

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, 2013

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
(State or other jurisdiction of
incorporation or organization)

77-0513190
(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
Common Stock, \$0.001 Par Value per Share

Name of each exchange on which registered
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 28, 2013, 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 \$322,715,572 (based on a closing sale price of \$17.46 per share as reported for the NASDAQ Global Market on June 28, 2013). For purposes of this calculation, shares of common stock beneficially owned by the registrant's officers and directors as of June 28, 2013 and shares of common stock held by persons who held more than 10% of the outstanding common stock of the registrant as of June 28, 2013 (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, 2014 was 27,873,761.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement relating to its 2014 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K where indicated

Fluidigm Corporation
Fiscal Year 2013
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.

“Access Array,” “BioMark,” “C₁,” “CyTOF,” “D3,” “DELTAgene,” “DVS Sciences,” “Dynamic Array,” “Digital Array,” “EP1,” “FC1,” “FLEXsix,” “Fluidigm,” the Fluidigm logo, “MSL,” “NanoFlex,” “qPCR,” “SINGuLAR,” and “SNPtype” are trademarks or registered trademarks of Fluidigm Corporation. Other service marks, trademarks and trade names referred to in this Form 10-K are the property of their respective owners.

PART I

ITEM 1. BUSINESS

On February 13, 2014, we completed the acquisition of DVS Sciences, Inc., or DVS, which develops, manufactures, markets, and sells multi-parameter single-cell protein analysis systems. The information set forth under this "Business" section relates principally to our business of manufacturing, marketing, and selling microfluidic systems for single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. For information relating to the acquisition of DVS and DVS's business, please refer to the subsections entitled "Recent Developments—Acquisition of DVS Sciences, Inc." and "—Business of DVS."

Overview

We develop, manufacture, and market microfluidic systems to academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and agricultural biotechnology (Ag-Bio) companies in growth markets, such as single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. Our proprietary microfluidic systems consist of instruments and consumables, including integrated fluidic circuits (IFCs), assays, and reagents. We actively market four microfluidic systems, including 18 different commercial IFCs, and three families of assay chemistries. Our systems are designed to significantly simplify experimental workflow, increase throughput, and reduce costs, while providing excellent data quality. In addition, our proprietary technology enables genetic analysis that in many instances was previously impractical. As of December 31, 2013, we had sold approximately 920 systems to customers in 35 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 C₁ Single-Cell Auto Prep System for single-cell sample preparation for targeted gene expression, microRNA analysis, mRNA sequencing, and targeted DNA 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 C₁ 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 \$42.9 million in 2011 to \$71.2 million in 2013. Our product margin has increased from 67% in 2011 to 71% in 2013. We have incurred significant net losses since our inception, including net losses of \$16.5 million in 2013.

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.

Our BioMark HD System performs, among other functions, high-throughput gene expression analysis, including single-cell targeted gene expression analysis, and SNP genotyping, and our EPI 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. 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 C₁ 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 C₁ and BioMark HD Systems improve single-cell targeted gene expression analysis by allowing researchers to extract, reverse transcribe, amplify, and ultimately detect and analyze cell activity using a streamlined workflow, reducing the variability caused by multi-platform technical errors.

The high-throughput of our systems allows researchers to analyze thousands of cells. 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 single-cell targeted 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 C₁ Single-Cell Auto Prep System was specifically optimized for high-throughput single-cell analysis and provides an easy, end-to-end workflow for sample preparation of up to 96 single cells for downstream detailed transcriptome analysis 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 18 different commercial IFCs, 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 Single-Cell Targeted Gene Expression
C ₁ Single-Cell Auto Prep System	Sample preparation system for single-cell genomics that facilitates the isolation and processing of individual cells	Single-Cell Targeted Gene Expression, Single-Cell microRNA Analysis, Single-Cell mRNA Sequencing, and Single-Cell Targeted DNA Sequencing (currently available to early access customers)
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		
<i>48.48 Dynamic Array IFC</i>	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 Single-Cell Targeted Gene Expression
<i>96.96 Dynamic Array IFC</i>	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 Single-Cell Targeted Gene Expression

Product	Product Description	Applications
<i>High Precision 96.96 Genotyping IFC</i>	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
<i>192.24 Dynamic Array IFC for Genotyping</i>	IFC that allows users to genotype 192 samples against 24 assays in a single run, generating up to 4,608 parallel reactions	SNP Genotyping
<i>192.24 Dynamic Array IFC for Gene Expression</i>	IFC that enables high sample throughput of 576 samples across 24 genes in an 8-hour day	Gene Expression
<i>FLEXsix Gene Expression IFC</i>	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		
<i>12.765 Digital Array IFC</i>	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, Copy Number Variation and Mutation Detection
<i>48.770 Digital Array IFC</i>	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, Copy Number Variation and Mutation Detection
<i>qdPCR 37K IFCs</i>	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, Copy Number Variation and Mutation Detection
C ₁ Single-Cell Auto Prep Array IFCs	IFC that captures and prepares individual 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 genomic workflow without intervention; designed to maximize cell capture efficiency based on cell size (5-25 micron); available in three sizes per application	Sample Preparation for Single-Cell Targeted Gene Expression, Single-Cell microRNA Analysis, Single-Cell mRNA Sequencing, and Single-Cell Targeted DNA Sequencing (currently available to early access customers)
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
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, Single-Cell Targeted 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, single-cell targeted gene expression analysis, SNP genotyping, and digital PCR using Fluidigm DELTAgene and SNtype 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 C₁ Single-Cell Auto Prep System

Our C₁ Single-Cell Auto Prep System enables rapid and reliable isolation, processing, and profiling of individual cells for genomic analysis for key applications, such as single-cell targeted gene expression, single-cell microRNA analysis, single-cell mRNA analysis, and single-cell targeted DNA sequencing, using our C₁ Single-Cell Auto Prep Array IFCs and C₁ reagent kit. Our C₁ Single-Cell Auto Prep System includes software that features pipetting templates, predefined and validated methods, and our SINGuLAR Data Analysis Toolset to view and interpret single-cell genomic data. Coupled with the BioMark HD System, the C₁ Single-Cell Auto Prep System streamlines genomic 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 SNtype 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 PCR-based target enrichment, 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 Corporation (now part of Thermo Fisher Scientific), 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 D3 Assay Design 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 C₁ 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.

Instrumentation and Software

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 C₁ Single-Cell Auto Prep and BioMark HD Systems, 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 customers' needs. As of December 31, 2013, we had 97 people employed in sales, sales and technical support, and marketing, including 50 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 facilitates 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 features 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 provides 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 features the full capabilities of our C₁ Single-Cell Auto Prep and BioMark HD Systems for single-cell targeted gene expression analytics and validation.

Customers

We have sold our C₁ 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. As of December 31, 2013, we had sold approximately 920 systems to customers in 35 countries. No single customer represented more than 10% of our total revenue for 2013, 2012, or 2011.

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.

The leases for our current manufacturing facility in Singapore will terminate on September 30, 2014. On October 14, 2013, Fluidigm Singapore Pte. Ltd., or Fluidigm Singapore, our wholly-owned subsidiary, accepted an offer of tenancy relating to the lease of a new manufacturing facility in Singapore, which expires on June 1, 2022. We expect to consolidate our manufacturing operations in the new space in the third quarter of 2014. We expect that our existing manufacturing capacity, and anticipated manufacturing capacity under the new lease, for instrumentation and IFCs is sufficient to meet our needs at least through 2016 and, with anticipated modifications for additional capacity, through 2018.

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 and other specialized materials from which our IFC cores are fabricated, specialized custom camera lenses, fiber light guides, and other components required for the reader of our BioMark System, specialized pneumatic and electronic components for our C₁ 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. In 2013, we introduced the D3 Assay Design Service to provide customers with automated submission and feedback tools to improve the design assay design experience.

Integrated Fluidic Circuit and Instrument Architectures. We intend to develop additional products to strengthen the capabilities of our existing Dynamic Array, Access Array, and C₁ 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 plan to evaluate next-generation instrument architectures supporting these new IFC formats with analytical capability and other features. We are developing additional IFCs for use with our C₁ Single-Cell Auto Prep System that are expected to capture a larger numbers of cells and further integrate traditional cell biology methods with modern genomic analysis.

Single-Cell Genomics Applications. In late 2012, we launched our mRNA sequencing workflow, which is specifically optimized for high-throughput single-cell analysis and enables larger scale, transcriptome-wide studies. In late 2013, we announced our universal sample preparation workflow for single-cell DNA sequencing that runs on our C₁ Single-Cell Auto Prep System, which is currently available to early access customers. We also introduced our SINGuLAR Analysis Toolset for analyzing and visualizing single-cell gene expression data in 2013.

We intend to expand the menu of single-cell applications available on our C₁ Single-Cell Auto Prep System to include additional RNA and DNA analysis methods and a new protein analysis protocol. We are also developing gene expression reference data sets of individual cells from diverse cell populations, which we intend to make available to the broader scientific community and use 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 \$20.0 million, \$16.6 million, and \$13.9 million in 2013, 2012, and 2011, respectively. As of December 31, 2013, 71 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 (now part of Thermo Fisher Scientific), 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., Thermo Fisher Scientific 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.

As of December 30, 2013, we owned or licensed over 300 patents and we had approximately 200 pending patent applications worldwide. Our patents have expiration dates ranging from 2018 to 2031. The U.S. issued patents we have licensed from Caltech expire between 2017 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 (now part of Thermo Fisher Scientific) 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. Pursuant to the terms of a patent cross license agreement, we are obligated to make a \$1.0 million payment to Life upon satisfaction of certain conditions. We do not believe that the conditions triggering the payment obligation have been met; however, on October 16, 2013, Life provided notice that the \$1.0 million payment was due and payable under the license agreement. We accrued a loss contingency of \$1.0 million on September 30, 2013 and on January 30, 2014, we paid Life the amount due while reserving our rights with respect to such matter. Among other reasons, we made the payment to avoid what would have been, in our view, an improper termination of our license to certain Life patent filings under the agreement, which could have subjected our relevant product lines to risks associated with patent infringement litigation.

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 FDCA, the FDA has jurisdiction over medical devices, which are defined to include, among other things, in vitro diagnostic products, or IVDs used for clinical purposes. Our products are currently labeled and sold for research purposes only, and we sell them to academic institutions, life sciences and clinical laboratories that conduct research, 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 November 2013, the FDA issued a final guidance document intended to clarify the types of in vitro diagnostic products that are properly labeled "for research use only." The 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 regulatory 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, among other things, written or verbal marketing claims regarding a product's performance in clinical applications and a manufacturer's provision of technical support for such activities. In the future, certain of our products or related applications could become subject to regulation as medical devices by the FDA.

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 FDCA. 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 FDCA 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. Although we are continuing to evaluate these issues in light of the new guidance, we currently do not have any specific plans to seek regulatory approvals.

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 of 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, 28 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 48,000 square feet of office and laboratory space at our headquarters in South San Francisco, California under a lease that expires in April 2020. The leases for approximately 28,000 square feet of manufacturing and office space at our current facility in Singapore will terminate on September 30, 2014. Additionally, we have entered into a lease for a new manufacturing facility in Singapore, which expires on June 1, 2022, and we expect to consolidate our manufacturing operations in the new space in the third quarter of 2014. As of December 31, 2013, we also leased office space in Japan, China, and France, with various expiration dates through March 2016. We believe that our existing office, laboratory and manufacturing space, together with additional space and facilities under our new Singapore lease and otherwise available on commercially reasonable terms, will be sufficient to meet our needs through 2016.

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 the United States 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 \$33.9 million, or 48% of our total product revenue, in 2013, compared to \$24.2 million, or 47% of our total product revenue, in 2012, and \$18.9 million, or 47% of our total product revenue, in 2011. Please see Note 14 of the notes to our audited consolidated financial statements for additional information for geographic areas.

Seasonality

In 2010, 2011, and 2012, 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, 2013, we had 325 employees, of which 71 work in research and development, 59 work in general and administrative, 98 work in manufacturing, and 97 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, 2014) and positions of our executive officers:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Gajus V. Worthington	44	President, Chief Executive Officer, and Director
Vikram Jog	57	Chief Financial Officer
Robert C. Jones	59	Executive Vice President, Research and Development
William M. Smith	62	Executive Vice President, Legal Affairs, General Counsel, and Secretary
Fredric Walder	56	Chief Operating Officer
Mai Chan (Grace) Yow	55	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 Thermo Fisher Scientific, and Vice President of Finance for its related businesses, Celera Genomics and Celera Diagnostics. From April 2001 to March 2003, Mr. Jog was Vice President of Finance for Celera Diagnostics and Corporate Controller of Applera Corporation. Mr. Jog received a Bachelor of Commerce degree from Delhi University and an M.B.A. from Temple University. Mr. Jog is a member of the American Institute of Certified Public Accountants.

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 January 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.

Recent Developments

Acquisition of DVS Sciences, Inc.

On February 13, 2014, we completed our acquisition of DVS (which changed its name to Fluidigm Sciences Inc. subsequent to the acquisition), pursuant to an agreement and plan of merger dated as of January 28, 2014. Pursuant to the merger agreement, DVS became our wholly-owned subsidiary. DVS's wholly-owned subsidiary, DVS Sciences Inc., an Ontario corporation, or DVS Canada (which changed its name to Fluidigm Canada Inc. subsequent to the acquisition), remained a wholly-owned subsidiary of DVS.

The merger consideration payable by us to the former stockholders of DVS pursuant to the merger agreement consisted of approximately \$117.2 million in cash (excluding the value of stock options and unvested restricted stock assumed by us), and 1,759,007 shares of our common stock. Of the aggregate cash consideration, \$1.0 million was deposited in escrow to satisfy certain potential working capital adjustments, and of the stock consideration, 50.3030% of the shares was deposited into escrow to secure indemnification obligations under the merger agreement. In addition, under the terms of the merger agreement, stock options, both vested and unvested, and unvested restricted stock of DVS were converted into options and restricted stock, respectively, denominated in shares of our common stock pursuant to an exchange ratio specified in the merger agreement.

The cash consideration payable to the former stockholders of DVS was financed in part with the net proceeds from our underwritten public offering of 2.75% Senior Convertible Notes due 2034, as described in our Current Report on Form 8-K filed with the SEC on February 4, 2014.

Business of DVS

DVS Sciences Inc. was founded in 2004 as a Canadian corporation, referred to as DVS Canada. In 2010, the stockholders of DVS Canada exchanged their shares in DVS Canada for shares in a new parent company incorporated in Delaware, and DVS Canada became a wholly-owned subsidiary of DVS, the new Delaware parent corporation.

DVS develops, manufactures, markets, and sells multi-parameter single-cell protein analysis systems. DVS's principal product is the CyTOF2 mass spectrometer, which analyzes cells labeled with heavy metal isotopes using atomic mass cytometry technology for applications in biological research. In addition, DVS offers reagents and reagent kits, as well as data analysis tools for use with its CyTOF2 instrument. For the year ended December 31, 2012 and the nine months ended September 30, 2013, DVS recognized revenue of \$11.9 million and \$18.5 million, respectively, and net (loss) income of (\$2.6 million) and \$1.5 million, respectively.

DVS's products target the research flow cytometry market. Existing flow cytometry technologies are high-throughput with single-cell analysis capabilities. However, a key limitation of traditional flow cytometry technologies is the use of fluorescent dyes to label antibodies for detection. These fluorescent labels have emission spectra that typically overlap, making it challenging to optimize reagents to analyze many protein markers at once. The maximum number of proteins target for traditional flow cytometry is approximately 18 with significant reagent optimization involved.

Similar to flow cytometry, mass cytometry is based primarily on antibodies for detection of proteins. However, rather than utilizing fluorescent labels, DVS's technological approach utilizes heavy metal isotope labels, which enables the ability to expand the number of parameters analyzed per individual cell to twice the number of conventional flow cytometry technologies.

DVS's customers include leading academic and research laboratories. In North America and Europe, DVS sells and markets its products through a direct sales force, other than in Germany, Switzerland, and Austria, where it relies on a manufacturer's representative. In Asia, it has focused its sales efforts to date on distributor relationships in Japan, Taiwan, Singapore, and Hong Kong. As of December 31, 2013, DVS had 84 full time employees. DVS maintains its commercial headquarters in Sunnyvale, California, where it also manufactures reagents. In addition, DVS manufactures instruments and conducts research and development at a facility outside Toronto, Ontario. DVS also maintains a European sales office outside London, England.

DVS and DVS Canada have sought patent protection in the United States and internationally for certain aspects of their technology through licensed intellectual property and owned intellectual property. For aspects of DVS technology for which patent protection may not be available, DVS and DVS Canada rely on protection through trade secrets, know-how or continuing technological innovation. A significant portion of DVS's and DVS Canada's owned patent portfolio is in the form of provisional application filings that would need to be converted to non-provisional U.S. patent applications or international patent applications. We cannot be sure that patents will be granted with respect to any of DVS's or DVS Canada's owned or licensed pending patent applications or with respect to any patent applications filed by DVS, DVS Canada, or their licensors in the future, nor can we be sure that any of DVS's or DVS Canada's existing owned or licensed patents or any patents that may be granted to DVS, DVS Canada or to their licensors in the future will protect such technology.

DVS and DVS Canada license intellectual property rights from third parties that are material to their businesses and operating results. In particular, in 2008, DVS Canada entered into a license agreement with MDS Inc., or MDS, through MDS's Sciex division, pursuant to which DVS Canada licensed from MDS patents that cover the core technology on which the CyTOF2 mass spectrometer was based. We understand that MDS subsequently assigned the licensed patents and the license agreement, and that the patents and license agreement are now held by PerkinElmer Health Sciences, Inc., or PerkinElmer. The PerkinElmer license agreement grants DVS Canada an exclusive, royalty bearing, worldwide license under the licensed patents in the field of inductively coupled plasma-based flow cytometry, including the related analysis of elemental tagged materials, and a non-exclusive license for reagents outside the field of ICP-based flow cytometry. Among other provisions, the license agreement obligates DVS Canada to grant to PerkinElmer a non-exclusive, royalty-free license for research and development to any improvements or developments relating to the subject matter of the licensed patents that are developed by DVS Canada. In addition, DVS Canada controls the prosecution and maintenance of the licensed patents within the field, and PerkinElmer controls the prosecution and maintenance of the licensed patents for reagents outside the field, subject in each case to consultation and fair consideration of comments from the other party. PerkinElmer retains enforcement rights with respect to the licensed patents. The license agreement obligates DVS Canada to make various royalty payments to PerkinElmer, with a current minimum annual royalty of 250,000 Canadian dollars. Unless earlier terminated in accordance with the license agreement, the license expires upon the expiration or invalidation of the last licensed patent, which we currently expect to occur no sooner than December 2025. PerkinElmer may terminate the license agreement for an uncured material breach or if DVS Canada becomes insolvent, makes an assignment for the benefit of creditors, or has a petition in bankruptcy filed against it. Any loss, termination, or adverse modification of intellectual property rights licensed by DVS Canada from PerkinElmer or other third parties could have a material adverse effect on our business, operating results, and financial condition. For additional information, see the section entitled "Risk factors—Risks Related to Our Recent Acquisition of DVS" in this Form 10-K.

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.

On February 13, 2014, we completed the acquisition of DVS Sciences, Inc., or DVS (which changed its name to Fluidigm Sciences Inc. immediately subsequent to the acquisition), which develops, manufactures, markets, and sells multi-parameter single-cell protein analysis systems. The risk factors set forth under “Risks Related to Fluidigm’s Business and Strategy” relate principally to our business of manufacturing, marketing, and selling microfluidic systems for single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. For the separate risks relating to the business of DVS, please refer to the section of these risk factors captioned “Risks Related to Our Recent Acquisition of DVS.”

Risks Related to Fluidigm’s Business and Strategy

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 C₁ 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 2010, 2011, and 2012, 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 \$16.5 million, \$19.0 million, and \$22.5 million during the years 2013, 2012, and 2011, respectively. As of December 31, 2013, we had an accumulated deficit of \$257.3 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 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 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 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. If any of our facilities become unavailable to us, we cannot provide assurances that we will be able to secure a new manufacturing facility on acceptable terms, if at all. The inability to manufacture our products, combined with our limited inventory of manufactured supplies, may result in the loss of customers or harm our reputation, and we may be unable to reestablish relationships with those customers in the future. Although we possess insurance for damage to our property and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all.

The current leases for our manufacturing facility in Singapore will terminate on September 30, 2014 and our current lease for office and laboratory space at our headquarters in South San Francisco expires in April 2020. On October 14, 2013, Fluidigm Singapore Pte. Ltd., or Fluidigm Singapore, our wholly-owned subsidiary, accepted an offer of tenancy relating to the lease of a new manufacturing facility in Singapore, which expires on June 1, 2022. We expect to consolidate our manufacturing operations in the new space in the third quarter of 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 qualification of the new facility, and we cannot assure you that such a move would not delay or otherwise adversely affect our manufacturing activities. If our manufacturing capabilities are impaired by our move, we may not be able to manufacture and ship our products in a timely manner, which would adversely impact our business.

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. For example, we expect to consolidate our manufacturing operations in a new facility in the third quarter of 2014. Such a move will involve significant expense, and we cannot assure you that such a move would not delay or

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

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

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.

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. Additionally, several of our instruments are assembled at the facilities of contract manufacturers in Singapore. We do not have long term contracts with our suppliers of these components and materials or our assembly service providers. The loss of 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, and other specialized materials, that are available from a limited number of sources. In the past, we have encountered quality issues that have reduced our manufacturing yield or required the use of additional manufacturing processes.
- Specialized pneumatic and electronic components for our C₁ 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 are available from a limited number of sources.

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

- we may be subject to increased component or assembly costs;
- we may not be able to obtain adequate supply or services in a timely manner or on commercially reasonable terms;
- our suppliers or service providers may make errors in manufacturing or assembly of components that could negatively affect the efficacy of our products or cause delays in shipment of our products; and
- our suppliers or service providers may encounter capacity constraints or financial hardships unrelated to our demand for components or services, which could inhibit their ability to fulfill our orders and meet our requirements.

We have in the past experienced quality control and supply problems with some of our suppliers, such as manufacturing errors, and may again experience problems in the future. We may not be able to quickly establish additional or replacement suppliers, particularly for our single source components, or assembly service providers. Any interruption or delay in the supply of components or materials or assembly of our instruments, or our inability to obtain components, materials, or assembly services from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers and cause them to cancel orders or switch to competitive products.

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 that use our technology to develop tests, 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, single-cell targeted 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 (now part of Thermo Fisher Scientific), 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., Thermo Fisher Scientific Inc., and WaferGen Bio-systems, Inc. have products that compete in certain segments of the market in which we sell our products.

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. In addition, mergers, consolidations, or other strategic transactions between two or more of our competitors, or between our competitor and one of our key customers, could change the competitive landscape and weaken our competitive position, adversely affecting our business.

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 integrated fluidic circuits, or IFCs, to academic institutions, clinical laboratories that use our technology to develop tests, 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.

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, promoted 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 and intended for research use 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, the FDA could disagree with our conclusion that our products are for research use only. In addition, if we change the labeling or promotion 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 clinical diagnostic or therapeutic 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, promote or advertise 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 regulatory oversight of 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 laboratory offering 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. Recent comments by FDA Commissioner Margaret Hamburg in June 2013 indicate that the FDA is working on a new risk-based framework to regulate LDTs. We cannot predict the ultimate timing or form of any FDA guidance or regulation on LDTs.

Additionally, on November 25, 2013, the FDA issued Final Guidance "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only." The guidance emphasizes that the FDA will review the totality of the circumstances when it comes to evaluating whether equipment and testing components are properly labeled as RUO. The final guidance states that merely including a labeling statement that the product is for research purposes only will not necessarily render the device exempt from the FDA's clearance, approval, 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 or links to articles regarding a product's performance in clinical applications and a manufacturer's provision of technical support for clinical applications. If the FDA imposes significant changes to the regulation of LDTs, or modifies its approach to our products labeled for research use only, it could reduce our revenue or increase our costs and adversely affect our business, prospects, results of operations or financial condition. In addition, if the FDA determined that our products labeled for research use only were intended for use in clinical investigation or diagnosis, those products could be considered misbranded or adulterated under the Federal Food, Drug, and Cosmetic Act.

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 QSR requirements. For clinical diagnostic products that are regulated as medical devices, the FDA enforces the QSR through pre-approved inspections and periodic unannounced inspections of registered manufacturing facilities. If we are subject to QSR requirements, the failure to comply with those requirements or take satisfactory corrective action in response to an adverse QSR inspection could result in enforcement actions, including a public warning letter or an untitled letter, a delay in approving or clearing, or a refusal to approve or clear, our products, 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 addition to our recent acquisition of DVS, we may make additional acquisitions to improve our product offerings or expand into new markets. Our future acquisition strategy will depend on our ability to identify, negotiate, complete, and integrate acquisitions and, if necessary, to obtain satisfactory debt or equity financing to fund those acquisitions. Mergers and acquisitions are inherently risky, and any transaction we complete may not be successful. Our acquisition of DVS was our first acquisition of another company. Any merger or acquisition we may pursue would involve numerous risks, including but not limited to the following:

- difficulties in integrating and managing the operations, technologies, and products of the companies we acquire;
- diversion of our management's attention from normal daily operation of our business;
- our inability to maintain the key business relationships and the reputations of the businesses we acquire;
- our inability to retain key personnel of the acquired company;
- uncertainty of entry into markets in which we have limited or no prior experience and in which competitors have stronger market positions;
- our dependence on unfamiliar affiliates and customers of the companies we acquire;
- insufficient revenue to offset our increased expenses associated with acquisitions;
- our responsibility for the liabilities of the businesses we acquire, including those which we may not anticipate; and
- our inability to maintain internal standards, controls, procedures, and policies.

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

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

The global credit and financial markets have in recent years experienced volatility and disruptions, including diminished liquidity and credit availability, increased concerns about inflation and deflation, and the downgrade of U.S. debt and exposure risks on other sovereign debts, decreased consumer confidence, lower economic growth, volatile energy costs, increased unemployment rates, and uncertainty about economic stability. Volatility and disruption of financial markets could limit our customers' ability to obtain adequate financing or credit to purchase and pay for our products in a timely manner or to maintain operations, which could result in a decrease in sales volume that could harm our results of operations. General concerns about the fundamental soundness of domestic and international economies may also cause our customers to reduce their purchases. Changes in governmental banking, monetary, and fiscal policies to address liquidity and increase credit availability may not be effective. Significant government investment and allocation of resources to assist the economic recovery of sectors which do not include our customers may reduce the resources available for government grants and related funding for life science, Ag-Bio, and clinical research and development. Continuation or further deterioration of these financial and macroeconomic conditions could significantly harm our sales, profitability and results of operations.

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 2013, 2012, and 2011, approximately 48%, 47%, and 47%, 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 will terminate on September 30, 2014 and our current lease for office and laboratory space at our headquarters in South San Francisco expires in April 2020. On October 14, 2013, Fluidigm Singapore accepted an offer of tenancy relating to the lease of a new manufacturing facility in Singapore, which expires on June 1, 2022. We expect to consolidate our manufacturing operations in the new space in the third quarter of 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 qualification of our new facility, and we cannot assure you that such a move would not delay or otherwise adversely affect our manufacturing activities. If our ability to utilize the new facility for manufacturing operations is delayed, we may not be able to meet demand for our microfluidic systems, which could adversely impact our business. We cannot provide assurances that we will be able to secure a lease on a different manufacturing facility on acceptable terms and on a timely basis, if at all, to meet our future manufacturing needs.

