

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

	Year Ended December 31,		
	2012	2011	2010
Revenue:			
Instruments	$29,152	$25,190	$20,708
Consumables	22,336	15,391	9,754
Product revenue	51,488	40,581	30,462
License and collaboration revenue	185	1,716	1,625
Grant revenue	661	568	1,473
Total revenue	$52,334	$42,865	$33,560

The following table presents our product revenue by geography and as a percentage of total product revenue by geography based on the billing address of our customers for each period presented (in thousands):

	Year Ended December 31,					
	2012		2011		2010	
United States	$27,325	53%	$21,644	53%	$16,619	55%
Europe	13,086	26%	10,499	26%	7,577	25%
Japan	3,840	7%	3,942	10%	2,700	9%
Asia Pacific	6,321	12%	3,698	9%	2,800	9%
Other	916	2%	798	2%	766	2%
Total	$51,488	100%	$40,581	100%	$30,462	100%

Grant revenue is received from our incentive grants with the EDB and the California Institute of Regenerative Medicine, or CIRM. Grant revenue from CIRM is generated in the United States and grant revenue with the EDB was generated in Singapore. License and collaboration revenue is primarily generated in the United States.

Our customers include academic research institutions, clinical laboratories, and pharmaceutical, biotechnology and Ag-Bio companies worldwide. Total revenue from our five largest customers in each of the periods presented comprised 17%, 16%, and 19% of revenue in 2012, 2011, and 2010, respectively.

Comparison of the Years Ended December 31, 2012 and December 31, 2011

Total Revenue

Total revenue increased by $9.4 million, or 22%, to $52.3 million for 2012 as compared to $42.9 million for 2011.

Product Revenue

Product revenue increased by $10.9 million, or 27%, to $51.5 million for 2012 as compared to $40.6 million for 2011, reflecting increased revenue from sales of instruments and consumables. Consumables revenue increased by $6.9 million, or 45%, primarily due to increased sales of genotyping and gene expression IFCs, and to a lesser extent, Access Array IFCs and assays. IFC sales growth was driven by increases in the installed base of our instrument systems, analytical chip pull-through, and to a lesser extent, by higher IFC average selling prices. Instrument revenue increased by $4.0 million, or 16%, primarily due to the launch of our C 1 Single-Cell Auto Prep system during the third quarter of 2012, and increased sales of our service offerings and aftermarket instruments. This was partially offset by decreased unit sales of the Access Array system and, to a much lesser extent, decreased unit sales of our analytical systems.

We expect unit sales of both instruments and consumables to continue to increase in future periods as we continue our efforts to grow our customer base and expand our geographic market coverage. However, we expect the average selling prices of our instruments to fluctuate over time based on product mix.

License and Collaboration Revenue

License and collaboration revenue decreased by $1.5 million to $0.2 million for 2012 as compared to $1.7 million for 2011 due to the termination of the collaboration agreement with Novartis Vaccines & Diagnostics, Inc. (Novartis V&D) on May 1, 2012. The collaboration agreement with Novartis V&D was entered into in May 2010 to develop a new product and received an up-front payment of $0.7 million. Additionally, the collaboration agreement provided for payments to us upon the achievement of multiple defined milestones related to the design and development of product prototypes.

In March 2011, we entered into an amendment to the collaboration agreement and received an additional $0.3 million. Under the amendment, certain milestones were modified and payment terms related to this agreement associated with satisfaction of the milestones were revised.

During 2011, we recognized $1.0 million of milestone revenue related to this agreement. All our performance obligations under this agreement were satisfied at December 31, 2011 and there were no other agreements with potential future milestones.

Grant Revenue

Grant revenue consists of incentive grants from government entities, including EDB and CIRM. Grant revenue increased $0.1 million to $0.7 million for 2012, compared to $0.6 million for 2011. The increase relates to our CIRM grant as the grant from the EDB was completed in May 2011. Under our incentive grant agreements with EDB, we received incentive grant payments equal to a portion of qualifying expenses we incurred in Singapore. We incurred $0.5 million of qualifying expenses in 2011.

Our agreements with EDB provided that grants extended to us were subject to certain grant conditions and provided EDB with the right to demand repayment of a portion of past grants in the event that we did not meet our obligations under the applicable agreements. Based on correspondence with EDB, we believe we have satisfied our obligations applicable to our EDB grant revenue through December 31, 2012.

Our first CIRM grant was awarded in 2009 in the amount of $0.8 million and was earned over a two-year period. Our second CIRM grant was awarded in 2011 in the amount of $1.9 million to be earned over a three-year period. The CIRM grant revenue is recognized as the related research and development services are performed and costs associated with the grants are recognized as research and development expense during the period incurred.

We expect total grant revenue for 2013 to be consistent with 2012 as our grant revenue from CIRM to design and develop prototype microfluidic systems for use in stem cell research continues.

Cost of Product Revenue

The following table presents our cost of product revenue and product margin for each period presented (in thousands).

	Year Ended December 31, 2012	Year Ended December 31, 2011
Cost of product revenue	$ 15,325	$ 13,191
Product margin	70%	67%

Cost of product revenue includes manufacturing costs incurred in the production process, including component materials, assembly labor and overhead, installation, packaging, and delivery costs. In addition, cost of product revenue includes royalty costs for licensed technologies included in our products, warranty, service, provisions for slow-moving and obsolete inventory, and stock-based compensation expense. Costs related to license, collaboration and grant revenue are included in research and development expense.

Cost of product revenue increased $2.1 million, or 16%, to $15.3 million for 2012 from $13.2 million for 2011 due to increased product sales in 2012. Cost of product revenue as a percentage of related revenue decreased to 30% for 2012 compared to 33% for 2011. This improvement was primarily due to a higher product mix of higher margin consumables relative to instruments systems; lower consumables manufacturing costs resulting from higher production volumes and yield improvements; a shift to higher margin instruments within the instrument systems product line; and lower product material costs for analytical systems and the Access Array system. These improvements were offset in part by higher freight and distribution costs.

Operating Expenses

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

	Year Ended December 31, 2012	Year Ended December 31, 2011
Research and development	$ 16,602	$ 13,936
Selling, general and administrative	38,478	31,304
Litigation settlement	—	3,000
Total operating expenses	$ 55,080	$ 48,240

Research and Development

Research and development expense consists primarily of personnel costs, 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 to support development and commercialization of new and existing products and services.

Research and development expense increased $2.7 million, or 19%, to $16.6 million for 2012, compared to $13.9 million for 2011. The increase in research and development expense was primarily due to an increase in compensation costs and related expenses, including stock-based compensation, of $1.3 million, lab supplies and equipment costs of $1.1 million, and outside services of $0.1 million. These increased costs were in support of our development and commercialization of new and existing products and services.

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

Selling, General and Administrative

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

Selling, general and administrative expense increased $7.2 million, or 23%, to $38.5 million for 2012, compared to $31.3 million for 2011. The increase was primarily due to an increase in compensation costs and related expenses, including stock-based compensation, of $4.7 million, an increase in sales and marketing activities of $1.5 million, an increase in accounting and outside services of $0.6 million, and an increase in facility expenses of $0.3 million. The increase was primarily driven by expansion of worldwide commercial capabilities to support our growth and compliance costs.

We expect selling, general and administrative expense to increase in future periods as we continue to grow our sales, technical support, marketing, and administrative headcount, support increased product sales, broaden our customer base, and incur additional costs to support our expanding global footprint and the overall growth in our business.

Litigation Settlement

On June 30, 2011, we settled certain litigation and entered into a series of patent license agreements resulting in a net $3.0 million payment by us to Life Technologies Corporation and its Applied Biosystems, LLC subsidiary, referred to as Life. The payment was recognized as litigation settlement expense in our consolidated statement of operations because the amount paid by us was principally attributable to resolving Life's litigation claims against us with respect to a specific expiring U.S. patent and its foreign counterparts.

Under the terms of the agreements, each party had the option, exercisable for thirty days from the date of the agreements, to limit or preclude certain patent litigation between the parties over a period of two to four years. These rights were subject to certain exceptions and required an additional payment by the party exercising the option at the time of exercise. In July 2011, we exercised our option and paid Life $2.0 million. As a result, subject to certain exceptions, Life may not initiate litigation under its patents existing as of June 30, 2011 against our customers for two years and against us, with respect to our current products and equivalent future products, for four years. The additional payment was recorded in other assets and is being amortized to selling, general and administrative expense over four years on a straight-line basis beginning in July 2011. The additional payment is being amortized to selling, general and administrative expense because it precludes Life from initiating litigation under its relevant patents for any alleged prior and future infringement by us for four years, and because such preclusion relates to our equivalent future products. Life elected not to exercise its option.

Litigation settlement expense was $3.0 million for 2011 as a result of the agreements entered into with Life on June 30, 2011. We had no similar agreement in 2012.

Interest Expense, Interest Income and Other Income and Expense, Net

We receive interest income from our cash equivalents and investments. Conversely, we incur, or have incurred, interest expense from our bank line of credit, long-term debt, convertible promissory notes and the amortization of debt discounts related to our long-term debt and convertible promissory notes. Until the closing of our IPO, we also recognized income or expense as a result of changes in the fair value of outstanding warrants to purchase shares of our convertible preferred stock. The following table presents these items for each period presented (in thousands):

	Year Ended	
	December 31, 2012	December 31, 2011
Interest expense	$ (628)	$ (3,101)
Loss from changes in the fair value of convertible preferred stock warrants, net	—	(1,483)
Gain from extinguishment of convertible preferred stock warrants	—	765
Other (expense) income, net	(189)	81
Deemed dividend related to the change in conversion rate of Series E convertible preferred stock	—	(9,900)

Interest expense decreased $2.5 million, or 80%, to $0.6 million for 2012, compared to $3.1 million for 2011. The decrease is primarily due to $1.2 million of non-cash interest expense in connection with a $5.0 million note and warrant agreement entered into in January 2011. We repaid all principal and interest outstanding under the note in February 2011 upon the closing of our IPO. There was no similar transaction or recognition of expense in 2012. The decrease also resulted from a reduction in the principal amount of our long-term debt beginning in March 2011, when we began making principal and interest payments totaling $0.6 million per month. As required under our loan agreement, we made an additional principal payment of $2.3 million in March 2012. In June 2012, we elected to make another principal payment of $1.9 million using proceeds from our line of credit. In August and September 2012, we elected to pay the remaining $2.2 million balance due under the loan agreement.

Prior to our IPO, the fair value of the convertible preferred stock warrant liability increased resulting in a loss of $1.5 million in 2011. We did not have any outstanding convertible preferred stock warrants during 2012 as all convertible preferred stock warrants were either converted into warrants to purchase common stock, or expired unexercised, or were exercised for shares of our common stock upon the closing of our IPO in February 2011. Upon the closing of our IPO, liabilities related to the expired warrants were reversed, resulting in a gain of $0.8 million during 2011. Liabilities related to the warrants that were converted into warrants to purchase common stock and warrants that were exercised in connection with our IPO were reclassified to additional paid-in-capital.

Deemed Dividend

In January 2011, we amended and restated our certificate of incorporation to decrease the conversion price of our Series E convertible preferred stock from $24.22 to $18.63 per share. As a result, we recognized a deemed dividend of $9.9 million, reflecting the fair value of the additional shares of common stock to be issued as a result of the change in conversion price of the Series E convertible preferred stock. The deemed dividend increased the net loss attributed to common stockholders in the calculation of basic and diluted net loss per share.

Comparison of the Years Ended December 31, 2011 and December 31, 2010

Total Revenue

Total revenue increased by $9.3 million, or 28%, to $42.9 million for 2011 as compared to $33.6 million for 2010.

Product Revenue

Product revenue increased by $10.1 million, or 33%, to $40.6 million for 2011 as compared to $30.5 million for 2010, reflecting increased revenue from sales of instruments and consumables. Consumables revenue increased by $5.6 million, or 58%, resulting from our higher installed base of instruments and the launch of our assays business in the first half of 2011. Instrument revenue increased by $4.5 million, or 22%, resulting from an increase in instrument sales volume of 19%, primarily driven by sales of our Access Array instrument. Average instrument selling prices were higher for 2011 compared to 2010 due to the launch of our BioMark HD system in the first quarter of 2011, which has a higher average selling price than our other systems, and increased sales in Japan and Europe, where average selling prices are higher, partially offset by increased sales of our Access Array systems, which has a lower average selling price compared to our BioMark and EP1 systems.

