



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

DIVISION OF  
CORPORATION FINANCE

March 4, 2013

Via E-mail

Michael A. Martino  
President and Chief Executive Officer  
Ambit Biosciences Corporation  
4215 Sorrento Valley Blvd.  
San Diego, California 92121

**Re: Ambit Biosciences Corporation  
Registration Statement on Form S-1  
Filed February 20, 2013  
File No. 333-186760**

Dear Mr. Martino:

We have reviewed your registration statement 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  
Overview

Critical Accounting Policies and Significant Judgments and Estimates  
Stock-Based Compensation, pages 62-64

1. We acknowledge your response and disclosure revisions related to our prior comment number 18. As a reminder, we continue to include the following follow-up comments regarding your disclosure and accounting for stock-based compensation:
  - Since you have not disclosed an estimated offering price we are deferring a final evaluation of stock compensation and other costs recognized until the estimated offering price is specified. We may have further comment in this regard when the amendment containing that information is filed. Please provide a discussion of each significant factor contributing to the difference between the fair value as of the date of each grant and the estimated IPO price range. Please reconcile and explain the

differences between the mid-point of your estimated offering price range and the fair values included in your analysis.

- Once the IPO price is disclosed, we will assess your accounting for convertible equity issuances such as the convertible preferred stock issued in October 2012 and convertible note issuances in 2012. In addition, as previously requested, please provide us an analysis of any stock compensation or other expense recorded in connection with your equity issuances such as the 29 million stock options issued in December 2012 with an exercise price of \$.25.

Summary of Stock Option Grants, page 64

2. Your assessed fair value of your common stock has changed significantly between the grant dates. Please revise the stock compensation disclosure on pages 62 to 64 to clarify what events changed between each grant date that caused the fair values to change.

Notes to Consolidated Financial Statements

2. Ambit Canada, page F-15

3. We acknowledge your response to our prior comment number 24. As a continuing reminder, you state that “prior to circulating a preliminary prospectus for this offering, the Company will have obtained a written agreement from GrowthWorks for the exercise of its put option prior to or in connection with the closing of the offering. Upon execution of such written agreement, the Company will amend the Registration Statement to describe GrowthWorks’ written agreement that the put option will be exercised prior to or in connection with the closing of the offering.”

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

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- 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.

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 James Peklenk at (202) 551-3661 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler  
Assistant Director

cc: Via E-mail  
Kenneth J. Rollins, Esq.  
Cooley LLP  
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San Diego, California 92121