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 involves real-time quantitative PCR, or qPCR. Leading suppliers of reagents for real-time qPCR reactions include Life Technologies Corporation (now part of Thermo Fisher Scientific) and Roche 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 C₁ 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 requires that we incur substantial accounting expense and expend significant management time on compliance-related issues. We currently do not have an internal audit group, and we continue to evaluate our need for additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. Moreover, if we do not comply with the requirements of Section 404, or if we or our independent registered public accounting firm identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the NASDAQ Global 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 one or more 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 Our Recent Acquisition of DVS

Actual results relating to DVS may differ from any guidance issued by us concerning future revenue and revenue growth of DVS or the anticipated impact of the acquisition on the operating results of the combined company, and these differences could be material.

We cannot provide assurances with respect to the future revenues or revenue growth rates we may realize as a result of our acquisition of DVS. DVS’s revenues have increased substantially in recent years, and we do not expect revenue growth rates from sales of DVS’s products to continue to grow after the merger at the same rates DVS has experienced in recent periods. Moreover, although its revenues have grown on an annual basis in recent years, DVS has experienced substantial quarter-to-quarter variations in levels of demand and revenue growth for its instruments and consumables, and we expect that these variances may continue in the future. Additional risks and uncertainties that could cause actual results to differ materially from currently anticipated results include, but are not limited to, risks relating to our ability to successfully integrate DVS; our ability to commercialize DVS products; market acceptance of DVS products; our ability to successfully launch new products and applications in DVS’s target markets; competition; our sales, marketing and distribution capabilities; our planned sales, marketing, and research and development activities; reduction in research and development spending or changes in budget priorities by customers; interruptions or delays in the supply of components or materials for, or manufacturing of, DVS’s products, which in certain cases are purchased through sole and single source suppliers; seasonal variations in customer operations; unanticipated increases in costs or expenses; risks associated with international operations; and the other risks identified in this prospectus and the documents incorporated by reference in this prospectus. Our actual financial condition and results of operations following the DVS acquisition may not be consistent with, or evident from, the guidance we provide. Other unknown or unpredictable factors also could harm our results. Consequently, actual results or developments anticipated

by us may not be realized or, even if substantially realized, may not have the expected consequences to, or effects on, us. Any failure to meet such guidance could have a material adverse effect on the trading price or volume of our stock.

Any failure to successfully integrate DVS's business and operations or fully realize potential synergies from the acquisition in the expected time frame would adversely affect our business, operating results, and financial condition.

We do not have a history of acquiring other companies, and the success of the DVS acquisition will depend, in part, on our ability to successfully integrate DVS's business and operations and fully realize the anticipated benefits and potential synergies from combining our business with DVS's business. To realize these anticipated benefits and potential synergies, we must successfully combine these businesses. If we are unable to achieve these objectives following the acquisition, the anticipated benefits and potential synergies from the acquisition may not be realized fully or at all, or may take longer to realize than expected. Any failure to timely realize these anticipated benefits would have a material adverse effect on our business, operating results, and financial condition.

We completed our acquisition of DVS in February 2014 and have only begun the integration process. In connection with the integration process, we could experience the loss of key employees, loss of key customers, decreases in revenues and increases in operating costs, as well as the disruption of our ongoing businesses, any or all of which could limit our ability to achieve the anticipated benefits and potential synergies from the acquisition and have a material adverse effect on our business, operating results, and financial condition.

DVS licenses core intellectual property rights covering its products under agreements with several third parties. Termination of or disputes relating to any of these license agreements would have a material adverse effect on our business, operating results, and financial condition and could result in our inability to sell DVS's flow cytometry products and otherwise to realize the benefits associated with the acquisition.

The intellectual property rights covering DVS's products depend in substantial part on license agreements with third parties, in particular MDS, Inc., or MDS, and also with other third parties such as Nodality, Inc., or Nodality. We understand that the licensed intellectual property rights of MDS as well as MDS's rights and obligations under the license agreement between DVS Sciences Inc., an Ontario corporation and wholly-owned subsidiary of DVS ("DVS Canada," which changed its name to Fluidigm Canada Inc. immediately subsequent to the acquisition of its parent company), and MDS were subsequently assigned to and are now held by PerkinElmer Health Sciences, Inc., or PerkinElmer. Under the PerkinElmer license agreement, DVS Canada received an exclusive, royalty bearing, worldwide license to certain patents that are now owned by PerkinElmer in the field of ICP-based flow cytometry, including the analysis of elemental tagged materials in connection therewith, and a non-exclusive license for reagents outside the field of ICP-based flow cytometry. DVS was also party to an interim license agreement, now expired, under which Nodality granted DVS a worldwide, non-exclusive, research use only, royalty bearing license to certain cytometric reagents, instruments, and other products. DVS and Nodality are currently in negotiations with respect to a license agreement that would have a term ending when the last licensed patent expires. In addition, DVS is party to additional in-license agreements with parties such as Stanford University that relate to significant intellectual property rights, and DVS's business and product development plans anticipate and will substantially depend on future in-license agreements with additional third parties, some of which are currently in the early discussion phase.

In-licensed intellectual property rights that are fundamental to the business being operated present numerous risks relating to ownership and enforcement of intellectual property rights. For example, under the PerkinElmer license, DVS is not granted any right, and we do not have any right to bring enforcement actions with respect to the patents licensed from PerkinElmer, which could materially impair our ability to preclude competitors and other third parties from activities that we consider to infringe on our exclusively licensed rights. In other cases such as with Nodality, all or a portion of the license rights granted may be limited for research use only, and in the event we attempt to expand into diagnostic applications, we would be required to negotiate additional rights, which may not be available to us on commercially reasonable terms, if at all.

In addition, DVS's licensors, including licensors of DVS Canada, may generally terminate the applicable license agreement for uncured material breaches or if DVS becomes insolvent, makes an assignment for the benefit of creditors, or has a petition in bankruptcy filed against it. In the case of Nodality, the existing license recently has expired and our acquisition of DVS acquisition could adversely affect DVS's ability to negotiate a definitive license on the currently anticipated terms. Termination of material license agreements for any reason, including as a result of failure to obtain a required consent to assignment or as a result of an inability to negotiate a new or extended license where required, would result in a material loss of rights by us and DVS and would be expected to have a material adverse effect on our business, operating results, and financial condition. In particular, any such termination could prevent us from manufacturing and selling DVS's products unless we can negotiate new license terms or develop or acquire alternative intellectual property rights that cover or enable similar functionality. While we do not believe that any existing material in-license agreements require the consent of the licensor in order for us to rely on these licenses, the question is not free from doubt, and one or more of DVS's or DVS Canada's licensors, including PerkinElmer, could contend that the failure to obtain their consent constituted a breach or default under the applicable license agreement or require the negotiation of a new license. In the case of a dispute over these or other terms of the applicable

license agreements with any of DVS's or DVS Canada's licensors, we cannot provide assurances that we will be able to negotiate a new or amended license on commercially reasonable terms, if at all. Any dispute between us and one of DVS's or DVS Canada's existing licensors concerning the terms or conditions of the applicable license agreement, including with respect to its continued application following the acquisition, could result, among other risks, in substantial management distraction at a time when our management would need to focus on the integration of Fluidigm and DVS; increased expenses associated with litigation or efforts to resolve disputes; substantial customer uncertainty concerning the direction of the combined companies' business; potential infringement claims against us and/or our customers, which could include efforts by a licensor to enjoin sales of DVS or DVS Canada's products; customer requests for indemnification by Fluidigm; and, in the event of an adverse determination, our inability to operate the business of DVS as currently operated or at all. Any of these factors would be expected to have a material adverse effect on our business, operating results, and financial condition and could result in a substantial decline in our stock price.

We cannot provide assurances that existing provisional application filings by DVS will result in issued patents or that any issued patents filed by DVS or its licensors will protect DVS's technology.

DVS has sought patent protection in the United States and internationally for certain aspects of its technology through licensed intellectual property and owned intellectual property. A significant portion of DVS's owned patent portfolio is in the form of provisional application filings that would need to be converted to non-provisional U.S. patent applications or international patent applications. We cannot be sure that patents will be granted with respect to any of DVS's owned or licensed pending patent applications or with respect to any patent applications filed by DVS or its licensors in the future, nor can we be sure that any of DVS's existing owned or licensed patents or any patents that may be granted to DVS or its licensors in the future will protect such technology. For aspects of DVS's technology for which patent protection may not be available, it has relied on protection through trade secrets, know-how, or continuing technological innovation.

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

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

We have made certain assumptions relating to the DVS acquisition which may prove to be materially inaccurate.

We have made certain assumptions relating to the DVS acquisition, which assumptions may be inaccurate, including as the result of the failure to realize the expected benefits of the DVS acquisition, failure to realize expected revenue growth rates, higher than expected operating, transaction and integration costs, as well as general economic and business conditions that adversely affect the combined company following the DVS acquisition. These assumptions relate to numerous matters, including:

- projections of DVS's revenue growth rates and future revenues;
- our expected capital structure after the DVS acquisition;
- the amount of goodwill and intangibles that will result from the DVS acquisition;

- certain other purchase accounting adjustments that we expect will be recorded in our financial statements in connection with the DVS acquisition;
- acquisition costs, including restructuring charges and transaction costs;
- our ability to maintain, develop and deepen relationships with customers of DVS; and
- other financial and strategic risks of the DVS acquisition.

We and DVS may have difficulty attracting, motivating and retaining executives and other key employees in light of the acquisition.

Uncertainty about the effect of the acquisition on our and DVS's employees may have an adverse effect on us or DVS and, consequently, the combined business resulting from the acquisition. This uncertainty may impair our and DVS's ability to attract, retain and motivate key personnel in the months after the merger for the combined entity. Employee retention may be particularly challenging as our and DVS's employees may experience uncertainty about their future roles with the combined business. Additionally, as a result of the acquisition, key employees became entitled to receive a portion of the acquisition consideration, the payment of which could provide sufficient financial incentive for certain officers and employees to no longer pursue employment with the combined business. In particular, we have identified several key employees, including key scientific and technical employees, who have been important to the development of DVS's products and technologies, and we have implemented employment compensation arrangements in connection with the acquisition to ensure these individuals' continued employment with us. We cannot provide assurances that these arrangements will sufficiently incentivize these key employees to remain with Fluidigm or DVS after the acquisition. If key employees depart because of issues relating to the uncertainty and difficulty of integration, financial incentives or a desire not to become employees of the combined business, we may incur significant costs in identifying, hiring and retaining replacements for departing employees, which could substantially reduce or delay our ability to realize the anticipated benefits of the acquisition.

Our and DVS's business relationships, including customer relationships, may be subject to disruption due to uncertainty associated with the acquisition.

Parties with which we or DVS do business may experience uncertainty associated with the acquisition, including with respect to current or future business relationships with us, DVS, or the combined business. These business relationships may be subject to disruption as customers and others may attempt to negotiate changes in existing business relationships or consider entering into business relationships with parties other than us, DVS, or the combined business, including our competitors or those of DVS. These disruptions could have a material adverse effect on the businesses, operating results, and financial condition of the combined business.

DVS or its employees may be subject to damages resulting from claims that it or its employees wrongfully used or disclosed alleged trade secrets of former employers of DVS employees or other institutions or third parties with whom DVS employees may have been previously affiliated.

Many of DVS's employees, including its founders, were previously employed at universities or other life science companies, including current or potential competitors of DVS or Fluidigm. Although no litigation against DVS is currently pending, DVS has in the past received notices from third parties alleging potential disclosures of confidential information. As a result, we could become subject to claims that DVS employees inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers or other third parties or institutions with whom DVS employees may have been previously affiliated. 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 intellectual property rights of DVS. A loss of key work product of DVS personnel could hamper or prevent our ability to commercialize certain potential products, which could severely harm DVS's business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

We will incur significant acquisition-related integration costs in connection with the acquisition.

We have developed a plan to integrate the operations of DVS with our business. In connection with that plan, we anticipate that we will incur certain non-recurring charges in connection with this integration; however, we cannot identify the timing, nature and amount of all such charges as of the date of this report. Further, we incurred significant transaction costs relating to negotiating and completing the acquisition. These integration costs and transaction expenses will be charged as an expense in the period incurred. The significant transaction costs and acquisition-related integration costs could materially affect our results of operations in the period in which such charges are recorded. Although we believe that the elimination of duplicative costs, as well as the realization of other efficiencies related to the integration of the business, will offset incremental transaction and acquisition-related costs over time, this net benefit may not be achieved in the near term, or at all.

The stated value of long-lived and intangible assets may become impaired and result in an impairment charge.

As of September 30, 2013, after giving pro forma effect to the DVS acquisition, we would have had approximately \$235 million of intangible assets and goodwill on a pro forma combined basis, all of which relates to the acquisition of DVS. In addition, if in the future we acquire additional complementary businesses or technologies, a substantial portion of the value of such assets may be recorded as intangible assets or goodwill. The carrying amounts of intangible assets and goodwill are affected whenever events or changes in circumstances indicate that the carrying amount of any asset may not be recoverable. Such events or changes might include a significant decline in market share, a significant decline in revenues, a significant increase in losses or decrease in profits, rapid changes in technology, failure to achieve the benefits of capacity increases and utilization, significant litigation arising out of an acquisition or other matters. Adverse events or changes in circumstances may affect the estimated undiscounted future operating cash flows expected to be derived from intangible assets and goodwill. If at any time we determine that an impairment has occurred, we will be required to reflect the impaired value as a charge, resulting in a reduction in earnings in the quarter such impairment is identified and a corresponding reduction in our net asset value. The potential recognition of impairment in the carrying value, if any, could have a material and adverse effect on our financial condition and results of operations.

Risks Related to Intellectual Property

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

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

Furthermore, the laws of some foreign countries may not protect our intellectual property rights to the same extent as do the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business. Changes in either the patent laws or in interpretations of patent laws in the United States or other countries may diminish the value of our intellectual property. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. For example:

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

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

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

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

margins or financial position. Further, we could encounter delays in product introductions, or interruptions in product sales, as we develop alternative methods or products.

As we move into new markets and applications for our products, incumbent participants in such markets may assert their patents and other proprietary rights against us as a means of impeding our entry into such markets or as a means to extract substantial license and royalty payments from us. Our commercial success may depend in part on our non-infringement of the patents or proprietary rights of third parties. Numerous significant intellectual property issues have been litigated, and will likely continue to be litigated, between existing and new participants in our existing and targeted markets. For example, some of our products provide for the testing and analysis of genetic material, and patent rights relating to genetic materials remain a developing area of patent law. A recent U.S. Supreme Court decision held, among other things, that claims to isolated genomic DNA occurring in nature are not patent eligible, while claims relating to synthetic DNA may be patent eligible. We expect the ruling will result in additional litigation in our industry. In addition, third parties may assert that we are employing their proprietary technology without authorization. For example, on June 4, 2008 we received a letter from Applied Biosystems, Inc., a wholly-owned subsidiary of Life Technologies Corporation (now part of Thermo Fisher Scientific and collectively referred to as Life), 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 license agreements with Life which, among other matters, granted us a non-exclusive license to the '934 patent and its foreign counterparts.

Our customers have been sued for various claims of intellectual property infringement in the past, and we expect that our customers will be involved in additional litigation in the future. In particular, our customers may become subject to lawsuits claiming that their use of our products infringes third-party patent rights, and we could become subject to claims that we contributed to or induced our customer's infringement. In addition, our agreements with some of our suppliers, distributors, customers, and other entities with whom we do business may require us to defend or indemnify these parties to the extent they become involved in infringement claims against us, including the claims described above. We could also voluntarily agree to defend or indemnify third parties in instances where we are not obligated to do so if we determine it would be important to our business relationships. If we are required or agree to defend or indemnify any of these third parties in connection with any infringement claims, we could incur significant costs and expenses that could adversely affect our business, operating results, or financial condition.

We 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. For example, pursuant to the terms of a license agreement entered into with Life in June 2011, we were obligated to make a \$1.0 million payment to Life upon satisfaction of certain conditions. On October 16, 2013, Life provided notice that the \$1.0 million payment was due and payable under the license agreement. We believe that at least one of the conditions of the milestone payment remains unmet; however, we paid Life the amount due while reserving our rights with respect to such matter to, among other reasons, avoid what would have been, in our view, an improper termination of our license to certain Life patent filings under the agreement, which could have subject our relevant product lines to risks associated with patent infringement litigation.

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, the sole licensor subject to the requirement applied for a waiver of the domestic manufacturing requirement with respect to the relevant patents licensed to us by this licensor. In July 2009, the funding government agency granted the requested waiver of the domestic manufacturing requirement for a three-year period commencing in July 2009. In June 2012, the licensor requested a continued waiver of the domestic manufacturing requirement with respect to the relevant patents, but the government agency has not yet taken any action in response to this request. If the government agency does not grant the requested waiver or the government fails to grant additional waivers of such requirement that may be sought in the future, then the U.S. government could exercise its march-in rights with respect to the relevant patents licensed to us. In addition, the license agreement under which the relevant patents are licensed to us contains provisions that obligate us to comply with this domestic manufacturing requirement. We are not currently manufacturing instruments and IFCs in the United States that incorporate the relevant licensed technology. If our lack of compliance with this provision constituted a material breach of the license agreement, the license of the relevant patents could be terminated or we could be compelled to relocate our manufacturing of microfluidic systems and IFCs to the United States to avoid or cure a material breach of the license agreement. Any of the exercise of march-in rights, the termination of our license of the relevant patents or the relocation of our manufacturing of microfluidic systems and IFCs to the United States could materially adversely affect our business, operations and financial condition.

We may be subject to 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, 2013, we had 25,810,890 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 55% 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/or trading volume could decline.

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

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, 2013, our current executive officers, directors, stockholders holding at least 5% of our outstanding stock, and their respective affiliates, collectively beneficially owned or controlled approximately 56% 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.

Risks Related to Our Outstanding 2.75% Senior Convertible Notes due 2034

Our outstanding 2.75% senior convertible notes due 2034 are effectively subordinated to our secured debt and any liabilities of our subsidiaries.

Our outstanding 2.75% senior convertible notes due 2034, which we refer to as our "notes" rank:

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

In February 2014, we completed our offering of notes with an aggregate outstanding principal amount of \$201.3 million. In the event of our bankruptcy, liquidation, reorganization or other winding up, our assets that secure debt ranking senior in right of payment to the notes will be available to pay obligations on the notes only after the secured debt has been repaid in full from these assets, and the assets of our subsidiaries will be available to pay obligations on the notes only after all claims senior to the notes have been repaid in full. There may not be sufficient assets remaining to pay amounts due on any or all of the notes then outstanding. The indenture governing the notes does not prohibit us from incurring additional senior debt or secured debt, nor does it prohibit our subsidiaries from incurring additional liabilities.

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

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

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

We expect that many investors in, and potential purchasers of, the notes will employ, or seek to employ, a convertible arbitrage strategy with respect to the notes. Investors would typically implement such a strategy by selling short the common stock underlying the notes and dynamically adjusting their short position while continuing to hold the notes. Investors may also implement this type of strategy by entering into swaps on our common stock in lieu of or in addition to short selling the

common stock. As a result, any specific rules regulating equity swaps or short selling of securities or other governmental action that interferes with the ability of market participants to effect short sales or equity swaps with respect to our common stock could adversely affect the ability of investors in, or potential purchasers of, the notes to conduct the convertible arbitrage strategy that we believe they will employ, or seek to employ, with respect to the notes. This could, in turn, adversely affect the trading price and liquidity of the notes.

The SEC and other regulatory and self-regulatory authorities have implemented various rules and taken certain actions, and may in the future adopt additional rules and take other actions, that may impact those engaging in short selling activity involving equity securities (including our common stock). Such rules and actions include Rule 201 of SEC Regulation SHO, the adoption by the Financial Industry Regulatory Authority, Inc. and the national securities exchanges of a “Limit Up-Limit Down” program, the imposition of market-wide circuit breakers that halt trading of securities for certain periods following specific market declines, and the implementation of certain regulatory reforms required by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Although the direction and magnitude of the effect that Regulation SHO, FINRA, securities exchange rule changes and implementation of the Dodd-Frank Act may have on the trading price and the liquidity of the notes will depend on a variety of factors, many of which cannot be determined at the date of the prospectus, past regulatory actions (such as certain emergency orders issued by the SEC in 2008 prohibiting short sales of stock of certain financial services companies) have had a significant impact on the trading prices and liquidity of convertible debt instruments. Any governmental or regulatory action that restricts the ability of investors in, or potential purchasers of, the notes to effect short sales of our common stock, borrow our common stock or enter into swaps on our common stock or increases the costs of implementing an arbitrage strategy could adversely affect the trading price and the liquidity of the notes.

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

The stock market in recent years has experienced significant price and volume fluctuations that have often been unrelated to the operating performance of companies. The market price of our common stock could fluctuate significantly for many reasons, including in response to the risks described in this section, elsewhere in this prospectus and the documents we have incorporated by reference herein, or for reasons unrelated to our operations, such as reports by industry analysts, investor perceptions or negative announcements by our customers, competitors or suppliers regarding their own performance, as well as industry conditions and general financial, economic and political instability. A decrease in the market price of our common stock would likely adversely impact the trading price of the notes. The market price of our common stock could also be affected by possible sales of our common stock by investors who view the notes as a more attractive means of equity participation in us and by hedging or arbitrage trading activity that we expect to develop involving our common stock. This trading activity could, in turn, affect the trading price of the notes.

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

We currently have a financing arrangement pursuant to which we may incur up to \$10 million of revolver borrowings and our subsidiaries may be able to incur substantial additional debt, subject to the restrictions contained in such arrangement or our future debt instruments, some of which may be secured debt. We are not restricted under the terms of the indenture governing the notes from incurring additional debt, securing existing or future debt, recapitalizing our debt or taking a number of other actions that are not limited by the terms of the indenture governing the notes that could have the effect of diminishing our ability to make payments on the notes when due. Any failure by us or any of our significant subsidiaries to make any payment at maturity of indebtedness for borrowed money in excess of \$15 million or the acceleration of any such indebtedness in excess of \$15 million would, subject to the terms of the indenture governing the notes, constitute a default under the indenture. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the notes when required.

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

Holders of the notes have the right to require us to repurchase all or a portion of their notes on certain dates or upon the occurrence of a fundamental change at a repurchase price equal to 100% of the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any. We may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of notes surrendered therefor.

In addition, our ability to repurchase the notes may be limited by law, regulatory authority or agreements governing our future indebtedness. Our failure to repurchase notes at a time when the repurchase is required by the indenture would constitute a default under the indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the notes when required.

Future sales of our common stock in the public market could cause our stock price to decline and adversely impact the trading price of the notes.

In the future, we may sell additional shares of our common stock to raise capital. The market price of our common stock could decline as a result of sales of a large number of shares of our common stock in the market, particularly sales by our directors, executive officers, employees, and significant stockholders, and the perception that these sales could occur may also depress the market price of our common stock and the trading price of the notes. As of December 31, 2013, we had 25,810,890 shares of common stock outstanding.

Substantial sales of our common stock may make it more difficult for us to sell equity or equity-linked securities in the future at a time and at a price that we deem appropriate. These sales also could cause our stock price and the trading price of the notes to fall and make it more difficult for holders of the notes or the shares of our common stock received upon conversion of the notes.

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

Holders of notes are not entitled to any rights with respect to our common stock (including, without limitation, voting rights and rights to receive any dividends or other distributions on our common stock) prior to the conversion date with respect to any notes they surrender for conversion, but they are subject to all changes affecting our common stock. For example, if an amendment is proposed to our certificate of incorporation or bylaws requiring stockholder approval and the record date for determining the stockholders of record entitled to vote on the amendment occurs prior to the conversion date with respect to any notes surrendered for conversion, then the holder surrendering such notes will not be entitled to vote on the amendment, although such holder will nevertheless be subject to any changes affecting our common stock.

We have made only limited covenants in the indenture governing the notes, and these limited covenants may not protect your investment.

The indenture governing the notes does not:

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

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

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

If a make-whole fundamental change occurs prior to February 6, 2021 or upon our issuance of a notice of provisional redemption, under certain circumstances, we will increase the conversion rate by a number of additional shares of our common stock for notes converted in connection such events. The increase in the conversion rate for notes converted in connection with such events may not adequately compensate you for any lost value of your notes as a result of such transaction or redemption. In addition, if the price of our common stock in the transaction is greater than \$180.00 per share or less than \$39.96 per share

(in each case, subject to adjustment), no additional shares will be added to the conversion rate. Moreover, in no event will the conversion rate per \$1,000 principal amount of notes as a result of this adjustment exceed 25.0250 shares of common stock, subject to adjustment.

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

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

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

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

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

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

We cannot assure you that an active trading market will develop for the notes.

There has historically been no trading market for the notes, and we do not intend to apply to list the notes on any securities exchange or to arrange for quotation on any automated dealer quotation system. In addition, the liquidity of the trading market in the notes and the market price quoted for the notes may be adversely affected by changes in the overall market for this type of security and by changes in our financial performance or prospects or in the prospects for companies in our industry generally. As a result, we cannot assure you that an active trading market will develop for the notes. If an active trading market does not develop or is not maintained, the market price and liquidity of the notes may be adversely affected. In that case you may not be able to sell your notes at a particular time or you may not be able to sell your notes at a favorable price.

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

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

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

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

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

Any conversion of some or all of the notes will dilute the ownership interests of our existing stockholders. Any sales in the public market of our common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the notes may encourage short selling by market participants because the conversion of the notes could depress the price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease approximately 48,000 square feet of office and laboratory space at our headquarters in South San Francisco, California under a lease that expires in April 2020. The leases for approximately 28,000 square feet of manufacturing and office space at our current facility in Singapore will terminate on September 30, 2014. Additionally, we have entered into a lease for a new manufacturing facility in Singapore, which expires on June 1, 2022, and we expect to consolidate our manufacturing operations in the new space in the third quarter of 2014. As of December 31, 2013, we also leased office space in Japan, China, and France, with various expiration dates through March 2016. We believe that our existing office, laboratory and manufacturing space, together with additional space and facilities under our new Singapore lease and otherwise available on commercially reasonable terms, will be sufficient to meet our needs through 2016. 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 sought 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. On April 22, 2013, we amended our complaint to add new facts and information in support of our existing claims. On May 9, 2013, NanoString filed an amended answer, denying the further allegations against it. The parties engaged in written discovery and document production, and a jury trial was set to begin on March 24, 2014. In addition, we filed a lawsuit on April 5, 2013 in Singapore against NanoString in the High Court of the Republic of Singapore (Case No. S 282/2013), alleging malicious falsehood in advertising and trademark infringement and sought relief similar to the relief sought in our complaint filed in the United States. On September 30, 2013, we and NanoString agreed to settle the lawsuits. The terms of the settlement require NanoString to, among other things, remove all references – from its marketing materials, website, and promotional activities – to a single-cell comparison study comparing Fluidigm and NanoString single-cell products, as well as recall and destroy all materials related to and/or based on the study. The case brought in the United States District Court in the Northern District of California was dismissed on October 22, 2013, and the case brought in Singapore was discontinued on October 29, 2013.

