FLUIDIGM CORP Form S-1/A January 28, 2011 Table of Contents

As filed with the Securities and Exchange Commission on January 28, 2011

Registration No. 333-170965

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

AMENDMENT NO. 3 TO FORM S-1 REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

FLUIDIGM CORPORATION

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of

3826 (Primary Standard Industrial 77-0513190 (I.R.S. Employer

incorporation or organization)

Classification Code Number)
7000 Shoreline Court, Suite 100

Identification Number)

South San Francisco, CA 94080

(650) 266-6000

(Address, including ZIP code, and telephone number, including area code, of registrant s principal executive offices)

Gajus V. Worthington

President and Chief Executive Officer

7000 Shoreline Court, Suite 100

South San Francisco, CA 94080

(650) 266-6000

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act, as amended, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

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. (Check one):

Large accelerated filer " Accelerated filer

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

Smaller reporting company "

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment that specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to such Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is declared effective. This preliminary prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, Dated January 28, 2011

5,172,414 Shares

Common Stock

This is the initial public offering of Fluidigm Corporation. We are offering 5,172,414 shares of our common stock. We anticipate that the initial public offering price will be between \$13.50 and \$15.50 per share. We intend to list our common stock on The NASDAQ Global Market under the symbol FLDM.

Investing in our common stock involves risks. See Risk Factors beginning on page 10.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Public offering price	\$	\$
Underwriting discounts and commissions(1)	\$	\$
Proceeds, before expenses, to Fluidigm Corporation	\$	\$

(1) We refer you to Underwriting beginning on page 139 for additional information regarding total underwriter compensation. We have granted the underwriters the right to purchase up to 775,862 additional shares of common stock to cover over-allotments.

The underwriters expect to deliver the shares on or about , 2011.

Deutsche Bank Securities

Piper Jaffray

Cowen and Company

Leerink Swann

The date of this prospectus is , 2011

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You should rely only on the information contained in this prospectus and in any free writing prospectus prepared by or on behalf of us. We have not, and the underwriters have not, authorized anyone to provide you with information different from, or in addition to, that contained in this prospectus or any related free writing prospectus. This prospectus is an offer to sell only the shares offered hereby but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

Dealer Prospectus Delivery Obligation

Through and including , 2011 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer s obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

For investors outside the United States: Neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

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PROSPECTUS SUMMARY

This summary highlights information contained in greater detail elsewhere in this prospectus. This summary may not contain all the information that you should consider before investing in our common stock. You should read the entire prospectus carefully, including Risk Factors beginning on page 10 and our consolidated financial statements and related notes included elsewhere in this prospectus, before making an investment decision. Unless otherwise indicated, the terms Fluidigm, we, us and our refer to Fluidigm Corporation.

Fluidigm Corporation

Overview

We develop, manufacture and market microfluidic systems for growth markets in the life science and agricultural biotechnology, or Ag-Bio, industries. Our proprietary microfluidic systems consist of instruments and consumables, including chips and reagents. These systems are designed to significantly simplify experimental workflow, increase throughput and reduce costs, while providing the excellent data quality demanded by customers. In addition, our proprietary technology enables genetic analysis that in many instances was previously impractical. We actively market three microfluidic systems including eight different commercial chips to leading pharmaceutical and biotechnology companies, academic institutions, diagnostic laboratories and Ag-Bio companies. We have sold systems to over 200 customers in over 20 countries worldwide.

To achieve and exploit advances in life science research, Ag-Bio and molecular diagnostics, laboratories need robust systems that deliver increased throughput and simpler workflows at decreased costs. Our microfluidic systems are designed to overcome many of the limitations of conventional laboratory systems by integrating an increasing number of fluidic components on a single microfabricated chip. 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. Similarly, for next generation DNA sequencing, our systems enable rapid preparation of multiple samples in parallel at low cost.

