



DIVISION OF
CORPORATION FINANCE

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

June 18, 2014

Via E-mail

Bertrand C. Liang
Chief Executive Officer
Pfenex Inc.
10790 Roselle Street
San Diego, CA 92121

**Re: Pfenex Inc.
Registration Statement on Form S-1
Filed June 5, 2014
File No. 333-196539**

Dear Mr. Liang:

We have reviewed your registration statement and have the following 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. If 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.

Prospectus Summary
Pfenex, Inc., page 2

1. We note your response to our prior Comment 6. However, we do not believe that your response has satisfied our concerns with the pipeline table that appears on pages 3 and 83. To prevent potential investor confusion, please remove from this table the column referring to global sales.
2. We note your response to our prior Comment 7. However, we do not believe that your response has satisfied our concerns with the pipeline table that appears on pages 3 and 83. Please expand the chart to include the related indication for each product candidate for which an indication is not currently provided. Additionally, please remove from the pipeline chart the products with a status described as formulation development, process development, or entering process development since the designation as a product candidate appears to be premature.

Use of Proceeds, page 56

3. Please use a separate bullet format presentation for the amount of proceeds you will allocate to each of PF 582, PF 530, and research and development of your other product candidates, respectively, and working capital, capital expenditures and other general corporate purposes collectively.
4. We note your response to our prior Comment 10. Please provide more specific estimates of how far you expect the offering proceeds will enable you to advance each of your clinical programs. For example, please state whether you expect the proceeds allocated toward clinical development of PF582 to last through completion of your planned Phase 3 trial.
5. We note that Strides Arcolab is responsible for development expenses of PF 530 up to Phase 3. Please expand the discussion to clarify that Phase 1 development for PF 530 has not started.

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

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adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Christina De Rosa at (202) 551-3577, John Krug at (202) 551-3862 or me at (202) 551-3715 with any questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
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