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:

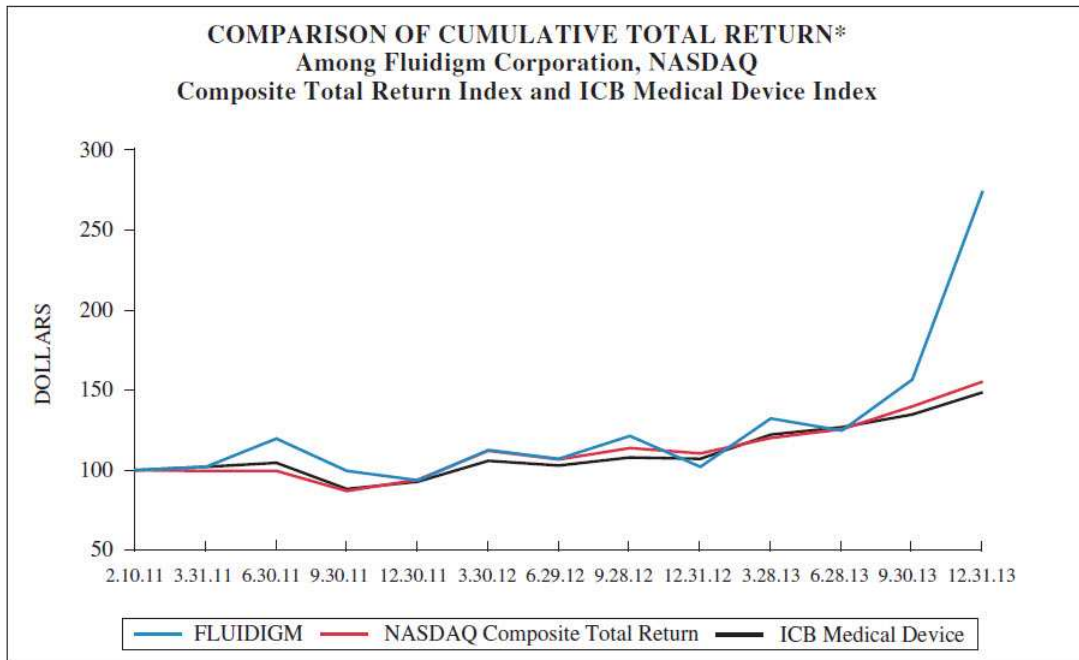
<u>Year ended December 31, 2013</u>	<u>High</u>	<u>Low</u>
First Quarter	\$19.38	\$14.27
Second Quarter	\$19.04	\$16.00
Third Quarter	\$23.26	\$16.59
Fourth Quarter	\$39.37	\$21.55
<u>Year ended December 31, 2012</u>	<u>High</u>	<u>Low</u>
First Quarter	\$16.51	\$12.60
Second Quarter	\$15.75	\$12.70
Third Quarter	\$17.15	\$12.80
Fourth Quarter	\$17.10	\$13.63

We had approximately 130 stockholders of record as of February 28, 2014; 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, 2013 of cumulative total return for our common stock, the NASDAQ Composite Total Return Index, and the ICB Medical Equipment Index. Such returns are based on historical results and are not intended to suggest future performance. Data for the NASDAQ Composite Total Return Index, and the ICB Medical Equipment assume 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, 2013, 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, \$44.3 million for research and development expenses, \$10.2 million for general corporate purposes including selling, general and administrative expenses, and litigation settlement expense, and \$7.5 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 (now part of Thermo Fisher Scientific), 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.

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, 2013, 2012, and 2011 and consolidated balance sheet data as of December 31, 2013 and 2012 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, 2010 and December 31, 2009 and the consolidated balance sheet data as of December 31, 2011, December 31, 2010, and December 31, 2009 were derived from audited consolidated financial statements that are not included in this Form 10-K.

	Year Ended				
	December 31, 2013	December 31, 2012	December 31, 2011	December 31, 2010	December 31, 2009
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Total revenue	\$ 71,183	\$ 52,334	\$ 42,865	\$ 33,560	\$ 25,412
Loss from operations	(18,653)	(18,071)	(18,566)	(14,573)	(18,037)
Net loss attributed to common stockholders	(16,526)	(19,024)	(32,370)	(16,902)	(19,128)
Net loss per share attributed to common stockholders, basic and diluted	(0.65)	(0.86)	(1.81)	(8.94)	(11.02)
Consolidated Balance Sheet Data:					
Cash, cash equivalents, and short and long-term investments	\$ 86,286	\$ 83,677	\$ 54,967	\$ 5,723	\$ 14,602
Working capital	89,354	91,500	51,873	3,705	22,112
Total assets	116,915	113,732	79,326	24,801	32,153
Total long-term debt	—	—	10,138	14,700	14,461
Convertible preferred stock	—	—	—	184,550	183,845
Total stockholders' equity (deficit)	96,414	100,657	56,897	(189,167)	(173,619)

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

The following discussion and analysis should be read together with our consolidated financial statements and the notes to those statements included elsewhere in this Form 10-K. This discussion contains forward-looking statements based on our current expectations, assumptions, estimates and projections about Fluidigm and our industry. These forward-looking statements involve risks and uncertainties. Our actual results could differ materially from those indicated in these forward-looking statements as a result of certain factors, as more fully described in "Risk factors" in Item 1A of this Form 10-K, in this Item 7, and elsewhere in this Form 10-K. Except as may be required by law, we undertake no obligation to update publicly any forward-looking statements for any reason, even if new information becomes available or other events occur in the future.

On February 13, 2014, we completed the acquisition of DVS Sciences, Inc., or DVS, which develops, manufactures, markets, and sells multi-parameter single-cell protein analysis systems. The information set forth in the following discussion and analysis relates principally to our business of manufacturing, marketing, and selling microfluidic systems for single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. For information relating to the acquisition of DVS and DVS's business, please refer to the sections entitled "Business—Recent Developments—Acquisition of DVS Sciences, Inc." and "—Business of DVS."

Overview

We develop, manufacture, and market microfluidic systems to academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and agricultural biotechnology (Ag-Bio) companies in growth markets, such as single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. Our proprietary microfluidic systems consist of instruments and consumables, including integrated fluidic circuits (IFCs), assays, and reagents. We actively market four microfluidic systems, including 18 different commercial IFCs, and three families of assay chemistries. Our systems are designed to significantly simplify experimental workflow, increase throughput, and reduce costs, while providing excellent data quality. In addition, our proprietary technology enables genetic analysis that in many instances was previously impractical. As of December 31, 2013, we sold approximately 920 systems to customers in 35 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 System for high-throughput gene expression analysis, single-cell targeted gene expression analysis, SNP genotyping, and digital PCR in 2011; and our C₁ Single-Cell Auto Prep System for single cell sample preparation 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, several of which are assembled at facilities of our contract manufacturers in Singapore, with testing and calibration of the assembled products performed at our Singapore facility. All of our IFCs for commercial sale and some IFCs for our research and development purposes are fabricated at our Singapore facility. Our South San Francisco facility fabricates IFCs for our research and development purposes, and manufactures our assays and produces other reagents for commercial sale.

Our total revenue grew from \$42.9 million in 2011 to \$71.2 million in 2013. We have incurred significant net losses since our inception in 1999 and, as of December 31, 2013, our accumulated deficit was \$257.3 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 product revenue consists of sales of instruments and related services, and consumables, including IFCs, assays, and other reagents.

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

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

Certain of our sales contracts involve the delivery of multiple products or services within contractually binding arrangements. Significant judgment is sometimes required to determine the appropriate accounting for such arrangements, including whether the deliverables specified in a multiple element arrangement should be treated as separate units of accounting for revenue recognition purposes and, if so, how the related sales price should be allocated among the elements, when to recognize revenue for each element, and the period over which revenue should be recognized.

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

Our products, 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 terms of one to three years, following the expiration of the warranty period.

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

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.

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.

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 2013, 2012, and 2011. 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 \$6.4 million, \$4.1 million, and \$2.8 million during 2013, 2012, and 2011, respectively. As of December 31, 2013, we had \$15.7 million of unrecognized stock-based compensation costs, which are expected to be recognized over an average period of 2.6 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.

We have not provided for U.S. federal and state income taxes on any of our non-U.S. subsidiaries' undistributed earnings as of December 31, 2013 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 \$0.4 million at December 31, 2013.

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,		
	2013	2012	2011
<i>Revenue:</i>			
Instruments	\$41,053	\$29,152	\$25,190
Consumables	29,145	22,336	15,391
Product revenue	70,198	51,488	40,581
License and collaboration revenue	327	185	1,716
Grant revenue	658	661	568
Total revenue	<u>\$71,183</u>	<u>\$52,334</u>	<u>\$42,865</u>

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,					
	2013		2012		2011	
United States	\$36,308	52%	\$27,325	53%	\$21,644	53%
Europe	18,472	26%	13,086	26%	10,499	26%
Japan	6,639	10%	3,840	7%	3,942	10%
Asia Pacific	6,564	9%	6,321	12%	3,698	9%
Other	2,215	3%	916	2%	798	2%
Total	<u>\$70,198</u>	100%	<u>\$51,488</u>	100%	<u>\$40,581</u>	100%

Our license and collaboration and grant 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 18%, 17%, and 16% of revenue in 2013, 2012, and 2011, respectively.

Comparison of the Years Ended December 31, 2013 and December 31, 2012

Total Revenue

Total revenue increased by \$18.8 million, or 36%, to \$71.2 million for 2013, compared to \$52.3 million for 2012 primarily due to product revenue.

Product Revenue

Product revenue increased by \$18.7 million, or 36%, to \$70.2 million for 2013, compared to \$51.5 million for 2012.

Instrument revenue increased by \$11.9 million, or 41%, primarily driven by increases in unit sales of our preparatory systems, which include our C₁ Single-Cell Auto Prep System, first sold as a new product in the third quarter of 2012, and to a lesser extent, increases in unit sales of our BioMark HD System. Increased sales of our service offerings and higher average selling prices of our instrument systems also contributed to the increase in instrument revenue. The revenue increase was offset in part by lower unit sales of our EP1 System.

Consumables revenue increased by \$6.8 million, or 30%, primarily due to growth in overall IFC unit volume, driven mainly by increased sales to production genomics customers. Annualized IFC pull-through for our analytical systems was within our historical range of \$40,000 to \$50,000 per system and above our historical range of \$10,000 to \$15,000 per system for preparatory systems. Going forward, we expect IFC pull-through for our preparatory systems to range from \$15,000 to \$25,000 per system per year. Increases in assays and reagents sales also contributed to the increase in consumables revenue.

We expect total unit sales of both instruments and consumables to increase over time as we continue our efforts to grow our customer base, expand our geographic market coverage, and launch new products. However, we expect the average selling prices of our products to fluctuate over time based on market conditions, product mix, and currency fluctuations.

Grant Revenue

Grant revenue consists of a grant from the California Institute for Regenerative Medicine (CIRM). Grant revenue was \$0.7 million in each of 2013 and 2012. Our 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 2014 to be less than 2013 as our grant from CIRM expires in April 2014.

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, 2013	December 31, 2012
Cost of product revenue	\$ 20,204	\$ 15,325
Product margin	71%	70%

Cost of product revenue includes manufacturing costs incurred in the production process, including component materials, labor and overhead, installation, packaging, and delivery costs. In addition, cost of product revenue includes 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 and grant revenue are included in research and development expense.

Cost of product revenue increased by \$4.9 million, or 32%, to \$20.2 million for 2013 from \$15.3 million for 2012 primarily due to increased product revenue. Cost of product revenue as a percentage of related revenue was 29% and 30% for 2013 and 2012, respectively. This improvement was driven by higher average unit selling prices for instruments and IFCs; a favorable change in the instruments sales mix primarily due to increased sales of our higher margin C₁ Single-Cell Auto Prep System, first sold as a new product in the third quarter of 2012; and higher IFC capacity utilization and improved production yields. This was offset in part primarily by higher inventory reserves and write-offs and higher service costs.

Operating Expenses

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

	Year Ended	
	December 31, 2013	December 31, 2012
Research and development	\$ 19,953	\$ 16,602
Selling, general and administrative	48,412	38,478
Litigation settlement	1,267	—
Total operating expenses	<u>\$ 69,632</u>	<u>\$ 55,080</u>

Research and Development

Research and development expense consists primarily of personnel and independent contractor costs, prototype and material expenses and other allocated facilities, and information technology expenses. We have made substantial investments in research and development since our inception. Our research and development efforts have focused primarily on enhancing our technologies and supporting development and commercialization of new and existing products and services.

Research and development expense was \$20.0 million for 2013, an increase of \$3.4 million, or 20%, compared to \$16.6 million for 2012. The increase in research and development expense was primarily due to an increase in headcount and other compensation-related costs of \$2.2 million, an increase in facility expenses of \$0.7 million, and an increase in outside services of \$0.3 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 these expenses will 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 \$9.9 million, or 26%, to \$48.4 million for 2013, compared to \$38.5 million for 2012. The increase was primarily due to headcount and other compensation-related costs of \$7.1 million,

higher sales and marketing activities of \$1.1 million, and an increase in legal fees of \$0.9 million. The increase was primarily driven by expansion of worldwide commercial capabilities and, to a lesser extent, general and administrative expense to support our growth.

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

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.

Pursuant to the terms of a patent cross license agreement with Applied Biosystems, LLC (a subsidiary of Life Technologies Corporation, or Life, and now part of Thermo Fisher Scientific), we were obligated to make a \$1.0 million payment to Life upon satisfaction of certain conditions. We do not believe that the conditions triggering the payment obligation have been met; however, on October 16, 2013, Life provided notice that the \$1.0 million payment was due and payable under the license agreement. We accrued a loss contingency of \$1.0 million as of September 30, 2013 and on January 30, 2014, we paid Life the amount due while reserving our rights with respect to the matter. Among other reasons, we made the payment to avoid what would have been, in our view, an improper termination of our license to certain Life patent filings under the agreement, which could have subjected our relevant product lines to risks associated with patent infringement litigation.

Interest Expense and Other Income and Expense, Net

We have incurred interest expense and amortization of debt discount related to our long-term debt. The following table presents these items for each period presented (in thousands):

	Year Ended	
	December 31, 2013	December 31, 2012
Interest expense	\$ (14)	\$ (628)
Gain from sale of investment in Verinata	1,777	—
Other income (expense), net	501	(189)

Interest expense decreased \$614,000, or 98%, to \$14,000 for 2013, compared to \$628,000 for 2012. In September 2012, we paid the remaining balance due under our long-term debt. Accordingly, we did not incur any interest expense on long-term debt during 2013.

In February 2013, Illumina, Inc. acquired Verinata Health, Inc. (Verinata) for \$350 million in cash and up to an additional \$100 million in milestone payments through 2015. In March 2013, we received cash proceeds of \$3.1 million in exchange for our ownership interest in Verinata, resulting in a gain of \$1.8 million. If the milestone payments become payable in the future, we could receive up to \$3.2 million in additional proceeds. The \$1.8 million gain we recognized did not include any amounts that may be received upon the achievement of future milestones.

Other income, net increased \$0.7 million to \$0.5 million for 2013, compared to other expense, net of \$0.2 million for 2012 primarily because of the \$0.6 million gain resulting from settlement of litigation filed by us against NanoString Technologies, Inc., partially offset by net foreign exchange losses resulting primarily from unfavorable change in the Japanese Yen exchange rate relative to the U.S. dollar.

On February 4, 2014, we closed an underwritten public offering of \$201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (Notes). The Notes will accrue interest at a rate of 2.75% per year, payable semi-annually in arrears on February 1 and August 1 of each year, commencing August 1, 2014. The Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the Notes. As a result of the Notes, we expect interest expense to be higher in future periods.

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, compared to \$42.9 million for 2011.

Product Revenue

Product revenue increased by \$10.9 million, or 27%, to \$51.5 million for 2012, 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 C₁ 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.

License and Collaboration Revenue

License and collaboration revenue decreased by \$1.5 million to \$0.2 million for 2012, 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 the Singapore Economic Development (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.

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	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	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	<u>\$ 55,080</u>	<u>\$ 48,240</u>

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 supporting 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.

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.

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. 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 and Other Income and Expense, Net

We 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 promissory notes. 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, 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.

Liquidity and Capital Resources

Sources of Liquidity

As of December 31, 2013, our principal sources of liquidity consisted of \$35.3 million of cash and cash equivalents and \$51.0 million of short-term and long-term investments. As of December 31, 2013, our working capital totaled \$89.4 million.

In December 2012, we amended our bank line of credit 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, and \$4.0 million is available based on eligible receivables. At December 31, 2013, 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,		
	2013	2012	2011
<i>Cash flow summary</i>			
Net cash used in operating activities	\$ (1,591)	\$ (17,478)	\$ (17,542)
Net cash (used in) provided by investing activities	(27,565)	14,001	(45,110)
Net cash provided by financing activities	5,806	48,521	70,367
Net (decrease) increase in cash and cash equivalents	(23,388)	45,096	7,830

Net Cash Used in Operating Activities

We derive cash flows from operations primarily from cash collected from the sale of our products, 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 \$1.6 million, \$17.5 million, and \$17.5 million in 2013, 2012, and 2011, respectively. Cash used for working capital purposes during 2013 decreased by \$11.0 million, driven primarily by increased cash collections from our customers and increase in accounts payable. Our net loss, adjusted for non-cash and non-operating items and deferred revenue, during 2013 decreased by \$4.9 million, compared to 2012.

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) provided by Investing Activities

Our primary investing activities consist of purchases, sales, and maturities of our short-term and long-term investments and to a much lesser extent, capital expenditures for manufacturing, laboratory, computer equipment and software to support our expanding infrastructure and work force. We expect to incur higher costs for capital expenditures in 2014 related to leasehold improvements at our new Singapore manufacturing facility. In addition, we expect to continue to incur capital expenditures to expand our manufacturing capability, including improvements in manufacturing productivity; demonstration units and loaner equipment to support our sales and service efforts; lab equipment for research and development; and computer equipment and software to support our growth.

Net cash used in investing activities was \$27.6 million and \$45.1 million in 2013 and 2011, respectively, and net cash provided by investing activities was \$14.0 million in 2012.

We used \$27.6 million of cash in investing activities during 2013 primarily for purchases of investments of \$59.4 million, purchase of intangible assets from Helicos Biosciences Corporation and related transaction costs of \$1.2 million, and purchases of capital equipment of \$3.4 million to support growth in our commercial and manufacturing operations, partially offset by proceeds from sales and maturities of investments of \$33.4 million and proceeds from the sale of our investment in Verinata of \$3.1 million.

We generated \$14.0 million of cash in investing activities during 2012 primarily from proceeds from sales and maturities of 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 for purchases of investments of \$71.4 million, purchases of capital equipment of \$1.7 million to support our commercial and manufacturing operations, and purchase of license agreement rights under our settlement with Life of \$2.0 million, partially offset by proceeds from sales and maturities of investments of \$30.0 million.

Net Cash Provided by Financing Activities

We generated \$5.8 million of cash from financing activities during 2013 from proceeds received in connection with the exercise of options for our common stock.

We generated \$48.5 million of cash from financing activities during 2012 primarily from proceeds of approximately \$56.0 million, net of underwriting commissions and issuance costs, from our underwritten public offering of our common stock completed in August 2012, and proceeds of \$2.7 million from the exercise of options to purchase our common stock, 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.

Capital Resources

At December 31, 2013, December 31, 2012, and December 31, 2011, our working capital was \$89.4 million, \$91.5 million, and \$51.9 million, respectively, including cash and cash equivalents of \$35.3 million, \$58.6 million, and \$13.6 million, respectively, and short-term and long-term investments of \$51.0 million, \$25.0 million, and \$41.4 million, respectively. We have a bank line of credit that is collateralized by our assets, excluding intellectual property, and provides us the ability to draw 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. At December 31, 2013, we had no borrowing outstanding under the bank line of credit. During 2012, we paid the remaining balance due on our long-term debt. Principal payments on our long-term debt totaled \$10.2 million in 2012. During 2013, 2012, and 2011, our capital expenditures were \$3.4 million, \$2.4 million, and \$1.7 million, respectively. We are estimating capital expenditures to be higher in 2014 primarily for leasehold improvements at our new Singapore manufacturing facility.

On February 4, 2014, we closed an underwritten public offering of approximately \$201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (Notes). We received cash proceeds of approximately \$194 million, net of underwriting discounts and issuance costs. The Notes were offered and sold pursuant to a registration statement on Form S-3ASR declared effective by the SEC on January 29, 2014.

On February 13, 2014, we completed our acquisition of DVS Sciences, Inc., a Delaware corporation (DVS) for approximately \$193.8 million and assumed all outstanding DVS stock options and unvested restricted stock, pursuant to a merger agreement dated as of January 28, 2014. The merger consideration payable to the former stockholders of DVS, excluding the value of stock options and unvested restricted stock assumed by us, consisted of approximately \$117.2 million in cash and 1,759,007 shares of Fluidigm common stock with a fair value of approximately \$76.8 million, including cash of \$1 million deposited in escrow to satisfy certain potential working capital adjustments. In addition, 50.3030% of the shares with a fair value of \$38.6 million were deposited into escrow to secure indemnification obligations under the merger agreement. The cash consideration paid to the former stockholders of DVS was financed in part with the net proceeds from the public offering of our Notes.

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 material 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, 2013 (in thousands):

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	Thereafter
Operating lease obligations	\$ 14,708	\$ 2,077	\$ 6,415	\$ 4,242	\$ 1,974
Purchase obligations	8,650	8,513	137	—	—
Total	\$ 23,358	\$ 10,590	\$ 6,552	\$ 4,242	\$ 1,974

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

On April 9, 2013, we entered into an amendment (the Amendment) to the lease agreement dated September 4, 2010 (as amended, the Lease) relating to the lease of office and laboratory space at our headquarters located at 7000 Shoreline Court, South San Francisco, California. The Amendment provides for an expansion of the premises covered under the Lease to include space that is currently being subleased by us from a third party through March 31, 2014; an extension of the term of the Lease to April 30, 2020 with an option to renew for an additional 5 years ; payment of base rent with rent escalation; and payment of certain operating expenses during the term of the Lease. The Amendment also provides for an allowance of approximately \$0.7 million for tenant improvements, which, to the extent not used by March 31, 2015, will be used to offset base rent obligations, and an additional allowance of approximately \$0.5 million for tenant improvements, which, if used, will be repaid in equal monthly payments with interest at a rate of 9% per annum over the remaining term of the Lease.

On October 14, 2013, Fluidigm Singapore Pte. Ltd., our wholly-owned subsidiary, accepted an offer of tenancy (Lease) from HSBC Institutional Trust Services (Singapore) Limited, as trustee of Ascendas Real Estate Investment Trust (Landlord), relating to the lease of a facility located at Block 5008, Ang Mo Kio Avenue 5, TECHplace II, Singapore 569874. Pursuant to the terms of the Lease, Fluidigm Singapore took possession of the facility commencing on March 3, 2014 for a term of 99 months and the Lease and rental obligations thereunder will commence on June 3, 2014. The Lease also provides Fluidigm Singapore with an option to renew the Lease for an additional 60 months at the then prevailing market rent, and on similar terms as the existing Lease, and a right of first refusal on certain additional space in the building beginning June 2, 2014 until June 1, 2015.

Fluidigm Singapore is currently party to leases for manufacturing and office space in Singapore. One of the leases expires on September 30, 2014 according to its terms, and the remainder of the leases will expire on later dates through August 26, 2016 (the Other Leases). On February 27, 2014, Fluidigm Singapore notified its landlord that it was exercising its right pursuant to the terms of the Other Leases to terminate the Other Leases early, effective as of September 30, 2014. Fluidigm Singapore intends to relocate its Singapore facilities to its new manufacturing and office space located at Block 5008, Ang Mo Kio Avenue 5 TECHplace II, Singapore in the third quarter of 2014.

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

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

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

Foreign Currency Exchange Risk

As we expand internationally our results of operations and cash flows will become increasingly subject to fluctuations due to changes in foreign currency exchange rates. Our revenue is generally denominated in the local currency of the contracting party. Historically, the majority of our revenue has been denominated in U.S. dollars. Our expenses are generally denominated in the currencies in which our operations are located, which is primarily in the United States, with a portion of expenses incurred in Singapore 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, 2013 and December 31, 2012 would not have been material. To date, we have not entered into any foreign currency hedging contracts although we may do so in the future.

Interest Rate Sensitivity

We had cash and cash equivalents of \$35.3 million at December 31, 2013 . These amounts were held primarily in cash on deposit with banks and money market funds which are short-term. We had \$51.0 million in investments at December 31, 2013 held primarily in U.S. government agency securities. The contractual maturity periods of \$49.1 million of our investments are within one year from December 31, 2013 . The contractual maturity periods of our remaining investments are less than eighteen months from December 31, 2013. Cash and cash equivalents and investments are held for working capital purposes. Due to the short-term nature of these investments, we believe that we do not have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates. Declines in interest rates, however, will reduce future investment income. If overall interest rates had decreased by 10% during the periods presented, our interest income would not have been materially affected.

Fair Value of Financial Instruments

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

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Fluidigm Corporation

We have audited the accompanying consolidated balance sheets of Fluidigm Corporation as of December 31, 2013 and 2012, 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, 2013. 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, 2013 and 2012, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2013, 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, 2013, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (1992 Framework) and our report dated March 12, 2014 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Redwood City, California
March 12, 2014

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, 2013, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (1992 Framework) (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, 2013, 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, 2013 and 2012, 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, 2013 of Fluidigm Corporation and our report dated March 12, 2014 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Redwood City, California
March 12, 2014

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

	December 31, 2013	December 31, 2012
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 35,261	\$ 58,649
Short-term investments	49,083	21,362
Accounts receivable (net of allowances of \$36 and \$448 at December 31, 2013 and 2012, respectively)	10,552	12,900
Inventories	8,148	7,169
Prepaid expenses and other current assets	1,540	1,131
Total current assets	104,584	101,211
Long-term investments	1,942	3,666
Property and equipment, net	6,818	4,974
Other non-current assets	3,571	3,881
Total assets	<u>\$ 116,915</u>	<u>\$ 113,732</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 4,353	\$ 2,555
Accrued compensation and related benefits	5,485	2,877
Other accrued liabilities	5,392	4,279
Deferred revenue, current portion	2,721	1,886
Total current liabilities	17,951	11,597
Deferred revenue, net of current portion	1,899	1,241
Other non-current liabilities	651	237
Total liabilities	20,501	13,075
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, \$0.001 par value, 10,000 shares authorized, no shares issued and outstanding at either December 31, 2013 or 2012	—	—
Common stock: \$0.001 par value, 200,000 shares authorized at December 31, 2013 and 2012; 25,811 and 25,115 shares issued and outstanding at December 31, 2013 and 2012, respectively	26	25
Additional paid-in capital	354,465	342,222
Accumulated other comprehensive loss	(730)	(769)
Accumulated deficit	(257,347)	(240,821)
Total stockholders' equity	96,414	100,657
Total liabilities and stockholders' equity	<u>\$ 116,915</u>	<u>\$ 113,732</u>

See accompanying notes.

