



DIVISION OF
CORPORATION FINANCE

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

April 20, 2012

Via E-mail

William M. Smith
Executive Vice President, General Counsel, Legal Affairs
Fluidigm Corporation
7000 Shoreline Court, Suite 1000
South San Francisco, CA 94080

**Re: Fluidigm Corporation
Registration Statement on Form S-3
Filed April 4, 2012
File No. 333-180550**

Dear Mr. Smith:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Fee Table

1. Please revise footnote (2) to reflect the language of Rule 416. As written, clauses (B) and (C) of your footnote (2) appear to exceed the scope of Rule 416. See also the Division of Corporation Finance's Securities Act Sections Compliance and Disclosure Interpretation 139.10 available on the Commission's web site.

Selling Stockholders, page 26

2. Securities that are registered on Form S-3 pursuant to general instruction II.D must be offered pursuant to general instructions I.B.1 or I.B.2, which relate to primary offerings by the issuer – not offerings by selling security holders. However, please note that a secondary offering may be included in the registration statement provided that the class of securities, number of securities, offering price and fee payable with respect to the

secondary offering are separately allocated in the fee table. Please revise your fee table and the related information throughout your filing accordingly.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Jay Mumford at 202-551-3637 or me at 202-551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (via e-mail): Michael Nordtvedt