We have successfully commercialized our BioMark and EP1 systems for genetic analysis and our Access Array system for next generation DNA sequencing sample preparation. Researchers and clinicians have successfully employed our products to help achieve breakthroughs in a variety of fields, including genetic variation, cellular function and structural biology. These include using our microfluidic systems to help detect life-threatening mutations in patients—cancer cells, discover cancer associated biomarkers, analyze the genetic composition of individual stem cells, identify fetal chromosomal abnormalities and assess the quality of agricultural seed products. We believe our Access Array system resolves a critical workflow bottleneck that exists in all commercial next generation DNA sequencing platforms. 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 revenue from \$6.4 million in 2006, to \$25.4 million in 2009 and \$23.2 million in the nine months ended September 30, 2010, during which time our product margin has increased from 30% in 2006, to 51% in 2009 and to 62% for the nine months ended September 30, 2010. We have incurred significant net losses since our inception, including net losses of \$23.6 million in 2006, \$19.1 million in 2009 and \$13.8 million during the nine months ended September 30, 2010, with an accumulated deficit of \$196.2 million as of September 30, 2010.

We attribute our success and continued growth prospects to the following:

Disruptive and Enabling Technology. Our microfluidic systems, which are broadly compatible with existing lab equipment and chemistries, enable users to perform 24 times more gene expression experiments than conventional microplate systems, at one time and in nanoliter volumes, delivering

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meaningful improvements in cost, capability, time and accuracy over conventional methods of laboratory and industrial research. In addition, our technology enables scientists to perform experiments that we believe are impractical using conventional systems, such as digital PCR experiments, where our systems enable users to perform 36,960 simultaneous reactions on a single chip.

Commercially Validated High Margin Business Model. We have an installed base of over 250 instruments which generate high margin recurring revenue from consumables, including chips and reagents. Our product margins are supported by our highly efficient manufacturing operations that are based in Singapore and take advantage of the skilled workforce, supplier and partner networks and government support available there.

Leadership Positions in Multiple High Growth Markets. We believe our microfluidic systems are well positioned to address numerous applications in the life science and Ag-Bio markets, including single cell genomics, digital PCR, agricultural genotyping and sample preparation for next generation DNA sequencing.

Significant Growth Opportunities in Additional Markets. Researchers have successfully used our microfluidic systems in such diverse fields as immunoassays, high throughput drug screening, chemical synthesis, pharmacogenomics, systems biology, synthetic biology, stem cell research, cell culture and cellular assays. Our proprietary technology is broadly applicable to biotechnology automation and could be further developed for a wide variety of additional applications, including molecular diagnostics. Through further expansion of our assay and reagent offerings, we intend to provide more comprehensive solutions across all of our target markets.

Strong Research and Development Capabilities and Intellectual Property Position. We are a pioneer in the development of microfluidic systems and have a demonstrated ability to advance systems from concept through commercialization. We have developed an extensive portfolio of intellectual property, including more than 110 issued U.S. patents and 220 patent applications pending worldwide either owned by or licensed to us.

Well-Published and Loyal Customer Base that Expands Market Awareness of our Products. Since January 2009, users of our systems have published over 60 peer-reviewed articles regarding experiments using our technology. We actively market our products to thought leaders in their respective fields and have found references from existing customers to be an important factor in marketing our solutions to prospective customers.

Our Target Markets

The current markets for our products include life science research and Ag-Bio. Total expenditures in the life science research and Ag-Bio markets described below are projected to exceed \$4.3 billion by 2015. In addition, we are developing products for use in molecular diagnostics and other markets.

Life Science Research

Our primary area of focus within life science research is genomics, the study of genes and their functions. Gene expression and genotyping are studied through a combination of various technology platforms that characterize gene function and genetic variation. These platforms 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. We are currently focused on the following applications:

Gene Expression Analysis. Measures the activity of genes to identify genetic variations that may correspond to predisposition of disease or response to therapeutics;

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Genotyping. Determines DNA sequence variants, such as single nucleotide polymorphisms, or SNPs, across individual genomes to assess the correlation of specific genotypes to physical traits of interest;

Digital PCR. Discretely quantifies the amount of nucleic acid present in a sample, facilitating assays that require much greater precision than currently provided by conventional PCR techniques, including measuring variations in the number of copies of a gene found in a genome, or copy number variation;

Single Cell Analysis. Performs gene expression analysis on single cells to further understand how biological systems operate at the cellular level; and

Sample Preparation for Next Generation DNA Sequencing. Isolates, amplifies and tags target molecules to simplify library preparation, increasing the efficiency of next generation DNA sequencing platforms for applications such as targeted resequencing. Agricultural Biotechnology

Industrial customers in Ag-Bio typically analyze the genomes of tens of thousands to hundreds of thousands of seeds or livestock annually in cost-sensitive production environments. Commercially viable genetic analysis tools in Ag-Bio must be inexpensive, easy to use and provide extremely high throughput.

