

Mail Stop 4720

May 21, 2009

Adrian N. Hobden, Ph.D.  
President and Chief Executive Officer  
Myriad Pharmaceuticals, Inc.  
320 Wakara Way  
Salt Lake City, Utah 84108

**Re: Myriad Pharmaceuticals, Inc.  
Amendment No. 1 to  
Registration Statement on Form 10-12B, filed May 11, 2009  
File No. 1-34275**

Dear Mr. Hobden:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your documents 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. After reviewing this information, we may or may not 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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Amendment No. 1 to Form 10-12B

Management's Discussion and Analysis of Financial Condition and Results of Operations  
Overview, page 50

1. We have read your response to comment 30. We continue to believe it is beneficial to investors to provide quantitative or qualitative disclosure that indicates the amount of your resources (both internal and external) being used on each project that is in clinical development. This information helps investors understand the impact that your research and development activities will have on future company performance. Please revise your disclosure to include the costs incurred by each project or use a different method to indicate the amount of your resources dedicated to each material project.

Dr. Adrian N. Hobden  
Myriad Pharmaceuticals, Inc.  
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Consolidated Financial Statements

2. Please provide updated financial statements and financial information throughout the filing pursuant to Rule 3-12 of Regulation S-X.

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As appropriate, please amend your filings 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. Detailed cover letters greatly facilitate our review. Please file your cover letter on EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

You may contact Dana Hartz at (202) 551-3648 or Mark Brunhofer at (202) 551-3638 if you have questions regarding the comments.

Sincerely,

Jeffrey P. Riedler  
Assistant Director

cc: Brian P. Keane, Esq.  
Drew Gibbs, Esq.  
Richard M. Marsh, Esq.