

Mail Stop 6010

April 29, 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.
Form 10-12B filed April 1, 2009
File No. 1-34275**

Dear Dr. Hobden:

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 supplemental information so we may better understand your disclosure. 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.

FORM 10

General

1. We will need time to review all new disclosure, including all of the exhibits. Please file your remaining exhibits as soon as practicable.
2. Please note that where we provide examples to illustrate what we mean by our comments, they are examples and not exhaustive lists. If our comments are applicable to portions of the filing that we have not cited as examples, please make the appropriate changes in accordance with our comments.
3. Please update your disclosure to the most recent date practicable.

Dr. Adrian N. Hobden
Myriad Pharmaceuticals, Inc.
April 29, 2009

4. It appears that you intend to request confidential treatment for at least one exhibit. Comments related to any request for confidential treatment will be provided under separate cover. Please be advised that we will not be in a position to consider a request for acceleration of effectiveness of the registration statement until we resolve all issues concerning the confidential treatment requests.

Exhibit 99.1 – Information Statement

Facing Page

5. Please clarify whether and how the separation will affect the market on which Myriad Genetics' common stock is currently traded.

Myriad Pharmaceuticals, Inc., page 1

6. Please revise your disclosure here and in the business section to add a statement that clarifies that you currently do not have any products that are commercially available and that none of your products have obtained FDA approval.

Summary, page 1

Risks Related to Our Business, page 5

7. The summary should provide a balanced presentation of the information presented in the body of the filing. As currently written, your summary focuses primarily on the positive attributes of the company. Please balance the discussion of your strategy, technology and product candidates with a discussion of your challenges and risks. This new disclosure should be at least as prominent and detailed as your discussion of your strategy, technology and product candidates. For example, set forth the risks you refer to in bullet format, with the nature of each specific risk highlighted and described briefly.

The Separation – Overview, page 6

8. We note the first complete risk factor on page 26. Please expand the discussion to explain how the separation "...should not only enhance each company's strength, but will also improve each company's strategic, operational and financial flexibility."

9. We note from the summary financial information presented on page 13 that Myriad Pharmaceuticals' assets appear to be insufficient to support its current rate of losses. Please expand the discussion to indicate whether, and the extent to which, Myriad Genetics will provide funding to enable Myriad Pharmaceuticals to continue operations, the extent of such funding, and the period of time such funding is anticipated to enable Myriad Pharmaceuticals to continue operating.

Risk Factors – General, page 14

10. To the extent you are aware of any potential adverse side effects of your product candidates, please include a risk factor describing these adverse effects.

“We anticipate that we will incur losses for the foreseeable future...,” page 14

11. Please quantify the extent of losses experienced to date.

“Our future success depends on our ability...,” page 15

12. Please identify the principal members of your management and scientific staff upon whom you are dependent. In addition, discuss the extent to which you have employment agreements with these individuals.
13. We note your dependence on the principal members of your executive and scientific teams. We also note your future success depends on your ability to retain these individuals. Please clarify how agreements that are terminable at will, and which do not contain non-compete provisions, contribute to the risks you face, or, in the alternative, enable you to address these risks. In addition, please expand the discussion to describe Myriad Genetics' past experience with the loss of its executive and scientific personnel.

“If clinical trials for our drug candidates are prolonged or delayed...,” page 17

14. Please disclose any significant problems, significant side effects or unsuccessful results from any clinical trials you have conducted to date relating to your product candidates.

“The markets for our drug candidates are subject to intense competition.” – page 21

15. Please expand the discussion to identify your principal competitors and their stage of development of competing products.

“We rely on third parties to conduct our clinical trials ...,” page 22

“We have no manufacturing capacity and depend on third-party...,” page 23

“We depend on a limited number of third-party suppliers...,” page 24

Dr. Adrian N. Hobden
Myriad Pharmaceuticals, Inc.
April 29, 2009

16. Please identify the third parties that you substantially rely upon to conduct clinical trials, manufacture your candidates, or to supply needed ingredients. Also, to the extent you have any agreements with such parties, please so indicate and describe in your business section the material terms of such agreements. You should also file the agreements as exhibits to the Form 10, if material. If you have determined you are not substantially dependent on these parties, please provide us with an analysis supporting this determination and disclose the number of parties you engage to provide these services or products.

