



UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-4631

Mail Stop 4631

September 16, 2015

Via E-Mail

Mr. Tassos Gianakakos  
President and Chief Executive Officer  
MyoKardia, Inc.  
333 Allerton Avenue  
South San Francisco, CA 94080

**Re: MyoKardia, Inc.  
Draft Registration Statement on Form S-1  
Submitted August 20, 2015  
CIK No. 1552451**

Dear Mr. Gianakakos:

We reviewed your draft registration statement and have the following comments. In some of our comments we may ask you to provide us information so that we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe that our comments apply to your facts and circumstances or do not believe that an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

General

1. We note that you intend to file by amendment additional exhibits, including the legal opinion. We may have comments on the legal opinion and other exhibits after they are filed. Please allow us sufficient time to review these materials before requesting acceleration of the registration statement's effectiveness.
2. Provide us copies of all written communications as defined in Rule 405 under the Securities Act that you or anyone authorized on your behalf present to potential investors in reliance on Section 5(d) of the Securities Act whether or not they retain

copies of the communications. Similarly, provide us any research reports about you that are published or distributed in reliance on Section 2(a)(3) of the Securities Act added by Section 105(a) of the Jumpstart Our Business Startups Act by any broker or dealer that is participating or will participate in your offering.

3. Provide us copies of any artwork that you intend to use as soon as possible for our review and comment. Since we may have comments on these materials, you may wish to consider waiting for comments before printing and circulating any artwork.
4. It appears that you intend to request confidential treatment for portions of one or more exhibits to the registration statement. We will issue any comments on the confidential treatment application in a separate letter. For guidance in preparing the confidential treatment application you may wish to refer to Staff Legal Bulletin No. 1 (CF) and its Addendum which are available on the Commission's website. Note that you must resolve any issue concerning the application before requesting acceleration of the registration statement's effectiveness.

Summary of Consolidated Financial Data, page 8

5. We note that you intend to affect a reverse split of your common stock prior to the effectiveness of the offering. We remind you that in accordance with SAB Topic 4:C you will need to revise your financial statements and your disclosures throughout the filing to give effect to the expected reverse split. If your auditors believe that only a "draft" report can be presented due to a pending future event such as the reverse stock split, they can include in the filing a signed and dated preface to their "draft" report stating the reason and that they expect to be in a position to issue the report in the form presented prior to effectiveness. A signed, dated, and unrestricted auditor's report must be included in the filing prior to effectiveness. See Rule 2-02 of Regulation S-X.

Cautionary Note Regarding Forward-Looking Statements, page 46

6. We note the disclosure concerning estimates, projections, and other information concerning your industry, your business, and the markets for certain diseases, including data regarding the estimated size of those markets, and the incidence and prevalence of certain medical conditions included in the registration statement that you obtained from reports, research surveys, studies, and similar data prepared by market research firms and other third parties. Please disclose whether you funded any of this research or commissioned any such reports. If so, please file the consent of the third party that prepared the information as an exhibit to the registration statement.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 56; Critical Accounting Policies and Significant Judgments and Estimates, page 58; Stock-Based Compensation, page 60

7. Please provide us a summary of your common stock valuations for equity issuances during the periods presented as well as any planned equity issuances. For each issuance, please tell us:

- the fair value of your underlying common stock used and your basis for this fair value, including a detailed explanation of any significant factors, assumptions, and methodologies not already discussed on pages 61 and 62;
- the significant factors that contributed to differences in the fair value determined between each valuation date.

To the extent applicable, reconcile the fair values that you used for equity transactions to sales of equity securities during the period and the fair value indicated by the anticipated initial public offering or IPO price. We will not be able to complete our evaluation of your response until the IPO range has been disclosed. Please also tell us when you first initiated discussions with the underwriters regarding the IPO.

Common Stock, page 128

8. Disclose whether holders of your common stock have cumulative voting rights in the election of directors.

Registration Rights, page 129

9. You disclose that upon completion of the offering the holders of approximately 64 million shares of common stock will be entitled to registration rights pursuant to an investor rights agreement. Please disclose if you anticipate whether there will be any maximum cash penalties under the registration rights agreement or additional penalties that may result from delays in registering these securities. Refer to ASC 825-20-50-1.

