

June 11, 2013

**VIA EDGAR**

United States Securities and Exchange Commission  
Division of Corporation Finance  
Mail Stop 4561  
100 F. Street, N.E.  
Washington, D.C. 20549  
Attention: Jeffrey P. Riedler

**Re: bluebird bio, Inc.  
Amendment No. 2 to Registration Statement on Form S-1  
Submitted June 4, 2013  
File No. 333-188605**

Dear Mr. Riedler:

This letter is submitted on behalf of bluebird bio, Inc. (the "Company") in response to the comments of the staff of the Division of Corporation Finance (the "Staff") of the Securities and Exchange Commission (the "Commission") with respect to Amendment No. 2 to the Company's Registration Statement on Form S-1, filed on June 4, 2013 (the "Registration Statement"), as set forth in your letter dated June 10, 2013 addressed to Nick Leschly, President and Chief Executive Officer of the Company (the "Comment Letter").

For reference purposes, the text of the Comment Letter has been reproduced herein with responses below each numbered comment. For your convenience, we have italicized the reproduced Staff comments from the Comment Letter. The responses provided herein are based upon information provided to Goodwin Procter LLP by the Company.

Prospectus Summary, page 1

The Offering, page 9

1. *Please revise the filing to address the following:*

- *Please reconcile the difference between the 3,839,025 shares of common stock issuable upon the exercise of outstanding stock options as of May 31, 2013 having*

*a weighted average exercise price of \$3.69 per share and 3,652,786 shares of common stock issuable upon the exercise of outstanding stock options as of March 31, 2013 having a weighted-average exercise price of \$3.46 per share as disclosed in Capitalization and elsewhere. If this difference relates to additional options issued subsequent to March 31, 2013, please disclose such and include in your disclosure to whom the options were issued, at what exercise price and what vesting terms.*

- *The difference between the 358,869 shares of common stock on page 10 and 596,131 shares of common stock on page 59 that are reserved for issuance pursuant to future equity awards under your 2010 Stock Option and Grant Plan, which will become available for issuance under your 2013 Stock Option and Incentive Plan immediately prior to this offering.*

RESPONSE: The Company advises the Staff that, as required by Item 403 of Regulation S-K, it has updated certain information in the prospectus included as part of the Registration Statement regarding the number of shares outstanding as of a “recent practicable date” – in this case May 31, 2013. The Company recognizes that the prospectus included as part of the Registration Statement also contains financial disclosures that are presented as of the most recently completed fiscal quarter. A reconciliation of the requested items is provided as Annex A to this letter.

The Company advises the Staff that, after the Company’s most recently completed fiscal quarter, in April 2013, the Company granted options to purchase 187,161 shares of common stock at an exercise price of \$8.16 per share. These April 2013 options included grants to the Company’s two newly-appointed, non-employee directors (Drs. Wendy Dixon and David Schenkein) in recognition of their appointment to the Company’s Board of Directors in April 2013, each in the amount of 26,361 shares. These options were awarded in accordance with the Company’s customary practice of granting options to newly appointed non-employee directors and vest as follows: 25% of such options shall become exercisable upon the one-year anniversary of the date of grant with the balance to become exercisable in 36 equal monthly installments over the next three years. The options awarded in April 2013 also included a special, one-time, fully-vested option award in the amount of 527 shares granted to the Company’s Chief Scientific Officer in consideration of such officer’s performance in a prior period. The balance of the options awarded in April 2013 were customary awards made to newly hired employees of the Company, each of which is subject to vesting terms consistent with the vesting terms of the new non-employee director options described above. In addition, the Company advises the Staff that, after the

Company's most recently completed fiscal quarter, in May 2013, one option holder exercised a total of 922 options.

The Company advises the Staff that the exercise price of the April 2013 option awards is the same as the estimated fair value per share as of March 31, 2013 as determined by the Company's valuation as of such date and described in the Company's prospectus included in the Registration Statement starting on page 81. However, the Company further advises the Staff that, while it has not completed its accounting for the April 2013 options given that they were awarded in the current fiscal quarter, it does anticipate that, assuming the successful completion of the planned initial public offering, for financial reporting purposes, to apply a per share fair value of the Company's common stock as of the date of these April 2013 options equal to the initial public offering price when estimating the fair value of these option awards. Using the mid-point of the estimated price range of \$15.00 per share rather than the \$8.16 per share exercise price, the Company will recognize incremental stock compensation expense of \$1.1 million over the four-year vesting period.

