



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 6010

June 10, 2008

VIA U.S. MAIL and FACSIMILE (615) 844-1281

Larry Bullock
Chief Financial Officer
BioMimetic Therapeutics, Inc.
389-A Nichol Mill Lane
Franklin, TN 37067

**RE: BioMimetic Therapeutics, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2007
Filed March 12, 2008
Form 10-Q for the Quarterly Period Ended March 31, 2008
File No. 000-51934**

Dear Mr. Bullock:

We have reviewed your response letter dated May 29, 2008 and filings and have the following comments. Where indicated, we think you should revise future filings 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.

Form 10-Q for the Quarterly Period Ended March 31, 2008

Financial Statements, page 1

Note 10. Fair Value Measurements, page 8

1. We note your response to prior comment 2 in our letter dated May 16, 2008 that you intend to hold the auction rate securities for the next 12 months and that you do not anticipate having to obtain liquidity from the investments until after March 31, 2009. However, you also indicate in the same response that “the reasonable expected recovery period varies for these auction rate securities, from a period of six months to 18 months...” Please reconcile these two timeframes and clarify why you believe you have the intent and ability to retain the investment in the ARSs for a period of time sufficient to allow for any anticipated recovery in market value if that recovery does not occur for 18 months.
2. As noted in paragraph 17(b)(5) of FSP 115-1, you should disclose the evidence you considered in reaching your conclusion that the ARSs are not other-than-temporarily impaired. Please revise future filings to include this disclosure.
3. In your analysis of the expected recovery period you list 6 factors that you relied upon in determining that the recovery period is between six to 18 months. Please tell us how you used each of the factors listed in determining a recovery period and the recovery period indicated by each factor.
4. Please refer to prior comment 3. We note your response. In order to assist us in evaluating the response, please tell us any other key terms of the auction rate securities that have not been disclosed such as maturity dates, auction reset provisions and interest rate provisions.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 18

Critical Accounting Policies and Estimates, page 22

Investments in Marketable Securities, page 25

5. Please refer to prior comment 6. We asked you to revise future filings to discuss the significant assumptions (such as the liquidity discount) underlying your use of the income-approach model in valuing the auction rate securities. Your response noted that "[t]he Company believes that its disclosure in this area is appropriate given the complexities of the market, the judgmental nature of the assumptions and the rapidly changing market dynamics." Please tell us in more detail why you believe that disclosure of the assumptions provided in your response would not be helpful for investors. Given the factors cited in your response (i.e., the complexities of the market, the judgmental nature of the assumptions and the rapidly changing market dynamics), it would seem that the additional information about significant assumptions underlying your valuation would be very useful information to an investor.
6. Further, please tell us about your analysis of the risks associated with the uncertainties in the market. Discuss further your analysis of the expected market activity (i.e., refinancings, secondary market activities, etc.).
7. Also, with respect to your liquidity discount, please tell us why you are basing the discount on LIBOR and how you determined that the discount is between 125 to 300 basis points. Given the range cited, please tell us the actual discount rate used for your valuation.
8. Please refer to prior comment 7. Your response notes that "[t]he Company cannot predict how or when the principal on these securities will become available." However, it appears that you have made assumptions in this regard which are underlying your FSP 115-1 analysis. As such, please tell us how and when you expect the principal on the securities to become available (e.g., successful auction, maturity, redemption, etc.).

Acknowledgements

9. We note that the acknowledgements previously requested in our May 16, 2008 were included within the response letter signed by the company's legal counsel dated May 29, 2008. Please provide the acknowledgments in a separate letter signed by an authorized company representative.

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As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a letter with your response that keys your responses to our comments and provides any requested information. Detailed letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

You may contact me at (202) 551-3604 if you have questions. In this regard, please do not hesitate to contact Brian Cascio, Accounting Branch Chief, at (202) 551-3676 with any other questions.

Sincerely,

Kate Tillan
Assistant Chief Accountant