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

**AMENDMENT NO. 1
TO
FORM S-3
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
incorporation or organization)

77-0513190
(I.R.S. Employer
Identification Number)

**7000 Shoreline Court, Suite 100
South San Francisco, CA 94080
(650) 266-6000**

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

**Stephen Christopher Linthwaite
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)

Copies to:

**Nicholas Khadder
Senior Vice President, General Counsel,
Chief Compliance Officer and Secretary
7000 Shoreline Court, Suite 100
South San Francisco, CA 94080
Telephone: (650) 266-6000**

**Robert F. Kornegay
Wilson Sonsini Goodrich & Rosati
Professional Corporation
650 Page Mill Road
Palo Alto, CA 94304
(650) 493-9300**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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 of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company” and “emerging growth company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer
 Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company
 Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for comply with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered (1)(2)(3)	Proposed Maximum Offering Price Per Unit (1)(2)(3)	Proposed Maximum Aggregate Offering Price(1)(2)(3)	Amount of Registration Fee (3)
Common Stock par value \$0.001 per share (including the associated Preferred Share Purchase Rights) (4)				
Preferred Stock par value \$0.001 per share.				
Debt Securities				
Warrants				
Units (5)				
Total Registration Fee (6)	\$125,000,000		\$125,000,000	\$14,487.50 (7)

- (1) An indeterminate amount or number of the securities of each identified class is being registered as may from time to time be issued at indeterminate prices in U.S. Dollars. Subject to Rule 462(b) under the Securities Act of 1933, as amended, in no event will the aggregate maximum offering price of all securities sold pursuant to this registration statement exceed \$125,000,000 or the equivalent thereof in one or more foreign currencies, foreign currency units or composite currencies.
- (2) The proposed maximum aggregate offering price has been estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.
- (3) Pursuant to Rule 416 under the Securities Act, this registration statement shall also cover such indeterminate number of shares of common stock, warrants to purchase shares of common stock, warrants to purchase shares of preferred stock, shares issuable upon exercise of such warrants and such shares of common stock or preferred stock as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (4) Comprised of rights to purchase shares of the Registrant’s Series A Participating Preferred Stock, par value \$0.001 per share (the “Preferred Share Purchase Rights”), that are associated with shares of the Registrant’s common stock pursuant to the Tax Benefit Preservation Plan, dated as of November 21, 2016, by and between Fluidigm Corporation and Computershare Inc., as Rights Agent (the “Tax Benefit Plan”). The Preferred Share Purchase Rights are not exercisable until the occurrence of certain events specified in the Tax Benefit Plan and are transferrable solely with the associated Common Stock. The value attributed to the Preferred Share Purchase Rights, if any, is reflected in the value of the associated Common Stock.
- (5) Securities registered hereunder may be sold separately, or as units with other securities registered hereby.
- (6) Fluidigm Corporation will determine the proposed maximum aggregate offering price per unit when it issues the above listed securities.
- (7) Previously paid.

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 which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this registration statement shall become effective on such date as the Commission acting pursuant to said Section 8(a) may determine.

EXPLANATORY NOTE

This Amendment No. 1 is being filed for the purpose of (1) revising certain footnotes to the calculation of the registration fee on the facing page of the Registration Statement; and (2) to file Exhibits 5.1, 23.1, 23.2, 23.3 and 24.2 to the Registration Statement (Registration No. 333-216542). No changes or additions are being made hereby to the Prospectus constituting Part I of the Registration Statement (not included herein).

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth the various costs and expenses (other than the underwriting discounts and commissions) payable by the registrant in connection with a distribution of securities registered hereby. All amounts are estimates except the SEC registration fee.

	<u>Amount</u>
SEC registration fee	\$ 14,487.50
Printing costs	(1)
Legal fees and expenses	(1)
Accounting fees and expenses	(1)
Transfer agent's and trustee's fees and expenses	(1)
Miscellaneous	(1)
Total	<u>\$ (1)</u>

(1) These fees and expenses depend on the securities offered and the number of issuances, and accordingly cannot be estimated as of the date of this prospectus.

