



DIVISION OF
CORPORATION FINANCE

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

August 9, 2010

David R. Koos
Chief Executive Officer
Bio-Matrix Scientific Group, Inc.
8885 Rehco Road
San Diego, CA 92121

Re: Bio-Matrix Scientific Group, Inc.
Form 10-K for Fiscal Year Ended September 30, 2009
Filed January 14, 2010
Form 10-Q for Fiscal Quarter Ended June 30, 2010
Filed July 27, 2010
File No. 0-32201

Dear Mr. Koos:

We have reviewed your filings and response letter dated July 15, 2010 and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by amending your filings, by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment or revisions to future disclosures are appropriate, please tell us why in your response.

After reviewing any amendment to your filings and the information you provide in response to these comments, we may have additional comments.

Form 10-K for Fiscal Year Ended September 30, 2009

Item 9A. Controls and Procedures, page 33

1. We note that you removed the conclusion of your principal executive officer and principal financial officer regarding the effectiveness of your disclosure controls and procedures as of the end of the period covered by the report. Please revise to include the disclosure required by Item 307 of Regulation S-K. In doing so, please consider comment three in our letter dated July 9, 2010 with respect to your previous disclosure regarding the effectiveness of disclosure controls and procedures and the definition of disclosure controls and procedures in Exchange Act Rule 13a-15(e).

2. We note your disclosure that your chief executive officer and acting chief financial officer conducted an assessment, including testing of the effectiveness of your internal control over financial reporting as of April 30, 2010. Exchange Act Rule 13a-15(c) requires management to evaluate, with the participation of the principal executive officer and principal financial officer, the effectiveness of internal control over financial reporting as of the end of each fiscal year. As such, please clarify your disclosure as appropriate. Refer to Item 308(T) of Regulation S-K and Exchange Act Rule 13a-15(c).

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3. We reviewed your revisions in response to comment five in our letter dated July 9, 2010. In future filings please indicate each capacity of any person who occupies more than one of the positions specified in general instruction D(2)(a) of Form 10-K who is required to sign the report in the second signature block. Refer to general instruction D of Form 10-K.
4. We considered your response to comment seven in our letter dated July 8, 2010. Please file the written consent of your independent registered public accounting firm as required by Item 601(b)(23) of Regulation S-K.

Form 10-Q for Period Ended June 30, 2010

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5. The report should be signed by a duly authorized officer and by the principal financial or chief accounting officer. In the case where the principal executive officer, principal financial officer or chief accounting officer is also duly authorized to sign the quarterly report, one signature is acceptable provided the dual responsibilities of the signatory are indicated. Please revise future reports on Form 10-Q accordingly. Refer to general instruction G of Form 10-Q.

You may contact Yolanda Guobadia at (202) 551-3562 if you have questions regarding comments on the financial statements and related matters. Please contact me at (202) 551-3344 with any other questions.

Sincerely,

William H. Thompson
Accounting Branch Chief