



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.

Business, page 102

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).

Jeffrey W. Albers
Blueprint Medicines Corporation
April 8, 2015
Page 2

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