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

	Year Ended December 31,		
	2013	2012	2011
Revenue:			
Product revenue	\$ 70,198	\$ 51,488	\$ 40,581
License and collaboration revenue	327	185	1,716
Grant revenue	658	661	568
Total revenue	<u>71,183</u>	<u>52,334</u>	<u>42,865</u>
Costs and expenses:			
Cost of product revenue	20,204	15,325	13,191
Research and development	19,953	16,602	13,936
Selling, general and administrative	48,412	38,478	31,304
Litigation settlement	1,267	—	3,000
Total costs and expenses	<u>89,836</u>	<u>70,405</u>	<u>61,431</u>
Loss from operations	(18,653)	(18,071)	(18,566)
Interest expense	(14)	(628)	(3,101)
Gain from sale of investment in Verinata	1,777	—	—
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 income (expense), net	501	(189)	81
Loss before income taxes	(16,389)	(18,888)	(22,304)
Provision for income taxes	(137)	(136)	(166)
Net loss	(16,526)	(19,024)	(22,470)
Deemed dividend related to the change in conversion rate of Series E convertible preferred stock	—	—	(9,900)
Net loss attributed to common stockholders	<u>\$ (16,526)</u>	<u>\$ (19,024)</u>	<u>\$ (32,370)</u>
Net loss per share attributed to common stockholders, basic and diluted	<u>\$ (0.65)</u>	<u>\$ (0.86)</u>	<u>\$ (1.81)</u>
Shares used in computing net loss per share attributed to common stockholders, basic and diluted	<u>25,479</u>	<u>22,136</u>	<u>17,847</u>

See accompanying notes.

FLUIDIGM CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	<u>Year Ended December 31,</u>		
	<u>2013</u>	<u>2012</u>	<u>2011</u>
Net loss	\$ (16,526)	\$ (19,024)	\$ (22,470)
Other comprehensive income (loss), net of tax			
Foreign currency translation adjustment	30	(19)	10
Unrealized gain on investments, net	9	4	14
Other comprehensive income (loss)	39	(15)	24
Comprehensive loss	<u>\$ (16,487)</u>	<u>\$ (19,039)</u>	<u>\$ (22,446)</u>

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' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance at 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	—	—	6,392	6	76,940	—	—	76,946
Change in conversion rate of Series E convertible preferred stock	—	9,900	—	—	(9,900)	—	—	(9,900)
Conversion of convertible preferred stock into common stock at initial public offering	(10,296)	(194,450)	11,480	12	194,438	—	—	194,450
Issuance of common stock upon exercise of warrants	—	—	174	—	1,392	—	—	1,392
Conversion of warrants from warrants for preferred stock to warrants for common stock	—	—	—	—	1,535	—	—	1,535
Issuance of common stock upon exercise of stock options for cash and for vesting of stock options that were early exercised	—	—	338	—	1,288	—	—	1,288
Stock-based compensation expense	—	—	—	—	2,799	—	—	2,799
Net loss	—	—	—	—	—	—	(22,470)	(22,470)
Other comprehensive income	—	—	—	—	—	24	—	24
Balance at December 31, 2011	—	\$ —	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 at December 31, 2011	—	\$ —	20,321	\$ 20	\$ 279,428	\$ (754)	\$ (221,797)	\$ 56,897
Issuance of common stock, net of issuance costs of \$3,970	—	—	4,209	4	56,004	—	—	56,008
Issuance of common stock upon exercise of stock options for cash	—	—	585	1	2,702	—	—	2,703
Stock-based compensation expense	—	—	—	—	4,088	—	—	4,088
Net loss	—	—	—	—	—	—	(19,024)	(19,024)
Other comprehensive loss	—	—	—	—	—	(15)	—	(15)
Balance at December 31, 2012	—	\$ —	25,115	\$ 25	\$ 342,222	\$ (769)	\$ (240,821)	\$ 100,657

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 at December 31, 2012	—	\$ —	25,115	\$ 25	\$ 342,222	\$ (769)	\$ (240,821)	\$ 100,657
Issuance of common stock upon exercise of stock options for cash	—	—	696	1	5,805	—	—	5,806
Stock-based compensation expense	—	—	—	—	6,438	—	—	6,438
Net loss	—	—	—	—	—	—	(16,526)	(16,526)
Other comprehensive income	—	—	—	—	—	39	—	39
Balance at December 31, 2013	—	\$ —	25,811	\$ 26	\$ 354,465	\$ (730)	\$ (257,347)	\$ 96,414

See accompanying notes.

FLUIDIGM CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2013	2012	2011
Operating activities			
Net loss	\$ (16,526)	\$ (19,024)	\$ (22,470)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	2,551	2,139	1,410
Stock-based compensation expense	6,438	4,088	2,799
Loss from changes in the fair value of convertible preferred stock warrants, net	—	—	1,483
Loss on disposal of property and equipment	296	26	—
Gain from sale of investment in Verinata	(1,777)	—	—
Gain from extinguishment of convertible preferred stock warrants	—	—	(765)
Write-off of debt discount upon note repayment	—	—	1,157
Amortization of debt discount and issuance cost	—	52	182
Changes in assets and liabilities:			
Accounts receivable	2,412	(3,702)	(1,222)
Inventories	(1,533)	(1,682)	(1,077)
Prepaid expenses and other assets	(882)	201	(471)
Accounts payable	1,802	(1,815)	540
Deferred revenue	1,640	449	916
Other liabilities	3,988	1,790	(24)
Net cash used in operating activities	(1,591)	(17,478)	(17,542)
Investing activities			
Purchases of investments	(59,436)	(35,385)	(71,379)
Proceeds from sales and maturities of investments	33,440	51,770	29,966
Proceeds from sale of investment in Verinata	3,117	—	—
Purchase of intangible assets	(1,240)	—	—
Purchases of property and equipment	(3,446)	(2,384)	(1,676)
License agreement rights	—	—	(2,000)
Decrease in restricted cash	—	—	(21)
Net cash (used in) provided by investing activities	(27,565)	14,001	(45,110)
Financing activities			
Proceeds from issuance of common stock, net of issuance costs	—	56,008	76,946
Proceeds from exercise of stock options	5,806	2,703	1,288
Proceeds from note	—	—	5,000
Repayment of note	—	—	(5,000)
Repayment of long-term debt	—	(10,190)	(4,742)
Proceeds from line of credit	—	1,875	—
Repayment of line of credit	—	(1,875)	(3,125)
Net cash provided by financing activities	5,806	48,521	70,367
Effect of foreign exchange rate fluctuations on cash and cash equivalents	(38)	52	115
Net (decrease) increase in cash and cash equivalents	\$ (23,388)	\$ 45,096	\$ 7,830
Cash and cash equivalents at beginning of period	58,649	13,553	5,723
Cash and cash equivalents at end of period	\$ 35,261	\$ 58,649	\$ 13,553
Supplemental disclosures of cash flow information			
Cash paid for interest	\$ 7	\$ 579	\$ 1,715
Cash paid for income taxes	\$ 242	\$ 181	\$ 42
Non-cash investing and financing activities			
Conversion of convertible preferred stock to common stock upon initial public offering	\$ —	\$ —	\$ 184,550
Conversion of convertible preferred stock warrants to common stock warrants	\$ —	\$ —	\$ 1,535
Issuance of convertible preferred stock warrants in connection with note and warrant agreement and long-term debt	\$ —	\$ —	\$ 1,157
Issuance of common stock in connection with net exercise of convertible preferred stock warrants	\$ —	\$ —	\$ 1,392
Extinguishment of convertible preferred stock warrants upon initial public offering	\$ —	\$ —	\$ 765

See accompanying notes.

FLUIDIGM CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2013

1. Description of Business

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

We develop, manufacture, and market microfluidic systems to academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and agricultural biotechnology (Ag-Bio) companies in growth markets, such as single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. Our proprietary microfluidic systems consist of instruments and consumables, including integrated fluidic circuits (IFCs), and three families of assay chemistries. These 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.

Senior Convertible Notes Offering

On February 4, 2014, we closed an underwritten public offering of approximately \$201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (Notes). We received cash proceeds of approximately \$194 million, net of underwriting discounts and issuance costs (subject to adjustment). The Notes were offered and sold pursuant to a registration statement on Form S-3ASR declared effective by the SEC on January 29, 2014. Also see Note 16.

Acquisition of DVS Sciences, Inc.

On February 13, 2014, we completed our acquisition of DVS Sciences, Inc., a Delaware corporation (DVS) for approximately \$193.8 million and assumed all outstanding DVS stock options and unvested restricted stock, pursuant to a merger agreement dated as of January 28, 2014. The merger consideration payable to the former stockholders of DVS, excluding the value of stock options and unvested restricted stock assumed by us, consisted of approximately \$117.2 million in cash and 1,759,007 shares of Fluidigm common stock with a fair value of approximately \$76.8 million, including cash of \$1.0 million deposited in escrow to satisfy certain potential working capital adjustments. In addition, 50.3030% of the shares with a fair value of \$38.6 million were deposited into escrow to secure indemnification obligations under the merger agreement.

The cash consideration payable to the former stockholders of DVS was financed in part with the net proceeds from the public offering of our Notes. See Note 16.

2. Summary of Significant Accounting Policies**Basis of Presentation and Consolidation**

The accompanying consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (U.S. GAAP) and include the accounts of our wholly-owned subsidiaries. As of December 31, 2013, we had 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

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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 .

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 U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions believed to be reasonable, which together form the basis for making judgments about the carrying values of assets and liabilities. Actual results could differ materially from these estimates and could have a material adverse effect on our consolidated financial statements.

Foreign Currency

Assets and liabilities of non-U.S. subsidiaries that use the local currency as their functional currency are translated into U.S. dollars at exchange rates in effect on the balance sheet date. The adjustments resulting from the foreign currency translations are recorded in accumulated other comprehensive loss, a separate component of stockholders' equity. Income and expense accounts are translated at monthly average exchange rates during the year. 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. We evaluate our investments to assess whether investments with unrealized loss positions are other than temporarily impaired. An investment is considered to be other than temporarily impaired if the impairment is related to deterioration in credit risk or if it is likely that we will sell the securities before the recovery of their cost basis. No investment has been assessed as other than temporarily impaired, and realized gains and losses were immaterial during the years presented. The cost of securities sold or the amount reclassified out of accumulated other comprehensive income into earnings is based on the specific-identification method.

Fair Value of Financial Instruments

Our financial instruments consist primarily of cash and cash equivalents, investments, accounts receivable, and accounts payable. Our cash equivalents, investments, accounts receivable, and accounts payable have short maturity or payment periods. Accordingly, their carrying values approximated their fair values at December 31, 2013 and 2012 . 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.

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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, 2013				December 31, 2012			
	Level I	Level II	Level III	Total	Level I	Level II	Level III	Total
Assets								
Money market funds (See Note 4)	\$ 17,547	\$ 0	\$ 0	\$ 17,547	\$ 17	\$ 0	\$ 0	\$ 17
U.S. government and agency securities	0	51,025	0	51,025	0	26,579	0	26,579
Total assets measured at fair value	<u>\$ 17,547</u>	<u>\$ 51,025</u>	<u>\$ 0</u>	<u>\$ 68,572</u>	<u>\$ 17</u>	<u>\$ 26,579</u>	<u>\$ 0</u>	<u>\$ 26,596</u>

The following is a summary of investments and cash equivalents at December 31, 2013 (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
U.S. government and agency securities	<u>\$ 51,012</u>	<u>\$ 17</u>	<u>\$ (4)</u>	<u>\$ 51,025</u>

The contractual maturity periods of \$49.1 million of our investments are within one year from December 31, 2013. The contractual maturity periods of our remaining securities are less than eighteen months from December 31, 2013.

Accounts Receivable

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

Concentrations of Business and Credit Risk

Financial instruments that potentially subject us to credit risk consist of cash, cash equivalents, investments, and accounts receivable. Our cash, cash equivalents, and investments may consist of deposits held with banks, money market funds, and other highly liquid investments that may at times exceed federally insured limits. Cash equivalents and investments are financial instruments that potentially subject us to concentrations of risk. Under our investment policy, we invest primarily in securities issued by the U.S. government. The goals of our investment policy, in order of priority, are as follows: 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 2013, 2012, or 2011, and no single customer represented more than 10% of total accounts receivable at December 31, 2013, or 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.

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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

At December 31, 2012, we had a minority equity investment in Verinata Health, Inc. (Verinata), a privately-held company, that was included in other non-current assets and accounted for under the cost method of accounting. Under the cost method of accounting, the investment was carried at cost and adjusted only for other than temporary declines in value. No such declines were identified and the carrying value of the investment at December 31, 2012 was \$1.3 million .

In February 2013, Illumina, Inc. acquired Verinata for \$350 million in cash and up to an additional \$100 million in milestone payments through 2015. In March 2013, we received cash proceeds of \$3.1 million in exchange for our ownership interest in Verinata resulting in a gain of \$1.8 million . If the milestone payments become payable in the future, we could receive up to \$3.2 million in additional proceeds.

Intangible Assets Acquisition

On June 28, 2013, we acquired certain patents, patent applications, and licenses from Helicos Biosciences Corporation (Helicos) relating to Helicos' next-generation sequencing technology. The rights acquired by us are subject to certain licenses and sublicenses granted by Helicos prior to or contemporaneously with our acquisition. The assets were acquired for \$1.0 million and we incurred transaction costs of approximately \$0.3 million . The patents, patent applications, and licenses have an alternative future use and, as a result, the acquired assets and transaction costs are capitalized as intangible assets and are included in other non-current assets. The acquired assets are being amortized to research and development expense over their useful life of ten years. Amortization expense for the year ended December 31, 2013 was \$63,000 .

We evaluate our intangible assets for indicators of possible impairment when events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. If any indicator of impairment exists, we assess the recoverability of the affected intangible assets by determining whether the carrying value of the asset can be recovered through undiscounted future operating cash flows. If impairment is indicated, we estimate the asset's fair value using future discounted cash flows associated with the use of the asset, and adjust the carrying value of the asset accordingly. We did not recognize any impairment on intangible assets for any of the periods presented herein.

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, 2013 and 2012 .

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,

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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 price. We may use our best estimate of selling price for individual deliverables when vendor specific objective evidence or third-party evidence is unavailable. A delivered item is considered to be a separate unit of accounting when it has value to the customer on a stand-alone basis.

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

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 \$2.4 million , \$1.3 million , and \$0.7 million during 2013 , 2012 , and 2011 , respectively.

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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.

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 and directors 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 Income (Loss)

Comprehensive income (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 and diluted 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. Options to purchase our common stock are considered to be potentially dilutive common shares but have been excluded from the calculation of diluted net loss per share attributed to common stockholders, as their effect is anti-dilutive for all periods presented.

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

	At December 31,		
	2013	2012	2011
Options to purchase common stock	3,432	2,945	2,491

Recent Accounting Pronouncement

In June 2013, the Financial Accounting Standards Board ratified Emerging Issues Task Force (EITF) Issue 13-C, “Presentation of an Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exists” which concludes an unrecognized tax benefit should be presented as a reduction of a deferred tax asset when settlement in this manner is available under the tax law. This guidance is effective for our interim and annual periods beginning January 1, 2014. We do not believe the adoption of this guidance will have a material impact on our consolidated financial statements.

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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 (now part of Thermo Fisher Scientific) and its subsidiary, Applied Biosystems, LLC (collectively, Life). 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, in July 2011, we paid Life \$2.0 million in connection with the exercise of our option to limit or preclude certain patent litigation between us and Life for a period of two to four years. 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. We recognized \$0.5 million of amortization expense during each of 2013 and 2012.

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 in cost of product revenue during each of 2013 and 2012 and \$0.1 million in 2011. Our future royalty payments are not expected to be material.

Collaboration Agreement

In May 2010, we entered into a collaboration agreement with Novartis Vaccines & Diagnostics, Inc. 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, 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 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

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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. We recognized \$0.6 million of CIRM grant revenue during each of 2013 and 2012 .

Singapore Economic Development Board

In February 2007, we entered into a letter agreement providing for up to SG \$3.7 million (approximately US\$2.9 million using the December 31, 2013 exchange rate) in grants from the Singapore Economic Development (EDB). This letter agreement applied to research, development, and manufacturing activity from June 1, 2006 through May 31, 2011 by Fluidigm Singapore Pte. Ltd. (Fluidigm Singapore), our wholly-owned subsidiary. 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 May 2011, Fluidigm Singapore submitted its final progress report and evidence of achievement of its development targets under the letter agreement. We received our final grant payment under the letter agreement in July 2011. In July 2013, we received confirmation from EDB that all of our obligations under the letter agreement had been met.

This agreement further provided EDB with the right to demand repayment of a portion of past grant in the event we did not meet our obligations under the agreement. Based on confirmation received from the EDB, we have fulfilled our obligations under the grant and will, therefore, not have to repay any of the grant proceeds received.

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.

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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, 2013:	
Cash	\$ 17,714
Money market funds	17,547
	<u>\$ 35,261</u>
As of December 31, 2012:	
Cash	\$ 57,082
U.S. government and agency security	1,550
Money market funds	17
	<u>\$ 58,649</u>

Inventories

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

	December 31, 2013	December 31, 2012
Raw Materials	\$ 2,650	\$ 2,846
Work-in-process	1,627	1,369
Finished Goods	3,871	2,954
	<u>\$ 8,148</u>	<u>\$ 7,169</u>

Property and Equipment

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

	December 31, 2013	December 31, 2012
Computer equipment and software	\$ 2,728	\$ 2,373
Laboratory and manufacturing equipment	13,972	12,845
Leasehold improvements	1,485	991
Office furniture and fixtures	822	577
	<u>19,007</u>	<u>16,786</u>
Less accumulated depreciation and amortization	(14,470)	(12,953)
Construction-in-progress	2,281	1,141
Property and equipment, net	<u>\$ 6,818</u>	<u>\$ 4,974</u>

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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 2012, 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 \$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, 2013 and 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.

On April 9, 2013, we entered into an amendment (the Amendment) to the lease agreement dated September 4, 2010 (as amended, the Lease) relating to the lease of office and laboratory space at our headquarters located at 7000 Shoreline Court, South San Francisco, California. The Amendment provides for an expansion of the premises covered under the Lease to include space that is currently being subleased by us from a third party through March 31, 2014; an extension of the term of the Lease to April 30, 2020 with an option to renew for an additional five years; payment of base rent with rent escalation; and payment of certain operating expenses during the term of the Lease. The Amendment also provides for an allowance of approximately \$0.7 million for tenant improvements, which, to the extent not used by March 31, 2015, will be used to offset base rent obligations, and an additional allowance of approximately \$0.5 million for tenant improvements, which, if used, will be repaid in equal monthly payments with interest at a rate of 9% per annum over the remaining term of the Lease.

On October 14, 2013, Fluidigm Singapore accepted an offer of tenancy (Lease) from HSBC Institutional Trust Services (Singapore) Limited, as trustee of Ascendas Real Estate Investment Trust (Landlord), relating to the lease of a facility located at Block 5008, Ang Mo Kio Avenue 5, TECHplace II, Singapore 569874. Pursuant to the terms of the Lease, Fluidigm Singapore took possession of the facility commencing on March 3, 2014 for a term of 99 months, and the Lease and rental obligations thereunder will commence on June 3, 2014. The Lease also provides Fluidigm Singapore with an option to renew the Lease for an additional 60 months at the then prevailing market rent, and on similar terms as the existing Lease, and a right of first refusal on certain additional space in the building beginning June 2, 2014 until June 1, 2015. The leases for Fluidigm Singapore's existing facilities terminate on September 30, 2014. Fluidigm Singapore intends to consolidate its manufacturing operations in the new space in the third quarter of 2014. See Note 16.

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As of December 31, 2013, we also leased office space under non-cancelable leases in Japan, China, and France, with various expiration dates through March 2016. Certain facility leases also contain rent escalation clauses. Future minimum lease payments under non-cancelable operating leases as of December 31, 2013 are as follows (in thousands):

Years ending December 31:	
2014	\$ 2,077
2015	2,235
2016	2,103
2017	2,077
2018	2,100
Thereafter	4,116
Total minimum payments	<u>\$ 14,708</u>

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 \$2.7 million, \$1.9 million, and \$1.6 million for 2013, 2012, and 2011, respectively.

Other Commitments

In the normal course of business, we enter into various contractual and legally binding purchase commitments. As of December 31, 2013, these commitments for the next year were approximately \$8.6 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, 2013, 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.

Pursuant to the terms of a patent cross license agreement with Applied Biosystems, LLC (a subsidiary of Life Technologies Corporation, or Life, and now part of Thermo Fisher Scientific), we are obligated to make a \$1.0 million payment to Life upon satisfaction of certain conditions. We do not believe that the conditions triggering the payment obligation have been met; however, on October 16, 2013, Life provided notice that the \$1.0 million payment was due and payable under the license agreement. We accrued a loss contingency of \$1.0 million on September 30, 2013 and on January 30, 2014, we paid Life the amount due while reserving our rights with respect to such matter. Among other reasons, we made the payment to avoid what would have been, in our view, an improper termination of our license to certain Life patent filings under the agreement, which could have subjected our relevant product lines to risks associated with patent infringement litigation.

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 sought 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. In addition, we filed a lawsuit on April 5, 2013 in Singapore against NanoString alleging malicious falsehood in advertising and trademark infringement. On September 30, 2013,

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we and NanoString agreed to settle the lawsuits. The terms of the settlement require NanoString to, among other things, pay us \$0.6 million, remove all references - from its marketing materials, website, and promotional activities - to a single-cell comparison study comparing Fluidigm and NanoString single-cell products, as well as recall and destroy all materials related to and/or based on the study. The case brought in the United States District Court in the Northern District of California was dismissed on October 22, 2013, and the case brought in Singapore was discontinued on October 29, 2013.

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; 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, 2013 and 2012, 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. During 2011, 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.

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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.

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 period of 36 months , or ratably each month over 48 months . We may grant options with different vesting terms from time to time.

Our board of directors sets the terms, conditions, and restrictions related to 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, 2013 , the 2011 Plan had a total of 3,243,000 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):

	Shares Available for Grant	Outstanding Options	
		Number of Shares	Weighted-Average Exercise Price per Share
Balance as of December 31, 2012	445	2,945	\$ 10.88
Additional shares authorized	1,000	—	
Options granted	(1,273)	1,273	\$ 18.13
Options exercised	—	(696)	\$ 8.35
Options canceled	90	(90)	\$ 14.41
Balance as of December 31, 2013	262	3,432	\$ 13.99

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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,		
	2013	2012	2011
Expected volatility	57.1%	57.6%	57.6%
Expected life	5.9 years	5.9 years	5.9 years
Risk-free interest rate	1.2%	1.1%	1.9%
Dividend yield	0%	0%	0%
Weighted-average fair value of options granted	\$ 9.62	\$ 7.90	\$ 6.44

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, 2013 is summarized in the following table:

Exercise Price Per Share	Options Outstanding		
	Number of Shares	Weighted-Average Remaining Contractual Life	Options Exercisable
	(In Thousands)	(In Years)	(In Thousands)
\$2.42 - \$3.39	76	1.1	76
\$4.08 - \$4.08	89	5.9	89
\$4.45 - \$4.45	295	6.2	277
\$8.23 - \$8.37	262	7.0	200
\$13.01 - \$13.08	176	7.7	126
\$13.16 - \$14.90	841	7.9	405
\$15.04 - \$21.94	1,649	8.9	437
\$29.87 - \$38.28	44	9.9	—
	<u>3,432</u>	<u>8.0</u>	<u>1,610</u>

Options exercisable as of December 31, 2013 had a weighted-average remaining contractual life of 7.2 years, a weighted-average exercise price per share of \$11.35, and an aggregate intrinsic value of \$43.3 million.

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Options outstanding that have vested as of December 31, 2013 or are expected to vest in the future are summarized as follows:

	Number of shares	Weighted- Average Exercise Price per Share	Weighted- Average Remaining Contractual Life	Aggregate Intrinsic Value (1)
	(In Thousands)		(In Years)	(In Thousands)
Vested	1,610	\$ 11.35	7.2	\$ 43,343
Expected to vest, net of forfeitures	1,750	\$ 16.34	8.6	38,395
Total vested and expected to vest, net of forfeitures	<u>3,360</u>	<u>\$ 13.95</u>	<u>8.0</u>	<u>\$ 81,738</u>

(1) Aggregate intrinsic value was calculated as the difference between the closing stock price on the last trading day of 2013, which was \$38.28, and the exercise price of the options, multiplied by the number of in-the-money options.

The total intrinsic value of options exercised during 2013, 2012, and 2011 was \$20.8 million, \$5.5 million, and \$3.1 million, respectively.

There were no stock-based compensation tax benefits recognized during 2013, 2012, or 2011. Capitalized stock-based compensation costs were insignificant at December 31, 2013, 2012, and 2011.

As of December 31, 2013, there was \$15.7 million of total unrecognized compensation cost related to stock-based compensation arrangements that is expected to be recognized over an average period of 2.6 years.

In January 2011, we granted 94,972 performance-based options (the 2010 performance awards) to certain executives. These awards vest over a period of approximately four years 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 31, 2010. Based on achievement of 2010 departmental and corporate goals, vesting for 66,480 options was accelerated in March 2011. We recognized \$8,000, \$20,000 and \$0.4 million of stock-based compensation expense during 2013, 2012, and 2011, respectively.

12. Income Taxes

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

	Year Ended December 31,		
	2013	2012	2011
Domestic	(\$16,205)	(\$18,017)	(\$20,815)
International	(184)	(871)	(1,489)
Loss before income taxes	<u>(\$16,389)</u>	<u>(\$18,888)</u>	<u>(\$22,304)</u>

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

	Year Ended December 31,		
	2013	2012	2011
Current			
State	(\$24)	(\$12)	(\$4)
Foreign	(113)	(124)	(162)
Total provision for income taxes	<u>(\$137)</u>	<u>(\$136)</u>	<u>(\$166)</u>

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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,		
	2013	2012	2011
Tax benefit at federal statutory rate	34.0 %	34.0 %	34.0 %
State tax expense, net of federal benefit	5.6	(1.7)	3.6
Foreign tax expense	(3.3)	(0.3)	(2.5)
Change in valuation allowance	(34.6)	(28.0)	(32.2)
Federal R&D Credit	6.9	—	1.2
Unrecognized tax benefit	(4.5)	(3.4)	(1.9)
Return to provision reconciliation	(2.8)	0.3	(0.2)
Other, net	(2.1)	(1.6)	(2.8)
Effective tax rate	<u>(0.8)%</u>	<u>(0.7)%</u>	<u>(0.8)%</u>

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

	December 31, 2013	December 31, 2012
Deferred tax assets:		
Net operating loss carryforwards	\$ 82,230	\$ 79,797
Reserves and accruals	2,467	1,672
Depreciation and amortization	283	355
Tax credit carryforwards	7,898	6,639
Stock-based compensation	3,397	2,149
Total deferred tax assets	<u>96,275</u>	<u>90,612</u>
Valuation allowance	(96,275)	(90,612)
Net deferred tax assets	<u>\$ —</u>	<u>\$ —</u>

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 \$5.7 million and \$5.3 million during 2013 and 2012, respectively. The change in valuation allowance in 2013 is mainly due to the current year's taxable loss and the current year's research and development credit.

As of December 31, 2013, we had net operating loss carryforwards for U.S. federal income tax purposes of \$238.0 million, which expire in the years 2020 through 2034, and U.S. federal research and development tax credits of \$5.5 million, which expire in the years 2020 through 2034. As of December 31, 2013, we had net operating loss carryforwards for state income tax purposes of \$170.3 million, which expire in the years 2013 through 2034, California research and development tax credits of \$6.2 million, which do not expire. As of December 31, 2013, we had foreign net operating loss carryforwards of \$2.2 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, 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 December 31, 2012 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 have performed a Section 382 update for the period from January 1, 2013 through December 31, 2013 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 any of our non-U.S. subsidiaries' undistributed earnings as of December 31, 2013 because such earnings are intended to be indefinitely reinvested. Upon distribution of those earnings

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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 \$0.4 million at December 31, 2013.

