



DIVISION OF  
CORPORATION FINANCE

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

April 8, 2015

Via E-mail

Jeffrey W. Albers  
President and Chief Executive Officer  
Blueprint Medicines Corporation  
215 First Street  
Cambridge, Massachusetts 02142

**Re: Blueprint Medicines Corporation  
Registration Statement on Form S-1  
Filed March 23, 2015  
File No. 333-202938**

Dear Mr. Albers:

We have reviewed your registration statement and have the following comment.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comment applies 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 this comment, we may have additional comments.

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1. We note your response to our prior comment 5. Please revise your disclosure regarding your agreement with Alexion Pharma Holdings to disclose the potential range of royalty payments (for example, "low-single-digits", "high-single-digits" or a range not to exceed ten percent).

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You may contact Rolf Sundwall at (202) 551-3105 or James Rosenberg at (202) 551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Alla Berenshteyn at (202) 551-4325 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey P. Riedler  
Assistant Director

cc: Via E-mail  
Kingsley L. Taft, Esq.  
Goodwin Proctor LLP