License and Collaboration Revenue

License and collaboration revenue was $1.7 million for 2011, compared to $1.6 million for 2010, primarily related to a collaboration agreement with Novartis V&D that we entered into in May 2010. The collaboration agreement provided for an up-front payment of $0.7 million that was recognized on a straight-line basis over the estimated period of performance under the agreement. In March 2011, we amended the agreement and received an additional $0.3 million payment. Under the amendment, certain milestones and the payment terms associated with satisfaction of the milestones were modified. The $0.7 million up-front payment and the $0.3 million payment received in March 2011 were being recognized on a straight-line basis through September 30, 2011, which was management's best estimate of its period of performance under the amended agreement. During July 2011, we reassessed the period of performance and extended it through November 2011. This change in estimate did not have a material impact on the recognition of the remaining deferred revenue under the agreement.

The arrangement also provided for milestone payments for the design and development of product prototypes, which have been recognized as we achieved each milestone. During 2011, we achieved three milestones, submitted our final report under the agreement, and recognized $1.0 million of milestone revenue. During 2010, we achieved three milestones and recognized $1.25 million of milestone revenue. All of our performance obligations under the agreement were completed at December 31, 2011.

Grant Revenue

Grant revenue consists of incentive grants from government entities, including EDB and CIRM. Grant revenue decreased $0.9 million to $0.6 million for 2011, compared to $1.5 million for 2010. The decrease relates to a reduction in activity under the EDB grant agreements as we achieved certain milestones and reached the end of the grant periods, partially offset by new grant revenue from CIRM. Under our incentive grant agreements with EDB, we received incentive grant payments equal to a portion of qualifying expenses we incurred in Singapore. Qualifying expenses incurred by us in Singapore were $0.5 million in 2011 and $3.8 million in 2010.

Our agreements with EDB provided that grants extended to us were subject to certain grant conditions, including increasing our levels of research, development and manufacturing in Singapore through the use of local service providers, the hiring and training of personnel in Singapore, the incurrence of research and development expenses in Singapore, receipt of new investment in our company and the achievement of certain agreed upon milestones relating to the development of our products. Development and manufacturing milestones achieved include completion of feasibility studies and prototype development, establishment of manufacturing lines,

process automation and manufacturing yield improvements for our chips and related instruments. These agreements further provided EDB with the right to demand repayment of a portion of past grants in the event that we did not meet our obligations under the applicable agreements. Our first grant agreement with the EDB was completed in July 2010. In October 2010, we received confirmation from EDB that all of our obligations under the first grant had been met and, in October 2010, we received our final grant payment relating thereto. Our second grant agreement with the EDB was completed in May 2011. Based on correspondence with EDB, we believe we have satisfied our obligations applicable to our EDB grant revenue through December 31, 2011.

Our first CIRM grant was awarded in 2009 in the amount of $0.8 million to be earned over a two-year period. Our second CIRM grant was awarded in 2011 in the amount of $1.9 million to be earned over a three-year period. The CIRM grant revenue is recognized as the related research and development services are performed and costs associated with the grants are recognized as research and development expense during the period incurred.

Cost of Product Revenue

The following table presents our cost of product revenue and product margin for each period presented (in thousands).

	Year Ended December 31, 2011	Year Ended December 31, 2010
Cost of product revenue	$ 13,191	$ 11,581
Product margin	67%	62%

Cost of product revenue includes manufacturing costs incurred in the production process, including component materials, assembly labor and overhead, installation, packaging, and delivery costs. In addition, cost of product revenue includes royalty costs for licensed technologies included in our products, warranty, service, provisions for slow-moving and obsolete inventory, and stock-based compensation expense. Costs related to license, collaboration and grant revenue are included in research and development expense.

Cost of product revenue increased $1.6 million, or 14%, to $13.2 million for 2011 from $11.6 million for 2010 due to increased product sales in 2011. Cost of product revenue as a percentage of related revenue decreased to 33% for 2011 compared to 38% for 2010. This decrease was primarily due to lower instrument component costs and higher instrument average selling prices, and, to a lesser extent, lower IFC manufacturing costs.

Operating Expenses

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

	Year Ended December 31, 2011	Year Ended December 31, 2010
Research and development	$ 13,936	$ 13,007
Selling, general and administrative	31,304	23,545
Litigation settlement	3,000	—
Total operating expenses	$ 48,240	$ 36,552

Research and Development

Research and development expense consists primarily of personnel costs, 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 to support development and commercialization of new and existing products and services.

Research and development expense increased $0.9 million, or 7%, to $13.9 million for 2011, compared to $13.0 million for 2010. The increase relates primarily to increased lab supplies and consumables of $0.6 million, consulting and professional fees of $0.2 million to support our new product development, and increased compensation and personnel related costs of $0.3 million, which include stock based compensation, partially offset by lower equipment and depreciation expense of $0.2 million.

Selling, General and Administrative

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

Selling, general and administrative expense increased $7.8 million, or 33%, to $31.3 million for 2011, compared to $23.5 million for 2010. The increase was primarily due to increased compensation costs and related expenses, including stock-based compensation, of $5.4 million, resulting from increased headcount to support our business and revenue growth, increased legal and professional fees of $1.7 million, increased other costs of $1.0 million to support our public company requirements, and increased advertising and promotional costs of $0.4 million to support our new product introductions and to increase market awareness of our products, partially offset by lower rent expense of $0.4 million resulting from our lease renewal on more favorable terms for our headquarters facility in South San Francisco, California and a decrease in our provision for bad debt expense of $0.3 million.

Litigation Settlement

On June 30, 2011, we settled certain litigation and entered into a series of patent license agreements resulting in a net $3.0 million payment by us to Life Technologies Corporation and its Applied Biosystems, LLC subsidiary, referred to as Life. The payment was recognized as litigation settlement expense in our consolidated statement of operations because the amount paid by us was principally attributable to resolving Life’s litigation claims against us with respect to a specific expiring U.S. patent and its foreign counterparts.

Under the terms of the agreements, each party had the option, exercisable for thirty days from the date of the agreements, to limit or preclude certain patent litigation between the parties over a period of two to four years. These rights were subject to certain exceptions and required an additional payment by the party exercising the option at the time of exercise. In July 2011, we exercised our option and paid Life $2.0 million. As a result, subject to certain exceptions, Life may not initiate litigation under its patents existing as of June 30, 2011 against our customers for two years and against us, with respect to our current products and equivalent future products, for four years. The additional payment was recorded in other assets and is being amortized to selling, general and administrative expense over four years on a straight-line basis beginning in July 2011. The additional payment is being amortized to selling, general and administrative expense because it precludes Life from initiating litigation under its relevant patents for any alleged prior and future infringement by us for four years, and because such preclusion relates to our equivalent future products. Life elected not to exercise its option.

Litigation settlement expense increased $3.0 million for 2011 as a result of the agreements entered into with Life on June 30, 2011. We had no similar agreement in 2010.

Interest Expense, Interest Income and Other Income and Expense, Net

We receive interest income from our cash and cash equivalents and investments. Conversely, we incur, or have incurred, interest expense from our long-term debt, bank line of credit and convertible promissory notes, and the amortization of debt discounts related to these items. Until the completion of our IPO, we also recognized income or expense as a result of changes in the fair value of outstanding warrants to purchase shares of our convertible preferred stock. The following table presents these items for each period presented (in thousands).

	Year Ended December 31, 2011	Year Ended December 31, 2010
Interest expense	$ (3,101)	$ (2,158)
Loss from changes in the fair value of convertible preferred stock warrants, net	(1,483)	(445)
Gain from expiration of unexercised warrants	765	—
Other income, net	81	357
Deemed dividend related to the change in conversion rate of Series E convertible preferred stock	(9,900)	—

Interest expense increased $0.9 million, or 44%, to $3.1 million for 2011, compared to $2.2 million for 2010. The increase is primarily due to $1.2 million of non-cash interest expense in connection with a $5.0 million note and warrant purchase agreement entered into in January 2011. We repaid all principal and interest outstanding under the notes in February 2011 upon the completion of our IPO. There was no similar transaction or recognition of expense in 2010.

Losses from changes in the fair value of preferred stock warrants increased $1.1 million to $1.5 million for 2011 from $0.4 million for 2010 due to an increase in the warrant liability fair value through the completion of our IPO on February 15, 2011. Upon completion of our IPO, our outstanding preferred stock warrants converted into warrants to purchase common stock or expired unexercised. A portion of the preferred stock warrants that converted into warrants to purchase common stock were net exercised in connection with our IPO. Liabilities related to the expired warrants were reversed and resulted in a gain reflected in other income. Liabilities related to the warrants that were converted into warrants to purchase common stock and warrants that were exercised for common stock were reclassified to additional paid-in-capital.

Other income decreased from $0.4 million in 2010 to $0.1 million for 2011, a decrease of 77%, to primarily due to unfavorable changes in foreign currency exchange gains and losses partially offset by an increase in interest income due to the increase in our cash, cash equivalents and investments during 2011.

Deemed Dividend

In January 2011, we amended and restated our certificate of incorporation to decrease the conversion price of our Series E convertible preferred stock from $24.22 to $18.63 per share. As a result, we recognized a deemed dividend of $9.9 million, reflecting the fair value of the additional shares of common stock to be issued as a result of the change in conversion price of the Series E convertible preferred stock. The deemed dividend increased the net loss attributed to common stockholders in the calculation of basic and diluted net loss per share.

Liquidity and Capital Resources

Sources of Liquidity

As of December 31, 2012, we had $58.6 million of cash and cash equivalents and $25.0 million of short-term and long-term investments. As of December 31, 2012, our working capital totaled $89.6 million. Our

primary source of liquidity has been cash flows from proceeds from our IPO and secondary offering. In February 2011, we completed our IPO which resulted in proceeds to us of approximately $77.0 million, net of underwriting commissions and issuance costs. Following the completion of our IPO, we paid the balance on our bank line of credit of $3.1 million, and paid $5.0 million to satisfy all outstanding principal and interest on the notes we issued in January 2011.

In August 2012, we completed an underwritten public offering which resulted in proceeds to us of approximately $56.0 million, net of underwriting commissions and issuance costs.

In December 2010, we entered into a bank line of credit agreement that was collateralized by our assets, excluding our intellectual property, and provided us the ability to draw up to $7.0 million, subject to certain covenants and restrictions.

In December 2012, we amended our bank line of credit to extend the term for an additional two years that provides us with the ability to borrow up to $10.0 million, of which $6.0 million is available on a non-formula basis, subject to certain covenants and other restrictions. The balance of the $4.0 million of the line of credit is available based on eligible receivables. At December 31, 2012, there was no outstanding balance on the bank line of credit.

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

	Year Ended December 31,		
	2012	2011	2010
Cash flow summary			
Net cash used in operating activities	$(17,478)	$(17,542)	$(11,508)
Net cash provided by (used in) investing activities	14,001	(45,110)	(1,333)
Net cash provided by financing activities	48,521	70,367	3,797
Net increase (decrease) in cash and cash equivalents	45,096	7,830	(8,879)

Net Cash Used in Operating Activities

We derive cash flows from operations primarily from cash collected from the sale of our products, collaboration and license agreements, and grants from certain government entities. Our cash flows from operating activities are also significantly influenced by our use of cash for operating expenses to support the growth of our business. We have historically experienced negative cash flows from operating activities as we have expanded our business and built our infrastructure domestically and internationally and this may continue in the future.

Net cash used in operating activities was $17.5 million, $17.5 million, and $11.5 million in 2012, 2011, and 2010, respectively. Net cash used in operating activities during 2012 primarily consisted of our net loss of $19.0 million and changes in our operating assets and liabilities in the amount of $4.8 million, offset by non-cash expense items, such as stock-based compensation, of $4.1 million, and depreciation and amortization of our property and equipment and license agreement rights of $2.2 million.

Net cash used in operating activities during 2011 primarily consisted of our net loss of $22.5 million and changes in our operating assets and liabilities in the amount of $1.3 million, offset by non-cash expense items, such as stock-based compensation, of $2.8 million, loss from changes in the fair value of convertible preferred stock warrants of $1.5 million, depreciation and amortization of our property and equipment and license agreement rights of $1.4 million, write offs of debt discounts of $1.2 million upon repayment of notes, amortization of debt discounts and issuance cost of $0.2 million, and a gain from extinguishment of convertible preferred stock warrants of $0.8 million.