The Company respectfully advises the Staff that the Company does not believe that the above described matters are material thereby requiring disclosure in the prospectus included as part of the Registration Statement. The Company notes that the disclosure on pages 9-10 of the prospectus included as part of the Registration Statement accurately identifies as of May 31, 2013 the number of shares outstanding, the number of options outstanding, the weighted-average exercise price of these outstanding options and the number of shares reserved for future grant under the Company's 2010 Stock Option and Grant Plan, in each case as of such date, and therefore already encompasses most of the information the Staff requests in its comment and provides meaningful disclosure to investors. Further, the options awarded in April 2013, in the aggregate, comprise less than 1% of the anticipated number of outstanding shares following the offering, were awarded in accordance with the Company's customary and ordinary course equity compensation practices, and will not result in material stock compensation charges in any particular period. In light of the foregoing, the Company respectfully advises the Staff that it believes its existing disclosure is adequate and appropriate and no revisions are required.

Notes to Consolidated Financial Statements

Note 9: Convertible Preferred Stock, page F-29

2. *You disclose here that the number of shares of common stock to be outstanding after this offering is based on 16,388,510 additional shares of your common stock issuable upon conversion of all of your outstanding shares of preferred stock upon closing of this*

*offering. In Note 16 to your financial statements on page F-48 you indicate that shares of common stock reserved for issuance upon the conversion of the Company's Series A-1 Preferred Stock, Series A-2 Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, and Series D Preferred Stock were proportionately reduced and the respective conversion prices were proportionately increased to reflect the one-for-18.967 reverse stock split. However, in your conversion discussion starting on page F-31 you still appear to reflect the original conversion prices and an effective one-to-one conversion rate. Although you reference the reader to Note 16(B), it appears that each of your conversion prices should be adjusted by your reverse stock split rate and that the effective conversion rate should be disclosed as one preferred shares converts into 0.0527 shares of common stock. Please revise your conversion rate disclosure here and throughout the filing to reflect your common stock reverse split or tell us why a revision is not appropriate.*

RESPONSE: The Company respectfully advises the Staff that the Company does not believe the referenced revisions to the Registration Statement are necessary, as the conversion of the preferred shares has been adequately addressed in the Registration Statement. In the discussion starting on page F-31, the Company presents the conversion ratio as of December 31, 2012 (1:1), and then refers the reader to Note 16(B) (Subsequent events) for the information regarding the subsequent reverse stock split. The Company acknowledges that the references to the applicable conversion prices on page F-31 refer to the pre-adjusted applicable conversion prices, but respectfully advises the Staff that since the disclosure goes on to state that the conversion ratio is 1:1 as of December 31, 2012, subject to adjustment, with a cross reference to Note 16(B) the disclosure is not misleading.

Further, the Company advises the Staff that it has presented and disclosed the impact of the reverse stock split on the conversion ratio of each outstanding series of preferred stock in the table on page F-35 by indicating the number of shares of common stock issuable upon the conversion of each series of preferred stock following the reverse stock split. This disclosure can also be found on page 180 of the prospectus included in the Registration Statement (in that case the adjusted conversion ratio is expressed as 18.967 shares of preferred stock for one share of common stock, which is the same as 0.0527 shares of common stock for one share of preferred stock). Moreover, all share numbers included in the prospectus included as part of the Registration Statement give effect to the adjusted conversion ratio (see, e.g., pages 9-10, 58- 61, 176-180 and F-8).

For these reasons the Company respectfully advises the Staff that it believes its existing disclosure is adequate and appropriate.

Mr. Riedler  
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If you should have any questions concerning the enclosed matters, please contact the undersigned at (617) 570-1933.

Sincerely,

/s/ Michael H. Bison

Michael H. Bison, Esq.

Enclosures

cc: Nick Leschly, *bluebird bio, Inc.*  
Jeffrey T. Walsh, *bluebird bio, Inc.*

**Annex A**  
**Reconciliation of March 31, 2013 and May 31, 2013 Shares**

	<u>Shares</u>	<u>Weighted-average exercise price</u>
Options outstanding as of March 31, 2013	3,652,786	\$ 3.46
Options granted in April	187,161	\$ 8.16
Options exercised in May	(922)	\$ 0.95
Options outstanding as of May 31, 2013	3,839,025	\$ 3.69
	<u>Shares</u>	
Shares available for issuance as of March 31, 2013	546,030	
Options granted in April	(187,161)	
Shares available for issuance as of May 31, 2013	358,869	