



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

May 12, 2009

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

Re: BioMimetic Therapeutics, Inc.
Preliminary Proxy Statement on Schedule 14A
Filed April 17, 2009
File No. 000-51934

Dear Dr. Lynch:

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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Proposal 2: Participation of Novo A/S as Standby Purchaser, page 27

1. Please tell us whether your shareholder Novo A/S, which is also the standby purchaser, may purchase any of the shares in the registered rights offering. If so, please tell us how that transaction would be consistent with Section 5 of the Securities Act, since it appears that you began the offering to Novo before you filed the registration statement on Form S-3 (file no. 333-158591). If Novo will be excluded from the registered offering, please revise the third paragraph of this section accordingly.
2. Please expand your disclosure to describe your reasons for undertaking the rights offering at this time, particularly given your statement that you do not need the

- capital for your “immediate plans of operation.” Also, provide disclosure regarding the approximate amount of proceeds intended to be used for each stated purpose, indicating the order of priority of the purposes listed. Finally, please disclose the anticipated proceeds from the offering on a net basis.
3. Please fill in the blanks to quantify the number of common shares each subscription right will entitle a holder to purchase, and to disclose how you determined this number.
 4. Please expand your disclosure in the third paragraph to describe the conditions to which Novo’s standby purchase is subject.
 5. Revise to quantify the dilutive effect of purchases by the standby purchaser assuming (i) rights holders do not exercise any rights and (ii) rights holders exercise all rights. Also present the percentage of outstanding shares Novo A/S will hold if it purchases the maximum of \$15 million under the standby agreement.

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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

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- 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.

You may contact Tom Jones at (202) 551-3602 or me at (202) 551-3625 if you have any questions.

Sincerely,

Mary Beth Breslin
Senior Attorney

cc (via fax): Anna T. Pinedo, Esq.