

## INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934  
or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL

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<b>1. Name and Address of Reporting Person*</b> <u>Polack Axel</u>  (Last) (First) (Middle) TVM V LIFE SCIENCE VENTURES GMBH & CO. MAXIMILIANSTRASSE 35, ENTRANCE C  (Street) MUNICH 2M 80539  (City) (State) (Zip)	<b>2. Date of Event Requiring Statement (Month/Day/Year)</b> 06/18/2013	<b>3. Issuer Name and Ticker or Trading Symbol</b> <u>bluebird bio, Inc. [ BLUE ]</u>  <b>4. Relationship of Reporting Person(s) to Issuer (Check all applicable)</b> <input checked="" type="checkbox"/> Director 10% Owner Officer (give title below) Other (specify below)	<b>5. If Amendment, Date of Original Filed (Month/Day/Year)</b>  <b>6. Individual or Joint/Group Filing (Check Applicable Line)</b> <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person
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### Table I - Non-Derivative Securities Beneficially Owned

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
<b>Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)</b>			

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)		4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			
Series A-1 Convertible Preferred Stock	(1)	(1)	Common Stock	325,255	(1)	I	See footnote <sup>(2)</sup>
Series A-2 Convertible Preferred Stock	(3)	(3)	Common Stock	624,021	(3)	I	See footnote <sup>(2)</sup>
Series B Convertible Preferred Stock	(4)	(4)	Common Stock	935,783	(4)	I	See footnote <sup>(2)</sup>
Series C Convertible Preferred Stock	(5)	(5)	Common Stock	210,589	(5)	I	See footnote <sup>(2)</sup>
Series D Convertible Preferred Stock	(6)	(6)	Common Stock	158,709	(6)	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series A-1 Stock (right to buy)	(7)	11/16/2015	Series A-1 Convertible Preferred Stock <sup>(8)</sup>	34,849	12.55	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series A-1 Stock (right to buy)	(7)	10/26/2016	Series A-1 Convertible Preferred Stock <sup>(8)</sup>	23,232	12.55	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series A-1 Stock (right to buy)	(7)	05/03/2017	Series A-1 Convertible Preferred Stock <sup>(8)</sup>	54,760	12.55	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series A-1 Stock (right to buy)	(7)	08/28/2018	Series A-1 Convertible Preferred Stock <sup>(8)</sup>	12,445	12.55	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series A-1 Stock (right to buy)	(7)	12/18/2018	Series A-1 Convertible Preferred Stock <sup>(8)</sup>	12,445	12.55	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series A-1 Stock (right to buy)	(7)	04/15/2019	Series A-1 Convertible Preferred Stock <sup>(8)</sup>	24,393	12.55	I	See footnote <sup>(2)</sup>
Warrant to Purchase Series B Stock (right to buy)	(7)	04/15/2019	Series B Convertible Preferred Stock <sup>(9)</sup>	15,152	6.19	I	See footnote <sup>(2)</sup>

**Explanation of Responses:**

- The Series A-1 Convertible Preferred Stock is convertible into Common Stock on an 18.967-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
- The securities are held directly by TVM V Life Science Ventures GmbH & Co. KG. ("TVM LSV V"). The Reporting Person is an authorized officer of TVM LSV V's general partner, TVM Capital, and disclaims beneficial ownership of all shares held by the foregoing entities except to the extent of his pecuniary interest therein.
- The Series A-2 Convertible Preferred Stock is convertible into Common Stock on an 18.967-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
- The Series B Convertible Preferred Stock is convertible into Common Stock on an 18.967-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
- The Series C Convertible Preferred Stock is convertible into Common Stock on an 18.967-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
- The Series D Convertible Preferred Stock is convertible into Common Stock on an 18.967-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.

7. This warrant is immediately exercisable.

8. Upon completion of the Issuer's initial public offering, this warrant to purchase shares of Series A-1 Convertible Preferred Stock will automatically convert on an 18.967-for-one basis into a warrant to purchase shares of Common Stock.

9. Upon completion of the Issuer's initial public offering, this warrant to purchase shares of Series B Convertible Preferred Stock will automatically convert on an 18.967-for-one basis into a warrant to purchase shares of Common Stock.

**Remarks:**

/s/ Linda Bain, Attorney-in-Fact

06/18/2013

\*\* Signature of Reporting Person

Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 5 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.**

LIMITED POWER OF ATTORNEY

The undersigned hereby constitutes and appoints each of Jeffrey T. Walsh and Linda C. Bain, and each of them individually, and with full power of substitution, the undersigned's true and lawful attorney-in-fact to:

(1) Complete and execute for and on behalf of the undersigned, in the undersigned's capacity as an officer, director and/or ten percent (10%) shareholder of bluebird bio, Inc., a Delaware corporation (the "Company") any and all instruments, certificates and documents required to be executed on behalf of the undersigned as an individual or on behalf of the undersigned's company or partnership, as the case may be, pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended (the "Exchange Act") or the rules and regulations thereunder;

(2) Do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such instruments, certificates or documents required to be filed pursuant to Sections 13 and 16 of the Exchange Act or the rules or regulations thereunder and timely file such forms with the United States Securities and Exchange Commission and any stock exchange or similar authority; and

(3) Take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by any such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact, acting singly, full power and authority to do and perform any and every act which is necessary, proper or desirable to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that any such attorney-in-fact, or any such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this Power of Attorney and the rights and powers herein granted.

The undersigned acknowledges that each of the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming, nor is the Company assuming, any of the undersigned's responsibilities to comply with Section 13 or Section 16 of the Exchange Act or the rules or regulations thereunder. The undersigned hereby agrees to indemnify each attorney-in-fact and the Company from and against any demand, damage, loss, cost or expense arising from any false or misleading information provided by the undersigned to such attorney-in fact.

This Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file any instruments, certificates and documents pursuant to Section 13 and 16 of the Exchange Act or the rules or regulations thereunder with respect to the undersigned's holdings of and transactions in securities issued by the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of June 4, 2013.

/s/ Axel Polack  
Axel Polack