Net cash used in operating activities of $11.5 million during 2010 primarily consisted of our net loss of $16.9 million, offset by changes in our operating assets and liabilities in the amount of $1.9 million, and non-cash expense items, such as stock-based compensation, of $1.6 million, depreciation and amortization of our property and equipment of $1.1 million, loss from changes in the fair value of convertible preferred stock warrants of $0.4 million, and amortization of debt discounts and issuance cost of $0.4 million.

Net Cash provided by (used in) Investing Activities

Our primary investing activities consisted of purchases, sales and maturities of our short-term and long-term investments and capital expenditures for manufacturing, laboratory and computer equipment and software to support our expanding infrastructure and work force. We expect to continue to expand our manufacturing capability, including improvements in manufacturing productivity, and expect to incur additional costs for capital expenditures related to these efforts in future periods. In addition, 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 growth.

Net cash provided by investing activities was $14.0 million in 2012 and net cash used in investing activities was $45.1 million and $1.3 million in 2011 and 2010, respectively. Net cash provided by investing activities during 2012 primarily consisted of proceeds from sales and maturities of short-term and long-term investments of $51.8 million, partially offset by purchases of investments of $35.4 million and purchases of capital equipment of $2.4 million to support growth in our commercial and manufacturing operations.

We used $45.1 million of cash in investing activities during 2011 primarily consisting of purchases of short-term and long-term investments, net of maturities and sales, of $41.4 million, purchase of capital equipment of $1.7 million to support our infrastructure, including information technology, and manufacturing operations, and license agreement rights under our settlement with Life of $2.0 million.

We used $1.3 million of cash in investing activities during 2010 for purchases of capital equipment to support our infrastructure and manufacturing operations of $1.5 million, partially offset by the release of $0.2 million from restricted cash for a sub-lease that expired and from a lower restricted cash requirement on the new lease for our headquarters facility in South San Francisco, California.

Net Cash Provided by Financing Activities

We generated $48.5 million of cash from financing activities during 2012 primarily from proceeds from our underwritten public offering completed in August 2012 of approximately $56.0 million, net of underwriting commissions and issuance costs, proceeds from the exercise of options to purchase our common stock of $2.7 million, partially offset by repayment of principal on our long-term debt of $10.2 million.

We generated $70.4 million of cash from financing activities during 2011 primarily from proceeds of $77.0 million from our initial public offering, net of underwriting commissions and issuance costs, and proceeds from the exercise of stock options of $1.3 million, partially offset by principal payments on our long-term debt of $4.7 million and repayment of our bank line of credit balance of $3.1 million.

We generated $3.8 million of cash from financing activities during 2010 primarily from proceeds from our line of credit of $3.1 million and proceeds from exercises of preferred stock warrants and stock options of $0.7 million.

Capital Resources

At December 31, 2012, December 31, 2011, and December 31, 2010, our working capital was $89.6 million, $49.9 million, and $2.4 million, respectively, including cash and cash equivalents of $58.6 million, $13.6 million,

and $5.7 million, respectively, and short-term and long-term investments of $25.0 million and $41.4 million at December 31, 2012 and December 31, 2011, respectively. There were no investments at December 31, 2010. In January 2011, we raised $5.0 million through the issuance of subordinated secured promissory notes and warrants to our existing stockholders. In February and March 2011, we repaid the $5.0 million in promissory notes issued by us in January 2011.

Beginning in March 2011, we began making principal payments on our long-term debt, following the end of the interest-only period in February 2011. Commencing in March 2011, monthly payments increased from interest payments of $0.2 million to principal and interest payments of $0.6 million. During 2012, we paid the remaining balance due on our long-term debt. Principal payments on our long-term debt were $10.2 million and $4.7 million in 2012 and 2011, respectively. During 2012, 2011, and 2010, our capital expenditures were $2.4 million, $1.7 million, and $1.5 million, respectively. We are estimating capital expenditures to be higher in 2013 primarily to continue our improvements in manufacturing productivity, sales demonstration and loaner equipment to service the growth in our global customer base, and computer equipment and software to support our growth.

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 expand the commercialization of our products, expand and 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. We currently have no commitments or agreements relating to any such 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 may experience dilution. Debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt or additional 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, or delay, reduce the scope of or eliminate some or all of our development programs. 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 or cease operations.

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, 2012 (in thousands):

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	Thereafter
Operating lease obligations	$3,027	$ 1,482	$1,545	$ —	$ —
Purchase obligations	3,876	3,876	—	—	—
Total	$6,903	$ 5,358	$1,545	$ —	$ —

Our operating lease obligations relate to a lease for our current headquarters and leases for office space for our foreign subsidiaries. Purchase obligations consist of contractual and legally binding commitments to purchase goods.

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. If we elect to maintain these license agreements, we will pay aggregate annual fees of approximately $0.4 million per year until 2031. 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.

On March 7, 2003, we entered into a Master Closing Agreement with Oculus Pharmaceuticals, Inc. and the UAB Research Foundation, or UAB, related to certain intellectual property and technology rights licensed by us from UAB. Pursuant to the agreement, we are obligated to issue to UAB shares of our common stock with a value equal to $1.5 million upon the achievement of a certain milestone and based upon the fair market value of our common stock at the time the milestone is achieved. We currently do not anticipate achieving this milestone in the foreseeable future and do not anticipate issuing these shares.

In September 2010, we entered into a new lease for our headquarters in South San Francisco, California. The new lease expires in April 2015 and includes a renewal option for an additional three years. We received a $0.4 million lease incentive which is being recognized as a reduction of rent expense on a straight-line basis over the term of the new lease.

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 substantial 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 where our manufacturing facility is located. Our results of operations and cash flows are, therefore, subject to fluctuations due to changes in foreign currency exchange rates. Fluctuations in currency exchange rates could harm our business in the future. The effect of a 10% adverse change in exchange rates on foreign currency denominated cash, receivables and payables as of December 31, 2012 and December 31, 2011 would not have been material.

To date, we have not entered into any material foreign currency hedging contracts although we may do so in the future.

Interest Rate Sensitivity

We had cash and cash equivalents of $58.6 million at December 31, 2012. These amounts were held primarily in cash on deposit with banks, money market funds, and U.S. government agency securities, which are short-term. We had $25.0 million in investments at December 31, 2012 held primarily in U.S. government agency securities. The contractual maturity periods of $22.9 million of our investments are within one year from December 31, 2012. The contractual maturity periods of our remaining investments are less than two years. 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.

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ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Fluidigm Corporation

We have audited the accompanying consolidated balance sheets of Fluidigm Corporation as of December 31, 2012 and 2011, and the related consolidated statements of operations, comprehensive loss, convertible preferred stock and stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2012. Our audits also included the financial statement schedule listed in the Index at Item 15(2). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Fluidigm Corporation at December 31, 2012 and 2011, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2012, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Fluidigm Corporation's internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 12, 2013 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Redwood City, California
March 12, 2013

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Fluidigm Corporation

We have audited Fluidigm Corporation's internal control over financial reporting as of December 31, 2012, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). Fluidigm Corporation's management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

In our opinion, Fluidigm Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Fluidigm Corporation as of December 31, 2012 and 2011, and the related consolidated statements of operations, comprehensive loss, convertible preferred stock and stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2012 of Fluidigm Corporation and our report dated March 12, 2013 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Redwood City, California
March 12, 2013

FLUIDIGM CORPORATION

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

	December 31, 2012	December 31, 2011
ASSETS		
Current assets:		
Cash and cash equivalents	$ 58,649	$ 13,553
Short-term investments	21,362	39,914
Accounts receivable (net of allowances of $448 and $366 at December 31, 2012 and 2011, respectively)	12,900	9,253
Inventories	7,169	5,970
Prepaid expenses and other current assets	1,131	1,343
Total current assets	101,211	70,033
Long-term investments	3,666	1,500
Property and equipment, net	4,974	3,256
Other non-current assets	3,881	4,537
Total assets	$ 113,732	$ 79,326
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,555	$ 4,010
Accrued compensation and related benefits	2,877	2,442
Other accrued liabilities	4,279	2,787
Deferred revenue, current portion	1,886	2,011
Long-term debt, current portion	0	8,921
Total current liabilities	11,597	20,171
Long-term debt, net of current portion	0	1,217
Deferred revenue, net of current portion	1,241	667
Other non-current liabilities	237	374
Total liabilities	13,075	22,429
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.001 par value, 10,000 shares authorized, no shares issued and outstanding at December 31, 2012 and 2011, respectively	0	0
Common stock: $0.001 par value, 200,000 shares authorized at December 31, 2012 and 2011; 25,115 and 20,321 shares issued and outstanding at December 31, 2012 and 2011, respectively	25	20
Additional paid-in capital	342,222	279,428
Accumulated other comprehensive loss	(769)	(754)
Accumulated deficit	(240,821)	(221,797)
Total stockholders' equity	100,657	56,897
Total liabilities and stockholders' equity	$ 113,732	$ 79,326

See accompanying notes.

FLUIDIGM CORPORATION

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

	Year Ended December 31,		
	2012	2011	2010
Revenue:			
Product revenue	$ 51,488	$ 40,581	$ 30,462
License and collaboration revenue	185	1,716	1,625
Grant revenue	661	568	1,473
Total revenue	52,334	42,865	33,560
Costs and expenses:			
Cost of product revenue	15,325	13,191	11,581
Research and development	16,602	13,936	13,007
Selling, general and administrative	38,478	31,304	23,545
Litigation settlement	0	3,000	0
Total costs and expenses	70,405	61,431	48,133
Loss from operations	(18,071)	(18,566)	(14,573)
Interest expense	(628)	(3,101)	(2,158)
Loss from changes in the fair value of convertible preferred stock warrants, net	0	(1,483)	(445)
Gain from extinguishment of convertible preferred stock warrants	0	765	0
Other (expense) income, net	(189)	81	357
Loss before income taxes	(18,888)	(22,304)	(16,819)
Provision for income taxes	(136)	(166)	(83)
Net loss	(19,024)	(22,470)	(16,902)
Deemed dividend related to the change in conversion rate of Series E convertible preferred stock	0	(9,900)	0
Net loss attributed to common stockholders	$(19,024)	$(32,370)	$(16,902)
Net loss per share attributed to common stockholders, basic and diluted	$ (0.86)	$ (1.81)	$ (8.94)
Shares used in computing net loss per share attributed to common stockholders, basic and diluted	22,136	17,847	1,890

See accompanying notes.

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31,		
	2012	2011	2010
Net loss	$(19,024)	$(22,470)	$(16,902)
Other comprehensive loss, net of tax			
Foreign currency translation adjustment	(19)	10	(274)
Unrealized gain on investments, net	4	14	0
Other comprehensive income (loss)	(15)	24	(274)
Comprehensive loss	$(19,039)	$(22,446)	$(17,176)

See accompanying notes.