Lock-Up Agreements, page 134

10. Describe briefly the factors that the underwriters' representatives would consider in determining whether to consent to the release of any of the securities subject to the lock-up agreements before the agreements' expiration period.

Where You Can Find More Information, page 144

11. We note the "not necessarily complete" and "qualified in all respects" language. Clarify that statements made in the prospectus about the contents of any contract,

agreement, or other document filed as an exhibit to the registration statement include the material provisions of the contract, agreement, or other document.

Consolidated Statements of Operations and Comprehensive Loss, page F-4

12. We note your additional pro forma earnings per share disclosure on the face of your income statement along with related footnote on page F-31 detailing the adjustments to both the numerator and denominator at arriving at the pro forma net loss per share attributable to common stockholders for the year ended December 31, 2014 and the six months ended June 30, 2015. Please advise why the amounts reflected in your adjustments in your denominator for assumed conversion of the redeemable convertible preferred stock do not agree with the amount of shares outstanding as of December 31, 2014 and June 30, 2015 as disclosed in your footnote on page F-30 and your consolidated balance sheets on page F-3, or revise.

Summary of Significant Accounting Policies, page F-7; Research and Development Expenses, page F-12

13. We note your disclosure that payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods and services are rendered. Please tell us the basis for your capitalization and whether the payments relate to contractual research development arrangements subject to ASC 730-20. If not, please tell us how you considered the guidance under ASC 730-10-25-2 and the guidance related to nonrefundable advance payments for future research and development activities under ASC 730-10-55-3. In providing your response, please tell us whether the “payments made prior to receipt of goods or services” are non-refundable.

4. Collaboration and License Agreement, page F-16

14. We note your current disclosure on page F-17 that the \$35 million upfront payment received from Sanofi is being deferred and that the company is recognizing revenue on a straight line basis over the expected term of research and development services through December 31, 2016. We further note your disclosure on page 23 that the initial term of the research program under the collaboration agreement is set to end on December 31, 2018 and that Sanofi can terminate by December 31, 2016 if it provides notice to do so or does not provide notice to continue with the collaboration. Furthermore, it appears that the collaboration agreement if agreed to continue past December 31, 2016 could also extend past December 31, 2018 unless Sanofi terminates for convenience any time after that date. As such, please tell us how you determined that the appropriate period to recognize your upfront fee in the Sanofi collaboration agreement was through December 31, 2016 versus the contract term through December 31, 2018. In providing your response, please tell us how you considered the guidance under SAB Topic 13:A3:f.

Exhibit Index

15. Please include a summary of your unwritten TRV Agreement as an exhibit to the registration statement, or tell us why this is not a material contract within the ambit of Item 601(b)(10) of Regulation S-K. Note that where a material contract is not in writing, the registrant should file a summary of the agreement as an exhibit similar to that required for oral contracts under Item 601(b)(10)(iii) of Regulation S-K. For guidance you may wish to refer to Question 146.04 in the Regulation S-K section of our Compliance and Disclosure Interpretations available on the Commission's website.
16. It is unclear to which exhibit or exhibits the symbol "+", indicating that application for confidential treatment of certain provisions has been made, relates. Please revise.

Exhibits 10.3, 10.4, 10.5, 10.6, 10.7, and 10.8

17. We note that you did not file the attachments to the exhibits. Unlike Item 601(b)(2) of Regulation S-K, Item 601(b)(10) of Regulation S-K has no provision for excluding attachments to an exhibit. Please refile the exhibits with all attachments.

Exhibit 10.9

18. We note that you did not include exhibits B and D to the exhibit in the "Table of Contents." Additionally, you did not file exhibit G to the exhibit, and exhibit A to the exhibit appears incomplete. Please revise.

Closing

You may contact Ameen Hamady, Staff Accountant, at (202) 551-3891 or Terence S. O'Brien, Accounting Branch Chief, at (202) 551-3355 if you have questions about comments on the financial statements and related matters. You may contact Edward M. Kelly, Special Counsel, at (202) 551-3728 or me at (202) 551-3765 if you have any other questions.

Very truly yours,

/s/ Pamela A. Long

Pamela A. Long  
Assistant Director  
Office of Manufacturing and Construction

Mr. Tasso Gianakakos  
MyoKardia, Inc.  
September 16, 2015  
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Via E-mail

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