



DIVISION OF
CORPORATION FINANCE

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

Mail Stop 6010

May 16, 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 filings and have the following comments. We have limited our review of your filings to those issues we have addressed in our 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. With reference to the reconciliation of the beginning and ending balances for assets measured at fair value using significant unobservable inputs (Level 3) during the three months ended March 31, 2008, please tell us why the reconciliation excludes a line to reflect the total losses for the period as discussed in paragraph 32(c)(1) of SFAS 157. We note from your disclosure on page 8 that you recorded an unrealized loss of \$2.4 million for these securities for the period and it appears that this loss was determined using a Level 3 valuation.
2. We note your disclosure that “[t]he Company does not anticipate liquidating the investments over the next twelve months.” Please tell us and disclose in future filings whether or not you believe you have the intent and the ability to hold the security until a forecasted recovery of fair value. Discuss how you applied the accounting literature you relied upon in assessing whether or not there was an other than temporary impairment of the securities. Include a discussion of your analysis of the expected recovery period and the factors you considered in determining whether you have the intent and ability to hold the security until its recovery.
3. Please tell us and revise future filings to disclose the key terms of the auction rate securities including maturity dates, auction reset provisions and interest rate provisions. Please also discuss whether the underlying cash flows on the securities are being received.

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

4. Please tell us and disclose the following in future filings:
 - The amount and reason for any material increase or decrease in Level 3 assets and liabilities resulting from your transfer of assets and liabilities from, or into, Level 1 or Level 2, including a discussion of the significant inputs that you no longer consider to be observable.

- Whether you believe the fair values of the Level 3 securities diverge materially from the amounts you currently anticipate realizing on settlement or maturity. If so, disclose why and provide the basis for your views.

Refer to the sample letter sent to public companies on MD&A disclosure regarding the application of SFAS 157, available at <http://sec.gov/divisions/corpfin/guidance/fairvalueltr0308.htm>.

5. We note that “[s]ubstantially all of [y]our auction rate security investments are bonds with a credit rating of AAA and are sold by state guarantee agencies backed by student loans under the Federal Family Education Loan Program (“FFELP”). The student loans are guaranteed by the U.S. Department of Education at amounts representing a substantial portion of the loans.” Please tell us the amount of the bonds that are rated lower than AAA or are not sold by state guarantee agencies backed by student loans under FFELP. Please also tell us the amount of the student loans that are not guaranteed by the U.S. Department of Education.
6. We note your disclosure that the valuation of auction rate securities under SFAS 157 was estimated using an income-approach model (discounted bond analysis model) and that the model reflected various assumptions that market participants would use in pricing, including among others, the collateralization underlying the investments, the creditworthiness of the counterparty, the expected future cash flows (including the next time the security is expected to have a successful auction), and the risks associated with uncertainties in the current market. Please tell us and 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.
7. With a view towards disclosure, please tell us the number and dollar value of your failed auctions. Please also tell us how and when you expect the principal on the securities to become available (e.g., successful auction, maturity, redemption, etc.).

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.

Larry Bullock
BioMimetic Therapeutics, Inc.
May 16, 2008
Page 4

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 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
- 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 Kristin Lochhead at (202) 551-3664 or 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