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(In thousands, except per share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2009	10,239	$ 183,845	1,862	$ 2	$ 9,308	$ (504)	$ (182,425)	$ (173,619)
Issuance of common stock upon exercise of stock options for cash and for vesting of stock options that were exercised early	0	0	18	0	42	0	0	42
Stock-based compensation expense	0	0	0	0	1,586	0	0	1,586
Issuance of Series E-1 convertible preferred stock in connection with warrant amendment and related exercise of convertible preferred stock warrants, net of issuance costs of $66	57	705	0	0	0	0	0	0
Issuance of common stock upon exercise of convertible preferred stock warrants	0	0	57	0	0	0	0	0
Net loss	0	0	0	0	0	0	(16,902)	(16,902)
Other comprehensive loss	0	0	0	0	0	(274)	0	(274)
Balance as of December 31, 2010	10,296	$ 184,550	1,937	$ 2	$ 10,936	$ (778)	$ (199,327)	$ (189,167)

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)—(Continued)

(In thousands, except per share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2010	10,296	$ 184,550	1,937	$ 2	$ 10,936	$ (778)	$ (199,327)	$ (189,167)
Issuance of common stock from initial public offering, net of issuance costs of $9,346	0	0	6,392	6	76,940	0	0	76,946
Change in conversion rate of Series E convertible preferred stock	0	9,900	0	0	(9,900)	0	0	(9,900)
Conversion of convertible preferred stock into common stock at initial public offering	(10,296)	(194,450)	11,480	12	194,438	0	0	194,450
Issuance of common stock upon exercise of warrants	0	0	174	0	1,392	0	0	1,392
Conversion of warrants from warrants for preferred stock to warrants for common stock	0	0	0	0	1,535	0	0	1,535
Issuance of common stock upon exercise of stock options for cash and for vesting of stock options that were early exercised	0	0	338	0	1,288	0	0	1,288
Stock-based compensation expense	0	0	0	0	2,799	0	0	2,799
Net loss	0	0	0	0	0	0	(22,470)	(22,470)
Other comprehensive loss	0	0	0	0	0	24	0	24
Balance as of December 31, 2011	0	$ 0	20,321	$ 20	$ 279,428	$ (754)	$ (221,797)	$ 56,897

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)—(Continued)

(In thousands, except per share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2011	0	$ 0	20,321	$ 20	$279,428	$ (754)	$ (221,797)	$ 56,897
Issuance of common stock, net of issuance costs of $3,970	0	0	4,209	4	56,004	0	0	56,008
Issuance of common stock upon exercise of stock options for cash	0	0	585	1	2,702	0	0	2,703
Stock-based compensation expense	0	0	0	0	4,088	0	0	4,088
Net loss	0	0	0	0	0	0	(19,024)	(19,024)
Other comprehensive loss	0	0	0	0	0	(15)	0	(15)
Balance as of December 31, 2012	0	$ 0	25,115	$ 25	$342,222	$ (769)	$ (240,821)	$ 100,657

See accompanying notes.

FLUIDIGM CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2012	2011	2010
Operating activities			
Net loss	$(19,024)	$ (22,470)	$(16,902)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	2,139	1,410	1,140
Stock-based compensation expense	4,088	2,799	1,586
Loss from changes in the fair value of convertible preferred stock warrants, net	0	1,483	445
Loss (gain) on disposal of property and equipment	26	0	(10)
Gain from extinguishment of convertible preferred stock warrants	0	(765)	0
Write-off of debt discount upon note repayment	0	1,157	0
Amortization of debt discount and issuance cost	52	182	364
Changes in assets and liabilities:			
Accounts receivable	(3,702)	(1,222)	209
Inventories	(1,682)	(1,077)	(961)
Prepaid expenses and other assets	201	(471)	(1,013)
Accounts payable	(1,815)	540	932
Deferred revenue	449	916	746
Other liabilities	1,790	(24)	1,956
Net cash used in operating activities	(17,478)	(17,542)	(11,508)
Investing activities			
Purchases of investments	(35,385)	(71,379)	0
Proceeds from sales and maturities of investments	51,770	29,966	0
Purchases of property and equipment	(2,384)	(1,676)	(1,539)
License agreement rights	0	(2,000)	0
Proceeds from disposal of property and equipment	0	0	10
(Increase) decrease in restricted cash	0	(21)	196
Net cash provided by (used in) investing activities	14,001	(45,110)	(1,333)
Financing activities			
Proceeds from issuance of common stock, net of issuance costs	56,008	76,946	0
Proceeds from exercise of stock options	2,703	1,288	39
Proceeds from exercise of convertible preferred stock warrants and issuance of convertible preferred stock, net of issuance costs	0	0	633
Proceeds from note	0	5,000	0
Repayment of note	0	(5,000)	0
Repayment of long-term debt	(10,190)	(4,742)	0
Proceeds from line of credit	1,875	0	3,125
Repayment of line of credit	(1,875)	(3,125)	0
Net cash provided by financing activities	48,521	70,367	3,797
Effect of foreign exchange rate fluctuations on cash and cash equivalents	52	115	165
Net increase (decrease) in cash and cash equivalents	45,096	7,830	(8,879)
Cash and cash equivalents at beginning of period	13,553	5,723	14,602
Cash and cash equivalents at end of period	$ 58,649	$ 13,553	$ 5,723
Supplemental disclosures of cash flow information			
Cash paid for interest	$ 579	$ 1,715	$ 1,771
Non-cash investing and financing activities			
Conversion of convertible preferred stock to common stock upon initial public offering	$ 0	$184,550	$ 0
Conversion of convertible preferred stock warrants to common stock warrants	$ 0	$ 1,535	$ 0
Issuance of convertible preferred stock warrants in connection with note and warrant agreement and long-term debt	$ 0	$ 1,157	$ 63
Issuance of common stock in connection with net exercise of convertible preferred stock warrants	$ 0	$ 1,392	$ 0
Extinguishment of convertible preferred stock warrants upon initial public offering	$ 0	$ 765	$ 0
Extinguishment of convertible preferred stock warrants as part of preferred stock warrant exchange and exercise	$ 0	$ 0	$ 72

See accompanying notes.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2012

1. Description of Business

Fluidigm Corporation (we, our, or us) was incorporated in the state of California on May 19, 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 develop, manufacture, and market microfluidic systems consisting of instruments and consumables, including integrated fluidic circuits (IFCs), assays, and other reagents, to leading academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and agricultural biotechnology (Ag-Bio) companies. Our proprietary microfluidic systems are designed to simplify experimental workflow, increase throughput, reduce costs, and provide quality data.

Initial Public Offering

On February 9, 2011, our registration statement on Form S-1 relating to an initial public offering (IPO) of our common stock was declared effective by the Securities and Exchange Commission (SEC). Upon the closing of the IPO on February 15, 2011, we sold 6,392,083 shares of common stock and received cash proceeds of approximately $77.0 million, net of underwriting commissions and issuance costs. Concurrently, all outstanding shares of convertible preferred stock converted by their terms into approximately 11,480,000 shares of common stock and the related carrying value of approximately $184.6 million, plus $9.9 million of deemed dividend (see Note 2), was reclassified to common stock and additional paid-in capital.

Secondary Offering

On August 21, 2012, we closed an underwritten public offering of 4,209,000 shares of our common stock and received cash proceeds of approximately $56.0 million, net of underwriting commissions and issuance costs. The shares were issued pursuant to a registration statement on Form S-3 declared effective by the SEC on May 10, 2012.

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 (US GAAP) and include the accounts of our wholly-owned subsidiaries. We have wholly-owned subsidiaries in Singapore, the Netherlands, Japan, France, the United Kingdom, and China. 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.

Amended and Restated Certificate of Incorporation

In February 2011, we amended and restated our Certificate of Incorporation to increase the total number of shares of stock authorized for issuance from 29,595,999 to 210,000,000, consisting of an increase in the number of shares of common stock authorized for issuance from 18,327,000 to 200,000,000 and a decrease in the number of shares of preferred stock authorized for issuance from 11,268,999 to 10,000,000.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

In January 2011, we amended and restated our Certificate of Incorporation to decrease the conversion price of our Series E convertible preferred stock from $24.22 to $18.63 per share. As a result, we recognized a deemed dividend of $9.9 million, reflecting the fair value of the additional shares of common stock to be issued as a result of the change in conversion price of the Series E convertible preferred stock. The deemed dividend increased the net loss attributed to common stockholders in the calculation of basic and diluted net loss per share.

Use of Estimates

The preparation of financial statements in accordance with US 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.

Reclassifications

Certain items previously reported in the consolidated statement of cash flows have been reclassified to conform to the current period presentation. Such reclassifications do not impact previously reported net cash used in operating activities, net cash used in investing activities, net cash provided by financing activities, or net increase in cash and cash equivalents.

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 (deficit). Income and expense accounts are translated at monthly average exchange rates during the year. Transaction gains and losses have not been material.

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 (deficit). We evaluate our investments to assess whether investments with unrealized loss positions are other than temporarily impaired. An investment is considered to be other than temporarily impaired if the impairment is related to deterioration in credit risk or if it is likely that we will sell the securities before the recovery of their cost basis. No investment has been assessed as other than temporarily impaired, 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.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

Fair Value of Financial Instruments

Our financial instruments consist primarily of cash and cash equivalents, investments, accounts receivable, accounts payable, and long-term debt. Our cash equivalents, investments, accounts receivable, and accounts payable have short maturity or repayment periods. Accordingly, their carrying values approximated their fair values at December 31, 2012 and 2011. Our long-term debt, which was fully repaid in September 2012, had a fair value of approximately $10.6 million at December 31, 2011. The fair value of our long-term debt was determined using a model that discounted the contractual cash flows based upon a market rate of interest for an equivalent borrowing at the reporting date. 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 in 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 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. Our convertible preferred stock warrants were valued using Level III inputs, the valuation of which is discussed in Note 9.

The following table sets forth our financial instruments that were measured at fair value by level within the fair value hierarchy (in thousands):

	December 31, 2012				December 31, 2011			
	Level I	Level II	Level III	Total	Level I	Level II	Level III	Total
Assets								
Money market funds (See Note 4)	$ 17	$ 0	$ 0	$ 17	$1,799	$ 0	$ 0	$ 1,799
U.S. government and agency securities	0	26,579	0	26,579	0	41,414	0	41,414
Total assets measured at fair value	$ 17	$26,579	$ 0	$26,596	$1,799	$41,414	$ 0	$43,213

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

Upon the closing of our IPO, then outstanding convertible preferred stock warrants were net exercised, converted into warrants to purchase common stock, or expired unexercised. We did not have any outstanding convertible preferred stock warrants in 2012. Changes in the value of convertible preferred stock warrants as of December 31, 2011 were as follows (in thousands):

Balance, beginning of period	$ 1,052
Issuances	1,157
Exercises	(1,392)
Changes in fair value	1,483
Expiration of warrants	(765)
Conversion to common stock warrants	(1,535)
Balance, end of period	$ 0

The following is a summary of investments and cash equivalents at December 31, 2012 (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
U.S. government and agency securities	$ 26,575	$ 8	$ (4)	$ 26,579

The contractual maturity periods of $22.9 million of our investments are within one year from December 31, 2012. The contractual maturity periods of our remaining securities are less than two years from December 31, 2012.

Accounts Receivable

Trade accounts receivable are recorded at net invoice value. We review our exposure to accounts receivable and reserve specific amounts if collectability is no longer reasonably assured based on historical experience and specific customer collection issues. We evaluate such reserves on a regular basis and adjust our reserves 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: preservation of 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 2012, 2011, or 2010, and no single customer represented more than 10% of total accounts receivable at December 31, 2012, or 2011.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

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 market. Inventories include raw materials, work-in-process, and finished goods. Finished goods that are used for research and development are expensed as consumed or depreciated over 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

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, which range from three to five years. 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.

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

We have a minority equity investment in Verinata Health, Inc. (Verinata), a privately-held company, that is accounted for under the cost method of accounting. Under the cost method of accounting, the investment is carried at cost and is adjusted only for other than temporary declines in value. No such declines have been identified and the carrying value of the investment at December 31, 2012 was $1.3 million.

In January 2013, Illumina, Inc. entered into an agreement to acquire Verinata for $350 million in cash. Based upon this acquisition agreement, which closed on February 21, 2013, we estimated the fair value of our investment to be $3.1 million at December 31, 2012. Illumina, Inc. also agreed to pay an additional $100 million to Verinata shareholders upon achievement of milestones related to the acquired business through 2015; however, we did not factor these milestones into our determination of fair value since we do not have the ability to assess the probability or timing of any payments therefrom. The fair value of this investment was measured using Level II inputs.

Reserve for Product Warranties

We generally provide a one-year warranty on our instruments. We review our exposure to estimated warranty expense associated with instrument sales and establish an accrual based on historical product failure

rates and actual warranty costs incurred. This expense is recorded as a component of cost of product revenue in the consolidated statements of operations. Warranty accrual balance was $0.3 million at December 31, 2012 and 2011.

Revenue Recognition

We generate revenue from sales of our products, license and collaboration agreements, and government grants. Our products consist of instruments and consumables, including IFCs, assays, and other reagents, related to our microfluidic systems. Product revenue includes services for instrument installation, training, and customer support services.

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.

Product Revenue

Certain of our sales contracts involve the delivery of multiple products and services within contractually binding arrangements. 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 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, other than service contracts, are delivered within a short time frame, generally within one to three months, of the contract date. Service contracts are entered into for one to two-year terms, following the expiration of the warranty period.