Molecular Diagnostics

Molecular diagnostic tests are used in clinical practice to diagnose, classify or monitor a disease; determine a patient susceptibility to a disease; or monitor a patient susceptibility to a disease; or monitor a patient suspense to therapy, by detecting one or more biomarkers in a patient sample. Within molecular diagnostics, our initial area of focus is in non-invasive prenatal diagnostics, or NIPD, for fetal aneuploidies, for which the most reliable diagnostic tests currently available are invasive and carry significant risks to the fetus. In collaboration with Novartis Vaccines & Diagnostics, Inc., or Novartis V&D, we are developing a microfluidic system to target this application. This system is in its early stage of development and, prior to commercialization, FDA approval or clearance may be required.

The Fluidigm Solution

Our proprietary microfluidic systems are designed to significantly simplify experimental workflow, increase throughput, reduce costs, provide excellent data quality and in many instances enable genetic analysis that was previously impractical. Our microfluidic systems empower researchers and commercial customers to rapidly perform significantly more experiments or prepare significantly more samples all at one time and in nanoliter volumes with a combination of speed and accuracy that we believe cannot be achieved with other systems. Our systems deliver these advantages through the integration of sophisticated nanoliter fluid handling in an easy-to-use format that is compatible with most existing laboratory workflows and chemistries. Our systems are used in existing and emerging life science research and Ag-Bio markets, and we believe our systems and technology may be suitable for applications in additional markets. A significant portion of our research and development efforts are currently focused on potential applications of our technology in molecular diagnostics and we expect such development focus to continue.

We believe that our microfluidic systems have a number of compelling advantages over conventional microplate systems and other competing platforms including:

Data Quality. Our microfluidic systems provide exceptionally high quality data. In genotyping, our systems achieve greater than 99% call rate and call accuracy. For gene expression, our systems achieve 6 orders of magnitude of dynamic range with interand intra-chip reproducibility at correlation coefficients greater than 0.99.

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Improved Throughput. Our base BioMark system can generate over 27,000 gene expression data points per day and high throughput configurations of our system can generate over 110,000 data points per day, with a time to first result measured in hours. Some competing systems may offer comparable data points per day, but may take up to a week for first results. Other systems offer comparable time to first result, but produce fewer data points per day, often with lower data quality. Our improved throughput reduces the time and cost associated with complex experiments and expands the number and range of experiments that may be conducted.

Ease of Use. Loading our 96.96 Dynamic Array chip requires 192 pipetting steps as compared to 18,432 steps required to load the number of 384 well microplates required for the same experiment. Difficulties encountered with some competing systems include manual sample loading and chip alignment that often results in lower throughput. We believe our microfluidic systems efficient workflow reduces time, cost and potential for error.

Flexibility. Our chips are built on 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. Our chips are also designed to work with standard chemistries, including TaqMan and other reagents. In addition, our chips give researchers the flexibility to develop and load their own assays, unlike some competing products that can be used only to analyze specific genes or that are supplied pre-configured with fixed content.

Nanoliter Precision. Our microfluidic systems allow users to dispense samples and reagents in microliter volumes which are automatically partitioned, combined or mixed in nanoliter and sub-nanoliter volumes. In addition to cost and workflow benefits, this capability makes it practical for users to conduct certain high sensitivity, low volume techniques, such as digital PCR and single cell analysis.

Cost Effectiveness. We believe our high throughput systems offer a compelling cost benefit for high volume users. Our systems consume reagents in nanoliter volumes, have the ability to conduct thousands of parallel experiments on one chip and offer customers the flexibility to use lower cost reagents as needed.