Item 15. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law, or DGCL, authorizes a corporation's board of directors to grant, and authorizes a court to award, indemnity to officers, directors and other corporate agents.

As permitted by Section 102(b)(7) of the DGCL, the registrant's certificate of incorporation includes provisions that eliminate the personal liability of its directors and officers for monetary damages for breach of their fiduciary duty as directors and officers.

In addition, as permitted by Section 145 of the DGCL, the bylaws of the registrant provide that:

- The registrant shall indemnify its directors and officers for serving the registrant in those capacities or for serving other business enterprises as a director, officer, employee or agent at the registrant's request, to the fullest extent permitted by the DGCL. The DGCL provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful.
- The registrant may, in its discretion, indemnify employees and agents in those circumstances where indemnification is not prohibited by the DGCL or other law.
- The registrant is required to advance expenses, as incurred, to its directors and officers in connection with defending a proceeding, except that such director or officer shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification under the registrant's bylaws or the DGCL.
- The registrant will not be obligated pursuant to the bylaws to indemnify a person with respect to proceedings initiated by that person against the registrant or its directors, officers, employees, agents or other indemnities, except with respect to proceedings authorized by the registrant's board of directors prior to their initiation, or brought to enforce a right to indemnifications as otherwise required by applicable law.

- The rights conferred in the bylaws are not exclusive, and the registrant is authorized to enter into indemnification agreements with its directors, officers, employees and agents and to obtain insurance to indemnify such persons.
- The registrant may not retroactively amend the bylaw provisions to reduce its indemnification obligations to directors, officers, employees and agents.

The registrant's policy is to enter into separate indemnification agreements with each of its directors and officers that provide the maximum indemnity allowed to directors and executive officers by Section 145 of the DGCL and also provides for certain additional procedural protections. The registrant also maintains directors and officers insurance to insure such persons against certain liabilities.

These indemnification provisions and the indemnification agreements entered into between the registrant and its officers and directors may be sufficiently broad to permit indemnification of the registrant's officers and directors for liabilities (including reimbursement of expenses incurred) arising under the Securities Act.

Item 16. Exhibits

(a) *Exhibits.* The following exhibits are filed herewith or incorporated herein by reference:

<u>Exhibit No.</u>	<u>Exhibit Description</u>	<u>Incorporated by Reference</u>				
		<u>Form</u>	<u>File No.</u>	<u>Exhibit No.</u>	<u>Filing Date</u>	<u>Filed Herewith</u>
1.1*	Form of Underwriting Agreement.					
3.1	Eighth Amended and Restated Certificate of Incorporation of Fluidigm Corporation filed on February 15, 2011.	10-K	001-34180	3.1	3/28/2011	
3.2	Amended and Restated Bylaws of Fluidigm Corporation effective as of February 9, 2011.	10-K	001-34180	3.2	3/28/2011	
3.3	Certificate of Designation of Rights, Preferences and Privileges of Series A Participating Preferred Stock.	8-K	001-34180	3.1	11/22/2016	
4.1	Specimen Common Stock Certificate of Fluidigm Corporation.	S-8	001-34180	4.1	1/13/2017	
4.2	Tax Benefit Preservation Plan, dated as of November 21, 2016, by and between Fluidigm Corporation and Computershare Inc., as Rights Agent.	8-K	001-34180	4.1	11/22/2016	
4.3**	Form of Senior Indenture.					
4.4**	Form of Subordinated Indenture.					
4.5*	Form of Senior Debt Security.					
4.6*	Form of Subordinated Debt Security.					
4.7*	Form of Certificate of Designation.					
4.8*	Form of Preferred Stock Certificate.					
4.9*	Form of Warrant Agreement.					
4.10*	Form of Warrant/Subscription Agreement.					
5.1	Opinion of Wilson Sonsini Goodrich & Rosati, Professional Corporation.					X
12.1	Statement re Computation of Ratio of Earnings to Fixed Charges.	10-K	001-34180	12.1	3/3/2017	
23.1	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.					X
23.2	Consent of Ernst & Young LLP, independent registered public accounting firm.					X
23.3	Consent of Wilson Sonsini Goodrich & Rosati, Professional Corporation (included in Exhibit 5.1).					X
24.1	Power of Attorney (included on signature page thereto).	S-3	333-216542	24.1	3/8/2017	
24.2	Power of Attorney for certain directors of Fluidigm Corporation, authorizing the signing of the Registration Statement on Form S-3 on their behalf.					X
25.1*	Form T-1 Statement of Eligibility of Trustee for Senior Indenture under the Trust Indenture Act of 1939.					
25.2*	Form T-1 Statement of Eligibility of Trustee for Subordinated Indenture under the Trust Indenture Act of 1939.					