For transactions entered into prior to 2011 that included multiple elements, we allocated revenue to each unit of accounting based on its relative fair value, and recognized revenue for each unit of accounting when the applicable revenue recognition criteria were met. When objective and reliable evidence of fair value existed for the undelivered items but not for the delivered items, the residual method was used to allocate arrangement consideration. Under the residual method, the amount of arrangement consideration allocated to the delivered items equaled the total arrangement consideration less the aggregate fair value of the undelivered items. When we were unable to establish stand-alone value for delivered items or when fair value of undelivered items had not been established, revenue was deferred until all elements were delivered and services had been performed, or until fair value could objectively be determined for any remaining undelivered elements.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

Our products are sold without the right of return. Accruals are provided for estimated warranty expenses at the time the associated revenue is recognized. Amounts received before revenue recognition criteria are met are classified as deferred revenue in the consolidated balance sheets.

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.

Collaboration Revenue

We have entered into collaboration agreements with third parties that provided us with up-front and periodic milestone payments. Upfront payments are generally recognized over the term of the underlying agreement. Revenue associated with substantive at-risk milestones is recognized based upon the achievement of the milestones as defined in the agreement.

Grant Revenue

We receive grants from various governmental entities for research and related activities. Grants provide us with payments for certain types of research and development activities performed over a contractually defined period. Grant revenue is recognized in the period during which the related costs are incurred, provided that the conditions under which the grants were provided have been met and we have only perfunctory obligations outstanding. Amounts received in advance of revenue recognition are classified as deferred revenue in the consolidated balance sheets. Costs associated with grants are included in research and development expenses in the consolidated statements of operations.

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 $1.3 million, $0.7 million, and $0.5 million during 2012, 2011, and 2010, respectively.

Income Taxes

We use the asset and liability method to account for income taxes, whereby deferred income taxes reflect the impact of temporary differences for items recognized for financial reporting purposes over different periods than for income tax purposes. Valuation allowances are provided when the expected realization of deferred tax assets does not meet a “more likely than not” criterion.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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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 income tax provision.

Stock-Based Compensation

We account for stock options granted to employees, directors, and consultants based on the fair value of the award. We recognize stock-based compensation expense on a straight-line basis over the requisite service periods. For performance-based stock options, we recognize stock-based compensation expense over the requisite service period using the accelerated attribution method.

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.

Net Loss per Share Attributed to Common Stockholders

Our basic net loss per share attributed to common stockholders is calculated by dividing net loss attributed to common stockholders by the weighted-average number of shares of common stock outstanding for the period. Shares subject to repurchase rights due to the early exercise of unvested stock options are excluded from the weighted-average number of shares of common stock calculation, as such shares are not deemed to be issued for accounting purposes until the repurchase rights lapse. Diluted net loss per share attributed to common stockholders is computed by dividing net loss attributed to common stockholders by the weighted-average number of potential common shares outstanding for the period as determined using the treasury-stock method. For purposes of this calculation, convertible preferred stock, options to purchase common stock, and warrants to purchase convertible preferred stock are excluded from the calculation of diluted net loss per share attributed to common stockholders, as their effect is anti-dilutive for all periods presented.

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

	December 31,		
	2012	2011	2010
Convertible preferred stock	0	0	10,296
Options to purchase common stock	2,945	2,491	1,776
Warrants to purchase convertible preferred stock	0	0	387

3. License, Development, Collaboration, and Grant Agreements

License Agreements

On June 30, 2011, we settled certain litigation and entered into a series of patent license agreements with Life Technologies Corporation and its subsidiary, Applied Biosystems, LLC (collectively, Life). These

agreements settled litigation filed by us against Life on June 29, 2011 in United States District Court for the Northern District of California and litigation filed by Life against us on June 29, 2011 in United States District Court for the District of Delaware. The agreements resulted in a net $3.0 million payment by us to Life, which was recognized as a litigation settlement expense in our consolidated statement of operations because the amount paid by us was principally attributable to resolving Life's litigation claims with respect to a specific expiring U.S. patent and its foreign counterparts. The agreements also provide for various royalty payments on future sales of certain products by each of the parties. Such royalty payments or receipts have not been and are not expected to be material to us.

Under the terms of the agreements, each party had the option, exercisable for 30 days from the date of the agreements, to limit or preclude certain patent litigation between the parties for a period of two to four years. These rights were subject to certain exceptions and required an additional payment by the party exercising the option at the time of exercise. In July 2011, we exercised our option and paid Life $2.0 million. As a result, subject to certain exceptions, Life may not initiate litigation under its patents existing as of June 30, 2011 against our customers for a period of two years, and against us, with respect to its current products and equivalent future products, for a period of four years. The additional payment was included in other assets and is being amortized to selling, general and administrative expense over four years on a straight-line basis beginning in July 2011. The additional payment is being amortized to selling, general and administrative expense because it precludes Life from initiating litigation for a period of four years under its relevant patents for any alleged prior and future infringement by us, and because such preclusion relates to our equivalent future products. Life elected not to exercise its option. We recognized $0.5 million and $0.3 million of amortization expense during 2012 and 2011, respectively.

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 products. We recognized $0.3 million and $0.1 million in cost of product revenue during 2012 and 2011, respectively. Our future royalty payments are not expected to be material.

In March 2003, we entered into a license agreement to obtain an exclusive worldwide license for certain technology regarding nanovolume crystallization arrays. Unless canceled by us with 30 days' notice, as may be determined by us in our sole discretion, the license terminates at the end of the life of the last licensed patent to expire. Under the terms of this agreement, we are obligated to issue $1.5 million worth of shares of our common stock if a certain milestone is achieved. As of December 31, 2012, the milestone has not been achieved.

In December 2003, we entered into a license agreement to obtain a nonexclusive worldwide license for certain technology regarding submicroliter protein crystallization. We made quarterly payments in the amount of $25,000 through December 31, 2010 that were recorded as research and development expense. In March 2011, we terminated the license agreement.

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Collaboration Agreement

In May 2010, we entered into a collaboration agreement with Novartis Vaccines & Diagnostics, Inc. (Novartis V&D) to develop a new product and received an up-front payment of $0.7 million. Additionally, the collaboration agreement provided for payments to us upon the achievement of multiple defined milestones related to the design and development of product prototypes. The agreement set forth a detailed scope of work, tasks, and metrics for each milestone. These product prototypes had not been previously produced by us and the achievement of these and other future milestones was uncertain at the time we entered into the collaboration agreement. We considered each of the milestones to be substantive and, accordingly, we recognized payments received from meeting such milestones as revenue, when each milestone was achieved.

In March 2011, we entered into an amendment to the collaboration agreement and received an additional $0.3 million. Under the amendment, certain milestones were modified and payment terms related to this agreement associated with satisfaction of the milestones were revised.

During 2011 and 2010, we recognized $1.0 million and $1.3 million, respectively, of milestone revenue related to this agreement. All our performance obligations under this agreement were satisfied at December 31, 2011 and there are no other agreements with potential future milestone. The collaboration agreement terminated in accordance with its terms, effective May 1, 2012.

Grants

California Institute for Regenerative Medicine

In April 2009, we were awarded a grant from the California Institute for Regenerative Medicine (CIRM) in the amount of $0.8 million to be earned over a two-year period. Under this grant, we designed and developed prototype microfluidic systems for use in stem cell research. The final payment under this grant was received in September 2011. In May 2011, we were awarded a second grant from CIRM in the amount of $1.9 million to be earned over a three-year period. Under this grant, we continue to design and develop prototype microfluidic systems for use in stem cell research. The CIRM grant revenue is recognized as the related research and development services are performed and costs associated with this grant were recognized as research and development expense during the period incurred. During 2012 and 2011, we recognized total CIRM grant revenue of $0.6 million and $0.5 million, respectively.

Singapore Economic Development Board

In October 2005, we entered into a letter agreement providing for up to SG$10.0 million (approximately US$8.2 million using the December 31, 2012 exchange rate) in grants from the Singapore Economic Development Board (EDB). The grants were payable from August 1, 2005 through July 31, 2010 in connection with the establishment and operation by Fluidigm Singapore Pte Ltd. (Fluidigm Singapore), our wholly-owned subsidiary, of a research, development, and manufacturing center for IFCs in Singapore. In January 2006, Fluidigm Singapore and EDB entered into a supplement to the October 2005 letter agreement to create a process whereby Fluidigm Singapore and EDB would agree on new quarterly development targets at the start of each year. Grant payments were calculated as a portion of qualifying expenses incurred in Singapore relating to salaries, overhead, outsourcing and subcontracting expenses, operating expenses, and raw material purchases. In July 2010, Fluidigm Singapore submitted its final progress report and evidence of achievement of its development targets under the letter agreement. In October 2010, we received confirmation from EDB that all of our obligations under the letter agreement had been met and, received our final grant payment.

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In February 2007, Fluidigm Singapore entered into a second letter agreement with EDB which provided for up to an additional SG$3.7 million (approximately US$3.0 million using the December 31, 2012 exchange rate) in grants. The terms and conditions of this letter agreement are substantially the same as the October 2005 letter agreement with the exception of the size of the potential grant, the term of the agreement, and the specific levels of research, development, and manufacturing activities required to maintain eligibility for such grants. The primary focus of this letter agreement was the ongoing development and manufacture in Singapore of certain instrumentation. This letter agreement applied to research, development, and manufacturing activity by Fluidigm Singapore in Singapore from June 1, 2006 through May 31, 2011. We believe that all of our obligations under the letter agreement have been met. We received our final grant payment under the letter agreement in July 2011.

Fluidigm Singapore's continued eligibility for grants from the EDB is subject to its compliance with the following conditions: increasing levels of research; continuing development and manufacturing activity in Singapore, including employment of specified numbers of research scientists and engineers; its incurrence of specified levels of research and development expenses in Singapore over the course of each calendar year; its use of local service providers; its manufacture in Singapore of the products developed in Singapore; and its achievement of certain targets relating to new product development or completion of specific manufacturing process objectives. These required levels of research, development, and manufacturing activity in Singapore, and the associated increases from one year to the next, are the result of negotiations between the parties and are generally consistent with our business strategy for our Singapore operations. All ownership rights in the intellectual property developed by us in Singapore remain with Fluidigm Singapore, and no such rights are conveyed to EDB under the agreements.

These agreements further provided EDB with the right to demand repayment of a portion of past grants in the event we did not meet our obligations under the agreements. Based on correspondence with EDB, we believe that we have fulfilled our obligations under the grants and will, therefore, not have to repay any of the grant proceeds received through December 31, 2011.

We recognized revenue of $46,000 and $1.1 million related to EDB grants during 2011 and 2010, respectively.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

4. Balance Sheet Data

Cash and Cash Equivalents

The following are summaries of cash and cash equivalents (in thousands):

	Amortized Cost and Estimated Fair Value
As of December 31, 2012:	
Cash	$ 57,082
U.S. government and agency security	1,550
Money market funds	17
	$ 58,649
As of December 31, 2011:	
Cash	$ 11,754
Money market funds	1,799
	$ 13,553

Inventories

Inventories consist of the following (in thousands) as of:

	December 31, 2012	December 31, 2011
Raw Materials	$ 2,846	$ 2,396
Work-in-process	1,369	1,009
Finished Goods	2,954	2,565
	$ 7,169	$ 5,970

Property and Equipment

Property and equipment consists of the following (in thousands) as of:

	December 31, 2012	December 31, 2011
Computer equipment and software	$ 2,373	$ 1,675
Laboratory and manufacturing equipment	12,845	10,726
Leasehold improvements	991	988
Office furniture and fixtures	577	491
	16,786	13,880
Less accumulated depreciation and amortization	(12,953)	(11,583)
Construction-in-progress	1,141	959
Property and equipment, net	$ 4,974	$ 3,256

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

5. Long-Term Debt

We entered into a long-term loan agreement in March 2005 that was subsequently amended in 2006, 2008, 2009, and 2010 (as amended, the Loan Agreement). In connection with the Loan Agreement, we issued warrants to purchase a total of 209,960 shares of our convertible preferred stock to the lender. Upon the closing of our IPO in February 2011, the warrants to purchase 209,960 shares of our convertible preferred stock that were held by the lender were converted to warrants to purchase shares of common stock. In July 2011, the lender net exercised these warrants at an exercise price of $12.11 per share and was issued 70,731 shares of common stock.

