



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.
Amendment No. 1 to Registration Statement on Form S-3
Filed April 16, 2009
File No. 333-158591

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.

1. Please tell us whether your shareholder who is a standby purchaser may purchase any of the shares in this registered offering. If so, please tell us how the transaction with the shareholder would be consistent with Section 5 of the Securities Act, since it appears that you began the offer to the shareholder before you filed this registration statement. If the shareholder is excluded from the registered offering, please show us how you have reflected that fact in the registration fee table, and revise throughout your prospectus as appropriate.
2. Tell us whether your April 7, 2009 private offering involved any entitlement to participate in a rights offering or the under-subscription to a rights offering. If so, it appears that you started the rights offering to the private placement participant

in April. Tell us how it would be consistent with Section 5 of the Securities Act to complete that private rights offering via a registered offering.

3. Please tell us how you concluded that it is appropriate under governing state law, Nasdaq rules and federal securities laws to offer shares that you are not authorized to issue in the offering for which, as described, you have not yet received the necessary shareholder approval.

Prospectus Cover

4. We note your holders will be entitled to purchase a portion of the shares subject to reductions by you in “certain circumstances.” Please expand your disclosure to briefly discuss these circumstances.
5. We note your statement that you may extend the rights offering period. Please revise the prospectus cover and throughout the prospectus, as appropriate, to disclose the latest date to which you may extend the rights offering period, and to indicate whether subscribers will be able to revoke their exercise in the event you extend the rights offering. Also add a risk factor to discuss the risk of submitting an irrevocable subscription to an offering with an uncertain termination.
6. Please fill in the blanks in the second paragraph of the cover page and throughout the filing to quantify the number of common shares each subscription right will entitle a holder to purchase.

Questions and Answers Relating to the Rights Offering, page 1

7. Please expand this section to disclose how you determined that each subscription right will entitle a holder to purchase .107 shares of your common stock.
8. Please expand this section to disclose whether holders are required to exercise their rights if they voted to approve the issuance of shares at the annual meeting.

Why are we conducting the rights offering?, page 3

9. Please also disclose the anticipated proceeds from the offering on a net basis.

Will the rights be listed on a stock exchange or national market?, page 7

10. We note your disclosure that you expect that the shares issued in connection with the rights offering will be eligible for trading on the NASDAQ Global Market. With a view toward disclosure, please tell us whether affiliates may participate in the rights offering. Tell us whether you believe affiliates’ rights and underlying securities would be subject to the resale restrictions of Rule 144.

Extension, cancellation and amendment, page 13

11. Clarify whether you and Novo each have an independent right to terminate the standby purchase agreement if the rights offering has not closed by June 30, 2009. Explain whether you will cancel the rights offering in the event that either you or Novo terminates the standby purchase agreement, and add risk factor disclosure as appropriate.

When the rights offering is completed, your ownership interest will be diluted, page 15

12. 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.

Use of Proceeds, page 36

13. Please provide the disclosure regarding the approximate amount intended to be used for each stated purpose, as required by Item 504 of Regulation S-K and indicate the order of priority of the purposes listed.

Dilution, page 38

14. Please complete the table.

The Rights Offering, page 39

15. Please provide a table to show how the transaction would affect your previously disclosed information provided in response to Regulation S-K Item 403. Show the range of results given a reasonable range of potential outcomes of your transaction.

Standby Commitment, page 40

16. Please expand the first full sentence on page 41 to disclose, if true, that you will use your best efforts for the registration statement to be declared effective by September 30, 2009. We note the post-closing covenants listed in section 6(b)(ii) of Exhibit 10.12.

Expiration Date and Amendments, page 42

17. Here and in the summary, please disclose the material factors that you may consider in deciding to extend the rights offering and the period for holders to exercise their subscription rights.

18. We note your disclosure that you reserve the right to amend or modify the terms of the rights offering. Clarify whether the terms may be modified or amended after the expiration date of the offering.

Foreign Stockholders, page 45

19. With a view toward disclosure, please tell us the percentage of your stock that is held by shareholders with addresses outside of the United States.

Material United States Federal Income Tax Consequences, page 46

20. It is inappropriate to disclaim responsibility for your disclosure. Please remove the statement in the second paragraph on page 46 that the disclosure is “for general information only,” which we view as an inappropriate disclaimer.
21. Please unequivocally state what the tax consequences will be, not what they “should” be or “generally” are. If you are unable to provide an unequivocal statement, please disclose the reason for the uncertainty, the possible outcomes and the risks to investors. Please apply this comment to your disclosures regarding tax issues throughout the prospectus.
22. Please file as an exhibit the opinion required by Item 610(b)(8) of Regulation S-K, or explain why an opinion is not required.

Taxation of Subscription Rights, page 47

23. We refer you to the second and third paragraphs of this section. Please clarify how investors are to determine whether the fair market value of their subscription rights is less than or more than the 15% threshold mentioned here.

Exhibits

24. Please file complete agreements, or tell us why they do not need to be filed. For example, we note several schedules to exhibit 10.2 are missing.

Exhibit 5.1

25. Please file as an exhibit an opinion in which counsel has opined on the corporate laws of the jurisdiction of incorporation of the registrant.
26. Given the date restriction in the sixth and seventh paragraphs, please file an opinion dated on the date that the registration statement becomes effective.

Exhibit 99.1

27. Please tell us the purpose of this document and how it will be delivered to investors. Note that the document should not be used to extend the one-page prospectus cover limit in Item 501(b) of Regulation S-K.

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of any 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:

- 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
- 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 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 a 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.

Samuel E. Lynch, D.M.D., D.M.Sc.
BioMimetic Therapeutics, Inc.
May 12, 2009
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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) 551-3625 if you have any questions.

Sincerely,

Mary Beth Breslin
Senior Attorney

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