* To be filed by amendment or as an exhibit to a report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended and incorporated herein by reference.

** Previously filed.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) If the registrant is relying on Rule 430B,

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to the effective date; or

(ii) If the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer and sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

(d) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(e) The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the SEC under Section 305(b)(2) of the Trust Indenture Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Amendment No. 1 to the Registration Statement on Form S-3 to be signed on its behalf by the undersigned, thereunto duly authorized in the City of South San Francisco, State of California, on April 28, 2017.

FLUIDIGM CORPORATION

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

Pursuant to the requirements of the Securities Act of 1933, this Amendment No. 1 to the Registration Statement on Form S-3 has been signed by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Stephen Christopher Linthwaite</u> Stephen Christopher Linthwaite	President, Chief Executive Officer and Director (Principal Executive Officer)	April 28, 2017
<u>/s/ Vikram Jog</u> Vikram Jog	Chief Financial Officer (Principal Financial Officer)	April 28, 2017
<u>/s/ Jennifer Lee</u> Jennifer Lee	Vice President, Controller (Principal Accounting Officer)	April 28, 2017
<u>*</u> Samuel Colella	Chairman of the Board of Directors	April 28, 2017
<u>*</u> Evan Jones	Director	April 28, 2017
<u>*</u> Patrick S. Jones	Director	April 28, 2017
<u>*</u> Gerhard F. Burbach	Director	April 28, 2017
<u>*</u> John A. Young	Director	April 28, 2017
<u>/s/ Carlos Paya</u> Carlos Paya	Director	April 28, 2017
<u>/s/ Nicolas Barthelemy</u> Nicolas Barthelemy	Director	April 28, 2017

*By: /s/ Vikram Jog
Vikram Jog
Attorney-in-Fact

EXHIBIT INDEX

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4.5*	Form of Senior Debt Security.					
4.6*	Form of Subordinated Debt Security.					
4.7*	Form of Certificate of Designation.					
4.8*	Form of Preferred Stock Certificate.					
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5.1	Opinion of Wilson Sonsini Goodrich & Rosati, Professional Corporation.					X
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23.1	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.					X
23.2	Consent of Ernst & Young LLP, independent registered public accounting firm.					X
23.3	Consent of Wilson Sonsini Goodrich & Rosati, Professional Corporation (included in Exhibit 5.1).					X
24.1	Power of Attorney (included on signature page thereto).	S-3	333-216542	24.1	3/8/2017	
24.2	Power of Attorney for certain directors of Fluidigm Corporation, authorizing the signing of the Registration Statement on Form S-3 on their behalf.					X
25.1*	Form T-1 Statement of Eligibility of Trustee for Senior Indenture under the Trust Indenture Act of 1939.					
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* To be filed by amendment or as an exhibit to a report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended and incorporated herein by reference.

