



DIVISION OF
CORPORATION FINANCE

Mail Stop 3030

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

May 30, 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. 2 to Registration Statement on Form S-3
Filed May 15, 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.

Fee Table

1. We note your response to prior comment 1; however, it is unclear why you continue to include in the fee table the shares that Novo will be entitled to purchase by exercising subscription rights that will be distributed pro rata to all existing shareholders as of the record date, given your statement that Novo will purchase these shares in a private transaction. Please revise.
2. We note your response to prior comment 2; however, it remains unclear as to when you began your rights offering with respect to InterWest Partners X, L.P. Accordingly, we reissue the comment. In your analysis, indicate whether your offer of securities in the private placement involved any offer of subscription

rights or the under-subscription to a rights offering. We refer you to the second and third paragraphs of the purchase agreement with InterWest that was filed as exhibit 10.1 to your Form 8-K on April 7, 2009.

Dilution, page 39

3. We note your response to prior comment 14. Please add a risk factor to highlight that purchasers of your common stock in the rights offering will experience immediate and substantial dilution of the net tangible book value of the shares of common stock.

Security Ownership of Certain Beneficial Owners and Management, page 39

4. We note your response to prior comment 15, the information added to the beneficial ownership table, and your disclosure on page 39 preceding the table indicating that the table presents information assuming that Novo will purchase the maximum number of shares under the standby agreement and that no other shareholder will exercise its subscription rights. Please expand the table to illustrate how the transaction would affect ownership information if all rights holders exercise their rights and no shares are purchased by Novo pursuant to the standby agreement.

Material United States Federal Income Tax Consequences, page 50

5. We note your response to prior comment 21; however, we note by means of non-exclusive example several instances in the sections captioned "Distributions" and "Dispositions" on pages 51 and 52 in which you continue to present what the tax consequences "generally" will be. If you are unable to provide an unequivocal statement as to the tax consequences, please disclose the reason for the uncertainty, as well as the possible alternative tax treatment and the risks to investors resulting from the uncertainty.

Taxation of Subscription Rights, page 51

6. We note your response to prior comment 23. It remains unclear how shareholders will allocate the tax basis in their common stock between their stock and the subscription rights, particularly given your response to prior comment 10. Also tell us why it is appropriate to continue to refer shareholders to tax advisors with respect to this assessment given your response that the assessment is market-based, not tax-based.

Exhibit 5.1

7. We note your response to prior comment 25; however, the opinion does not expressly indicate that counsel is opining on the General Corporation Law of the State of Delaware as to the shares being registered. With respect to the subscription rights being registered, please ensure that the opinion filed as exhibit 5.1 also expressly indicates the state law on which counsel is providing an opinion as to the subscription rights. In this regard, we note that the subscription rights certificate filed as exhibit 4.2 does not appear to identify the state law governing the subscription rights.
8. We note your response to prior comment 26. Please file a completed, signed and dated opinion. Given the last paragraph of the opinion, it should be dated as of the effective date of the registration statement. Alternatively, file an opinion that does not contain the qualification in the last paragraph that counsel disclaims any undertaking to advise you of any subsequent changes of the facts stated or assumed in the opinion or any subsequent changes in applicable law.

Exhibit 8.1

9. Refer to the third paragraph of the opinion. Please note that it is not appropriate for tax counsel to simply opine on the fairness and accuracy of the discussion of the tax consequences that appears in the prospectus. An opinion provided under Item 601(b)(8) of Regulation S-K must include counsel's opinion on specifically identified material tax consequences, and a summary of counsel's opinion (or, if a short form tax opinion is being provided, the corpus of counsel's opinion itself) must appear in the prospectus. Please file an exhibit that includes counsel's opinion on the material tax consequences.
10. Investors are entitled to rely on the opinion that you file per Item 601(b)(8) of Regulation S-K. Please file an opinion that does not include the disclaimer contained in the first sentence of the fourth paragraph.
11. Given the date restrictions in the fourth paragraph, please file an opinion dated on the date that the registration statement becomes effective.

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.

Samuel E. Lynch, D.M.D., D.M.Sc.
BioMimetic Therapeutics, Inc.
May 30, 2009
Page 4

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.