

Mail Stop 6010

January 3, 2007

Samuel E. Lynch, D.M.D., D.M.Sc.
Chief Executive Officer
BioMimetic Therapeutics, Inc.
389-A Nichol Mill Lane
Franklin, Tennessee 37067

**Re: BioMimetic Therapeutics, Inc.
Registration Statement on Form S-1
Filed December 12, 2006
File No. 333-139291**

Dear Dr. Lynch:

We have limited our review of your filing to those issues we have addressed in our comments. If you disagree, we will consider your explanation as to why our comment is inapplicable. Please be as detailed as necessary in your explanation. 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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

1. Please tell us the authority on which you relied to file a registration statement for a delayed offering given that you do not appear to be eligible to rely on Rule 415(a)(1)(x).

Please furnish a letter with your response to our comment. Detailed letters greatly facilitate our review. Please understand that we may have additional comments after reviewing any 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.

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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:

- 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.

You may contact Tom Jones at (202) 551-3602 or me at (202) 551-3617 if you have any questions.

Sincerely,

Russell Mancuso
Branch Chief

cc (via fax): James R. Tanenbaum