



DIVISION OF  
CORPORATION FINANCE

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

November 18, 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. 4 to Registration Statement on Form S-1  
Filed November 8, 2010  
File No. 333-164574**

Dear Mr. Muntendam:

We have reviewed your registration statement 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 by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

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

General

1. We understand that you have submitted an amended confidential treatment request application for portions of certain of the exhibits to your registration statement. You will receive any comments we issue regarding your application under separate cover.

Use of Proceeds, page 29

2. We note that your “management will retain broad discretion over the allocation of the net proceeds from this offering.” We also note “current product discovery,” “commercialization activities,” “unforeseen cash needs” and other references. Please revise to more specifically discuss the contingencies underlying the broad discretion, and indicate the resulting alternative uses of proceeds. See Instruction 7 to Item 504 of Regulation S-K.

Exhibit 23

3. Please file an updated consent from your independent registered accounting firm upon amending your Form S-1.

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