



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

DIVISION OF
CORPORATION FINANCE

September 5, 2014

Via E-mail

Jeffrey S. Hatfield
Chief Executive Officer
Vitae Pharmaceuticals, Inc.
502 West Office Center Drive
Fort Washington, PA 19034

**Re: Vitae Pharmaceuticals, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed August 28, 2014
File No. 333-198090**

Dear Mr. Hatfield:

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.

Overview, page 1

1. Although we have chosen not to comment further on your response to prior comment 2 at this time, we remind you of the acknowledgements mentioned at the end of this letter that you must include with any request to accelerate the effective date of this registration statement.

Stock-Based Compensation, page 66

2. Please refer to your correspondence dated August 28, 2014. Please address the following comments to bridge the gap between the mid-point of the estimated IPO price and the \$.23 estimated grant-date fair value of your common stock on June 24, 2014:

- Please explain in more detail why you assigned an aggregate probability weighting of 62.5% to four IPO scenarios whereby the scenarios ranged from \$.22 per share to \$.54 per share.
- Explain to us in more detail why you utilized a present value discount factor based on a 12% weighted average cost of capital over a period of between approximately 0.5 years and 1.5 years based on near term and longer term IPO timing scenarios.
- Explain to us when you were aware that you would achieve a \$6 million milestone payment during the third quarter of 2014 and why you did not factor this into your fair value analysis of your common stock as of June 24, 2014.
- Provide to us other business developments and factors that would contribute to the difference between the \$.23 estimated grant date fair value of your common stock on June 24, 2014 and the mid-point of the estimated IPO price.

Product Pipeline, page 80

3. Please disclose when Investigational New Drug applications were filed for the first two product candidates in the table on page 80, the party who filed the applications and the specific indication listed in the application. If no such applications have been filed to support your clinical trials, please disclose why the applications were not required.

Collaborations, page 106

4. We note your response to prior comment 8. Please expand the disclosure in the penultimate paragraph on page 108 to describe briefly the adjustments to timing and to the amount of development milestone payment obligations. In this regard, clarify whether you agreed to increase or decrease the timing and payments and quantify, if material, the amount of the adjustment.

Principal Stockholders, page 145

5. Please expand the last sentence of the first paragraph of your response to prior comment 14 to tell us the number of members or general partners, as applicable, of each of Venrock's affiliated funds.
6. Please be advised that we may have further comments after you provide the information regarding Boehringer in response to prior comment 14.
7. Please expand your disclosure to quantify the number of shares subject to each indication of interest from a principal stockholder or its affiliates.

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

Jeffrey S. Hatfield
Vitae Pharmaceuticals, Inc.
September 5, 2014
Page 3

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 us with a letter, 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.

You may contact Tara Harkins, Staff Accountant, at (202) 551-3639 or Kate Tillan, Assistant Chief Accountant, at (202) 551-3604 if you have questions regarding comments on the financial statements and related matters. Please contact Tom Jones at (202) 551-3602 or me at (202) 551-3617 with any other questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (via e-mail): Timothy H. Ehrlich, Esq.