** Previously filed.

April 28, 2017

Fluidigm Corporation
7000 Shoreline Court, Suite 100
South San Francisco, California 94080

Re: Fluidigm Corporation—Registration Statement on Form S-3

Ladies and Gentlemen:

At your request, we have examined the Registration Statement on Form S-3, as amended (Registration No. 333-216542) (the “**Registration Statement**”), filed by Fluidigm Corporation, a Delaware corporation (the “**Company**”), with the Securities and Exchange Commission (the “**Commission**”) in connection with the registration pursuant to the Securities Act of 1933, as amended (the “**Act**”), of the offer and sale of the Securities (as defined below). The Registration Statement relates to the proposed offer, issuance and sale by the Company, from time to time pursuant to Rule 415 under the Act as set forth in the Registration Statement, the prospectus contained therein (the “**Prospectus**”) and the supplements to the prospectus referred to therein (the “**Prospectus Supplements**”) of (a) shares of the Company’s common stock, \$0.001 par value per share (the “**Common Stock**”) and the preferred share purchase rights (the “**Rights**”) associated with the Common Stock issued pursuant to that certain Tax Benefit Preservation Plan, dated as of November 21, 2016 (the “**Tax Benefit Plan**”) between the Company and Computershare Inc., as rights agent (the “**Rights Agent**”), (b) shares of the Company’s preferred stock, \$0.001 par value per share (the “**Preferred Stock**”), (c) the Company’s senior and subordinated debt securities (the “**Debt Securities**”), (d) warrants to purchase shares of the Company’s Common Stock or Preferred Stock (the “**Warrants**”), or (e) units (the “**Units**”) consisting of Common Stock (and the associated Rights), Preferred Stock, Debt Securities, Warrants or any combination of the foregoing (the Common Stock (and the associated Rights), the Preferred Stock, the Debt Securities, the Warrants and the Units are collectively referred to herein as the “**Securities**”). The maximum aggregate offering price of the Securities sold pursuant to the Registration Statement shall not exceed \$125,000,000 (or the equivalent thereof in United States dollars).

The Debt Securities are to be issued pursuant to a senior debt securities indenture (the “**Senior Indenture**”) and a subordinated debt securities indenture (the “**Subordinated Indenture**”), as applicable, both of which have been filed as exhibits to the Registration Statement (the “**Indentures**”) and are to be entered into, in each case, between the Company and a trustee to be identified (the “**Trustee**”). The Debt Securities are to be issued in the forms contemplated by the Indentures. Each indenture may be supplemented, as applicable, in connection with the issuance of each such series of Debt Securities, by a supplemental indenture or other appropriate action of the Company creating such series (each, a “**Supplemental Indenture**”). The shares of Common Stock (and the associated Rights) and Preferred Stock and

the Debt Securities, Warrants, and Units are to be sold pursuant to a purchase, underwriting, placement agency or similar agreement in substantially the form to be filed under a Current Report on Form 8-K.

We have examined instruments, documents, certificates and records which we have deemed relevant and necessary for the basis of our opinion hereinafter expressed. In such examination, we have assumed (a) the authenticity of original documents and the genuineness of all signatures; (b) the conformity to the originals of all documents submitted to us as copies; (c) the truth, accuracy, and completeness of the information, representations and warranties contained in the records, documents, instruments and certificates we have reviewed; (d) the Registration Statement, and any amendments thereto (including post-effective amendments), will have become effective under the Act; (e) a Prospectus Supplement will have been filed with the Commission describing the Securities offered thereby; (f) all Securities will be issued and sold in compliance with applicable Federal and state securities laws and in the manner stated in the Registration Statement and the applicable Prospectus Supplement; (g) a definitive purchase, underwriting, placement agency or similar agreement with respect to any Securities offered will have been duly authorized and validly executed and delivered by the Company and the other parties thereto; (h) any Securities issuable upon conversion, exchange, redemption, or exercise of any Securities being offered will be duly authorized, created and, if appropriate, reserved for issuance upon such conversion, exchange, redemption, or exercise; and (i) with respect to shares of Common Stock or Preferred Stock offered, there will be sufficient shares of Common Stock or Preferred Stock authorized under the Company's organizational documents and not otherwise reserved for issuance.

