

May 31, 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.  
Registration Statement on Form S-1  
Filed May 14, 2013  
File No. 333-188605**

Dear Mr. Riedler:

This letter is submitted on behalf of bluebird bio, Inc. (the "Company") in response to the verbal comments of the staff of the Division of Corporation Finance (the "Staff") of the Securities and Exchange Commission (the "Commission") received telephonically on May 29, 2013 and May 30, 2013, with respect to the Company's Registration Statement on Form S-1 filed on May 14, 2013 (the "Registration Statement").

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

- 1. With respect to the reasons provided for the difference between the March 31, 2013 valuation and the midpoint of the estimated IPO price range, please respond to the following comments in your next filing: (i) elaborate in the third bullet point regarding what market conditions changed in your industry and clarify why these changes added value to your company; and (ii) substantiate the fifth bullet and why this factor added value to your company.*

RESPONSE: In response to the Staff's comment, the Company proposes to revise the disclosure in the Company's next amendment to the Registration Statement ("Amendment No. 2") as set forth on Exhibit A attached hereto.

In support of the revised disclosure, the Company supplementally advises the Staff that, based on publicly available data, since March 31, 2013, there have been six initial public offerings resulting in gross proceeds to the issuer in excess of \$50 million for companies in the healthcare industry, versus only three initial public offerings of such size in this industry between January 1, 2013 and March 31, 2013. During such periods, the average step-up in valuations in the initial public offering valuations of such companies compared to the valuations in their most recent pre-IPO equity financing was 150% and 90%, respectively.

2. *Please revise your disclosure to provide the required disclosure under ASC-718-10-50-2(c), such as the weighted-average exercise price for your share options that were granted, exercised and forfeited and the weighted-average grant date fair value of equity options granted during the year.*

RESPONSE: In response to the Staff's comment, the Company advises the Staff that it will revise the disclosure in Amendment No. 2 to include the required disclosure under ASC-718-10-50-2(c).

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.*

**Exhibit A**  
**Proposed Revised Disclosure**

“The midpoint of the estimated price range for this offering reflects a significant increase over the estimated valuation as of March 31, 2013 of \$0.43 per share. Investors should be aware of this difference and recognize that the price range for this offering is in excess of our prior valuations. Further, investors are cautioned not to place undue reliance on the valuation methodologies discussed above as an indicator of future stock prices. We believe the difference may be due to the following factors:

- The contemporaneous valuation prepared as of March 31, 2013 contains multiple liquidity scenarios, including an initial public offering with an anticipated completion date of August 31, 2013 to which we assigned a probability weighting of 70%. However, the consideration of different scenarios accounts for some but not all of the difference between the initial public offering price and the valuation as of March 31, 2013.
- Our receipt in late April of notice that the IND for our Lenti-D program in the United States is now active.
- Improved capital market conditions in our industry for companies in our industry, as evidenced by a recent increase in the number of public offerings by such companies and in the initial public offering valuations of such companies compared to the valuations in their most recent pre-IPO equity financing.
- The initial offering price range necessarily assumes that this offering has occurred, a public market for our common stock has been created and that our preferred stock has converted into common stock in connection with this offering and, therefore, excludes the marketability or illiquidity discounts associated with the timing or likelihood of an initial public offering, the superior rights and preferences of our preferred stock and the alternative scenarios considered in the contemporaneous valuations over the past two years. Our March 31, 2013 valuation included an illiquidity discount of 10%.
- In the public markets we believe there are investors who may apply more qualitative and subjective valuation criteria to certain of our clinical assets than the valuation methods applied in our valuations-, although there can be no assurance that this will in fact be the case. As described above, as a private company we used a more quantitative methodology to determine the fair value of our common stock and this methodology differs from the methodology used to determine the estimated price range for this offering. The estimated price range for this offering was not derived using a formal determination of fair value, but rather was determined by negotiation between us and the underwriters. In particular, the estimate of fair value of our common stock as of March 31, 2013 was not a factor in setting the estimated price range for this offering.
- The price that investors are willing to pay in this offering, for which the price range is intended to serve as an estimate, may take into account other things that have not been expressly considered in our prior valuations, are not objectively determinable and that valuation models are not able to quantify.”