Commencing in March 2011, we made principal and interest payments of $0.6 million per month and, as required under the Loan Agreement, we made an additional principal payment of $2.3 million in March 2012. Using the effective interest method, a majority of the March 2012 payment was accrued as interest expense in periods prior to 2010 with the remainder being recognized through the maturity date. In June 2012, we elected to make an additional principal payment in the amount of $1.9 million using proceeds from our Line of Credit (see Note 6) and we paid the remaining balance due of $2.1 million in September 2012.

6. Line of Credit

In December 2010, we entered into a two-year bank line of credit agreement (as amended, the Line of Credit) that provided us with the ability to borrow up to $7.0 million, subject to certain covenants and other restrictions, and bore interest at a rate equal to the greater of (i) 4.25% or (ii) the prime rate plus 1.00% per year. In December 2012, the Line of Credit was amended to extend the term for an additional two years and provide us with the ability to borrow up to $10.0 million, of which $6.0 million is available on a non-formula basis, subject to certain covenants and other restrictions. The balance of $4.0 million is available based on eligible receivables. The Line of Credit is collateralized by our assets, excluding our intellectual property, and bears interest at a rate equal to the greater of (i) 3.75% or (ii) the prime rate plus 0.50% per year. At December 31, 2012, there was no outstanding balance on the Line of Credit and we were in compliance with all applicable covenants.

7. Commitments and Contingencies

Operating Leases

We have entered into various long-term non-cancelable operating leases for equipment and facilities. Our lease for our headquarters in South San Francisco, California, expires in April 2015. The lease agreement includes a renewal option that provides us with the ability to extend the lease term for an additional three years. Upon entering into this agreement in September 2010, we received a $0.4 million lease incentive payment that is being recognized as a reduction of rent expense on a straight-line basis over the term of the lease. We also lease office and manufacturing space under non-cancelable leases in Singapore, Japan, China, and France, with various expiration dates through March 2016. Certain facility leases also contain rent escalation clauses. We also have operating leases for office equipment, with various expiration dates through November 2015. Future minimum lease payments under non-cancelable operating leases as of December 31, 2012 are as follows (in thousands):

Years ending December 31:	
2013	$1,482
2014	1,155
2015	377
2016	13
Total minimum payments	$3,027

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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Our lease payments are expensed on a straight-line basis over the life of the lease. Rental expense under operating leases, net of amortization of lease incentive, totaled $1.9 million, $1.6 million, and $1.9 million for 2012, 2011, and 2010, respectively.

Other Commitments

In the normal course of business, we enter into various contractual and legally binding purchase commitments primarily related to certain inventory related items. As of December 31, 2012, these commitments for the next year were approximately $3.9 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 and directors. We have not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. As of December 31, 2012, we had no accrued liabilities for these indemnification provisions.

Contingencies

From time to time, we may be subject to various legal proceedings and claims arising in the ordinary course of business. We assess contingencies to determine the degree of probability and range of possible loss for potential accrual in our financial statements. An estimated loss contingency is accrued in the financial statements if it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. No such amounts are accrued at December 31, 2012.

8. Promissory Notes

Note and Warrant Purchase Agreement

In January 2011, we entered into a note and warrant purchase agreement (the Note Agreement) with existing stockholders, including certain of our officers and directors, under which we issued subordinated secured promissory notes (the Notes) with an aggregate principal amount of $5.0 million bearing interest at a rate of 8% per year. Our obligations under the Notes were secured by our assets, excluding intellectual property, and were subordinated to senior indebtedness under the Loan Agreement (see Note 5) and the Line of Credit (see Note 6). Notes issued under the Note Agreement matured on the earliest to occur of the closing of the next financing in which we issued and sold shares of capital stock of at least $25.0 million, a change of control as defined in the Note Agreement, or January 6, 2012 (the maturity date). In connection with the Note Agreement, we issued warrants to acquire a total of 103,182 shares of Series E-1 convertible preferred stock at $0.02 per share. The fair value of these warrants, based on a contemporaneous valuation, was $1.2 million and was

recognized as an original issue discount amortizable over the expected life of the borrowing. As a result of our IPO in February 2011, the warrants were net exercised for 103,182 shares of our common stock and we repaid all principal and interest outstanding under these Notes in February and March 2011. Upon repayment of the Notes, the unamortized discount of $1.2 million was immediately recognized as interest expense.

9. Convertible Preferred Stock Warrants

On February 10, 2011, we had outstanding warrants to purchase 489,880 shares of our convertible preferred stock that had been granted at various times since 2001. Warrants to purchase our convertible preferred stock were recognized at fair value using the Black-Scholes option pricing model and classified as liabilities because the warrants may have conditionally obligated us to transfer assets at some point in the future. The warrants were subject to remeasurement to fair value at each balance sheet date, and any change in fair value was recognized in the condensed consolidated statements of operations as loss from changes in the fair value of convertible preferred stock warrants. The fair value of these warrants was approximately $3.7 million at February 10, 2011, which was an increase in fair value of approximately $1.5 million since December 31, 2010. Upon the closing of our IPO, warrants for approximately 103,182 shares of our convertible preferred stock were net exercised and the related liability of $1.4 million was reclassified to additional paid-in capital; warrants to purchase 209,960 shares of our convertible preferred stock were converted into warrants to purchase common stock and the related liability of $1.5 million was reclassified to additional paid-in capital; and the remaining warrants to purchase 176,738 shares of our convertible preferred stock expired unexercised and the related liability of $0.8 million was recognized as gain from extinguishment of convertible preferred stock warrants.

10. Convertible Preferred Stock

As of December 31, 2011, there were no shares of convertible preferred stock issued or outstanding as all shares of preferred stock converted to shares of common stock upon completion of our IPO. All outstanding shares of convertible preferred stock converted by their terms into approximately 11,480,000 shares of common stock and the related carrying value of approximately $184.6 million, plus $9.9 million of deemed dividend (see Note 2), was reclassified to common stock and additional paid-in capital.

Each share of convertible preferred stock converted into common stock based upon a conversion rate of one share of common stock for each share of convertible preferred stock regardless of the series, except for Series E convertible preferred stock which converted at a rate of approximately 1.3 shares of common stock for each share of Series E convertible preferred stock.

No dividends on the convertible preferred stock have been declared or paid from our inception through the conversion of the preferred stock into common stock.

11. 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, nonstatutory stock options, restricted stock units, stock appreciation rights, performance units, and performance shares (collectively, Awards) may be granted to our employees, directors, and consultants.

FLUIDIGM CORPORATION

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Incentive stock options and nonstatutory 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, outstanding options vest at a rate of either 25% on the first anniversary of the option grant date and ratably each month over the remaining 36 month period, 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 the grant of restricted stock units, 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.

The exercise price of any stock appreciation right shall be determined by our board of directors but will be no less than 100% of the fair market value of the underlying common stock on the date of grant. The stock appreciation rights expire upon the date determined by our board of directors but no later than ten years from the date of grant.

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, 2012, the 2011 Plan had a total of 2,222,000 awards authorized for issuance.

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.

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

		Outstanding Options	
	Shares Available for Grant	Number of Shares	Weighted-Average Exercise Price per Share
Balance as of December 31, 2011	671	2,491	$ 7.68
Additional shares authorized	813	0	
Options granted	(1,118)	1,118	$ 14.86
Options exercised	0	(585)	$ 4.93
Options canceled	79	(79)	$ 11.59
Balance as of December 31, 2012	445	2,945	$ 10.88

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We determine stock-based compensation expense using the Black-Scholes option-pricing model and the following weighted-average assumptions:

	Year Ended December 31,		
	2012	2011	2010
Expected volatility	57.6%	57.6%	59.3%
Expected life	5.9 years	5.9 years	5.8 years
Risk-free interest rate	1.1%	1.9%	2.1%
Dividend yield	0%	0%	0%
Weighted-average fair value of options granted	$ 7.90	$ 6.44	$ 3.48

Expected volatility is derived from the historical volatilities of several unrelated public companies within the life sciences industry. Each company's historical volatility is weighted based on certain qualitative factors, and combined to produce the single volatility factor used by us. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to the option's expected life. Given our limited history as a public company, we used the "simplified" method to estimate expected lives of options granted to the various employee groups. The "simplified" method calculates the expected life of an option as the average of the time-to-vesting and the contractual life of the options. Forfeitures were estimated based on an analysis of actual forfeitures. We periodically evaluate the adequacy of our forfeiture rate based on actual forfeiture experience, analysis of employee turnover, and other factors. Each of these inputs is subjective and generally requires significant judgment by us.

Also required to compute the fair value calculation of options is the fair value of the underlying common stock. We grant stock options at exercise prices not less than the fair value of our common stock at the date of grant. Prior to our IPO, our board of directors obtained contemporaneous valuations from an unrelated third-party valuation firm to determine the estimated fair value of common stock based on an analysis of relevant metrics, such as the price of the most recent convertible preferred stock sales to outside investors, the rights, preferences, and privileges of the convertible preferred stock, our operating and financial performance, the hiring of key personnel, the introduction of new products, the lack of marketability of the common stock, and additional factors relating to our business. There is inherent uncertainty in these estimates and if we or the valuation firm had made different assumptions, the amount of our stock-based compensation expense, net loss, and net loss per share amounts could have been significantly different. Following the completion of our IPO in February 2011, the fair value of options granted is based on the closing price of our common stock on the date of grant as quoted on the NASDAQ Global Market.

Additional information regarding our stock options outstanding and exercisable as of December 31, 2012 is summarized in the following table:

	Options Outstanding		
Exercise Price Per Share	Number of Shares (In Thousands)	Weighted-Average Remaining Contractual Life (In Years)	Options Exercisable (In Thousands)
$1.82 - $3.39	95	1.9	95
$4.08 - $4.08	148	6.9	134
$4.45 - $5.03	614	7.1	538
$8.23 - $8.37	338	8.0	194
$13.01 - $13.98	368	9.0	147
$14.00 - $14.90	875	8.9	259
$15.04 - $21.98	507	9.1	113
	2,945	8.1	1,480

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Options exercisable as of December 31, 2012 had a weighted-average remaining contractual life of 7.4 years, a weighted-average exercise price per share of $8.37, and an aggregate intrinsic value of $9.1 million.

Options outstanding that have vested as of December 31, 2012 or are expected to vest in the future are summarized as follows:

	Number of shares (In Thousands)	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Life (In Years)	Aggregate Intrinsic Value (1) (In Thousands)
Vested	1,480	$ 8.37	7.4	$ 9,054
Expected to vest, net of forfeitures	1,408	$ 13.41	8.8	1,869
Total vested and expected to vest, net of forfeitures	2,888	$ 10.83	8.1	$ 10,923

(1) Aggregate intrinsic value was calculated as the difference between the closing stock price on the last trading day of 2012, which was $14.31, and the exercise price of the options, multiplied by the number of in-the-money options.

The total intrinsic value of options exercised during 2012, 2011, and 2010 was $5.5 million, $3.1 million, and $0.1 million, respectively.

There were no stock-based compensation tax benefits recognized during 2012, 2011, or 2010. Capitalized stock-based compensation costs were insignificant at December 31, 2012, 2011, and 2010.

As of December 31, 2012, there was $10.5 million of total unrecognized compensation cost related to stock-based compensation arrangements that is expected to be recognized over an average period of three years.

In February and April 2008, we granted 94,133 performance-based options (the 2008 performance awards) to certain executives. These awards vest over an approximately four-year period based on continuing service and were subject to accelerated vesting if specified corporate and departmental performance goals were met for the fiscal year ended December 27, 2008. Based upon achievement of 2008 departmental performance goals, vesting for 34,846 options was accelerated. In March 2009, the compensation committee of our board of directors accelerated the vesting of 28,240 options based upon the achievement of 2008 corporate performance goals. Stock-based compensation expense for the 2008 performance awards is recognized as expense over the requisite performance periods using an accelerated attribution method. We recognized $6,000, $41,000, and $66,000 of stock-based compensation expense during 2012, 2011, and 2010, respectively, relating to these 2008 performance options.

