



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

DIVISION OF
CORPORATION FINANCE

May 24, 2013

Via E-mail

Nick Leschly
President and Chief Executive Officer
bluebird bio, Inc.
840 Memorial Drive, 4th Floor
Cambridge, MA 02139

**Re: bluebird bio, Inc.
Registration Statement on Form S-1
Filed May 14, 2013
File No. 333-188605**

Dear Mr. Leschly:

We have reviewed your registration statement and response letter filed May 14, 2013 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. Where 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.

Cover Page

1. Please remove the photographic images included on the front and back cover pages. As your products are in clinical stages or preclinical, it is not appropriate to include photographs or images that may give the impression of patients being treated or cured with your products. Further, please delete or revise your statement that you are “transforming the lives of patients” given that you have treated a very limited number of patients in your limited clinical studies and that neither your current viral vectors nor your current product candidates have ever been evaluated in human clinical studies. Lastly, in the section “Make hope a reality” please balance your disclosure by disclosing that neither your current viral vectors nor your current product candidates have ever been evaluated in human clinical studies.

Notes to Consolidated Financial Statements

Note 11. Significant Agreements

Celgene Corporation, page F-35

2. Please revise your disclosure to specifically include your consideration of the platform technology sublicense agreement, opt-in option and the manufacturing and supply agreement as separate deliverables and to clarify your accounting therefor. Separately reference for us the authoritative literature you rely upon to support your accounting.
3. Please revise your disclosure in the second paragraph on page F-36 to disclose a description of each milestone and its related contingent consideration as required by AS 605-28-50-2b. To the extent that you consider the aggregation of milestones in your disclosure to be meaningful to investors, in lieu of the requirement to disclose each such milestone, please revise your disclosure to:
 - Disclose the nature of payment triggering events underlying each milestone included in the aggregated categories you disclose.
 - Separately disclose the nature and related contingent consideration for any individual milestone that is significant. To the extent you do not believe any of the individual milestones in the agreement is significant please demonstrate to us why not.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Sarah Parikh, Staff Accountant, at (202) 551-3627 or Mark Brunhofer, Staff Accountant, at (202) 551-3638 if you have questions regarding comments on the financial statements and related matters. Please contact Karen Ubell, Staff Attorney, at (202) 551-3873, Jennifer Riegel, Special Counsel, at (202) 551-3575 or me at (202) 551-2715 with any other questions.

Sincerely,

/s/ Jennifer Riegel for

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Michael H. Bison, Esq.
Goodwin Procter LLP