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 December 31, 2019, subject to the achievement of certain milestones which will be reviewed by the Singapore government. Due to available capital allowances, we have not benefited from the tax exemption through December 31, 2013 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 generated a 2012 federal tax credit of \$0.4 million, net of reserve, which was fully offset by the valuation allowance.

Uncertain Tax Positions

The aggregate changes in the balance of our gross unrecognized tax benefits during 2013, 2012, and 2011 were as follows (in thousands):

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
Increases in balances related to tax positions taken during current period	1,044
Decreases in balances related to tax positions taken during prior period	(547)
December 31, 2013	<u>\$6,848</u>

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

As of December 31, 2013, 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 2008 are open to examination in various foreign countries.

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.

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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,		
	2013	2012	2011
United States	\$36,308	\$27,325	\$21,644
Europe	18,472	13,086	10,499
Asia-Pacific	6,564	6,321	3,698
Japan	6,639	3,840	3,942
Other	2,215	916	798
Total	\$70,198	\$51,488	\$40,581

Our license and collaboration and grant 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, 2013	December 31, 2012	December 31, 2011
United States	\$2,967	\$1,968	\$1,502
Singapore	3,741	2,961	1,720
Japan	32	18	23
Europe	64	27	11
Asia-Pacific	14	—	—
Total	\$6,818	\$4,974	\$3,256

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15. Quarterly Results of Operations (Unaudited)

Selected quarterly results of operations for the years ended December 31, 2013 and 2012 are as follows (in thousands, except for per share amounts):

	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>
<u>2013</u>				
Total revenue	\$ 14,535	\$ 17,480	\$ 18,287	\$ 20,881
Net loss	\$ (3,551)	\$ (4,046)	\$ (4,286)	\$ (4,643)
Net loss per share, basic and diluted	\$ (0.14)	\$ (0.16)	\$ (0.17)	\$ (0.18)
<u>2012</u>				
Total revenue	\$ 10,945	\$ 12,948	\$ 12,782	\$ 15,659
Net loss	\$ (6,690)	\$ (4,580)	\$ (4,152)	\$ (3,602)
Net loss per share, basic and diluted	\$ (0.33)	\$ (0.22)	\$ (0.18)	\$ (0.14)

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16. Subsequent Events

Senior Convertible Notes Offering

On February 4, 2014, we closed an underwritten public offering of approximately \$201.3 million aggregate principal amount of our 2.75% Senior Convertible Notes due 2034 (Notes) pursuant to an underwriting agreement, dated January 29, 2014. The Notes will accrue interest at a rate of 2.75% per year, payable semi-annually in arrears on February 1 and August 1 of each year, commencing August 1, 2014. The Notes will mature on February 1, 2034, unless earlier converted, redeemed, or repurchased in accordance with the terms of the Notes. The initial conversion rate of the Notes is 17.8750 shares of our common stock, par value \$0.001 per share, per \$1,000 principal amount of Notes (which is equivalent to an initial conversion price of approximately \$55.94 per share). The conversion rate will be subject to adjustment upon the occurrence of certain specified events. Holders may surrender their Notes for conversion at any time prior to the stated maturity date. On or after February 6, 2018 and prior to February 6, 2021, we may redeem any or all of the Notes in cash if the closing price of our common stock exceeds 130% of the conversion price for a specified number of days, and on or after February 6, 2021, we may redeem any or all of the Notes in cash without any such condition. The redemption price of the Notes will equal 100% of the principal amount of the Notes plus accrued and unpaid interest. Holders may require us to repurchase all or a portion of their Notes on each of February 6, 2021, February 6, 2024, and February 6, 2029 at a repurchase price in cash equal to 100% of the principal amount of the Notes plus accrued and unpaid interest. If we undergo a fundamental change, as defined in the terms of the Notes, holders may require us to repurchase the Notes in whole or in part for cash at a repurchase price equal to 100% of the principal amount of the Notes plus accrued and unpaid interest.

We received net cash proceeds of approximately \$194 million from the issuance of the Notes and have used approximately \$117.2 million of the net proceeds to satisfy the cash portion of the DVS Sciences, Inc. acquisition (discussed below).

Acquisition of DVS Sciences, Inc.

On February 13, 2014, we acquired DVS Sciences, Inc. (DVS) for approximately \$193.8 million and assumed all outstanding DVS stock options and unvested restricted stock, as discussed below. The merger consideration payable to the former stockholders of DVS, excluding the value of stock options and unvested restricted stock assumed by us, consisted of approximately \$117.2 million in cash and 1,759,007 shares of Fluidigm common stock with a fair value of approximately \$76.8 million, including cash of \$1.0 million in escrow to satisfy certain potential working capital adjustments. In addition, 50.3030% of the shares with a fair value of \$38.6 million was deposited into escrow to secure indemnification obligations. Under the terms of the merger agreement, all outstanding stock options and unvested shares of DVS restricted stock were converted into 142,624 stock options and 186,417 shares of Fluidigm common stock, respectively, pursuant to an exchange ratio specified in the merger agreement. At February 13, 2014, there were 27,756,000 shares of our common stock issued and outstanding, which includes the 1,759,007 shares issued and 186,417 shares of unvested restricted stock for the DVS acquisition but excludes any exercise of stock options since December 31, 2013.

Prior to the closing of the acquisition, we closed an underwritten public offering of approximately \$201.3 million aggregate principal amount of our Notes (discussed above) to fund the cash portion of the acquisition consideration. The results of DVS's operations have not been included in our consolidated financial statements for the year ended December 31, 2013.

The initial accounting for the business combination is in progress as of the date of this Form 10-K filing.

Termination of Singapore Lease

Fluidigm Singapore Pte. Ltd. (Fluidigm Singapore), our wholly-owned subsidiary, is currently party to leases for manufacturing and office space in Singapore. One of the leases expires on September 30, 2014 according to its terms, and the remainder of the leases will expire on later dates through August 26, 2016 (the Other Leases). On February 27, 2014, Fluidigm Singapore notified its landlord that it was exercising its right pursuant to the terms of the Other Leases to terminate the Other Leases early, effective as of September 30, 2014.

Fluidigm Singapore intends to relocate its Singapore facilities to its new manufacturing and office space located at Block 5008, Ang Mo Kio Avenue 5 TECHplace II, Singapore in the third quarter of 2014. See Note 7.

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, 2013. 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, 2013, 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, 2013. Management based its assessment on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (1992 Framework). Based on our assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2013. 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, 2013 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, 2013 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 2014 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2013 fiscal year end) under the headings “Corporate Governance and Board of Directors,” “Election of Class I 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 2014 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2013 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 2014 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2013 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 2014 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2013 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 2014 Annual Meeting of Stockholders (to be filed with the Securities and Exchange Commission within 120 days of our December 31, 2013 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.

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, 2013				
Accounts receivable allowance	\$ 448	\$ 4	\$ (416)	\$ 36
Year ended December 31, 2012				
Accounts receivable allowance	\$ 366	\$ 97	\$ (15)	\$ 448
Year ended December 31, 2011				
Accounts receivable allowance	\$ 467	\$ 12	\$ (113)	\$ 366

EXHIBITS

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2.1	Agreement and Plan of Merger dated January 28, 2014 by and among Fluidigm Corporation, DVS Sciences, Inc., Dawid Merger Sub, Inc. and Shareholder Representative Services LLC.	8-K	2.1	1/29/2014
3.1	Eighth Amended and Restated Certificate of Incorporation of Fluidigm Corporation filed on February 15, 2011.	10-K	3.1	3/28/2011
3.2	Amended and Restated Bylaws of Fluidigm Corporation effective as of February 9, 2011.	10-K	3.2	3/28/2011
4.1	Specimen Common Stock Certificate of Fluidigm Corporation.	S-1/A	4.1	2/7/2011
4.2	Indenture, dated as of February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.1	2/4/2014
4.3	First Supplemental Indenture, dated as of February 4, 2014, by and between Fluidigm Corporation and U.S. Bank National Association.	8-K	4.2	2/4/2014
4.4	Form of Global Note (included in Exhibit 4.3).	8-K	4.3	2/4/2014
4.5	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	12/3/2010
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	1/28/2011
4.8A	Business Financing Modification Agreement dated March 31, 2011, by and between Bridge Bank, National Association, and the registrant.	8-K	4.8A	4/4/2011
4.8B	Business Financing Modification Agreement dated December 21, 2012, by and between Bridge Bank, National Association and Fluidigm Corporation.	8-K	4.8B	12/27/2012
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10.1	Form of Indemnification Agreement between the registrant and its directors and officers.	S-1/A	10.1	1/28/2011
10.2#	1999 Stock Option Plan of the registrant, as amended.	S-1	10.2	12/3/2010
10.2A#	Forms of agreements under the 1999 Stock Option Plan.	S-1	10.2A	12/3/2010
10.3#	2009 Equity Incentive Plan of the registrant, as amended.	S-1	10.3	12/3/2010
10.3A#	Forms of agreements under the 2009 Equity Incentive Plan.	S-1	10.3A	12/3/2010
10.4#	2011 Equity Incentive Plan of the registrant.	S-1/A	10.4	1/28/2011
10.4A#	Forms of agreements under the 2011 Equity Incentive Plan.	S-1/A	10.4A	1/28/2011

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10.16	Reserved.			
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10.18#	Offer Letter dated May 3, 2010 to Fredric Walder and Addendum thereto dated November 8, 2010.	8-K	10.18	4/4/2011
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10.19A	Second Amendment to Lease Agreement between ARE-San Francisco No. 17, LLC and the registrant, dated April 9, 2013.	10-Q	10.19A	5/9/2013
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	12/3/2010
10.21	Offer of Tenancy for Facility Lease between Fluidigm Singapore Pte. Ltd. and SBC Institutional Trust Services (Singapore) Limited, as trustee of Ascendas Real Estate Investment Trust dated October 14, 2013.	Filed herewith		

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10.26	Reserved.			
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		
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32.1~	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 of Chief Executive Officer.	Filed herewith		
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101.SCH	XBRL Taxonomy Extension Schema Document	Filed herewith		
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	Filed herewith		
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	Filed herewith		
101.LAB	XBRL Taxonomy Extension Label Document	Filed herewith		
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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.

INDEX TO EXHIBITS

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† 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.

Lease Reference No: TP2-5008-009-00002

Date: 04 October 2013 **STRICTLY CONFIDENTIAL**

FLUIDIGM SINGAPORE PTE.LTD.
Blk1026 Tai Seng Avenue #07-3532
Singapore 534413

Attention: MS GRACE YOW
MANAGING DIRECTOR & EXEC VICE PRESIDENT

Dear Sirs,

LEASE OF BLOCK 5008 ANG MO KIO AVENUE 5 #08-01/19, RC ROOF 1 & RC ROOF 2, TECHPLACE II SINGAPORE 569874

This Offer shall supersede our previous Offer dated 18 September 2013.

1 TERMS OF OFFER

On behalf of **HSBC Institutional Trust Services (Singapore) Limited As Trustee of Ascendas Real Estate Investment Trust (' Landlord ')** , we are pleased to offer you, FLUIDIGM SINGAPORE PTE. LTD. (' **Tenant** '), a lease of the premises (' **Premises** ') (described below in paragraph 1.1) which forms part of the building (' **Building** ') located at Block 5008 Ang Mo Kio Avenue 5 TECHplace II Singapore 569874, subject to the Standard Terms, Covenants and Conditions attached in Appendix 1 (' **Covenants** ') and the following terms, covenants and conditions (where the definitions set out in the Covenants have been adopted):

1.1 PREMISES

- (a) Unit No(s) : #08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II
- (b) Demarcation : (for purpose of identification only) edged in red in the attached plan(s) marked as Attachment 1 .
-

1.2 FLOOR AREA

Unit No(s)	Floor Area (sm) (where temporary occupation permit (' TOP ') for the Building has not yet been issued, the Floor Area is subject to final survey)
#08-01/19	3,455.00
Block 5008 TECHplace II RC ROOF 1	115.00
Block 5008 TECHplace II RC ROOF 2	130.00
Block 5008 TECHplace II	
Total	3,700.00

- (a) Where the TOP for the Building has not yet been issued, the Floor Area as indicated herein is subject to a final survey to be performed by a surveyor appointed by the Landlord, if such survey is required by the Landlord. The Floor Area as determined from the results of such survey shall be final and binding upon the Tenant.
- (b) Where the Floor Area is adjusted following such survey, all references to the Floor Area in the Lease shall refer to such Floor Area as determined by the Landlord and there shall be an adjustment of the Gross Rent (with effect from the Commencement Date), the Renovation Deposit and the Security Deposit, all calculated with reference to the revised Floor Area.

1.3 PERMITTED USE

- (a) Permitted Use :
R&D and manufacturing of fluidic chips and microfluidic system for the business of the Tenant and not for any other purpose.
- (b) Business Licence / Approval :
The Tenant is responsible for obtaining and keeping in force all necessary approvals required by law for the operation of its business in the Premises, at its own cost and expense.

1.4 LEASE TERM

Term :
96 months commencing on: where the TOP has already been issued: 02 June 2014 (the ' **Commencement Date** ').

1.5 POSSESSION OF PREMISES

Possession Date where the TOP has already been issued: 02 March 2014

1.6 RENT AND OTHER PAYMENTS (EXCLUSIVE OF GST)

(a) The Monthly Net Rent and Monthly Service Charge shall be as follows:-

Unit	Monthly Net Rent Rate (psm)	Monthly Service Charge Rate (psm)	Monthly Gross Rent Rate (psm)	Monthly Net Rent	Monthly Service Charge	Monthly Gross Rent	Applicable Period
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	\$14.25	\$2.43	\$16.68	\$52,725.00	\$8,991.00	\$61,716.00	02 Jun 2014 to 01 Jun 2016
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	\$14.79	\$2.43	\$17.22	\$54,723.00	\$8,991.00	\$63,714.00	02 Jun 2016 to 01 Jun 2017
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	\$15.33	\$2.43	\$17.76	\$56,721.00	\$8,991.00	\$65,712.00	02 Jun 2017 to 01 Jun 2019
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	\$16.41	\$2.43	\$18.84	\$60,717.00	\$8,991.00	\$69,708.00	02 Jun 2019 to 01 Jun 2020
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	\$16.95	\$2.43	\$19.38	\$62,715.00	\$8,991.00	\$71,706.00	02 Jun 2020 to 01 Jun 2021
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	\$17.48	\$2.43	\$19.91	\$64,676.00	\$8,991.00	\$73,667.00	02 Jun 2021 to 01 Jun 2022

- (b) The charges shown above are exclusive of goods and services tax (' **GST** ') and other taxes payable by the Tenant under the Covenants.
- (c) The Service Charge shown above is subject to increase as provided in Clause 5.1.2 of the Covenants.
- (d) Unless otherwise provided in this letter (' **Offer Letter** ') or in any side/amendment/variation letters (' **Side Letters** '), the Tenant must pay the Monthly Gross Rent monthly in advance, on the first day of each month of the Term. The pro-rated Monthly Gross Rent for any part of a month must be paid in advance on the first day of that month, which will be apportioned on a daily basis (based on the actual number of days in that month).
- (e) Upon acceptance of this offer, the Tenant must pay to the Landlord in advance one (1) full month's Gross Rent (including GST) for the period of one (1) month from the Commencement Date.
- (f) In addition to the Monthly Gross Rent, the Landlord is also entitled to impose charges for the use of any part of the Common Property (defined in the Covenants) at a rate to be determined by the Landlord based on the area of any part of the Common Property used by the Tenant (' **Ancillary Site** '). The Landlord may require the Tenant to sign a separate side letter or enter into a licence or tenancy agreement or such other documents and on such terms and conditions as the Landlord may require in respect of the Ancillary Site.

1.7 RENT FREE PERIOD

- (a) A rent free period (the ' **Rent Free Period** ') will be granted to the Tenant as follows:

Unit	Start Date	End Date	Duration
#08-01/19, RC Roof 1 & RC Roof 2 Block 5008 TECHplace II	2 March 2014	01 June 2014	3 months

- (b) The Tenant will not be required to pay Gross Rent for the Rent Free Period.
 - (c) The Landlord has agreed to grant the Rent Free Period to the Tenant on the basis that the Tenant will complete the entire Term. If the Term is prematurely terminated by the Tenant for any reason whatsoever or if the Lease is determined by the Landlord under Clause 8.1 of the Covenants, then in addition to and without prejudice to any other rights or remedies of the Landlord, the Tenant shall compensate and pay to the Landlord on demand the Gross Rent for the entire Rent Free Period.
-

1.8 SECURITY DEPOSIT

Security Deposit : 8 months' Gross Rent

Security Deposit Amount : \$589,336.00

Time for Payment of : Upon the Tenant's acceptance of this offer.
Security Deposit Amount

Mode of Payment : Cash

1.9 TENANT'S WORKS

The Tenant must obtain the prior written consent of the Landlord for the Tenant's Works in respect of the Premises which may be required by the Tenant for the use and enjoyment of the Premises and comply with all other stipulations set out in Clause 4.1 of the Covenants and the Tenants' Guide.

1.10 RENOVATION DEPOSIT

Renovation Deposit : Based on the rate of \$10.00 per square metre of the Floor Area of the Premises and subject to a minimum of \$2,000.00, the Renovation Deposit of \$37,000.00 for the proposed Fitting Out Works must be placed with the Landlord on acceptance of this offer.

1.11 CAR PARK LOTS

- (a) Number of allocated car park lots : 18 car park lot(s) will be allocated to the Tenant at prevailing rates.
- (b) Allocation of car park lots is subject to the following:-
 - (i) Tenant's compliance with relevant government regulations (where applicable);
 - (ii) Landlord's prevailing policies; and
 - (iii) Availability.

The Landlord reserves the right to revise the allotment from time to time or cancel the allotment at any time.

1.12 REQUISITE APPROVALS & SUBLET FEE

- (a) This offer of the lease of the Premises and acceptance is subject to:
- (i) the Tenant obtaining approval from the relevant authorities (including, where necessary, Jurong Town Corporation) for the use of the Premises for the Tenant's operations (to be obtained by the Tenant in accordance with paragraph 1.3 above); and
 - (ii) where required, the approval from the Head Landlord for the lease of the Premises to the Tenant
- (collectively the ' **Requisite Approvals** ').
- (b) The Tenant shall furnish any information and/or documents forthwith to the Landlord upon the Landlord's request to assist the Landlord to obtain the approval from the Head Landlord for the lease of the Premises to the Tenant. The Tenant shall pay all fees charged or chargeable by the Head Landlord in respect of approval for the subletting of the Premises by the Landlord to the Tenant for the Term (including any subletting fees). The Tenant shall reimburse the Landlord for any fees paid by the Landlord to the Head Landlord in advance and on the Tenant's behalf.
- (c) In the event that the aforesaid approval/s is/are not obtained, it is hereby agreed between the parties hereto that the Landlord shall give written notice to the Tenant of such fact, and the Landlord shall, within one (1) month of the Tenant's receipt of the Landlord notice, refund to the Tenant all deposits paid hereunder by the Tenant without interest (subject however to appropriate deductions for any breach or damage done to the Premises and/or the Building by the Tenant). The Landlord shall also refund back to the Tenant the legal fees and/or stamp duties paid by the Tenant provided always that the same have not been expended for legal work rendered or for payment of stamp duty. The Tenant shall, however, be liable for payment of all rent, service charge, air-con charges, utilities and other charges payable hereunder for the period of time that the Tenant had occupied the Premises until and including the day that the Premises is handed back to the Landlord in the state and condition satisfactory to the Landlord. Prior to the handing over of the Premises back to the Landlord, the Tenant shall, at its own costs and expense, reinstate the Premises back to its original bare state and condition. Thereafter, this Agreement shall be null and void and neither party shall have any claims against the other in respect of any damages, compensation, costs, expenses, losses or otherwise arising out of or in connection therewith, save as provided in this Clause.
- (d) The approved business activities shall not be changed without prior approval from the relevant authorities.
-

1.13 FLOOR LOADING

The Tenant shall not be permitted to place or allow to be placed any load on the floor slab in excess of :

<u>Storey</u>	<u>Floor Loading (kN per square metre)</u>
1	12.5
4 to 8	7.5
Canteen	5

1.14 COSTS & EXPENSES OF LEASE

Any costs and expenses incurred by the Landlord to draw up this Offer Letter and the Covenants and as a result of any negotiation to amend this Offer Letter or the Covenants shall be borne by the Tenant on a full indemnity basis and paid on demand including but not limited to legal fees, stamp duties payable on this Offer Letter and payable as a result of an increase in Gross Floor Area pursuant to paragraph 1.2(a) above and the Landlord's administrative charges.

1.15 SPECIAL CONDITIONS

In addition to the terms, covenants and conditions contained in this Offer Letter and the Covenants, the parties must comply with and be bound by the terms, covenants and conditions on their respective parts set out in Attachment 2 (" **SpecialConditions** "). In the event of any inconsistency between the terms, covenants and conditions set out in the Special Conditions and those contained in this Offer Letter, the terms, covenants and conditions set out in the Special Conditions shall prevail.

1.16 INTERPRETATION

- (a) Unless the context otherwise requires, all definitions, terms and references used in this Offer Letter will have the same meanings given to them in the Covenants.
- (b) The Appendix and Attachments to this Offer Letter shall be binding on the parties and be construed as an integral part of this offer.

2 **ACCEPTANCE**

2.1 In order to accept this offer, please let the Landlord have the items listed below (each an ' **Acceptance Item** ' and together, the ' **Acceptance Items** '):-

- (a) Both copies of this Offer Letter with the Acceptance portion duly signed by the Tenant's authorized signatory;
 - (b) A cashier's order/cheque drawn in favour of "HTSG A/C ASCENDAS REIT" for the total amount set out in the Statement of Accounts attached to this Offer Letter as Attachment 3; and
-

(c) A cashier's order/cheque drawn in favour of "Commissioner of Stamp Duties" for the Stamp Duty amount set out in the Statement of Accounts attached to this Offer Letter as Attachment 3.

- 2.2 For the avoidance of doubt, the Landlord hereby confirms that this offer will only be deemed to have been accepted by the Tenant on the date of receipt by the Landlord of all the Acceptance Items or where they are given separately, the date of receipt of the last Acceptance Item.
- 2.3 Payments made prior to the receipt of the last Acceptance Item may be cleared by the Landlord upon receipt. However, if the remaining Acceptance Items are not received by the Landlord within 7 working days from the date of this Offer Letter (the 'Acceptance Period'), (or such other date as the Landlord may agree), the offer herein shall, unless the Landlord otherwise agrees, lapse and there shall be no contract between the Tenant and the Landlord in respect of the lease of the Premises. All payments received by the Landlord from the Tenant pursuant to this letter shall be forfeited without affecting any other rights or remedies of the Landlord and the Tenant shall have no claim of whatever nature against the Landlord.

3 DECLARATION FORM

- 3.1 The Tenant shall furnish to the Landlord the completed and executed Declaration Form attached as Attachment 4 by 14 October 2013. If the Tenant fails to furnish the said Declaration Form by the specified date mentioned above (or such other date or dates as the Landlord may agree), the Landlord may terminate the lease by giving to the Tenant not less than one (1) month's notice in writing.
- 3.2 Upon the expiry of such notice, the Term and the lease shall absolutely cease and determine and if the Tenant has already taken possession of the Premises, the Tenant shall deliver vacant possession of the Premises to the Landlord in accordance with the Covenants without compensation from or any claim whatsoever against the Landlord but without prejudice to any right of action of the Landlord against the Tenant in respect of any antecedent breach of the terms, covenants and conditions on the part of the Tenant contained in the Covenants, this Offer Letter and Side Letter(s), if any. Upon such termination, the Landlord shall forfeit and retain all monies paid by the Tenant under the provisions of the Offer Letter and/or the Covenants, including but not limited to, the amounts set out in the Statement of Accounts attached to this Offer Letter as Attachment 3 for its own benefit without affecting any other remedy of the Landlord, at law or in equity.
-

4 LEASE

- 4.1 The lease of the Premises to the Tenant is subject to the specific terms, covenants and conditions set out in:-
- (a) This Offer Letter;
 - (b) The Covenants (attached hereto as Appendix I); and
 - (c) The Side Letter(s), if any.
- 4.2 The date of the lease of the Premises shall be the date that the Tenant is deemed to have accepted this Offer Letter in accordance with paragraph 2 above.
- 4.3 All terms, covenants and conditions contained in the Covenants will apply to the lease and the Landlord and the Tenant shall observe, perform and be bound by the terms, covenants and conditions on their respective parts contained in the Covenants as though such terms, covenants and conditions had been incorporated in this Offer Letter.
- 4.4 In the event of any inconsistency between the provisions of this Offer Letter, the Covenants and/or the Side Letter(s), if any, priority shall be given in the following order in order to resolve the inconsistency:-
- (a) the Side Letter(s), if any;
 - (b) this Offer Letter; and
 - (c) the Covenants.

5 EXPIRY OF OFFER

This offer will lapse if the Acceptance Items are not furnished before the Acceptance Period (refer to paragraph 2.3 above), unless an extension of time has been requested and agreed to by the Landlord in writing.

6 AGENCY

This offer is made to the Tenant by us as agents on behalf of HSBC Institutional Trust Services (Singapore) Limited As Trustee of Ascendas Real Estate Investment Trust.

7 CONTACT DETAILS

Please contact Ms. Cheryl Toh at DID Tel No. [*] and Mobile No. [*] if you have any queries.

Yours faithfully,
For and on behalf of
HSBC Institutional Trust Services (Singapore) Limited As Trustee of Ascendas Real Estate
Investment Trust

<u>/s/ Adrian Tan</u>	<u>/s/ SOH Lay Hwa</u>
Name: Adrian Tan	Name: SOH Lay Hwa
Senior Executive	Manager
Lease Operations	Lease Operations

Date: 04 October 2013 Date: 04 October 2013

To: Ms. Cheryl Toh
As agent of HSBC Institutional Trust Services (Singapore) Limited As Trustee of

Ascendas Real Estate Investment Trust

ACCEPTANCE OF OFFER OF LEASE OF BLOCK 5008 ANG MO KIO AVENUE 5 #08-

01/19, RC ROOF 1 & RC ROOF 2, TECHPLACE II SINGAPORE 569874

I/We, FLUIDIGM SINGAPORE PTE. LTD. (the ' **Tenant** ') hereby unconditionally accept your offer of the lease on the above stated terms, covenants and conditions.

I/We acknowledge receipt of the Covenants (Appendix I), the Tenant's Guide (published as at 02 May 2012), plans, payment schedules, forms and such other documents as may form part of this Offer Letter.

I/We enclose the following:-

- (a) cashier's order/cheque drawn in favour of "HTSG NC ASCENDAS REIT" for the total amount set out in the Statement of Accounts attached to this Offer Letter as Attachment 3.
- (b) cashier's order/cheque drawn in favour of "Commissioner of Stamp Duties" for the Stamp Duty amount set out in the Statement of Accounts attached to this Offer Letter as Attachment 3.