Our microfluidic systems are less well suited for smaller scale research initiatives where complexity and workflow issues may be less pressing and conventional systems may be more economical. In addition, for very large-scale association or survey projects, researchers may choose to use other tools, such as microarrays, that have the ability to measure thousands of genetic markers with a single device. As life science research continues to evolve and is commercialized, we believe that there will be increasing demand for life science automation solutions that enable experimentation on the scale supported by our microfluidic systems.

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Products

We provide complete microfluidic systems consisting of instruments and consumables, including chips and reagents. Our systems are easily incorporated into our customers—laboratory environments and analysis workflow. For example, our chips are the same size and shape as standard 384 microplates and other chip consumables, which facilitates the loading and handling of our chips by standard laboratory equipment. Each of our chips includes an elastomeric, or rubber-like, core that contains an extensive network of microfluidic components that deliver samples and reagents to thousands of nanoliter volume chambers where individual assays are performed. Our primary product offerings are summarized in the table below:

Product	Product Description	Applications	
Instruments BioMark System	Real-time qPCR instrument, bundled analysis software and chip loading platforms	Digital PCR, SNP Genotyping, Gene Expression	
EP1 System	Real-time qPCR instrument, bundled analysis software and chip loading platforms	Digital PCR, SNP Genotyping	
Access Array System	Sample preparation system that facilitates parallel amplification of 48 unique samples	Next Generation DNA Sequencing	
Consumables			
Dynamic Array Chips	Microfluidic chip based on matrix architecture (where each sample is paired with each assay), allowing users to generate up to 9,216 real-time qPCR reactions simultaneously	Real-time qPCR, SNP Genotyping, Gene Expression	
Digital Array Chips	Microfluidic chip based on partitioning architecture, allowing users to divide 48 separate samples into 770 smaller samples	Digital PCR, Gene Expression, Copy Number Variation, Mutation Detection	
Access Array Chips	Microfluidic chip that facilitates parallel amplification, barcoding and tagging of 48 unique samples	Next Generation DNA Sequencing	
Multi-use Chips	Reusable microfluidic chip that can be used up to five times and is able to produce up to 11,520 genotypes over its lifespan	SNP Genotyping	

Strategy

We intend to continue growing as a global leader in providing microfluidic systems to the life science research and Ag-Bio markets. Our business strategy includes the following elements:

Increase market penetration of our microfluidic systems;

Increase recurring consumables revenue through instrument sales and product innovation;

Provide assays and design services that leverage our system strengths in key application areas;

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Provide expanded offerings that complement and support our core technology offerings;
Leverage our proprietary technology to address new markets;
Provide superior customer service;
Enhance chip manufacturing efficiency; and
Continue to develop our technology and intellectual property position. Cecting Us
less is subject to numerous risks, as more fully described in the section entitled Risk Factors immediately following this prospectual including the following:
We have incurred losses since inception, and we expect to continue to incur substantial losses for the foreseeable future;
If our products fail to achieve and sustain sufficient market acceptance, our revenue will be adversely affected;
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 future success is dependent upon our ability to expand our customer base and introduce new applications;
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;
We need to expand our resources for marketing, selling and distributing our products and we may not be able to expand our direct sales and marketing force or distribution capabilities to adequately address our customers needs;
Our ability to protect our intellectual property and proprietary technology through patents and other means is uncertain; and

Corporate History and Information

validity of others proprietary rights.

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. Information contained on our website is not incorporated by reference into this prospectus, and should not be considered to be part of this prospectus.

We may be involved in lawsuits to protect or enforce our patents and proprietary rights and to determine the scope, coverage and

Fluidigm, the Fluidigm logo, BioMark, Dynamic Array, Digital Array, Access Array, EP1, FC1, TOPAZ, FLUIDLINE, NanoFlex are trademarks or registered trademarks of Fluidigm. Other service marks, trademarks and trade names referred to in this prospectus are the property of their respective owners.

