

Mail Stop 6010

April 26, 2007

Francis E. O'Donnell, Jr., M.D.
Chief Executive Officer
Accentia Biopharmaceuticals, Inc.
324 South Hyde Park Avenue, Suite 350
Tampa, Florida 33606

**Re: Accentia Biopharmaceuticals, Inc.
Registration Statement on Form S-3
Amendment no. 1 filed April 19, 2007
File No. 333-141626**

Dear Dr. O'Donnell:

We have limited our review of your filing to those issues we have addressed in our 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.

General

We note your response dated April 19, 2007, and that you are registering the sale of 14,924,585 shares. Given the size relative to the number of shares outstanding held by non-affiliates, the nature of the offering, and the selling security holders, the transaction appears to be a primary offering. Because you are not eligible to conduct a primary offering on Form S-3 you are not eligible to conduct a primary at-the-market offering under Rule 415(a)(4).

If you disagree with our analysis, please advise the staff of the company's basis for determining that the transaction is appropriately characterized as a transaction that is

eligible to be made under Rule 415(a)(1)(i). In your analysis, please address the following among any other relevant factors:

- The number of selling shareholders and the percentage of the overall offering made by each shareholder;
- The date on which and the manner in which each selling shareholder received the shares and/or the overlying securities;
- The relationship of each selling shareholder with the company, including an analysis of whether the selling shareholder is an affiliate of the company;
- Any relationship among the selling shareholders;
- The dollar value of the shares registered in relation to the proceeds that the company received from the selling shareholders for the securities, excluding amounts of proceeds that are returned (or will be returned) to the selling shareholders and/or their affiliates in fees or other payments;
- The discount at which the selling shareholders will purchase the common stock underlying the convertible securities (or any related security, such as a warrant or option) upon conversion or exercise; and
- Whether or not any of the selling shareholders is in the business of buying and selling securities.

* * * * *

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 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 Act of 1933 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

Francis E. O'Donnell, Jr., M.D.
Accentia Biopharmaceuticals, Inc.
April 26, 2007
Page 3

- 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
- 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.

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 connection with our review of your filing or in response to our comments on your filing.

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. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

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.

If you have any questions, please call John L. Krug, Senior Counsel, at (202) 551-3862, Michael Reedich, Special Counsel, at (202) 551-3612, or me at (202) 551-3715.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Curt P. Creely, Esq.
Foley & Lardner LLP
100 N. Tampa Street, Suite 2700
Tampa, Florida 33602