In rendering this opinion, we have also assumed that the Tax Benefit Plan has been duly authorized, executed and delivered by the Rights Agent and that the members of the Board of Directors of the Company or a duly authorized and acting committee thereof (such Board of Directors or Committee being hereinafter referred to as the "**Board**") have acted in a manner consistent with their fiduciary duties as required under applicable law in adopting the Tax Benefit Plan. This opinion does not address the determination a court of competent jurisdiction may make regarding whether the Board may be required to redeem or terminate, or take other action with respect to, the Rights in the future based on the facts and circumstances existing at that time. It should be understood that our opinion addresses the Rights and Tax Benefit Plan in their entirety and not any particular provision of the Rights or the Tax Benefit Plan and that it is not settled whether the invalidity of any particular provision of a tax benefit preservation plan or purchase rights issued thereunder would result in invalidating in their entirety such rights.

Based on such examination, we are of the opinion that:

1. with respect to shares of Common Stock (and the associated Rights), when (a) the Board has taken all necessary corporate action to approve the issuance of and the terms of the offering of such shares of Common Stock (and the associated Rights) and related matters and (b)

certificates representing such shares of Common Stock have been duly executed, countersigned, registered and delivered either (i) in accordance with the applicable definitive purchase, underwriting, placement agency or similar agreement approved by the Board, or upon the exercise of Warrants to purchase Common Stock, upon payment of the consideration therefor (not less than the par value of the Common Stock) provided for therein, or (ii) upon conversion or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exercise as approved by the Board, for the consideration approved by the Board (not less than the par value of the Common Stock), then such shares of Common Stock (and the associated Rights) will be validly issued, fully paid and nonassessable;

2. with respect to any particular series of shares of Preferred Stock, when (a) the Board has taken all necessary corporate action to approve the issuance and terms of the shares of Preferred Stock, the terms of the offering thereof, and related matters, including the adoption of a certificate of designation relating to such Preferred Stock conforming to the Delaware General Corporation Law (a "**Certificate**") and the filing of the Certificate with the Secretary of State of the State of Delaware and (b) certificates representing the shares of Preferred Stock have been duly executed, countersigned, registered and delivered either (i) in accordance with the applicable definitive purchase, underwriting, placement agency or similar agreement approved by the Board, or upon exercise of Warrants to purchase Preferred Stock, upon payment of consideration (not less than the par value of the Preferred Stock) provided for therein, or (ii) upon conversion or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exercise as approved by the Board, for the consideration approved by the Board (not less than the par value of the Preferred Stock), then the shares of Preferred Stock will be validly issued, fully paid and nonassessable;

3. with respect to Debt Securities to be issued under either the Senior Indenture or Subordinated Indenture, when (a) the Trustee is qualified to act as Trustee under the Senior Indenture or Subordinated Indenture, as applicable, (b) the Trustee has duly executed and delivered the Senior Indenture or Subordinated Indenture, as applicable, (c) the Senior Indenture or Subordinated Indenture, as applicable, has been duly authorized and validly executed and delivered by the Company to the Trustee, (d) the Senior Indenture or Subordinated Indenture, as applicable, has been duly qualified under the Trust Indenture Act of 1939, as amended, (e) the Board has taken all necessary corporate action to approve the issuance and terms of such Debt Securities, the terms of the offering thereof and related matters, and (f) such Debt Securities have been duly executed, authenticated, issued and delivered in accordance with the provisions of the Senior Indenture or Subordinated Indenture, as applicable, and the applicable definitive purchase, underwriting, placement agency or similar agreement approved by the Board, such Debt Securities will be validly issued and will constitute valid and binding obligations of the Company, enforceable against the Company, in accordance with their terms, and entitled to the benefits of the applicable Indenture;