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THE OFFERING

Common stock offered by us

5.172.414 shares

Common stock to be outstanding after this offering

18,589,649 shares (or 19,365,511 if the underwriters exercise their over-allotment option)

Use of proceeds

We intend to use the net proceeds from this offering for sales and marketing activities, including expansion of our sales force to support the ongoing commercialization of our products; for research and product development activities; for facilities improvements and purchase of manufacturing and other equipment; and for working capital and other general corporate purposes. We also intend to use a portion of the proceeds of this offering to repay approximately \$5.0 million in principal plus accrued interest on promissory notes issued by us in January 2011, of which, notes with an aggregate principal amount of approximately \$1.77 million are held by entities affiliated with certain of our directors, executive officers and holders of more than 5% of a class of our voting stock. See Certain Relationships and Related Party Transactions 2011 Note Financing. We may also use a portion of our net proceeds to acquire and invest in complementary products, technologies or businesses; however, we currently have no agreements or commitments to complete any such transaction. See Use of Proceeds.

Proposed NASDAQ Global Market symbol

FLDM

The number of shares of our common stock to be outstanding following this offering is based on 13,417,235 shares of our common stock outstanding as of January 11, 2011 and excludes:

2,183,537 shares of common stock issuable upon exercise of options outstanding as of January 11, 2011, at a weighted average exercise price of \$5.00 per share;

538,759 shares of common stock issuable upon the exercise of warrants outstanding as of January 11, 2011, at a weighted average exercise price of \$12.46 per share, after conversion of our convertible preferred stock;

4,272,096 shares of common stock reserved for future issuance under our stock-based compensation plans, including 1,250,000 shares of common stock reserved for issuance under our 2011 Equity Incentive Plan, which will become effective on the date of this prospectus, and any future automatic increase in shares reserved for issuance under such plan; and

172 shares of common stock that were issued and outstanding but would not be included in stockholders deficit January 11, 2011 pursuant to accounting principles generally accepted in the United States, as these shares were subject to a right of repurchase by us. Unless otherwise indicated, this prospectus reflects and assumes the following:

a 1-for-1.73 reverse stock split of our outstanding stock to be effected prior to the closing of this offering;

the conversion of all outstanding shares of our convertible preferred stock into an aggregate of 11,480,406 shares of common stock upon the closing of this offering;

the filing of our eighth amended and restated certificate of incorporation immediately upon the closing of this offering; and

no exercise by the underwriters of their over-allotment option.

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SUMMARY CONSOLIDATED FINANCIAL DATA

We have derived the summary consolidated statement of operations data for the years ended December 29, 2007, December 27, 2008 and December 31, 2009 from our audited consolidated financial statements included elsewhere in this prospectus. The report of our independent registered public accounting firm on our consolidated financial statements for the year ended December 31, 2009, which appears elsewhere in this prospectus, includes an explanatory paragraph that describes an uncertainty about our ability to continue as a going concern. We have derived the summary consolidated statement of operations data for the nine months ended September 30, 2009 and 2010, and the consolidated balance sheet data as of September 30, 2010 from our unaudited consolidated financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future. The following summary consolidated financial data should be read in conjunction with Management s Discussion and Analysis of Financial Condition and Results of Operations and our consolidated financial statements and related notes included elsewhere in this prospectus.

	Year Ended		Nine Months Ended		
	December 29, 2007	December 27, 2008	December 31, 2009	September 30, 2009	September 30, 2010
		(in thous	sands, except per sh	are data)	
Consolidated Statement of Operations Data:					
Revenue:					
Product revenue	\$ 4,451	\$ 13,364	\$ 23,599	\$ 16,369	\$ 20,883
Collaboration revenue	460	70			975
Grant revenue	2,364	1,913	1,813	1,420	1,347
Total revenue	7,275	15,347	25,412	17,789	23,205
	.,		-,	.,	, , , ,
Costs and expenses:					
Cost of product revenue	3,514	8,364	11,486	8,404	7,999
Research and development	14,389	14,015	12,315	9,249	10,097
Selling, general and administrative	12,898	22,511	19,648	14,386	17,672
Total costs and expenses	30,801	44,890	43,449	32,039	35,768
-					
Loss from operations	(23,526)	(29,543)	(18,037)		
	(20,020)	(2),0.0)	(10,027)		