December 6, 2013

Date

/s/ Yow Mai Chan

Name of authorized signatory: Yow Mai Chan Designation:
Director

Tenant's Rubber Stamp:

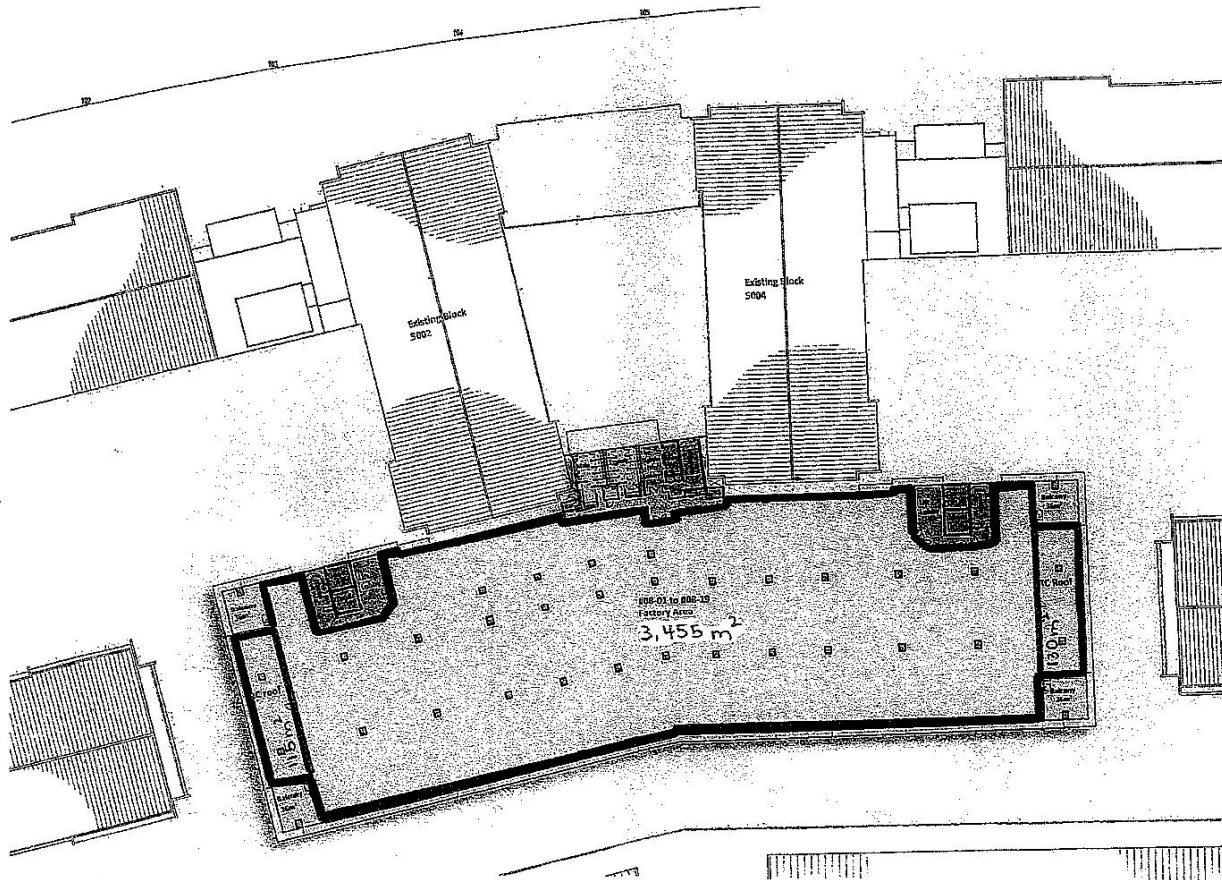


APPENDIX I

See enclosed Standard Terms, Covenants and Conditions

ATTACHMENT 1

PLAN OF THE PREMISES



8TH STOREY PLAN
SINGLE TENANCY

Disclaimer:

All plans are subjects to amendments as directed and/or approved by the building authorities.
All areas are approximate measurements only and subject to final survey. The property is subject to inspection by the relevant authorities to comply with the current code of practice.

APPROVED 04 SEP 2013 *h*

ATTACHMENT 2
SPECIAL CONDITIONS

SPECIAL CONDITIONS

In addition to the provisions set out in the Offer Letter, the parties shall comply with and be bound by the following terms, covenants and conditions:-

1. OPTION TO RENEW

- (a) The Landlord shall grant to the Tenant a further lease of the whole Premises for sixty (60) months (“ **Renewal Term** ”), commencing on the day after the expiry date of the Term, at the Tenant’s cost and expense Provided That:
 - (i) the Tenant gives the Landlord notice of not less than six (6) months before the expiry date of the Term, that it requires a further lease of the Premises; and
 - (ii) the Tenant is not in breach of any of the obligations on its part contained in the Lease.
- (b) The further lease for the Renewal Term must be in respect of the whole of the Premises (and not part of it) and the rent for the Renewal Term shall be pegged to the then prevailing market rent, and on similar terms as this existing Lease. The Landlord shall revert with its proposal for the revised rent within one (1) month from the date of the Tenant’s notice of renewal.
- (c) Within two (2) weeks of receipt of the Landlord’s proposal for the revised rent or such longer period as may be mutually agreed, the Tenant must inform the Landlord, in writing, whether the revised rent is acceptable.
- (d) If the revised rent or the other terms are not acceptable to the Tenant or if the Tenant fails to give a written acceptance to the Landlord in time, then the Tenant will be treated as if it is no longer interested in a further lease and the Landlord will be free to end all negotiations with the Tenant for the further lease.
- (e) If the Landlord’s proposal for the revised rent and other terms has been accepted by the Tenant in time, the Tenant must sign the new lease document in respect of the Renewal Term within two (2) weeks of receipt.
- (f) If after the new lease document for the Renewal Term has been signed but the Tenant is in default of the provisions of the Lease before the commencement of the Renewal Term, the Landlord is entitled to terminate the lease for the Renewal Term by giving notice to the Tenant. Upon receipt of the notice, the lease for the Renewal Term will be terminated without affecting the rights of the Landlord against the Tenant in respect of the default (including, without limitation, compensation for loss of rent for the Renewal Term).

1. STAGGERED RENTAL

The Landlord has agreed to the staggered rent arrangement set out in this Offer Letter at the Tenant's request subject to the condition that the Tenant will perform all terms, covenants and conditions in accordance with the provisions of the Lease including fulfilling all payment obligations. If the Tenant fails to do so, the Landlord shall, without prejudice to its other rights and remedies, be entitled to adjust the rent payment schedule by issuing a written notice (**'Adjustment Notice'**) to the Tenant requiring the Tenant to pay Gross Rent based on the net rent rate of \$15.60 per square metre per month (**'Original Rent Rate'**) with effect from the Commencement Date. After the issuance of the Adjustment Notice, the Tenant shall pay Gross Rent based on the Original Rent Rate on the Payment Dates. The additional Gross Rent payable for the period of the Term prior to the issuance of the Adjustment Notice shall be paid within seven (7) days from the date of the Adjustment Notice. If the Lease is determined for any reason prior to the expiry of the Term, the Tenant shall, without prejudice to the Landlord's other rights and remedies, pay to the Landlord a lump sum representing the difference between the Gross Rent based on the Original Rent Rate for the entire Term and the Gross Rent already paid.

2. INSTALLATION OF AIR-CONDITIONING UNITS

The Tenant shall, at its own costs and expense, install and maintain its own air-conditioning unit(s) at the Premises. In this respect, the Tenant shall ensure that all air-conditioning and mechanical ventilation installed at the Premises shall comply with the GreenMark Requirements as imposed or to be imposed by the relevant Authorities from time to time throughout the Term.

3. RENOVATIONS ALTERATIONS AND INSTALLATIONS

Further to the provisions of Clause 3 above, and without prejudice to the generality of the provisions herein contained, the Tenant shall adhere to all GreenMark Requirements in respect of all renovations, alterations and installations (including but not limited to light fittings, etc) to be carried out at the Premises, notwithstanding such renovations, alterations and installations being approved by the Landlord and/or other relevant Authorities.

4. HANDOVER CONDITION OF PREMISES ON POSSESSION DATE

The Tenant hereby acknowledges that it shall take possession of the Premises in the following handover condition:-

- (a) the Premises shall not have subdivision walls, common corridors, common trunking systems or cable trays;
- (b) the Premises shall have cement sand screed finish for flooring; and

- (c) the Premises shall have walls, columns and pipes duly painted by the Landlord and the Tenant shall have no objection whatsoever to the same.

6. INSTALLATION OF SIGNAGE

The Landlord shall allow the Tenant to install its company's signage (" **Signage** ") at the standing pylon at the entrance of the Park PROVIDED ALWAYS THAT the Tenant shall:-

- (a) seek the Landlord's consent in respect of the dimensions of the Signage, and the Landlord shall be entitled to impose terms and conditions in respect of the same, to which the Tenant shall comply with; and
- (b) at its sole costs and expense, seek approval/s from the relevant Authorities for the display of the Signage, and comply with all terms and conditions and to pay all charges (if any) imposed or to be imposed by the relevant Authorities in respect of the same; and
- (c) pay all monthly license fees and other charges imposed by the Landlord in respect of the display of the Signage; and
- (d) sign all documents required by the Landlord and/or the Authorities for the Signage and shall pay all fees, legal or otherwise, arising out of or in connection therewith, as well as all stamp fees payable thereon, if any; and
- (e) be solely responsible for the maintenance and upkeep of the Signage and the Landlord shall not, in any manner whatsoever, be liable to the Tenant or responsible for any damage, loss, defacement etc. of the Signage.

7. SECURITY DEPOSIT AMOUNT

The Landlord is agreeable to consider lowering the Security Deposit Amount from eight (8) month's Gross Rent as reflected in Clause 1.8 hereof, to a sum equivalent to six (6) month's Gross Rent, subject to the Landlord's assessment of the Tenant's financial standing. In this respect, the Landlord may request the Tenant for its latest audited accounts at any time during the Term. For the avoidance of doubt, the Landlord's assessment of the Tenant's financial standing shall be made based on the Landlord's criteria and the Tenant shall not be entitled to object to the Landlord's decision on the same.

8. RIGHT OF FIRST REFUSAL

The Landlord shall grant to the Tenant options for rights of first refusal (individually “ **the Option** ” and collectively “ **the Options** ”) to take up the lease or leases for the following units on the 4th , 5th , 6th and 7th storeys in the Building (individually called “ **each of the storeys** ”) respectively:-

- (a) Units #04-05/06/07/08 (collectively the “4th **Storey Units** ”);
- (b) Units #05-08/09 (collectively the “5th **Storey Units** ”);
- (c) Units #06-05/06/07/08 (collectively the “6th **Storey Units** ”); and
- (d) Units #07-04/05/06/07/08 (collectively the “7th **Storey Units** ”)

PROVIDED ALWAYS THAT: -

- (i) the Options shall be valid from 02 June 2014 and shall expire on 01 June 2015 (“ **the validity period** ”);
- (ii) the Options shall be offered during the validity period to the Tenant by way of a written notice (“ **the said Notice** ”) served to the Tenant by the Landlord when a third party expresses an interest to the Landlord to take up a lease for either the whole or part of each storey in the Building, (i.e. either the whole or part of the 4th Storey Units, either the whole or part of the 5th Storey Units, either the whole or part of the 6th Storey Units or either the whole or part of the 7th Storey Units);
- (iii) the Options shall be granted by the Landlord to the Tenant only once for each of the storeys in the Building. For example, if a third party expresses interest during the validity period in taking up the lease of part of the 4th Storey Units, namely Unit #04-05, the Landlord shall then grant an Option to the Tenant to take up the lease for the whole of the 4th Storey Units. In the event that the Tenant rejects or fails to take exercise the Landlord's Option for the lease of the whole of the 4th Storey Units in accordance herewith, the Tenant's right to the Option for the 4th Storey Units shall then expire and will not be re-granted again to the Tenant. The Options for the 5th Storey Units, the 6th Storey Units and the 7th Storey Units in this case, if not previously granted by the Landlord to the Tenant under this Clause 7, shall still remain valid until the expiry of the validity period; and
- (iv) the Option/s shall be exercised by the Tenant by way of written acceptance together with full payment within seven (7) days (weekends inclusive) from the grant of the Option/s by the Landlord to the Tenant, failing which the Option/s shall be deemed null and void and the Landlord shall be free to lease the same to other interested parties without any further reference to the Tenant and the Tenant shall not, thereafter, have any claims against the Landlord for any damages arising out of or in connection therewith.

9. RIGHT TO PREMATURELY TERMINATE LEASE

The Landlord is agreeable to allow the Tenant to prematurely terminate the lease of the whole of the Premises at any time during the Term (“ **the Pre-Termination** ”) PROVIDED ALWAYS THAT:-

- (a) an in-coming tenant acceptable to the Landlord (“ **Incoming Tenant** ”) has been sourced by the Tenant to either takeover the existing lease of the Premises from the Tenant, or to take up a fresh lease of the Premises with the Landlord. In this respect, the Incoming Tenant shall accept the Landlord's then prevailing terms and conditions for the fresh lease of the Premises, and the Tenant shall have no objection to the same whatsoever;
- (b) all costs and expenses arising out of or in connection with the Pre-Termination as well as the Incoming Tenant either taking over the Lease of the Premises or to take on a fresh lease with the Landlord, whether imposed by the Landlord and/or the Authorities, shall be solely borne by the Tenant, including but not limited to marketing costs, administrative costs and the like (including all GST payable thereon);
- (c) the Tenant shall enter into all documentation required by the Landlord arising out of or in connection with the Pre-termination, and to bear all costs in connection thereto (legal or otherwise) including all GST payable thereon, as well as all stamp duties imposed thereon (if any);
- (d) the Tenant shall comply with all terms and conditions to be imposed by the Landlord and/or the Authorities in respect of the Pre-termination, and
- (e) in the event that gross rent payable by the Incoming Tenant is lower than the Gross Rent reflected in Clause 1.6 hereof, the Tenant shall pay to the Landlord the rental differential from and including the date the lease of the Premises is pre-terminated by the Tenant until and including the expiry date of the Term. Such sum shall be payable to the Landlord in one lumpsum and shall be payable by the Tenant upon the Landlord's demand.

10. Clause 1.2(b) of the Offer Letter shall be amended as follows:-

- “(b) Where the Floor Area is adjusted following such survey, all references to the Floor Area in the Lease shall refer to such Floor Area as determined by the surveyor appointed by the Landlord and there shall be an adjustment of the Gross Rent (with effect from the Commencement Date), the Renovation Deposit and the Security Deposit, all calculated with reference to the revised Floor Area. Provided always that the revised Floor Area used to calculate the adjustment to the Gross Rent, the Renovation Deposit and the Security

Deposit shall not be more than 3% of the original Floor Area as reflected in this Clause 1.2 above.”

The following variations shall be made to the Standard Terms, Covenants And Conditions under Appendix I hereof:-

11. Clause 4.2.5 shall be amended as follows:-

“4.2.5 The Renovation Deposit, subject to any deductions made by the Landlord as above, shall be repaid to the Tenant following completion of all of the following:-

- (a) proper completion of the Tenant's Works (in compliance with the provisions of the Lease and the Tenants' Guide);
- (b) making good damage (if any) to the Premises, the Building and the Park; and
- (c) full compliance with Landlord's requirements to the Landlord's reasonable satisfaction.”

12. Clause 5.1.2 shall be amended as follows:-

“5.1.2 The Landlord shall be entitled at any time and from time to time to increase the Service Charge by notice if there is any increase in the Total Outgoings and the following shall apply:-

- (a) the Tenant shall pay such increased Service Charge during the Term;
- (b) upon such increase in Total Outgoings, the Landlord shall issue a notice (the '**Increase Notice**') to the Tenant stating the amount of the increase in the Service Charge on a per square metre basis and the effective date of such increase;
- (c) the Increase Notice shall be accepted by the Tenant as conclusive and binding of the matters so stated (save for manifest error);
- (d) the increase in Service Charge shall be chargeable and payable by the Tenant with effect from the date specified in the Increase Notice; and
- (e) if there is any additional Service Charge payable from a date prior to the issuance of the Increase Notice, the aggregate amount of such additional Service Charge shall be payable by the Tenant forthwith upon the issuance of the Increase Notice unless there is/are

documentation error(s), in which case the payment will be delayed until the error(s) is/are corrected by the Landlord.

13. Clause 5.5.2 shall be amended as follows:-

- "5.5.2 Where the Landlord arranges for the supply of electricity to the Premises (whether by way of en bloc energy purchase or otherwise), the Tenant must pay to the Landlord:
- (a) Electricity Charges in respect of the electricity supplied to the Premises, to the Landlord on a monthly basis. The Electricity Charges will be calculated by the Landlord at such rate as the Landlord may stipulate and notified to the Tenant by a statement from the Landlord in writing. In the absence of manifest error, the statement is conclusive as to the amount stated and the Tenant must make payment within seven (7) days from the date of the Landlord's statement;
 - (b) all charges relating to the supply of electricity to the Premises including but not limited to connection charges and administrative charges within seven (7) days of the Landlord's notice to the Tenant of such charges unless there is/are documentation error(s), in which case the payment will be delayed until the error(s) is/are corrected by the Landlord; and
 - (c) the Electricity Supply Deposit. The Landlord will inform the Tenant of the amount of the Electricity Supply Deposit from time to time during the Term. The Electricity Supply Deposit will be retained by the Landlord for the Term and may be used (whether in whole or part) in or towards indemnifying the Landlord against any breach by the Tenant of its obligations under Clauses 5.5.2(a) and 5.5.2(b) above. If the Electricity Supply Deposit is for any reason less than the amount required by the Landlord, the Tenant must pay the Landlord the amount of the deficit within 7 days of the Landlord's written request. The Landlord will refund the Electricity Supply Deposit (subject to the Landlord's rights under this paragraph) to the Tenant, free of interest, together with the Security Deposit Amount."

14. Clause 5.9 shall be amended as follows:

" 5.9 **Repair**

The Tenant must:

- 5.9.1 keep the Premises in a clean, tidy and sanitary condition;

- 5.9.2 keep the Premises, including all fixtures and fittings in it (whether belonging to the Landlord or the Tenant), all mechanical and electrical equipment in and serving the Premises and the Conducting Media in and serving the Premises and reasonably accessible to the Tenant in good and tenable repair and condition (except for fair wear and tear); and
- 5.9.3 immediately make good, to the reasonable satisfaction of the Landlord, any damage caused to the Premises (including the Landlord's fixtures and fittings in it) or any other part of the Building or the Park by the Tenant."

15. Clause 5.10.2 shall be amended as follows:-

"5.10.2 If any breach, defects, disrepair, removal of fixtures or unauthorised alterations, additions or installations are found on inspection for which the Tenant is liable, then, on notice from the Landlord, the Tenant must carry out the necessary works with due diligence within the time period specified in the Landlord's notice, to the reasonable satisfaction of the Landlord."

16. Clause 5.11.2 shall be amended as follows:-

"5.11.2 The Landlord need not pay any compensation for any nuisance, annoyance, inconvenience, damage or loss caused to the Tenant. Nonetheless, the Landlord will endeavour to cause as little disturbance as is reasonably possible in the circumstances. Provided always that the Landlord (or other person so entering) shall take steps to minimize the disruption to the Tenant's business operations, and exercise such right in a reasonable manner and make good any damage caused to the Premises without unreasonable delay."

17. Clause 5.18 shall be amended as follows:-

5.18 **Confidentiality of Information**

Without prejudice to any other rights or remedies the Landlord is entitled to, the Tenant will not disclose to any third party any information in respect of or arising from or in connection with the terms, conditions and provisions of the lease of the Premises whether contained in the Lease or in previous or subsequent correspondence or otherwise, unless such disclosure is required by Law or with the prior consent of the Landlord or to the extent that such information has become public knowledge not due to the Tenant's breach of this undertaking."

ATTACHMENT 3
STATEMENT OF ACCOUNTS

STATEMENT OF ACCOUNTS

	AMOUNT	GST (7%)
NET RENT:	\$52,725.00	\$3,690.75
<p>\$14.25 per square metre per month on 3700.00 square metres for a period of 24 months beginning from 02</p> <p>June 2014</p>		
SERVICE CHARGE:	\$8,991.00	\$629.37
<p>\$2.43 per square metre per month on 3700.00 square metres for a period of 24 months beginning from 02</p> <p>June 2014</p>		
GROSS RENT:	<hr/> \$61,716.00	<hr/> \$4,320.12
<p>\$16.68 per squaremetre per month on 3700.00 square metres for a period of 24 months beginning from 02</p> <p>June 2014</p>		
LEGAL FEES	\$500.00	\$35.00
CASH DEPOSIT	\$589,336.00	
RENOVATION DEPOSIT	\$37,000.00	
SUB-TOTAL	<hr/> \$688,552.00	<hr/> \$4,355.12
GST PAYABLE	\$4,355.12	
TOTAL AMOUNT (INCLUSIVE OF GST)	\$692,907.12	
[payable to "HTSG NC ASCENDAS REIT"]	<hr/>	
STAMP DUTY	\$12,808.00	

[payable to "Commissioner of Stamp Duties"]

The TOTAL AMOUNT payable includes the 1st month advance gross rent beginning 02 June 2014. GIRO payment will be effective from the following month.

ATTACHMENT 4
DECLARATION FORM

DECLARATION FORM

This form may take 15 minutes to complete. Some of the information is pre-filled for your convenience. If the information is inaccurate, you can delete and fill in correctly. Please submit this completed form together with your acceptance.

1. PARTICULARS

Name of Company/Firm (as in ACRA) : FLUIDIGM SINGAPORE PTE. LTD.		
Company's Mailing Address: Block 1026 Tai Seng Avenue #07-3532 Singapore 534413		
Telephone: [*]	Facsimile Number: [*]	Website: www.fluidigm.com
Company Registration No : [*]		Company's Country of Origin: USA
Company's Principle Activity: MANUFACTURING AND R&D		

Note: If you are a foreign firm or a company in formation, please provide a local contact address and telephone number, where possible.

2. USAGE/ ACTIVITIES FOR PREMISES:

Manufacturing, research & development, customer test and service functions, office and store.

2.1 URA's 60:40 requirements

Do your activities in the leased premises comply with Urban Redevelopment Authority's (URA) 60:40 requirements (set out below) for space utilization? **YES** **NO**

Industrial

URA's 60:40 requirements: The tenant must ensure that at least 60% of the floor area is used for industrial activities i.e. manufacturing, assembly, research & development, ancillary stores and ancillary warehouse with only the other 40% of the floor area may be used as ancillary offices, showrooms, neutral areas and communal facilities.

2.2 APPLICATION ON THE USE OF PREMISES TO CENTRAL BUILDING PLAN UNIT OF NEA

Please note that you will need to submit your application online at <http://ias.nea.gov.sg>. You are to submit and apply the same usage reflected in paragraph 2 of this declaration form. Upon successful submission, you are required to furnish us a copy of the application acceptance notification. Once your application is approved, please forward us the approval email/reply from the authorities.

2.3 APPLICATION FOR PORTABLE WATER/NON PORTABLE WATER

Please note that you are required to apply for portable water/non portable water if your water consumption is more than 500 cubic metres per month.

DECLARATION

On behalf of the above mentioned Company/Firm, I declare that all the information and particulars provided in this form are true, correct and complete, and that the activities to be conducted in the stated premises shall not be changed without the prior approval of the owner of the premises.

YOW MAI CHAN / DIRECTOR /s/ YOW MAI CHAN

Name/ Designation Signature

Company Stamp

14 OCT 2013

Date

HANDING OVER

Please provide details of the person whom we can liaise with on handing over of the premises.

Name/ Designation [*]

Contact No/Email [*]

E-BILLING (Mandatory)

Please provide details of the person (e.g. Finance Manager) who will be accessing the billing invoices through our Ascendas Tenant Services Portal.

