



DIVISION OF  
CORPORATION FINANCE

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

July 18, 2012

Via E-Mail

Ivan Bergstein, M.D.  
Chairman, President and Chief Executive Officer  
Stemline Therapeutics, Inc.  
750 Lexington Avenue, Sixth Floor  
New York, New York 10022

**Re: Stemline Therapeutics, Inc.  
Supplemental Response Letter  
Dated July 9, 2012  
File No. 333-180515**

Dear Dr. Bergstein:

We have reviewed your response letter 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.

Management's Discussion and Analysis of Financial Condition and Results of Operations  
Critical Accounting Policies and Estimates  
Significant Factors, Assumptions, and Methodologies Used in Estimating Fair Value of Common Stock, page 60

1. Please tell us what factors contributed to the increase in the mid-point of the estimated IPO range indicated on page one of your confidential treatment requested response dated June 22, 2012 to the mid-point amount on page two of your unredacted response dated July 9, 2012.
2. Please revise your proposed disclosure provided in Appendix A to your July 9, 2012 response letter to disclose the intrinsic value of your current outstanding vested and unvested stock options based on the mid-point of your offering price range.

Notes to Unaudited Financial Statements

Note 9: Subsequent Events, page F-41

3. We acknowledge your response to our previous comment 2. Please address the following additional comments:
- Please revise your proposed disclosure in Appendix B of your response to update your subsequent review for any significant transactions through the date of your next amendment.
  - Please revise your proposed disclosure in Appendices B and C to clarify whether you intend to record liabilities for both the cash and equity portion of your obligation to Dr. Bergstein. In addition, clarify whether you intend to discount the liability for the time value of money. If you do not intend to record a liability or discount that liability, please tell us why not and reference for us the authoritative literature you rely upon to support your anticipated accounting.
  - Please revise your capitalization disclosure in Appendix D to include as a pro forma adjustment the impact of your in-process research and development charge in the accumulated deficit line and the impact on long-term liabilities for your transaction with Dr. Bergstein
  - Please revise your dilution disclosure in Appendix E to include the impact of your in-process research and development charge for your transaction with Dr. Bergstein in your pro forma net tangible book value.

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.

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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 Dana Hartz at 202-551-3648 or Mark Brunhofer at 202-551-3638 if you have questions regarding comments on the financial statements and related matters. Please contact Michael Rosenthal at 202-551-3674 or me at 202-551-3715 with any other questions.

Sincerely,

/s/ Jeffrey Riedler

Jeffrey Riedler  
Assistant Director

cc: James Barrett  
Edwards Wildman Palmer LLP