

Mail Stop 6010

October 3, 2006

Michael D. Kishbauch  
President and Chief Executive Officer  
Achillion Pharmaceuticals, Inc.  
300 George Street  
New Haven, Connecticut 06511

**Re: Achillion Pharmaceuticals, Inc.  
Registration Statement on Form S-1, Amendment 5  
Filed October 2, 2006  
File No. 333-132921**

Dear Mr. Kishbauch:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

FORM S-1

Management's Discussion and Analysis  
Stock Compensation, page 36-38

1. Refer to your response to comment 2. Please address the following:
  - You state that the \$4.00 (post-split) per share value used in December 2005 was a result of the valuation performed as of November 2004 which was completed in the summer of 2005. It does not appear that you have performed

an updated valuation at each issuance to determine the fair value as of the most recent date. If you have performed a valuation since the November 2004 issuance, please update the filing to clarify the assumptions and methodologies used in determining the fair value at each valuation date. Also, clarify if the valuation was contemporaneous or retrospective.

- Clarify in the filing that you initiated the Phase II clinical trial for one of your elvucitabine clinical trials at the end of 2005. State how the initiation of this trial and completion of the Phase I trial affected your valuation.
  - You state that you raised \$16 million of preferred stock in November 2005. You state that the preferred stock issuances in March and May 2006 affected your valuation, so it appears that the November 2005 preferred stock issuance would likewise affect your valuation. Clarify how the November 2005 issuance affected your valuation. It appears without the November 2005 issuance the March and May 2006 issuances would not have been enough to eliminate your going concern opinion in your auditors' report.
  - It appears that if you initiated a Phase II study, there were most likely some significant Phase I events during 2005 that led to completion of Phase I and initiation of Phase II. It does not appear that your valuation throughout 2005 was affected by events leading to the completion of Phase I.
  - Please tell us why you continue to believe that your valuation was appropriate or revise your valuations.
  - Please clarify in the filing how each significant factor contributed to the difference between the fair value as of the date of each grant and the estimated IPO price.
  - If you do not believe the events discussed above affected your valuation, clarify in the filing why there was no effect.
2. Please clarify why you are disclosing intrinsic value here and on pages 37 and 38 of Management's Discussion and Analysis and pages F-24 and F-25 of the financial statements. It appears that disclosure of the fair value of stock options would be more applicable subsequent to the adoption of SFAS 123R. In addition, please tell us why the fair value expensed in 2006 upon adoption of SFAS 123R was significantly less than the intrinsic value disclosed in the filing.

Report of Independent Public Registered Public Accounting Firm, page F-2

3. We acknowledge your response to comment 5. Please provide an auditors' opinion with your amendment for which you will request effectiveness that removes the restrictive language in the first paragraph of the opinion. Also, please update your auditors' consent.

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As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Dana Hartz at (202) 551-3648 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Greg Belliston at (202) 551-3861 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey Riedler  
Assistant Director

cc: Steven D. Singer, Esq.  
Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, MA 02109