Name [*]

Designation [*]

Email address [*]

Contact number [*]

ATTACHMENT 5
TENANT'S GUIDE

APPENDIX I

STRICTLY CONFIDENTIAL

**STANDARD TERMS, COVENANTS
AND CONDITIONS**

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STANDARD TERMS, COVENANTS AND CONDITIONS

1. INTERPRETATION

1.1 **Definitions**

In these Covenants, the Offer Letter and the Side Letter(s), where the context so allows:

- 1.1.1 **'Acceptance'** means the acceptance of the offer for lease of the Premises set out in the Offer Letter issued by the Tenant in accordance with the provisions of the Offer Letter.
- 1.1.2 **'Air Conditioning Charges'** means the air conditioning charges, if any, referred to in the Offer Letter or the Side Letter(s), if any.
- 1.1.3 **'Authorities'** means all relevant governmental and statutory bodies and authorities.
- 1.1.4 **'Building'** means the land and the buildings of which the Premises form part, the location and name of which are specified in the Offer Letter, and refers to each and every part of the Building and includes car parks, service, loading and any other areas the use and enjoyment of which is appurtenant to the Building whether or not within the structure of the Building.
- 1.1.5 **'Car Park Charges'** means the charges for the use of the car park lots as notified by the Landlord to the Tenant from time to time.
- 1.1.6 **'Chilled Water Charges'** means the charges for the provision of chilled water to the Premises, referred to in the Offer Letter or such other amount as may be specified by the Landlord from time to time.
- 1.1.7 **'Chilled Water Deposit'** means the chilled water deposit amount specified in the Offer Letter or such other amount as may be specified by the Landlord from time to time.
- 1.1.8 **'Chilled Water Rate'** means the rate of the Chilled Water Charges as specified in the Offer Letter or such other rate as the Landlord may specify from time to time.
- 1.1.9 **'Commencement Date'** means the date of commencement of the Term specified in the Offer Letter or the Side Letter(s), if any.
- 1.1.10 **'Common Property'** means the parts of the Building (whether or not within the structure of the Building) to be used in common with the Tenant, other tenants and occupiers of the Building, the Landlord and those properly authorised and permitted to do so and which would reasonably be treated as common parts of the Building for common use or benefit if the Building had been subdivided and registered under the Land Titles (Strata) Act, Chapter 158, but excludes any such parts as may be within the Premises.
- 1.1.11 **'Conducting Media'** means any drains, sewers, conduits, flues, risers, gutters, gullies, channels, ducts, shafts, watercourses, pipes, cables, wires and mains now or in the future in upon or under the Building.
- 1.1.12 **'Covenants'** means these Standard Terms, Covenants and Conditions and includes any documents supplemental to it.
- 1.1.13 **'Electricity Charges'** means the charges for the supply of electricity to the Premises, as specified by the Landlord from time to time.
- 1.1.14 **'Electricity Supply Deposit'** means the electricity supply deposit amount specified in the Offer Letter or the Side Letter(s) (if any) or such other amount as may be specified by the Landlord from time to time.
- 1.1.15 **'Fire Safety Approval'** means the approval (in the form of fire safety certificates or notices of approval) issued by the Commissioner, Singapore Civil Defence Force under the Fire Safety Act, Chapter 109A or other Authority.
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- 1.1.16 **'Fitting Out Works'** means such fitting out or other works as the Tenant may require to carry out in connection with the use and enjoyment of the Premises immediately upon taking over possession of the Premises.
- 1.1.17 **'Floor Area'** means the floor area of the Premises specified in the Offer Letter.
- 1.1.18 **'Force Majeure'** means any circumstances beyond the reasonable control of the Landlord which directly or indirectly prevents or impedes the due performance of the Landlord's obligations under the Lease, including but without limitation to an act of God, flooding, national emergency, war, insurgency, civil commotion or riots.
- 1.1.19 **'Gross Rent'** means the aggregate of the Net Rent and Service Charge.
- 1.1.20 **'Head Landlord'** means the holder of a reversion whether immediate or not to the lease under which the Landlord holds its interest in the Building.
- 1.1.21 **'Head Lease'** means the lease under which the Landlord holds its interest in the Building and also includes any leasehold reversion whether immediate or not to such lease.
- 1.1.22 **'Infectious Disease'** means infectious diseases defined pursuant to the Infectious Diseases Act, Chapter 137.
- 1.1.23 **'Interest'** means interest at the rate of ten percent (10%) per annum, calculated on a daily basis and on the basis of the actual number of days in the year (both before and after judgement) or such higher rate as may be determined from time to time by the Landlord.
- 1.1.24 **'Landlord'** means the landlord specified in the Offer Letter and includes its successors and assigns and all persons from time to time entitled to the immediate reversion to the Lease.
- 1.1.25 **'Law'** includes any present or future requirement of statute (including subsidiary legislation), common law and equity.
- 1.1.26 **'Lease'** means the agreement for the lease of the Premises between the Landlord and the Tenant constituted by the Offer Letter, incorporating these Covenants, the Acceptance and the Side Letter(s) (if any) and includes any documents supplemental to the Lease.
- 1.1.27 **'month'** means calendar month.
- 1.1.28 **'Monthly Gross Rent'** means the Monthly Net Rent and the Monthly Service Charge.
- 1.1.29 **'Monthly Net Rent'** means the Net Rent for each month of the Term calculated at the monthly Net Rental Rate on the Floor Area.
- 1.1.30 **'Monthly Service Charge'** means the monthly Service Charge calculated at the Service Charge Rate on the Floor Area.
- 1.1.31 **'Net Rent'** means the net rent (exclusive of Service Charge and other sums) payable by the Tenant to the Landlord in accordance with the Offer Letter, Clause 5.1 and the Side Letter(s), if any.
- 1.1.32 **'Net Rental Rate'** means the rate or rates of Net Rent for any month of the Term, as specified in the Offer Letter or the Side Letter(s), if any.
- 1.1.33 **'Offer Letter'** means the offer letter issued to the Tenant by or on behalf of the Landlord to which these Covenants are attached, in respect of the lease of the Premises and includes these Covenants and all amendments of the Offer Letter and supplements thereto.
- 1.1.34 **'Original Condition'** means the original state and condition of the Premises as indicated in the plans and drawings furnished or to be furnished by the Landlord to the Tenant when possession of the Premises are handed to the Tenant by the Landlord.
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- 1.1.35 **'Payment Date'** means the first day of a month or such other day that the Landlord may from time to time specify for payment of the Monthly Net Rent.
- 1.1.36 **'Park'** means a science, business or industrial park within which the Building is located.
- 1.1.37 **'permitted occupier'** means any person on the Premises for any period expressly or by implication with the Tenant's authority.
- 1.1.38 **'Permitted Use'** means the permitted usage specified in the Offer Letter or the Side Letter(s), if any, or such other use as may be approved by the Landlord and the Authorities.
- 1.1.39 **'Possession Date'** means the anticipated date of possession of the Premises specified by the Landlord in the Offer Letter or such other date as the Landlord may specify. Where no Possession Date is specified by the Landlord in the Offer Letter, the Commencement Date shall, for the purposes of the Lease, be deemed to be the Possession Date.
- 1.1.40 **'Premises'** means the premises in the Building agreed to be leased to the Tenant as specified in the Offer Letter and refers to each and every part of the Premises and improvements and additions made to, and fixtures, fittings and appurtenances in, the Premises, but excludes the structural parts, loadbearing framework, roof, foundations, joists, the Conducting Media within but not exclusively serving the Premises, and any of the Landlord's machinery and plant within but not exclusively serving the Premises, the exterior faces of exterior walls and the external faces of boundary walls.
- 1.1.41 **'Renovation Deposit'** means the renovation deposit (if any) referred to in the Offer Letter or the Side Letter(s), if any.
- 1.1.42 **'Rent Free Period'** means the rent free period (if any) referred to in the Offer Letter.
- 1.1.43 **'Security Deposit Amount'** means the security deposit amount specified in the Offer Letter or the Side Letter(s), if any.
- 1.1.44 **'Service Charge'** means the service charge payable by the Tenant to the Landlord in accordance with the Offer Letter and Clause 5.1 and the Side Letter(s), if any.
- 1.1.45 **'Service Charge Rate'** means the monthly rate of the Service Charge.
- 1.1.46 **'Side Letter(s)'** means the side/amendment/variation letter(s), if any, made between the Landlord and the Tenant before, on or after the date of the Acceptance, to supplement, amend or vary the Offer Letter or the Lease.
- 1.1.47 **'Taxes'** means any goods and services tax, imposition, duty and levy, which may be imposed before, on or after the commencement of the Term, by the Authorities.
- 1.1.48 **'Tenant'** means the tenant specified in the Offer Letter and includes its successors and permitted assigns in whom the Lease may for the time being be vested.
- 1.1.49 **'Tenants' Guide'** means the information and guidelines, including but not limited to renovation guidelines and rules relating to the safety, conduct, operation, maintenance and management of the Building, prepared by the Landlord or its consultants and which may be varied or amended by the Landlord.
- 1.1.50 **'Tenant's Works'** means Fitting Out Works and such other renovation, alterations, additions or other works as the Tenant may require to carry out including but not limited to interior layout, interior design, internal fittings, wiring, plumbing and renovation works which the Tenant may require in connection with the use and enjoyment of the Premises.
- 1.1.51 **'Term'** means the term of the Lease specified in the Offer Letter or the Side Letter(s), if any.
- 1.1.52 **'Total Outgoings'** includes the total sum of all outgoings, costs and expenses assessed or
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assessable, charged or chargeable, paid or payable or otherwise incurred in respect of the Building and the fixtures, furniture and fittings therein, and in the control, management, maintenance and replacement of the Building and the fixtures, furniture and fittings therein (including without limitation, capital expenditure and depreciation).

1.1.53 'Utilities' means electricity, water, sewerage, telecommunications and where applicable, gas.

1.2 **General**

The following rules of interpretation apply to the Lease unless the context requires otherwise:

1.2.1 Words in the Lease importing the singular meaning, shall where the context so allows, include the plural meaning and vice versa.

1.2.2 Words in the Lease importing any one gender include both other genders and may be used interchangeably, and words denoting natural persons where the context so allows include corporations and vice versa.

1.2.3 The Schedules, Attachments, Appendices and Annexures to the Lease or any part of it shall be taken, read and construed as parts of the Lease and the provisions thereof shall have the same force and effect as if expressly set out in the body of the Lease.

1.2.4 Unless stated otherwise, one word or provision does not limit the effect of another.

1.2.5 Reference to the whole includes every part.

1.2.6 Every obligation by the Tenant is taken to include an obligation by the Tenant to ensure that each of its employees, agents, independent contractors, permitted occupiers and others under its control comply with that obligation.

1.2.7 In any case where the Tenant is placed under a restriction by reason of the covenants and conditions contained in the Lease, the restriction shall be deemed to include the obligation on the Tenant not to permit or allow the infringement of the restriction by any person claiming rights to use, enjoy or visit the Premises through, under or in trust for the Tenant.

1.2.8 If under the Lease or the Tenants' Guide, the Tenant requires the consent or approval of the Landlord for any action, the Tenant must obtain it in writing before starting to take that action.

1.2.9 If under the Lease or the Tenants' Guide, the consent or approval of the Landlord is required, the consent and approval of the Landlord may be given or withheld by the Landlord in its absolute discretion (unless the Lease provides otherwise) and upon such terms as the Landlord thinks is appropriate.

1.2.10 Any provision in the Lease referring to the consent or approval of the Landlord shall be construed as also requiring the consent or approval of the Head Landlord (if required under the Head Lease) and any Authority, if required under Law, but nothing in the Lease shall be construed as implying that any obligation is imposed upon the Head Landlord or the Authority not to unreasonably refuse any such consent or approval.

1.2.11 A right given to the Landlord to have access to the Premises extends to any persons authorised by the Landlord and the Head Landlord, and includes the right to bring workmen and appliances onto the Premises.

1.2.12 References in the Lease to any statutes or statutory instruments include and refer to any statute or statutory instrument amending, consolidating or replacing them respectively from time to time in force, and references to a statute include regulations made pursuant to them.

1.2.13 Headings are for convenience only and are not to be taken into account in the construction or interpretation of any covenant, condition or proviso to which they refer.

1.2.14 Unless the context otherwise requires, references:

to numbered paragraphs, clauses and Attachments in the Offer Letter are references to the relevant paragraphs, clauses and Attachments in the Offer Letter;

- (a) to numbered paragraphs, clauses and Schedules in these Covenants are references to the relevant paragraph or clause in or Schedule to these Covenants; and
- (b) in any Schedule, Attachment, Appendix or Annexure to a numbered paragraph are references to the relevant paragraph in that Schedule, Attachment, Appendix or Annexure.

1.2.15 References to 'liability' include, where the context allows, claims, demands, proceedings, damages, losses, costs and expenses.

2. **LETTING**

2.1 **Letting**

Upon receipt of the Acceptance by the Landlord pursuant to the requirements in the Offer Letter and in consideration of the Gross Rent reserved by and other covenants on the part of the Tenant in the Lease, the Landlord agrees to lease the Premises to the Tenant, and the Tenant agrees to take a lease of the Premises for the Term:

- (a) together with the rights set out in Clause 2.2; and
- (b) except and reserved to the Landlord the rights set out in Clause 2.3.

2.2 **Rights**

2.2.1 The Premises are leased with the benefit of the following rights:

- (a) the right to use the Common Property to pass to and from the Premises only to the extent that it is necessary; and
- (b) the right to use the designated toilet and bathroom facilities, if any, in the Common Property.

2.2.2 The rights mentioned in Clause 2.2.1 may also be exercised by:

- (a) any persons authorised by the Tenant but only for proper purposes connected with the use or enjoyment of the Premises; and
- (b) the Landlord, the Head Landlord, persons authorised by the Landlord and other persons entitled to do so.

2.3 **Exceptions**

2.3.1 The lease of the Premises to the Tenant is subject to the following rights of the Landlord:

- (a) the right to free and uninterrupted passage and running of Utilities, air-conditioning and other services through the Conducting Media in the Premises;
 - (b) the Landlord's rights under the Lease including but not limited to the right to enter the Premises pursuant to the Lease;
 - (c) the right of light, air, support, shelter and all other easements and rights belonging to or enjoyed by other parts of the Building;
 - (d) the right to erect scaffolding for renovating, retrofitting, refurbishing, altering, repairing, cleaning and/or painting the Building even if the scaffolding temporarily restricts
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access to or the use and enjoyment of the Premises; and

- (e) the right to build upon, alter, rebuild, develop or use the land adjoining the Building and in the Park even if this affects the light and air coming to the Premises or causes nuisance, damage, annoyance or inconvenience to the Tenant or occupier of the Premises by reason of noise, dust, vibration or otherwise provided this does not materially affect the Tenant's ability to use the Premises.

3. POSSESSION

- 3.1 The Tenant shall take possession of the Premises on the Possession Date in accordance with the terms of the Lease. Any delay in the Tenant taking possession of the Premises shall not be a ground for postponing the commencement of the Rent Free Period (if any) and/or the Term.
- 3.2 If the Landlord allows the Tenant to take possession of the Premises before the Commencement Date, the Tenant acknowledges that until the Commencement Date, the Tenant shall be in possession of the Premises as a licensee. Notwithstanding this, the Tenant shall still be bound by the terms, covenants and conditions set forth in the Lease insofar as they are applicable prior to the Commencement Date. If any of the events set forth in Clause 8.1.1 (a) to (d) below shall occur before the Commencement Date, the Landlord in addition to and without prejudice to any other rights and remedies, shall be entitled, by giving notice to the Tenant to that effect, to terminate its agreement to grant a lease of the Premises to the Tenant on the terms, covenants and conditions set out in the Lease. Upon such termination:-
- 3.2.1 the Tenant's interest in and the rights to the Premises shall cease and determine;
- 3.2.2 (if the Tenant shall have taken possession of the Premises) the Tenant shall at its own cost and expense carry out the Reinstatement Works (as defined in Clause 5.12.2. below) and reinstate and restore the Premises to its Original Condition;
- 3.2.3 the Landlord is entitled to forfeit and retain all monies paid by the Tenant under the Lease for its own benefit without affecting any other rights and remedies of the Landlord; and
- 3.2.4 the Tenant shall pay to the Landlord compensation and damages for the loss of Gross Rent (which would have been payable by the Tenant had the Term been completed), suffered by the Landlord consequential upon such termination and the Landlord will retain all rights and remedies against the Tenant for any antecedent breach, non-observance or non-performance by the Tenant of its obligations under the Lease.

4. TENANT'S WORKS

4.1 Tenant's Works

- 4.1.1 The Tenant shall not carry out the Tenant's Works without the prior approval of the Landlord.
- 4.1.2 Subject to Clause 4.1.1, the Tenant shall carry out, at the Tenant's own costs and expense, the Tenant's Works and shall comply with and observe the guidelines, terms and conditions set out in the Tenants' Guide and any other specific requirements of the Landlord.
- 4.1.3 The Tenant must obtain and keep in force all necessary approvals from the Authorities for the purpose of carrying out the proposed Tenant's Works, including without limitation and if applicable, the Fire Safety Approval.
- 4.1.4 The Tenant must obtain and provide the Landlord with the certification of the Tenant's Works from an appropriate architect, engineer or consultant at the Tenant's own cost and expense by a deadline stipulated by the Landlord.
- 4.1.5 Unless otherwise provided in the Offer Letter, there will not be suspension of payment of Gross Rent or any other amounts payable by the Tenant during the Tenant's Works.
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4.1.6 The Tenant shall, if required by the Landlord, place with the Landlord a deposit equivalent to such additional amount as the Landlord may deem sufficient as security for the proper execution of the Reinstatement Works (as defined in Clause 5.12.2 below) and reinstatement of the Premises to its Original Condition. Such additional deposit shall be returned to the Tenant in accordance with Clause 5.7.5 of the Covenants.

4.2 **Renovation Deposit**

4.2.1 The Tenant shall furnish to the Landlord a Renovation Deposit by the following timelines:

- (a) where the proposed Tenant's Works comprise Fitting Out Works, before the Tenant takes possession of the Premises and if specified in the Offer Letter, on acceptance of the Offer Letter; and/or
- (b) where the proposed Tenant's Works do not comprise Fitting Out Works, upon the Landlord's demand for a Renovation Deposit.

4.2.2 The Tenant shall deposit with the Landlord the Renovation Deposit as security for:-

- (a) completion of the Tenant's Works;
- (b) the Tenant making good to the satisfaction of the Landlord all damage to the Premises, the Building and the Park resulting from the Tenant's Works; and
- (c) the Tenant's due compliance of the provisions of the Lease (including but not limited to Clause 4.1 of the Covenants), the Tenants' Guide and all Authorities' conditions.

4.2.3 If the Tenant fails to complete, make good or comply as set out in Clause 4.2.2, above, the Landlord may effect the necessary works, and apply the Renovation Deposit to meet the costs and expenses incurred by the Landlord. If the Renovation Deposit shall be insufficient, the Tenant shall pay to the Landlord on demand the balance of the costs and expenses incurred with Interest from the date of expenditure until the date they are paid by the Tenant to the Landlord, such costs, expenses and Interest to be recoverable as if they were rent in arrears.

4.2.4 The Landlord may forfeit the Renovation Deposit if the Tenant fails to furnish to the Landlord all relevant plans and the Fire Safety Approval within 2 months from the Possession Date.

4.2.5 The Renovation Deposit, subject to any deductions made by the Landlord as above, shall be repaid to the Tenant following completion of all of the following:-

- (a) proper completion of the Tenant's Works (in compliance with the provisions of the Lease and the Tenants' Guide);
- (b) making good damage (if any) to the Premises, the Building and the Park; and
- (c) full compliance with Landlord's requirements to the Landlord's satisfaction.

5. **TENANT'S COVENANTS AND OBLIGATIONS**

The Tenant covenants with the Landlord that during the Term:

5.1 **Gross Rent and other payments**

5.1.1 The Tenant shall pay to the Landlord:-

- (a) Net Rent calculated at the Net Rental Rate on the Floor Area, by monthly payments of the Monthly Net Rent in advance, on each Payment Date of the Term;
 - (b) subject to Clause 5.1.2, Service Charge, by way of additional rent, calculated at the
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Service Charge Rate on the Floor Area, by monthly payments of the Monthly Service Charge in advance, on each Payment Date of the Term;

- (c) where specified in the Offer Letter or Side Letter(s), if any, Chilled Water Charges, calculated at the Chilled Water Rate, by way of additional rent, in the manner specified in the Offer Letter or the Side Letter(s), if any;
- (d) where specified in the Offer Letter or Side Letter(s), if any, Air Conditioning Charges, by way of additional rent, calculated at the rates and payable in the manner specified in the Offer Letter or the Side Letter(s), if any;
- (e) Electricity Charges, by way of additional rent, in the manner specified in Clause 5.5.2(a); and
- (f) Car Park Charges, by way of additional rent, in the manner notified by the Landlord to the Tenant from time to time.

5.1.2 The Landlord shall be entitled at any time and from time to time to increase the Service Charge by notice if there is any increase in the Total Outgoings and the following shall apply:-

- (a) the Tenant shall pay such increased Service Charge during the Term;
- (b) upon such increase in Total Outgoings, the Landlord shall issue a notice (the '**Increase Notice**') to the Tenant stating the amount of the increase in the Service Charge on a per square metre basis and the effective date of such increase;
- (c) the Increase Notice shall be accepted by the Tenant as conclusive and binding of the matters so stated (save for manifest error);
- (d) the increase in Service Charge shall be chargeable and payable by the Tenant with effect from the date specified in the Increase Notice; and
- (e) if there is any additional Service Charge payable from a date prior to the issuance of the Increase Notice, the aggregate amount of such additional Service Charge shall be payable by the Tenant forthwith upon the issuance of the Increase Notice.

5.1.3 The Tenant shall pay Gross Rent, Chilled Water Charges, Air Conditioning Charges, Electricity Charges and Car Park Charges which are payable by way of standing order (GIRO) to an account designated by the Landlord or in such other manner as prescribed by the Landlord.

5.1.4 The provisions of this Clause 5.1 shall continue to apply notwithstanding the expiry or earlier determination of the Lease but only in respect of the Term.

5.2 **Interest**

If the Tenant does not pay the Gross Rent or any other sums owing to the Landlord under the Lease by the due date (whether or not formally demanded), the Tenant must pay the Interest on that sum from the date the sum is due until the date that the sum is paid. Such Interest will be recoverable from the Tenant as if it is rent in arrears. Nothing in this Clause 5.2 entitles the Tenant to withhold or delay any payment or affects or derogates from the rights of the Landlord in relation to non-payment including without limitation, the right of re-entry under the Lease.

5.3 **Taxes**

In addition to the Gross Rent and other sums payable under the Lease, the Tenant must pay the Landlord immediately on demand Taxes payable by the Landlord in respect of any sum payable under the Lease and/or the occupation and lease of the Premises. Taxes payable hereunder are recoverable as if they are rent.

5.4 Utilities

The Tenant must pay to the relevant supplier all charges in respect of the Utilities (save for the Electricity Charges and the Air Conditioning Charges payable to the Landlord pursuant to the Lease) supplied to the Premises by each respective supplier.

5.5 Electricity Supply

5.5.1 Unless otherwise notified by the Landlord, the Tenant shall make arrangements with a supplier

or retailer, as the case may be, for the supply of electricity to the Premises in which case, the Tenant shall comply with the following:

- (a) Tenant shall obtain the prior approval of the Landlord of the supplier or retailer; and
- (b) Tenant shall pay all charges for the supply of electricity to the Premises (including but not limited to any connection charges) directly to the supplier or retailer.

5.5.2 Where the Landlord arranges for the supply of electricity to the Premises (whether by way of en bloc energy purchase or otherwise), the Tenant must pay to the Landlord:

- (a) Electricity Charges in respect of the electricity supplied to the Premises, to the Landlord on a monthly basis. The Electricity Charges will be calculated by the Landlord at such rate as the Landlord may stipulate and notified to the Tenant by a statement from the Landlord in writing. In the absence of manifest error, the statement is conclusive as to the amount stated and the Tenant must make payment within seven (7) days from the date of the Landlord's statement;
- (b) all charges relating to the supply of electricity to the Premises including but not limited to connection charges and administrative charges within seven (7) days of the Landlord's notice to the Tenant of such charges; and
- (c) the Electricity Supply Deposit. The Landlord will inform the Tenant of the amount of the Electricity Supply Deposit from time to time during the Term. The Electricity Supply Deposit will be retained by the Landlord for the Term and may be used (whether in whole or part) in or towards indemnifying the Landlord against any breach by the Tenant of its obligations under Clauses 5.5.2(a) and 5.5.2(b) above. If the Electricity Supply Deposit is for any reason less than the amount required by the Landlord, the Tenant must pay the Landlord the amount of the deficit within 7 days of the Landlord's written request. The Landlord will refund the Electricity Supply Deposit (subject to the Landlord's rights under this paragraph) to the Tenant, free of interest, together with the Security Deposit Amount.

5.5.3 Where the Landlord has effected or intends, at any time or from time to time during the Term, to effect an en bloc energy purchase for the Building or the Park, the Tenant will be deemed to have granted its consent to such purchase on the date of the Acceptance. The Tenant must, if required by the Landlord, sign an authorization containing such provisions as prescribed by the Landlord, to confirm such consent.

5.5.4 Without prejudice to the generality of the foregoing, the Tenant must not without the prior consent of the Landlord agree to purchase energy from any party other than the Landlord or open a power supply account with SP Services Pte Ltd or any other electricity or power retailer.

5.6 Meters

5.6.1 The Tenant is required to engage a qualified contractor to install and test the electricity, water

and air conditioner meters (**Meters**) relating to the Premises at the Tenant's own cost and expense (including without limitation, the costs and expenses arising from the submissions to, endorsements by and attendance of the Landlord's licensed electrical worker). Prior approval of the Landlord, and where required, the relevant Authorities for such installation and testing must be obtained.

5.6.2 The Tenant shall be responsible for the maintenance, repair and replacement of the Meters at the Tenant's costs and expense during the Rent Free Period (if any) and the Tenant must not tamper with, or do anything which may affect the accuracy of, the Meters.

5.6.3 All connection and turning on fees whether payable to the Landlord or the Authority or any other person, shall be borne by the Tenant.

5.7 Security Deposit Amount

5.7.1 The Tenant must pay to and maintain with the Landlord the Security Deposit Amount:-

- (a) as security for compliance by the Tenant of all the provisions in the Lease;
- (b) to secure and indemnify the Landlord against:
 - (i) any loss or damage resulting from any default by the Tenant under the Lease;
 - (ii) any claim by the Landlord at any time against the Tenant in relation to any matter arising out of or in connection with the Premises; and
 - (iii) without prejudice to the generality of the preceding sub-Clauses, any amount owing by the Tenant to the Landlord during any holdover period or subsequent lease of the Premises between the Landlord and the Tenant.

5.7.2 If any default by the Tenant under the Lease occurs, the Landlord is entitled (but not obliged) to apply the whole or part of the Security Deposit Amount in or towards:-

- (a) making good any loss or damage sustained by the Landlord as a result of any of the above in any manner as may be required by the Landlord; and
- (b) repayment of any expense incurred by the Landlord in making good the loss and damage, in any manner as may be prescribed by the Landlord.

5.7.3 The Tenant must pay to the Landlord an amount equal to the amount applied by the Landlord under Clause 5.7.2, as replacement of the whole or part of the Security Deposit Amount applied, within seven (7) days of demand.

5.7.4 If from time to time during the Term, the Gross Rent is increased in accordance with the Lease, the Security Deposit Amount shall likewise be increased and the difference shall be paid by the Tenant upon the Landlord's notice requiring payment.

5.7.5 The Landlord must repay to the Tenant the Security Deposit Amount, without interest and after proper deductions by the Landlord after the end of the Term if the Tenant has paid all sums owing and performed all other obligations under the Lease to the satisfaction of the Landlord.

5.7.6 The Tenant must not set-off any part of the Security Deposit Amount against any Gross Rent or other sums owing to the Landlord.

5.8 Insurance

5.8.1 The Tenant shall at the Tenant's own cost and expense from the Possession Date or the commencement of the Term, whichever is earlier, till the expiry of the Term and during any period of holding over, take out and keep in force the following insurance policies (hereinafter called the "**Insurance Policies** "):

- (a) an insurance policy in the name of the Tenant:
 - (i) against all risks of physical loss or damage (including risks of fire) in respect of the Tenant's property, goods and stock-in-trade (if any) in the Premises including all the Tenant's plate and tempered glass, glass frontage and plant and machinery in the Premises (if any);
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(ii) up to the full replacement value of the Tenant's property, goods and stock-in-trade in the Premises; and

(iii) which includes a provision for waiver of subrogation against the Landlord.

(b) a public liability insurance policy in the name of the Tenant with the Landlord named therein as an additional insured party:

(i) against claims for personal injury, death or property damage or loss arising out of all operations of the Tenant, its servants, agents, invitees, licensees and independent contractors in or from the Premises or assumed under this lease, which shall be extended to include any of the insured parties' legal liability for loss of or damage to the Premises (including all fixtures and fittings therein) and all the Landlord's property;

(ii) in an amount not less than the sum of Singapore Dollars Three Million (S\$3,000,000.00) or such higher amount as may from time to time be required by the Landlord; and

(iii) which includes a cross-liability clause.

5.8.2 The Tenant shall take out the Insurance Policies with a reputable insurance company approved by the Landlord.

5.8.3 The Tenant shall forthwith at the request of the Landlord furnish to the Landlord copies of the Insurance Policies and the receipt for the last premium payable in respect of such policies.

5.8.4 The Tenant shall not do nor suffer to be done anything whereby any of the Insurance Policies may be rendered void or voidable.

5.9 **Repair**

The Tenant must:

5.9.1 keep the Premises in a clean, tidy and sanitary condition;

5.9.2 keep the Premises, including all fixtures and fittings in it (whether belonging to the Landlord or the Tenant), all mechanical and electrical equipment in and serving the Premises and the Conducting Media in and serving the Premises and reasonably accessible to the Tenant in good and tenable repair and condition (except for fair wear and tear); and

5.9.3 immediately make good, to the satisfaction of the Landlord, any damage caused to the Premises (including the Landlord's fixtures and fittings in it) or any other part of the Building or the Park by the Tenant.

5.10 **Landlord's Right of Inspection and Repair**

5.10.1 The Tenant must allow the Landlord to enter the Premises at all reasonable times to:

(a) establish if the provisions of the Lease have been observed;

(b) inspect the condition of the Premises;

(c) take a schedule of fixtures; and / or

(d) determine the source of any interference or disturbance to other tenants and occupants.

5.10.2 If any breach, defects, disrepair, removal of fixtures or unauthorised alterations, additions or installations are found on inspection for which the Tenant is liable, then, on notice from the Landlord, the Tenant must carry out the necessary works with due diligence within the time

period specified in the Landlord's notice, to the satisfaction of the Landlord.