4. with respect to the Warrants, when (a) the Board has taken all necessary corporate action to approve the issuance of and the terms of the Warrants and related matters and (b) the Warrants have been duly executed and delivered against payment therefor, pursuant to the applicable definitive purchase, underwriting, warrant, placement agency or similar agreement duly authorized, executed and delivered by the Company and a warrant agent and the certificates for the Warrants have been duly executed and delivered by the Company and such warrant agent, then the Warrants will be validly issued and will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms; and

5. with respect to the Units, when (a) the Board has taken all necessary corporate action to approve the issuance of and the terms of the Units and related matters and (b) the Units have been duly executed and delivered against payment therefor, pursuant to the applicable definitive purchase, underwriting, unit, placement agency or similar agreement duly authorized, executed and delivered by the Company and the certificates for the Units have been duly executed and delivered in accordance with such purchase, underwriting, unit, placement agency or similar agreement, then the Units will be validly issued and will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

Our opinion that any document is legal, valid and binding is qualified as to:

(a) limitations imposed by bankruptcy, insolvency, reorganization, arrangement, fraudulent conveyance, moratorium or other laws relating to or affecting the rights of creditors generally;

(b) rights to indemnification and contribution which may be limited by applicable law or equitable principles; and

(c) general principles of equity, including without limitation concepts of materiality, reasonableness, good faith and fair dealing, and the possible unavailability of specific performance or injunctive relief and limitation of rights of acceleration, regardless of whether such enforceability is considered in a proceeding in equity or at law.

We express no opinion herein as to the laws of any state or jurisdiction other than the laws of the State of New York, the General Corporation Law of the State of Delaware (including the statutory provisions and all applicable judicial decisions interpreting those laws), and the federal laws of the United States of America.

* * *

We hereby consent to the filing of this opinion as an exhibit to the above-referenced Registration Statement and to the use of our name wherever it appears in the Registration Statement, the Prospectus, any Prospectus Supplement, and in any amendment or supplement thereto. In giving such consent, we do not believe that we are “experts” within the meaning of such term as used in the Act or the rules and regulations of the Commission issued thereunder with respect to any part of the Registration Statement, including this opinion as an exhibit or otherwise.

Sincerely,

WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

/s/ Wilson Sonsini Goodrich & Rosati

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Amendment No. 1 to the Registration Statement on Form S-3 of our report dated March 2, 2017 relating to the financial statements, financial statement schedule, and the effectiveness of internal control over financial reporting of Fluidigm Corporation, which appears in Fluidigm Corporation's Annual Report on Form 10-K for the year ended December 31, 2016. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PricewaterhouseCoopers LLP
San Jose, CA
April 28, 2017

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” in Amendment No. 1 to the Registration Statement (Form S-3, No. 333-216542) and related Prospectus of Fluidigm Corporation for the registration of common stock, preferred stock, debt securities, warrants and units and to the incorporation by reference therein of our report dated February 29, 2016, with respect to the consolidated financial statements and schedule of Fluidigm Corporation, included in its Annual Report (Form 10-K) for the year ended December 31, 2016, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Redwood City, CA
April 28, 2017

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Stephen Christopher Linthwaite and Vikram Jog, and each of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including pre and post-effective amendments) to the Registration Statement on Form S-3 of Fluidigm Corporation (the "Company") (Registration No. 333-216542), and any additional registration statement (including any amendment thereto) for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents or their substitute or substitutes may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, the undersigned have each caused this Power of Attorney to be executed as of April 28, 2017.

Signature	Title	Date
<u>/s/ Carlos Paya</u> Carlos Paya	Director	April 28, 2017
<u>/s/ Nicolas Barthelemy</u> Nicolas Barthelemy	Director	April 28, 2017