In November 2009, we granted 89,017 performance-based options (the 2009 performance awards) to certain executives with performance conditions substantially similar to the 2008 performance options. Based on achievement of 2009 departmental goals, vesting for 25,723 options was accelerated in December 2009. Based on achievement of 2009 corporate goals, vesting for 27,150 options was accelerated in December 2009. We recognized $5,000, $15,000, and $32,000 of stock-based compensation expense during 2012, 2011, and 2010, respectively, relating to these 2009 performance options.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

In January 2011, we granted 94,972 performance-based options (the 2010 performance awards) to certain executives with performance conditions substantially similar to the 2008 and 2009 performance options. Based on achievement of 2010 departmental and corporate goals, vesting for 66,480 options was accelerated in March 2011. We recognized $20,000 and $0.4 million of stock-based compensation expense during 2012 and 2011, respectively, relating to these 2010 performance options.

12. Income Taxes

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

	Year Ended December 31,		
	2012	2011	2010
Domestic	$(18,017)	$(20,815)	$(18,543)
International	(871)	(1,489)	1,724
Loss before income taxes	$(18,888)	$(22,304)	$(16,819)

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

	Year Ended December 31,		
	2012	2011	2010
Current			
State	$ (12)	$ (4)	$(10)
Foreign	(124)	(162)	(73)
Total provision for income taxes	$(136)	$(166)	$(83)

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

	Year Ended December 31,		
	2012	2011	2010
Tax benefit at federal statutory rate	34.0%	34.0%	34.0%
Foreign rate difference	(0.9)	(3.0)	(0.4)
Change in valuation allowance	(28.0)	(32.2)	(34.1)
Other, net	(5.8)	0.4	0.0
Effective tax rate	(0.7)%	(0.8)%	(0.5)%

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

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

	December 31, 2012	December 31, 2011
Deferred tax assets:		
Net operating loss carryforwards	$ 79,797	$ 75,677
Reserves and accruals	1,672	1,698
Depreciation and amortization	355	366
Tax credit carryforwards	6,639	6,235
Stock-based compensation	2,149	1,346
Total deferred tax assets	90,612	85,322
Valuation allowance	(90,612)	(85,322)
Net deferred tax assets	$ 0	$ 0

We evaluate a number of factors to determine the realizability of our deferred tax assets. Recognition of deferred tax assets is appropriate when realization of these assets is more likely than not. Assessing the realizability of deferred tax assets is dependent upon several factors including historical financial results. The net deferred tax assets have been fully offset by a valuation allowance because we have incurred losses since our inception. The valuation allowance increased by $5.3 million and $7.2 million during 2012 and 2011, respectively. The change in valuation allowance is mainly due to the current year's taxable loss and the current year's research and development credit.

As of December 31, 2012, we had net operating loss carryforwards for U.S. federal income tax purposes of $221.4 million, which expire in the years 2020 through 2033, and U.S. federal research and development tax credits of $4.3 million, which expire in the years 2020 through 2032. As of December 31, 2012, we had net operating loss carryforwards for California state income tax purposes of $143.1 million, which expire in the years 2013 through 2033, and state research and development tax credits of $5.5 million, which do not expire. In addition, we have approximately $20.1 million in other state net operating loss carryovers which have various expiration dates from 2013 through 2033. As of December 31, 2012, we had foreign net operating loss carryforwards of $2.6 million, which expire in the years 2015 through 2022.

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 (Section 382), and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization. We previously completed a Section 382 analysis for the period from our inception in May 1999 through June 30, 2011, 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 and California net operating losses by $1.2 million and $0.7 million, respectively. We completed a subsequent Section 382 analysis for the period from July 1, 2011 through December 31, 2012 and determined that an ownership change did not occur during such period.

We have not provided for U.S. federal and state income taxes on all of our non-U.S. subsidiaries' undistributed earnings as of December 31, 2012 because such earnings are intended to be indefinitely reinvested. Upon distribution of those earnings in the form of dividends or otherwise, we may be subject to U.S. federal and state income taxes, the determination of which is not practical as it is dependent on the amount of U.S. tax losses or other tax attributes available at the time of the repatriation. Undistributed earnings of our foreign subsidiaries amounted to approximately $0.9 million at December 31, 2012.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

Effective January 1, 2010, we obtained approval for Pioneer Tax Status in Singapore. The Pioneer Tax Status allows a full exemption from Singapore corporate tax related to contract manufacturing activities through the effective period subject to the achievement of certain milestones which will be reviewed by the Singapore government. If we continue to meet or exceed the negotiated milestones, we will maintain Pioneer Tax Status until December 31, 2019. Due to available capital allowances, we have not benefited from the tax exemption through December 31, 2012 and may never benefit if we do not achieve the required milestones.

On January 2, 2013, the American Taxpayer Relief Act of 2012 (H.R.8) was signed into law. This law retroactively extended the federal research and development credits (R&D credits) for amounts incurred from January 1, 2012 through December 31, 2013. As a result of the retroactive extension, we estimate that our tax credit for 2012 would have been approximately $0.6 million, which we will recognize as a discrete benefit that will be fully offset by a valuation allowance in the first quarter of 2013.

In February 2009, the California 2009-2010 budget legislation was signed into law allowing companies to elect single sales factor apportionment for fiscal years 2012 and 2013. The passage of California Proposition 39 in November 2012 makes this apportionment method mandatory for fiscal years beginning on or after January 1, 2013. The application of the single sales factor is expected to lower our future allocable California taxable losses and income.

Uncertain Tax Positions

The aggregate changes in the balance of our gross unrecognized tax benefits during 2012, 2011, and 2010 were as follows (in thousands):

December 31, 2009	$4,751
Increases in balances related to tax positions taken during prior period	5
Increases in balances related to tax positions taken during current period	873
Decreases in balances related to tax positions taken during prior period	(833)
December 31, 2010	4,796
Increases in balances related to tax positions taken during current period	652
December 31, 2011	5,448
Increases in balances related to tax positions taken during current period	903
December 31, 2012	$6,351

Accrued interest and penalties related to unrecognized tax benefits were included in the income tax provision and were immaterial.

As of December 31, 2012, the total amount of unrecognized tax benefits that, if recognized, would affect our effective tax rate is zero. 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 2010 are open to examination in Singapore.

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

13. 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 60% of eligible compensation or the maximum amount allowed by the U.S. Internal Revenue Service. We have not made contributions to this plan since its inception.

14. Information About Geographic Areas

We operate in one reporting segment, which is the development, manufacturing, and commercialization of microfluidic systems for the life science and Ag-Bio industries. 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 product revenue by geography based on the billing address of our customers for each year presented (in thousands):

	Year Ended December 31,		
	2012	2011	2010
United States	$27,325	$21,644	$16,619
Europe	13,086	10,499	7,577
Asia-Pacific	6,321	3,698	2,800
Japan	3,840	3,942	2,700
Other	916	798	766
Total	$51,488	$40,581	$30,462

Our grant revenue is generated in Singapore and the United States and license and collaboration 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 (in thousands) as of:

	December 31, 2012	December 31, 2011
United States	$ 1,968	$ 1,502
Singapore	2,961	1,720
Japan	18	23
Europe	27	11
Total	$ 4,974	$ 3,256

FLUIDIGM CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
December 31, 2012

15. Quarterly Results of Operations (Unaudited)

Selected quarterly results of operations for the years ended December 31, 2012 and 2011 are as follows (in thousands, except for per share amounts):

2012	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Total revenue	$ 10,945	$12,948	$12,782	$15,659
Net loss attributed to common stockholders	$ (6,690)	$ (4,580)	$ (4,152)	$ (3,602)
Net loss per share attributed to common stockholders, basic and diluted	$ (0.33)	$ (0.22)	$ (0.18)	$ (0.14)

2011	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Total revenue	$ 8,697	$10,576	$10,596	$12,996
Net loss attributed to common stockholders	$(17,238)	$ (7,186)	$ (4,489)	$ (3,457)
Net loss per share attributed to common stockholders, basic and diluted	$ (1.60)	$ (0.36)	$ (0.22)	$ (0.17)

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, 2012. 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, 2012, 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 to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Management assessed our internal control over financial reporting as of December 31, 2012. Management based its assessment on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2012. The certifications of our principal executive officer and principal financial officer attached as Exhibits 31.1 and 31.2 to this report include, in paragraph 4 of such certifications, information concerning our disclosure controls and procedures and internal controls over financial reporting.

The effectiveness of our internal control over financial reporting as of December 31, 2012 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in its 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, 2012 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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

Pursuant to General Instruction G(3) of Form 10-K, the information required by this Item 10 relating to our executive officers is included under the caption “Executive Officers” in Part I of this Form 10-K.

The other information required by this Item 10 is incorporated by reference to our Proxy Statement for the 2013 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2012 fiscal year end) under the headings “Corporate Governance and Board of Directors,” “Election of Class III Directors,” “Executive Officers” and “Related Person Transactions and Section 16(a) Beneficial Ownership Reporting Compliance.”

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item 11 is incorporated by reference to our Proxy Statement for the 2013 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2012 fiscal year end) under the headings “Corporate Governance and Board of Directors” and “Executive Compensation.”

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

The information required by this Item 12 is incorporated by reference to our Proxy Statement for the 2013 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2012 fiscal year end) under the headings “Executive Compensation” and “Security Ownership.”

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

The information required by this Item 13 is incorporated by reference to our Proxy Statement for the 2013 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2012 fiscal year end) under the headings “Corporate Governance and Board of Directors” and “Related Person Transactions and Section 16(a) Beneficial Ownership Reporting Compliance.”

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item 14 is incorporated by reference to our Proxy Statement for the 2013 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2012 fiscal year end) under the heading “Ratification of Appointment of Independent Registered Public Accounting Firm.”

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 “Schedule II—Valuation and Qualifying Account and Reserve” in this section of this Form 10-K.

3. **Exhibits.** The exhibits set forth below are filed herewith or are incorporated by reference to exhibits previously filed with the U.S. Securities and Exchange Commission.

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SCHEDULE II—VALUATION AND QUALIFYING ACCOUNT AND RESERVE

	In thousands			
	Balance at Beginning of Period	Additions/ Charged to Expense	Deductions	Balance at End of Period
Year ended December 31, 2012				
Accounts receivable allowance	$ 366	$ 97	$ (15)	$ 448
Year ended December 31, 2011				
Accounts receivable allowance	$ 467	$ 12	$ (113)	$ 366
Year ended December 31, 2010				
Accounts receivable allowance	$ 103	$ 364	$ —	$ 467

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EXHIBITS

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
3.1	Eighth Amended and Restated Certificate of Incorporation of Fluidigm Corporation filed on February 15, 2011.	10-K	3.1	03/28/11
3.2	Amended and Restated Bylaws of Fluidigm Corporation effective as of February 9, 2011.	10-K	3.2	03/28/11
4.1	Specimen Common Stock Certificate of Fluidigm Corporation.	S-1/A	4.1	02/07/11
4.2	Reserved.			
4.3	Reserved.			
4.4	Reserved.			
4.5	Ninth Amended and Restated Investor Rights Agreement between the registrant and certain holders of the registrant's capital stock named therein, including amendments No. 1, No. 2 and No. 3.	S-1	4.5	12/03/10
4.6	Reserved.			
4.7	Reserved.			
4.8	Business Financing Agreement between the registrant and Bridge Bank, National Association, dated as of December 16, 2010.	S-1/A	4.8	01/28/11
4.8A	Business Financing Modification Agreement dated March 31, 2011, by and between Bridge Bank, National Association, and the registrant.	8-K	4.8A	04/04/11
4.8B	Business Financing Modification Agreement dated December 21, 2012, by and between Bridge Bank, National Association and Fluidigm Corporation.	8-K	4.8AB	12/27/12
10.1	Form of Indemnification Agreement between the registrant and its directors and officers.	S-1/A	10.1	01/28/11
10.2#	1999 Stock Option Plan of the registrant, as amended.	S-1	10.2	12/03/10
10.2A#	Forms of agreements under the 1999 Stock Option Plan.	S-1	10.2A	12/03/10
10.3#	2009 Equity Incentive Plan of the registrant, as amended.	S-1	10.3	12/03/10
10.3A#	Forms of agreements under the 2009 Equity Incentive Plan.	S-1	10.3A	12/03/10
10.4#	2011 Equity Incentive Plan of the registrant.	S-1/A	10.4	01/28/11
10.4A#	Forms of agreements under the 2011 Equity Incentive Plan.	S-1/A	10.4A	01/28/11