“We have no operating history as an independent company....,” page 26

17. Please expand the discussion to disclose what, if any, services Myriad Genetics will provide under the Separation and Distribution agreement and disclose when Myriad Genetics will stop providing these services.

18. Please expand the discussion to quantify the cost to replace the systems and business functions previously provided by Myriad Genetics. In addition, please quantify the “significant investments to develop our independent ability to operate without Myriad Genetics’ existing operational and administrative infrastructure.”

“We may have received better terms from unaffiliated third parties....,” page 28

19. Please expand the discussion to briefly describe how the terms of the separation were determined, e.g. what, if any, criteria was used to determine the allocation of assets?

“The ownership by our executive officers....,” page 28

20. Please expand the discussion to clarify the extent to which these individuals participated in negotiating the separation agreement.

The Separation, page 33

21. Please expand the discussion to briefly describe how the terms of the separation were determined and by whom.

Structure of the Separation, page 33

22. Please expand the discussion to quantify the cash and “certain liabilities” that will be contributed to Myriad Pharmaceuticals. The registrant should explain the source of the funds the parent will use to fund the registrant on a post spin-off basis. For example, is there already sufficient cash on hand or is there a financing agreement in place or in negotiation?

23. If there is a financing agreement, consideration should be given to explaining the terms of the agreement and filing the agreement as an exhibit.
24. The discussion should be revised to clearly explain the scope of both the research and drug development business that will be spun off to the registrant and the “molecular diagnostic business” that will be the business of the parent including assets and liabilities assigned to each, material agreements assigned to each and the related rights and obligations, proposed business activities, etc. The respective rights, properties, assets, etc. should be specifically defined and identified.
25. Please clearly explain to what extent the two businesses will or will not overlap. For example, will the parent retain royalty rights regarding products currently or potentially in the registrant’s pipeline? Will Myriad Genetics own royalty-related assets unrelated to the products the registrant is developing or may develop and what are these rights?
26. If applicable, the registrant should include disclosure regarding the extent to which it may be required to pay Myriad Genetics license fees for products that they are or may be developing in the future, the terms thereof, and the non-arm’s length nature of that arrangement. Also, the registrant should include disclosure, to the extent applicable, explaining the possibility that Myriad Genetics may be able to sublicense the right to third parties to develop the same products that the registrant is or may develop in the future. If either is possible, the registrant should include risk factor disclosure discussing the potential negative effects on the registrant’s prospects and the nature of any conflicts of interest the Myriad Genetics Board has in structuring the businesses of the two post-split companies the way they did.

Reasons for the Separation, page 31

27. Please include a discussion of any negative aspects of the separation considered by the board of directors.

Conditions to the Distribution, page 39

28. Please expand the discussion to clarify which of the conditions may be waived pursuant to the Separation and Distribution Agreement.
29. You state Myriad Genetics’ board of directors has reserved the right to amend, modify or abandon the distribution and the related transactions at any time prior to the distribution date. Supplementally, please tell us when and how you will inform investors of any amendments or modifications that may take place.

Management’s Discussion and Analysis of Financial Condition and Results of Operations

Overview, page 47

30. You disclose that your revenue recognition policy for research revenue includes recognizing revenue on a straight-line basis over the terms of the agreement, as underlying research costs are incurred or on the basis of contractually defined output measures such as units delivered. This requires you to identify the principal costs under the agreements for personnel expenses to conduct research and development activities and also material and other direct and indirect items related to the research. On page 47 you state that you do not assign or allocate internal cost to individual development programs. Please tell us how your ability to use the proportional performance methodology of revenue recognition for your research and technology license agreements is not impeded by not assigning or allocating internal costs to individual development programs. In addition, for each period presented, please disclose the amount of external costs incurred for each of your major research and development projects. For your internal costs, please provide other quantitative or qualitative disclosure that indicates the amount of the company's resources being used on each project.