5.10.3 If the Tenant does not complete the necessary works in time, the Landlord may enter the

Premises to do the necessary works pursuant to Clause 8.8 below. In connection with such works and if required by the Landlord, the Tenant shall:-

- (a) remove its own installations, machinery or any article so as to facilitate the Landlord's execution of things, repairs and works and if the Tenant fails to do so, the Landlord may effect such removal at the Tenant's costs and expense; and
- (b) cease activities to such extent and during such hours as the Landlord may specify by notice to the Tenant in order to carry out such works (including without limitation, investigations relating thereto).

5.11 Landlord's Right of Entry for Repairs

5.11.1 The Tenant must allow the Landlord to enter the Premises at all reasonable times after giving to the Tenant prior notice (except in an emergency):

- (a) to carry out any works relating to the Conducting Media and to install additional Conducting Media;
- (b) to carry out any works which the Landlord considers necessary or desirable to any part of the Building or the Park (including the services and facilities in it);
- (c) to exercise any right granted to or to comply with any obligation of the Landlord under the Lease or the Head Lease or any obligation owed to any third party having legal rights over the Premises, the Building or the Park;
- (d) to alter, repair or maintain the Premises, the Building or the Park (including cleaning the exterior windows of the Building);
- (e) to develop the remainder of the Building or the Park, including the right to build onto any boundary wall of the Premises; or
- (f) to construct, alter, maintain, repair or fix anything or additional thing serving such property and running through or on the Premises and the Landlord shall also have the right to grant access to any of the Authorities to carry out any works at the Premises including but not limited to any surrounding areas if so required by the Authorities.

5.11.2 The Landlord need not pay any compensation for any nuisance, annoyance, inconvenience, damage or loss caused to the Tenant. Nonetheless, the Landlord will endeavour to cause as little disturbance as is reasonably possible in the circumstances.

5.11.3 If required by the Landlord, the Tenant shall:-

- (a) remove its own installations, machinery or any article so as to facilitate the Landlord's execution of things, repairs and works and if the Tenant fails to do so, the Landlord may effect such removal at the Tenant's cost and expense; and
- (b) cease activities to such extent and during such hours as the Landlord may specify by notice to the Tenant for any work (including without limitation, investigations relating thereto) to be executed by the Landlord.

5.12 Vacating the Premises

5.12.1 At the expiry or sooner determination of the Term, the Tenant must:-

- (a) have complied with all its obligations specified in Clause 5.12.2; and
 - (b) vacate the Premises and yield up the Premises to the Landlord together with all keys
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of the Premises and the keys of all mailboxes for the Premises.

- 5.12.2 Prior to vacating the Premises, the Tenant must at its cost carry out the reinstatement works to restore the Premises to its Original Condition (except fair wear and tear) as set out in the Tenants' Guide and in accordance with the Landlord's additional reinstatement requirements (**'Reinstatement Works'**).
- 5.12.3 If the Tenant took over fixtures, fittings and/or furniture of any previous occupant, the Reinstatement Works shall include the removal all such fixtures, fittings and furniture.
- 5.12.4 If the Tenant fails to comply with any of its obligations set out above, the Landlord may carry out the Reinstatement Works (or such part thereof as may remain uncompleted) at the Tenant's cost and expense.
- 5.12.5 If the Landlord carries out such Reinstatement Works:-
- (a) the Landlord must complete the works within a reasonable period; and
 - (b) the Tenant must pay the Landlord immediately on demand:
- (i) all the Landlord's costs together with Interest from the date of expenditure to the date they are paid by the Tenant to the Landlord (such expenses and Interest to be recoverable as if they were rent in arrears);
 - (ii) a sum (the **'Additional Sum'**) equivalent to the Gross Rent calculated based on the period (the **'Reinstatement Period'**) taken by the Landlord to complete the works.
- 5.12.6 If the Landlord is agreeable that the Reinstatement Works be delayed with the intent of procuring a replacement tenant to take over the Tenant's fixtures and fittings, the Landlord shall be entitled to require the Tenant to pay a further sum to be determined by the Landlord by reference to the costs and expenses that would be required to complete such Reinstatement Works (the **'Further Sum'**). If such replacement tenant agrees to take over the Tenant's fixtures and fittings, the Tenant shall be deemed to have consented to the transfer of its title in the fixtures and fittings to the replacement tenant and upon:-
- (a) the Tenant issuing a written confirmation to that effect; and
 - (b) the replacement tenant undertaking in writing to take over the Tenant's fixtures and fittings and agreeing in writing to reinstate the Premises,
- the Further Sum shall be refunded to the Tenant. If paragraph (a) and/or paragraph (b) above is/are not fulfilled within three (3) months (or such other period as the Landlord may stipulate) from the date of the expiry or sooner determination of the Term, then the Landlord shall be entitled to retain the entire Further Sum and remove, dispose or deal with the Tenant's fixtures and fittings as the Landlord deems fit and all proceeds from the disposal (if any) shall be retained by the Landlord.
- 5.12.7 A statement from the Landlord of the costs incurred, the Additional Sum and the Further Sum is conclusive and binding on the Tenant (save for manifest error).
5. 13 Permitted Use
- 5.13.1 Subject to Clause 5.13.3 below, the Tenant shall not use the Premises for any purpose except for the Permitted Use for the business of the Tenant.
- 5.13.2 The Tenant shall obtain and keep in force all necessary approvals required by law for the operation of its business in the Premises, at its own cost, and expense and must ensure that the terms and conditions of such approvals are strictly complied with.
- 5.13.3 The Tenant must ensure that not more than 40% of the Floor Area is used for purposes ancillary to the Permitted Use, as approved by (a) the Urban Redevelopment Authority or other
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Authority and (b) the Landlord.

5.14 **Not to Void Insurance**

The Tenant shall not do anything which may make any of the Landlord's insurance policies invalid or capable of cancellation or which may increase the premium on such policies. If the Tenant is in default of this Clause, the Tenant shall make good any damage suffered by the Landlord and to pay the increased premium and all costs and expenses incurred by the Landlord with respect to the renewal of such policy, without affecting any other rights or remedies of the Landlord.

5.15 **Viewing**

5.15.1 Within six (6) months before the end of the Term, the Tenant shall allow all persons authorised

by the Landlord or its agents to view the Premises at all reasonable times with prior notice in connection with any reletting.

5.15.2 At any time during the Rent Free Period (if any) and the Term, the Tenant shall allow all

persons authorised by the Landlord or its agents to view the Premises at all reasonable times with prior notice in connection with any sale of the Building.

5.16 **Compliance with the Law**

5.16.1 The Tenant must comply, at its cost, with the Law and all requirements of the Authorities in force during the Term relating to:

- (a) the Premises or the use or occupation of the Premises;
- (b) anything in or done in the Premises by the Tenant; and
- (c) the observance or performance of the Tenant's obligations under the Lease,

and immediately inform the Landlord in writing of any notice or order from any Authority received in relation to any of the above or of any defect in the Premises which may give rise to a liability or duty on the Landlord.

5.16.2 Without prejudice to Clause 5.16.1, the Tenant shall not allow the Premises to be used as a

place in which any person is employed in contravention of Section 57(1)(e) of the Immigration Act (Chapter 133), Section 5 of the Employment of Foreign Manpower Act (Chapter 91A) and any other Law in force at the moment.

5.17 **Acceptance of Existing State and Condition**

The Tenant agrees to accept, and not raise any objection to, the existing state and condition of the Premises as at the Possession Date including the structural, mechanical and electrical specifications of the Premises.

5.18 **Confidentiality of Information**

Without prejudice to any other rights or remedies the Landlord is entitled to, the Tenant will not disclose to any third party any information in respect of or arising from or in connection with the terms, conditions and provisions of the lease of the Premises whether contained in the Lease or in previous or subsequent correspondence or otherwise, unless such disclosure is required by Law or with the prior consent of the Landlord.

5.19 **Indemnity by Tenant**

The Tenant shall indemnify the Landlord against all claims, demands, actions, proceedings, judgements, damages, losses, costs and expenses of any nature which the Landlord may suffer or incur for death, injury, loss and/or damage caused, directly or indirectly by:

- 5.19.1 any occurrences in the Premises or the use or occupation of the Premises by the Tenant or by any of the Tenant's employees, independent contractors, agents or any permitted occupier;
- 5.19.2 the Tenant or its employees, independent contractors, agents or any permitted occupier of the Premises, the Building or any property in them (including without limitation, those caused directly or indirectly by the use or misuse, waste or abuse of the Utilities or faulty fittings or fixtures) or the condition of any part of the interior of the Premises; and
- 5.19.3 any default by the Tenant in complying with the provisions of the Lease.
- 5.20 **Assignment and Subletting**
- 5.20.1 The Tenant shall not assign, sublet, mortgage or charge the Lease or the Premises.
- 5.20.2 The Tenant shall not licence, part with or share possession or occupation of the Premises or grant third parties any rights over the Premises.
- 5.20.3 Where the Tenant is a company, any change in the management control or majority shareholders of the Tenant made without the prior consent of the Landlord will be treated as an assignment of the Lease.
- 5.20.4 For the purpose of this Clause, "majority shareholder" means a person who:
- (a) controls the composition of the board of directors of the Tenant; or
 - (b) controls more than 50% of the issued share capital of the Tenant; or
 - (c) controls more than 50% of the voting power of the Tenant.
- 5.20.5 Subject to Clause 5.20.1, if the Tenant is a sole-proprietor or comprises of partners carrying on business under a business name registered under the Business Registration Act, the Tenant shall not effect any change in the constitution or membership of the sole-proprietorship or partnership without the Landlord's prior consent.
- 5.20.6 In the event the Landlord grants its consent, the Landlord shall be entitled at its absolute discretion to impose such terms and conditions and charge such fees as the Landlord shall see fit and Section 17 of the Conveyancing and Law of Property Act (Chapter 61) shall not apply.
- 5.21 **No Lodgment of Caveat, Registration of Lease and Subdivision**
- 5.21.1 The Tenant shall not lodge a caveat in respect of the Lease nor register the Lease at the Singapore Land Registry, whether before or during the Term. The Tenant undertakes to immediately withdraw any caveats lodged in default of this Clause.
- 5.21.2 The Tenant must not require the Landlord to subdivide the Building or do any act which could result in the Landlord being required to subdivide the Building.
- 5.21.3 The Landlord and the Tenant hereby agree and acknowledge that the Lease does not operate as a lease capable of registration under the provisions of the Land Titles Act (Cap. 157) or any other Law.
- 5.22 **Prevention of Infectious Diseases**
- 5.22.1 The Tenant shall take all steps and measures, at the Tenant's cost and expense, to prevent any outbreak, spread or any transmission whatsoever of any Infectious Disease (including, but not limited to, thoroughly fumigating and disinfecting the Premises to the satisfaction of the Authorities) and to, without prejudice to Clause 5.16, to promptly comply, at the Tenant's cost and expense, with the Law and all guidelines, rules and requirements of the Authorities relating to the prevention of any outbreak and/or spread of Infectious Diseases.
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5.22.2 The Tenant shall forthwith give notice to the Landlord and the Authorities if the Tenant is aware or suspects that any person is suffering, has died from, is a carrier or a contact of, or is at risk of infection from an Infectious Disease and provide such required information or particulars.

5.23 **Head Lease**

5.23.1 The Tenant shall comply with and be bound by the conditions (if any) imposed by the Head Landlord in granting its consent to the lease of the Premises to the Tenant.

5.23.2 The Tenant shall comply with, perform, observe and be bound by the obligations contained or referred to in the Head Lease insofar as they relate to the Premises. The Tenant shall also comply with, perform, observe and be bound by the obligations of any additional or supplemental documents made or to be made from time to time between the Landlord and the Head Landlord pursuant to the Head Lease in relation to the Building and/or the Park.

5.24 **Change of Name**

The Tenant shall give prior notice to the Landlord of any intended change in its name and pay to the Landlord a fee for every change of its name.

5.25 **Additional Property Tax**

5.25.1 The Tenant must pay to the Landlord immediately on demand, any additional property tax ('Additional Property Tax'). The Additional Property Tax shall be the property tax payable for or apportioned as attributable to the Premises (in respect of each month of the Rent Free Period (if any) and the Term) arising from an increase in the annual value of or attributable to the Premises or an increase in the rate of property tax of or attributable to the Premises over and above the annual value and the rate of property tax prevailing on the Commencement Date. If the Tenant fails to comply with this Clause 5.25, the Additional Property Tax together with interest accruing from the date of the Landlord's demand until the date of payment will be recoverable from the Tenant as if it were rent in arrears.

5.25.2 The liability of the Tenant to pay the Additional Property Tax will not be affected by the expiry or sooner determination of the Term.

5.25.3 Objection to or appeals in respect of any assessment of annual value or imposition of property tax on the Premises may only be made by the Landlord at its sole discretion.

6. **LANDLORD'S OBLIGATIONS**

The Landlord covenants with the Tenant as follows:

6.1 **Quiet Enjoyment**

If the Tenant pays the Gross Rent and other sums due under the Lease and complies with the Tenant's obligations in the Lease, the Tenant may occupy and use the Premises throughout the Term without any interruption by the Landlord, except as provided in the Lease.

6.2 **Property Tax**

Save for the Additional Property Tax, the Landlord must pay the property tax levied on the Building by the Authority and which is apportioned as attributable to the Premises.

6.3 **Management of the Building**

Subject to the provisions of Clauses 7.1, the Landlord must:

6.3.1 keep the exterior of the Building, the Common Property, the mechanical and electrical services and other services, amenities and facilities in the Building provided by the Landlord for

common use or benefit, in good repair and in the case of mechanical and electrical services, in working order and condition (fair wear and tear excepted);

- 6.3.2 provide lift services during the hours specified by the Landlord, electricity for the lighting of the Common Property within the Building and water for the toilet and bathroom facilities, if any, in the Common Property in the Building;
- 6.3.3 keep the Common Property sufficiently cleaned and lit; and
- 6.3.4 insure the Building (excluding fixtures and fittings installed by the Tenant) against damage by fire and such other risks which the Landlord decides are necessary.

7. **LANDLORD NOT LIABLE**

7.1 **No Claim by Tenant**

Notwithstanding anything contained in the Lease, the Landlord is not liable to the Tenant or its employees, independent contractors, agents or permitted occupiers or any other persons and the Tenant must not claim against the Landlord for any death, injury, loss or damage (including indirect, consequential and special losses) which the Tenant or its employees, independent contractors, agents or permitted occupiers or any other persons may suffer (whether sustained at or originating at the Premises or the Building or the Common Property or the Park) in respect of any of the following (whether caused by negligence or other causes):

- 7.1.1 any interruption in any of the services mentioned in Clause 6.3 due to necessary repair, maintenance, damage or destruction of any installations or equipment or mechanical, electrical, electronic, microprocessor, software or other defect, malfunction or breakdown; or
 - 7.1.2 any act, omission, negligence or misconduct of (a) any employee of the Landlord or any person acting under such employee in respect of the Premises or the Building; (b) the employee, agent or independent contractor of the Landlord in performing any duty relating to the services mentioned in Clause 6.3; or (c) any contractor nominated or approved by the Landlord under the Lease, and such contractor appointed by the Tenant will not be treated as an employee or agent of the Landlord or (d) any other person in the Building; or
 - 7.1.3 leakage or defect in the piping, wiring and sprinkler system or defect (inherent or otherwise) in the structure of the Building; or
 - 7.1.4 the use of the car parks in the Building; or
 - 7.1.5 the violation of the Tenants' Guide by any of the other tenants, invitees, licensees or other occupiers in the Building including their employees, independent contractors, agents, visitors, invitees or licensees; or
 - 7.1.6 any failure or delay by the Landlord in the taking or implementing of any measures or the insufficiency of any such measures taken by the Landlord, to prevent any outbreak or spread whatsoever of any Infectious Disease in the Building; or
 - 7.1.7 any terrorist act regardless of any other cause or event contributing concurrently or in any other consequence to the loss (including, but not limited to, any action taken in controlling, preventing, suppressing or in any way relating to any terrorist act); or
 - 7.1.8 any Force Majeure; or
 - 7.1.9 any failure or inability or defect in the supply or character of electricity, water (including chilled water) or where applicable, gas, supplied to the Premises by any service provider supplying the Building with electricity, water (including chilled water) or where applicable, gas; or
 - 7.1.10 for accidents happening or injuries sustained or for loss of or damage to property in the Premises, the Building or the Park.
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8. **OTHER TERMS**

8.1 **Re-entry**

8.1.1 The Tenant will be in default under the Lease if, during the Term:

- (a) the Tenant fails to pay the Gross Rent or any other sum payable under the Lease within seven (7) days after the due date (whether or not formally demanded); or
- (b) the Tenant fails to comply with its obligations under the Lease (other than payment of Gross Rent and any other sum payable under the Lease) and (where the breach is capable of remedy) fails to make good the default within fourteen (14) days (or any other period stipulated by the Landlord) of the Landlord's notice ; or
- (c) any distress or execution is levied on the Tenant's property and is not discharged within seven (7) days; or
- (d) an event of insolvency occurs or is likely to occur in relation to the Tenant.

8.1.2 In any of the above events, the Landlord may re-enter and take possession of the Premises (or any part of it) at any time (even if any previous right of re-entry has been waived) and to repossess the Premises and the Term and the Lease shall absolutely cease and determine.

8.1.3 The exercise of the Landlord of its right of re-entry will not affect any rights of the Landlord against the Tenant (including rights in respect of the default under which the re-entry is made).

8.1.4 The Tenant must indemnify the Landlord from and against all cost, loss, damages and expenses (including, without limitation, Gross Rent for the Rent Free Period and loss of Gross Rent which would have been payable by the Tenant if the Term had been completed and all costs and expenses incurred for re-letting or attempted re-letting of the Premises), suffered by the Landlord as a result of the Landlord exercising its right of re-entry. This indemnity will not affect the other rights and remedies of the Landlord against the Tenant.

8.2 **Government Acquisition**

If the Building or any part of it is acquired by any Authority or a notice, order or gazette notification is issued in respect of the intended or actual acquisition of the Building or any part of it by any Authority, the Landlord may terminate the Lease, without compensation, by giving notice to the Tenant. Upon receipt of the notice, the Lease will end without affecting the rights of the Landlord against the Tenant for any previous default by the Tenant of the Lease

8.3 **Removal of property after the end of Lease**

8.3.1 If the Gross Rent or any other sums payable under the Lease shall be unpaid, the Tenant shall, upon the Landlord's notice, leave any property of the Tenant specified by the Landlord in the Premises.

8.3.2 If any property of the Tenant remains on the Premises after the Tenant has vacated the Premises after the expiry or sooner determination of the Term whether under Clause 8.3.1 or for any other reason whatsoever, the Landlord shall be entitled, and shall be deemed to be authorized, to remove, store, deal with, sell and dispose of the property in any manner which the Landlord thinks is appropriate. All costs and expenses incurred by the Landlord together with Interest from the date of expenditure until the date they are paid by the Tenant to the Landlord shall be recoverable from the Tenant as if they were rent in arrears. The Landlord shall be entitled to apply the proceeds of sale (if any) against such costs, expenses and Interest and any other amounts owing by the Tenant to the Landlord. The Landlord shall return the balance, if any, to the Tenant.

8.3.3 The Tenant must indemnify the Landlord against any liability incurred by the Landlord to any third party whose property is dealt with or disposed of by the Landlord in the mistaken belief (which will be presumed unless the contrary is proved) that such property belonged to the Tenant.

8.4 **Notices**

8.4.1 A notice given or required to be given under the Lease must be in writing.

8.4.2 A notice to the Tenant is only valid if given by hand or sent by registered post to the Premises.

8.4.3 A notice to the Landlord is only valid if sent by registered post to the registered office for the time being of the Landlord or any other address notified by the Landlord to the Tenant.

8.4.4 Any notice will be treated as served:

- (a) (for notice given by hand) immediately on the day upon which it is sent; and
- (b) (for notice by registered post) twenty-four (24) hours after posting and in proving it, it will be adequate to show that the envelope containing the notice was addressed, stamped and posted.

8.5 **Service of Process**

Any process, by writ, summons or otherwise, shall be sufficiently served if effected on:

- 8.5.1 the Landlord by registered post to its business address;
- 8.5.2 the Tenant by registered post to or by leaving or affixing it at the business address or the Premises notwithstanding that it is returned by the post office undelivered; or
- 8.5.3 the solicitor for the Landlord or the Tenant in the manner provided in this Clause.

8.6 **Prohibition against Offsetting**

The Tenant must pay to the Landlord promptly as and when due, without demand, deduction, set-off, or counterclaim, all sums due and payable by the Tenant to the Landlord under the Lease. The Tenant must not exercise any right or claim to withhold Gross Rent or any other sum payable under the Lease or any right or claim to legal or equitable set-off.

8.7 **Costs and Expenses**

The Tenant agrees to pay the Landlord (on a full indemnity basis), immediately on demand, all the Landlord's costs and expenses (including without limitation, legal fees) incurred:-

- 8.7.1 for drawing up, negotiating and completing Side Letter(s), if any;
- 8.7.2 for considering a request for any consent or approval by the Landlord (including fees imposed by the Landlord's consultants for advising the Landlord); and
- 8.7.3 as a result of a default by the Tenant of the Lease.

8.8 **Remedial Measures.**

If the Tenant fails to observe or perform any obligations on its part in the Lease, the Landlord may (but shall not be under any obligation to) without prejudice to any of its other rights or remedies, carry out or cause to be carried out such remedial measures as the Landlord thinks necessary. All costs and expenses incurred by the Landlord together with Interest from the date of expenditure until the date they are paid by the Tenant to the Landlord shall be recoverable from the Tenant as if they were rent in arrears PROVIDED ALWAYS THAT the Landlord shall not be liable to the Tenant for any loss, damage or inconvenience directly or indirectly caused thereby.

8.9 **No Waiver**

8.9.1 The Landlord's consent or waiver to any default by the Tenant of its obligations in the Lease is only effective if it is in writing. Mere knowledge or consent by conduct (expressed or implied) of the Landlord of such default by the Tenant will not be implied or treated as a waiver.

8.9.2 Such consent or waiver by the Landlord must not be taken as a consent or waiver to another default by the Tenant of the same obligation or a default of another obligation in the Lease.

8.9.3 The Landlord will not be treated as waiving its right to proceed against the Tenant in respect of any default by the Tenant of its obligations in the Lease, if the Landlord accepts the Gross Rent or any other sum payable by the Tenant under the Lease.

8.10 **Representations**

8.10.1 The Lease forms the entire agreement between the Landlord and the Tenant relating to the lease of the Premises.

8.10.2 The Landlord is not bound by any representations or promises with respect to the Building, the Premises or the Park if they are not stated in the Lease whether written or oral, express or implied by common law, statute or custom or otherwise.

8.10.3 The Tenant confirms that it has not agreed to or executed the Acceptance or any Side Letter(s) relying on any representation made by the Landlord or on its behalf which is not stated in the Lease.

8.10.4 The Landlord and the Tenant each represents, warrants and undertakes that it has full power and authority to enter into and perform the Lease and the Lease is valid and binding on its part.

8.11 **Tenants' Guide**

8.11.1 The Tenant must comply with the Tenants' Guide and ensure that its employees, agents, independent contractors and permitted occupiers comply with the Tenants' Guide.

8.11.2 The Landlord may make and vary the Tenants' Guide at any time.

8.11.3 The provisions of the Lease will prevail where there is inconsistency between such provisions and the Tenants' Guide.

8.12 **Landlord may Assign**

The Landlord is entitled to transfer (whether by an assignment or novation) its rights and obligations in the Lease. Upon such transfer, the Tenant:-

- (a) is treated to have consented to such transfer and must accept the transferee as its new landlord;
 - (b) must release the Landlord from all its obligations under the Lease, including without limitation, the Landlord's obligation to refund the Security Deposit Amount and other sums that the Landlord is obliged to refund under the Lease;
 - (c) must become a party to and sign the assignment or novation agreement in respect of the Lease with the Landlord and its transferee, if required by the Landlord. Such agreement will be prepared by the Landlord or its transferee at its own cost; and
 - (d) if requested by the Landlord, where the Security Deposit Amount is furnished by way of a bank guarantee, procure a replacement bank guarantee to be issued in favour of the transferee.
-

8.13 **Unenforceability and Severance**

The illegality, invalidity or unenforceability of any provision in the Lease under the law of any jurisdiction will not affect the legality, validity and enforceability of that provision under the law of any other jurisdiction or the legality, validity or enforceability of any of the other provisions in the Lease.

8.14 **Governing Law and Submission to Jurisdiction**

8.14.1 The Offer Letter and the Lease are governed by Singapore law.

8.14.2 The parties agree to submit to the jurisdiction of the courts of the Republic of Singapore.

8.14.3 Where the Tenant is a company that is neither incorporated nor registered in Singapore:-

- (a) the Tenant undertakes to deliver to the Landlord a copy of the letter issued by the process agent to the Landlord, consenting to irrevocably act as the Tenant's process agent, within seven (7) days of appointment, in a form approved by the Landlord;
- (b) the service of process on the Tenant is treated as completed upon leaving the documents at the last known address of the process agent; and
- (c) Clause 8.14.3 will not affect the right of the Landlord to serve process in any other manner permitted by Law.

8.15 **Contracts (Rights of Third Parties) Act Cap 53B**

Without prejudice to Clause 8.12, nothing in the Lease shall confer on any person who is not party to the Lease a right to enforce any terms of the Lease and the provisions of the Contracts (Rights of Third Parties) Act, Cap 53B, which might otherwise be interpreted to confer such rights to such persons shall not apply and are expressly excluded from applying to the Lease and no consent of any third party is required for any variation (including any release or compromise of any liability) or termination of the Lease.

8.16 **Limitation of Liability**

Notwithstanding any contrary provision in the Lease, it is hereby agreed and acknowledged that the Landlord is entering into this Lease in its capacity as Trustee of A-REIT and not in its personal capacity. As such, any liability of or indemnity given or to be given by the Landlord shall be limited to the assets of A-REIT over which the Landlord has recourse and shall not extend to any personal assets of the Landlord or any assets held by the Landlord as Trustee for any trust other than A-REIT.

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)

Fluidigm Sciences Inc. (Delaware)

Subsidiaries of Fluidigm Europe, BV (Netherlands):

Fluidigm France SARL (France)

Fluidigm UK Limited (United Kingdom)

Subsidiaries of Fluidigm Sciences Inc. (Delaware):

Fluidigm Canada Inc. (Ontario, Canada)

DVS Sciences (UK) Ltd. (United Kingdom)

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/ASR No. 333-193624) of Fluidigm Corporation,
- (2) Registration Statements (Form S-8 Nos. 333-172206, 333-180363 and 333-187204) 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/S-3 No. 333-194084) pertaining to (a) the 2011 Equity Incentive Plan of Fluidigm Corporation, (b) stock options granted under the DVS Sciences, Inc. 2010 Equity Incentive Plan, as amended, assumed by Fluidigm Corporation, and (c) the DVS Sciences, Inc. Stock Restriction Agreements and Restricted Stock Purchase Agreements assumed by Fluidigm Corporation;

of our reports dated March 12, 2014, with respect to the consolidated financial statements 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, 2013.

/s/ Ernst & Young LLP

Redwood City, California
March 12, 2014

**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, 2014

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

**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, 2014

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

**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, 2013 (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, 2014