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.5†	Second Amended and Restated License Agreement by and between California Institute of Technology and the registrant effective as of May 1, 2004.	S-1	10.5	12/03/10
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 the registrant effective as of May 1, 2004.	S-1	10.5A	12/03/10
10.6†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.6	12/03/10
10.6A†	First Amendment to Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.6A	12/03/10
10.7†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.7	12/03/10
10.8†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.8	12/03/10
10.9†	Letter Agreement between President and Fellows of Harvard College and the registrant dated December 22, 2004.	S-1	10.9	12/03/10
10.10	Reserved.			
10.11	Reserved.			
10.12†	Amended and Restated Letter Agreement Regarding Application for Incentives Under the Research Incentive Scheme for Companies (RISC) dated March 27, 2008 (originally dated October 7, 2005), by and between Singapore Economic Development Board and Fluidigm Singapore Pte. Ltd.	S-1	10.12	12/03/10
10.12A†	Supplement, dated January 11, 2006, to Letter Agreement Relating to Application for Incentives under the Research Incentive Scheme for Companies (RISC), dated October 7, 2005 between Singapore Economic Development Board and Fluidigm Singapore Pte. Ltd.	S-1	10.12A	12/03/10
10.13†	Amended and Restated Letter Agreement Regarding Application for Incentives Under the Research Incentive Scheme for Companies (RISC) dated March 27, 2008 (originally dated February 12, 2007), by and between Singapore Economic Development Board and Fluidigm Singapore Pte. Ltd.	S-1	10.13	12/03/10

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.14#	Form of Amended and Restated Employment and Severance Agreement between the registrant and each of its executive officers.	8-K	10.14	12/11/12
10.15	Reserved.			
10.16	Reserved.			
10.17#	Offer Letter to Vikram Jog dated January 29, 2008.	S-1	10.17	12/03/10
10.18#	Offer Letter dated May 3, 2010 to Fredric Walder and Addendum thereto dated November 8, 2010.	8-K	10.18	04/04/11
10.19	Lease Agreement between ARE - San Francisco No. 17 LLC and the registrant, dated September 14, 2010, as amended September 22, 2010.	S-1/A	10.19	01/07/11
10.20	Tenancy for Flatted Factory Space in Singapore between JTC Corporation and the registrant dated July 27, 2005, as amended August 12, 2008 and May 31, 2010.	S-1	10.20	12/03/10
10.21	Reserved.			
10.22	Reserved.			
10.23	Reserved.			
10.24	Reserved.			
10.25#	Executive Bonus Plan.	10-K	10.25	03/28/11
10.26†	Acceptance Letter re Pioneer Incentive dated April 25, 2011 between Singapore Economic Development Board and the registrant.	8-K	10.1	08/05/11
21.1	Subsidiaries of the registrant.	Filed herewith		
23.1	Consent of 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.	Furnished herewith		

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
32.2~	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Financial Officer.	Furnished herewith		
101.INS**	XBRL Instance Document	Furnished herewith		
101.SCH**	XBRL Taxonomy Extension Schema Document	Furnished herewith		
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	Furnished herewith		
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	Furnished herewith		
101.LAB**	XBRL Taxonomy Extension Label Document	Furnished herewith		
101.PRE**	XBRL Taxonomy Extension Presentation Document	Furnished 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 the registrant specifically incorporates it by reference.

** XBRL (eXtensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, and otherwise is not subject to liability under these sections.

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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 12, 2013

By: /s/ Gajus V. Worthington
Gajus V. Worthington
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Gajus V. Worthington 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/ Gajus V. Worthington **Gajus V. Worthington**	President and Chief Executive Officer (Principal Executive Officer); Director	March 12, 2013
/s/ Vikram Jog **Vikram Jog**	Chief Financial Officer (Principal Financial and Accounting Officer)	March 12, 2013
/s/ Samuel Colella **Samuel Colella**	Chairman of the Board of Directors	March 12, 2013
/s/ Gerhard F. Burbach **Gerhard F. Burbach**	Director	March 8, 2013
/s/ Evan Jones **Evan Jones**	Director	March 12, 2013
/s/ Patrick S. Jones **Patrick S. Jones**	Director	March 9, 2013
/s/ John A. Young **John A. Young**	Director	March 12, 2013

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4.3	Reserved.			
4.4	Reserved.			
4.5	Ninth Amended and Restated Investor Rights Agreement between the registrant and certain holders of the registrant's capital stock named therein, including amendments No. 1, No. 2 and No. 3.	S-1	4.5	12/03/10
4.6	Reserved.			
4.7	Reserved.			
4.8	Business Financing Agreement between the registrant and Bridge Bank, National Association, dated as of December 16, 2010.	S-1/A	4.8	01/28/11
4.8A	Business Financing Modification Agreement dated March 31, 2011, by and between Bridge Bank, National Association, and the registrant.	8-K	4.8A	04/04/11
4.8B	Business Financing Modification Agreement dated December 21, 2012, by and between Bridge Bank, National Association and Fluidigm Corporation.	8-K	4.8AB	12/27/12
10.1	Form of Indemnification Agreement between the registrant and its directors and officers.	S-1/A	10.1	01/28/11
10.2#	1999 Stock Option Plan of the registrant, as amended.	S-1	10.2	12/03/10
10.2A#	Forms of agreements under the 1999 Stock Option Plan.	S-1	10.2A	12/03/10
10.3#	2009 Equity Incentive Plan of the registrant, as amended.	S-1	10.3	12/03/10
10.3A#	Forms of agreements under the 2009 Equity Incentive Plan.	S-1	10.3A	12/03/10
10.4#	2011 Equity Incentive Plan of the registrant.	S-1/A	10.4	01/28/11
10.4A#	Forms of agreements under the 2011 Equity Incentive Plan.	S-1/A	10.4A	01/28/11

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.5†	Second Amended and Restated License Agreement by and between California Institute of Technology and the registrant effective as of May 1, 2004.	S-1	10.5	12/03/10
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 the registrant effective as of May 1, 2004.	S-1	10.5A	12/03/10
10.6†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.6	12/03/10
10.6A†	First Amendment to Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.6A	12/03/10
10.7†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.7	12/03/10
10.8†	Co-Exclusive License Agreement between President and Fellows of Harvard College and the registrant effective as of October 15, 2000.	S-1	10.8	12/03/10
10.9†	Letter Agreement between President and Fellows of Harvard College and the registrant dated December 22, 2004.	S-1	10.9	12/03/10
10.10†	Patent License Agreement by and between Gyros AB and the registrant dated January 9, 2003.	S-1	10.10	12/03/10
10.10A†	Amendment No. 1 dated January 9, 2005 to Patent License Agreement by and between Gyros AB and the registrant dated January 9, 2003.	S-1	10.10A	12/03/10
10.11	Reserved.			
10.12†	Amended and Restated Letter Agreement Regarding Application for Incentives Under the Research Incentive Scheme for Companies (RISC) dated March 27, 2008 (originally dated October 7, 2005), by and between Singapore Economic Development Board and Fluidigm Singapore Pte. Ltd.	S-1	10.12	12/03/10
10.12A†	Supplement, dated January 11, 2006, to Letter Agreement Relating to Application for Incentives under the Research Incentive Scheme for Companies (RISC), dated October 7, 2005 between Singapore Economic Development Board and Fluidigm Singapore Pte. Ltd.	S-1	10.12A	12/03/10

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
10.13†	Amended and Restated Letter Agreement Regarding Application for Incentives Under the Research Incentive Scheme for Companies (RISC) dated March 27, 2008 (originally dated February 12, 2007), by and between Singapore Economic Development Board and Fluidigm Singapore Pte. Ltd.	S-1	10.13	12/03/10
10.14#	Form of Amended and Restated Employment and Severance Agreement between the registrant and each of its executive officers.	8-K	10.14	12/11/12
10.15	Reserved.			
10.16	Reserved.			
10.17#	Offer Letter to Vikram Jog dated January 29, 2008.	S-1	10.17	12/03/10
10.18#	Offer Letter dated May 3, 2010 to Fredric Walder and Addendum thereto dated November 8, 2010.	8-K	10.18	04/04/11
10.19	Lease Agreement between ARE - San Francisco No. 17 LLC and the registrant, dated September 14, 2010, as amended September 22, 2010.	S-1/A	10.19	01/07/11
10.20	Tenancy for Flatted Factory Space in Singapore between JTC Corporation and the registrant dated July 27, 2005, as amended August 12, 2008 and May 31, 2010.	S-1	10.20	12/03/10
10.21	Reserved.			
10.22	Reserved.			
10.23	Reserved.			
10.24	Reserved.			
10.25#	Executive Bonus Plan.	10-K	10.25	03/28/11
10.26†	Acceptance Letter re Pioneer Incentive dated April 25, 2011 between Singapore Economic Development Board and the registrant.	8-K	10.1	08/05/11
21.1	Subsidiaries of the registrant.	Filed herewith		
23.1	Consent of 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		

Exhibit Number	Description	Incorporated by Reference From Form	Incorporated by Reference From Exhibit Number	Date Filed
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.	Furnished herewith		
32.2~	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Financial Officer.	Furnished herewith		
101.INS**	XBRL Instance Document	Furnished herewith		
101.SCH**	XBRL Taxonomy Extension Schema Document	Furnished herewith		
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document	Furnished herewith		
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document	Furnished herewith		
101.LAB**	XBRL Taxonomy Extension Label Document	Furnished herewith		
101.PRE**	XBRL Taxonomy Extension Presentation Document	Furnished 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 the registrant specifically incorporates it by reference.

** XBRL (eXtensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, and otherwise is not subject to liability under these sections.

Exhibit 21.1

SUBSIDIARIES OF FLUIDIGM CORPORATION

Subsidiaries of Fluidigm Corporation (Delaware):

Fluidigm K.K. (Japan)

Fluidigm Europe, B.V. (Netherlands)

Fluidigm Singapore Pte. Ltd. (Singapore)

Fluidigm (Shanghai) Instrument Technology Company Limited (China)

Subsidiaries of Fluidigm Europe, BV (Netherlands):

Fluidigm France SARL (France)

Fluidigm UK Limited (United Kingdom)

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-3 No. 333-180550) of Fluidigm Corporation,

(2) Registration Statement (Form S-8 No. 333-172206) pertaining to the 1999 Stock Option Plan, 2009 Equity Incentive Plan, and 2011 Equity Incentive Plan of Fluidigm Corporation, and

(3) Registration Statement (Form S-8 No. 333-180363) pertaining to the 2011 Equity Incentive Plan of Fluidigm Corporation;

of our reports dated March 12, 2013, with respect to the consolidated financial statements and schedule of Fluidigm Corporation and the effectiveness of internal control over financial reporting of Fluidigm Corporation included in this Annual Report (Form 10-K) of Fluidigm Corporation for the year ended December 31, 2012.

/s/ Ernst & Young LLP

Redwood City, California
March 12, 2013

Exhibit 31.1

CERTIFICATION OF THE PRESIDENT AND CHIEF EXECUTIVE OFFICER PURSUANT TO SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a), AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Gajus V. Worthington, certify that:

1. I have reviewed this annual report on Form 10-K of Fluidigm Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 12, 2013

By: /s/ Gajus V. Worthington
Gajus V. Worthington
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF THE CHIEF FINANCIAL OFFICER
PURSUANT TO SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a),
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Vikram Jog, certify that:

1. I have reviewed this annual report on Form 10-K of Fluidigm Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 12, 2013

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer

Exhibit 32.1

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

I, Gajus V. Worthington, the chief executive officer of Fluidigm Corporation (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

(i) the Annual Report of the Company on Form 10-K for the fiscal year ended December 31, 2012 (the "Report"), fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Gajus V. Worthington
Gajus V. Worthington
President and Chief Executive Officer

Date: March 12, 2013

Exhibit 32.2

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

I, Vikram Jog, the chief financial officer of Fluidigm Corporation (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

(i) the Annual Report of the Company on Form 10-K for the fiscal year ended December 31, 2012 (the "Report"), fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Vikram Jog
Vikram Jog
Chief Financial Officer

Date: March 12, 2013