



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-3561

Mail Stop 3561

March 25, 2010

Pieter Muntendam, M.D.
President and Chief Executive Officer
BG Medicine, Inc.
610 Lincoln Street North
Waltham, MA 02451

**Re: BG Medicine, Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed March 12, 2010
File No. 333-164574**

Dear Mr. Muntendam:

We have reviewed your filing and have the following 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 any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. We note your response to comments two and 25 in our letter dated February 25, 2010 and will require sufficient time to review the information once it is included in an amendment.
2. We note your response to comment four in our letter dated February 25, 2010 and the statement that you concluded that your compensation policies "are not reasonably likely to have a material adverse effect" on you. Please describe the process you undertook to reach the conclusion that disclosure is not necessary.

Summary, page 1

3. We note your response to comments 10 and 11 in our letter dated February 25, 2010 and revised disclosure on the top of page one indicating that your intended products and services are subject to regulatory approval. We also note, however, disclosure on page two regarding your “solution.” Please revise to clarify whether your products and services are currently commercially available as a solution. In this regard, you refer to laboratories that will play a role, including your laboratories and those owned by others. However, it is unclear what steps, approvals or events may be necessary before you own a laboratory that performs testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease. Also, you mention affiliated laboratories here and on page 52, but you do not identify them or explain the basis on which these affiliated laboratories will assist you—arrangements that appear to be material to your operations. Please revise accordingly.
4. With respect to your belief that your “solution offers several important benefits over existing approaches in diagnostics,” please revise the top of page 71 to address the principal methods of competition as well as the statements in the five carryover bullet points on pages two and three. In addition, please revise page two and three to address the well-established and new entrants “that have developed new enabling technologies.” It is unclear whether and why you believe these competitors’ solutions do not address the “important benefits” you identify on pages two and three. Please revise here and page 71 accordingly.
5. We note your response to prior comment 12 and revised disclosure on page 46. Please revise here to indicate, if true, that (1) your revenues to date relate to service-based collaborative research and development, and that you do not expect to generate significant revenue of this kind in the future, and (2) you have not generated any product revenue since inception and do not expect to generate any significant revenue from the sale of testing products before the second half of 2010, at the earliest.

Business, page 49

6. We note your response to comment 15 in our letter dated February 25, 2010. Please file a written consent for Kalorama Information or remove the information attributed to that entity from the prospectus, or advise.

Management, page 77

7. We note your response to comment 16 in our letter dated February 25, 2010, and we re-issue that comment. We note your disclosure on page 79 regarding Mr. Bains. Please revise this disclosure so that it fully complies with Item 401(e)(1) of Regulation S-K. In particular, we note the period beginning with his retirement in 2004 and ending in June 2007.

Compensation, page 83

8. With respect to prior comments 18 and 19, it is still unclear what actual, quantitative corporate goals, if any, were used to determine bonuses, consistent with the statement that you provide bonus awards “based predominantly on the company’s level of achievement of its goals.” Please revise or advise.

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

You may contact Steve Lo at (202) 551-3394 or David Walz at (202) 551-3358 if you have questions regarding comments on the financial statements and related matters. Please contact Damon Colbert at (202) 551-3581 or James Lopez at (202) 551-3536 with any other questions.

Sincerely,

John Reynolds
Assistant Director

cc: William T. Whelan, Esq.
Scott A. Samuels, Esq.
Fax: (617) 542-2241