Critical Accounting Policies

Share-Based Payment Expense, page 49

31. On page 87 you indicate that the treatment of outstanding options to purchase shares of Myriad Genetics common stock will be determined prior to the separation and distribution. Prior to effectiveness, please revise the disclosure throughout your filing to clarify what will happen to outstanding common stock options and other equity awards, including those under the Myriad Genetics employee stock purchase plan. To the extent that existing awards will be converted into Myriad Pharmaceuticals awards, please disclose the potential accounting impact of award modifications under paragraphs 53 and 54 of SFAS 123R.

Our Research Services Capabilities, page 65

Dr. Adrian N. Hobden
Myriad Pharmaceuticals, Inc.
April 29, 2009

32. If you did not receive substantial amounts of revenues from your prior collaborations, the discussion should be revised to provide this information. If the agreements were not material in amount, consideration should be given to deleting the names of the parties to the agreements.
33. If the collaboration agreements were entered into within the past two years, please file these agreements as exhibits. If you have determined that these agreements are not material and that you were not and are not substantially dependent upon them, please provide us with an analysis supporting this determination.

Material Licenses, page 67

34. We note your reference to the license agreement with EpiCept. Since this agreement was entered into with your parent, please explain how the registrant becomes a party to the agreement and whether EpiCept has agreed and/or is required to agree. If applicable, similar information should be provided pertaining to the license agreement with the University of North Carolina.
35. The discussion of the EpiCept agreement should include the material terms of the agreement, how licensing fees will be shared, the aggregate amount of potential milestone payments, minimum royalty payments, a range within which the potential royalty payments may fall, e.g. mid to high teens, termination provisions, financial commitments, and aggregate amounts paid to date. To the extent applicable, similar information should be provided with respect to the license agreement with the University of North Carolina.

Manufacturing and Supply, page 68

36. Please identify your contract manufacturer and file your agreement with this manufacturer as an exhibit. If you have determined that the agreement is not material and you are not substantially dependent upon the manufacturer, please provide us with an analysis supporting this determination.

Management, page 77

37. We note the reference to the three directors who will resign. Please expand the discussion to indicate that at least three of the remaining directors are also directors of Myriad Genetics, Inc. Please state whether the continuing directors of the company who are also directors of Myriad Genetics intend to remain as directors of both companies.

Dr. Adrian N. Hobden
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April 29, 2009

38. Please expand the discussion to clarify who will appoint the remaining directors and when these appointments will be made.
39. Please tell us whether the “appointment of new directors” at the top of page 77 refers to the annual election of directors. If so, please expand the discussion to indicate when the annual meeting is anticipated to be held. If the remaining directors will appoint new directors, tell us when such appointment will occur.
40. Please state whether the information statement delivered to shareholders will identify the individuals who will replace Ms. Wilson and Messrs. Attiyeha and Gilbert as directors. Similarly, do you intend to revise the information statement to identify who will fill the two vacant positions on the three member audit committee and who will function as an “audit committee financial expert?”

Historical Compensation of our Executive Officers...., page 88

41. We note the summary compensation table indicated does not necessarily reflect the compensation these individuals will receive after the distribution. Please expand the discussion to tell us when specifically you anticipate the compensation committee will determine the compensation levels of Myriad Pharmaceuticals’ executives. In addition, please explain the basis upon which these executives are compensated in the interim period. Any plans, arrangements, agreements, and understandings, either oral or written, with respect to the compensation, including option awards, to be received by Myriad Pharmaceuticals’ executives should be specified.
42. Please explain why you have not entered into employment agreements with your executive officers.

Potential Payments Upon Termination or Change-in-Control, page 94

43. It appears the separation could be considered a termination without cause and/or provides an executive with “good cause” for separation. Please tell us supplementally whether the executive officers covered by such agreements have waived any claims they may have to compensation as a result of the separation. If the executive officers will receive any compensation from Myriad Genetics in addition to the compensation they will receive from Myriad Pharmaceuticals, please discuss this compensation.

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April 29, 2009

General

As appropriate, please amend your filing and respond to these comments within 10 business days or tell us when you will provide us with a response. 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 urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

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April 29, 2009

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 John Krug at (202) 551-3862 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey Riedler
Assistant Director

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