

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

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

1. Name and Address of Reporting Person* <u>THIRD ROCK VENTURES LP</u>  (Last) (First) (Middle) <u>29 NEWBURY STREET</u>  (Street) <u>BOSTON MA 02116</u>  (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) <u>06/18/2013</u>	3. Issuer Name and Ticker or Trading Symbol <u>bluebird bio, Inc. [ BLUE ]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable)  Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year)  6. Individual or Joint/Group Filing (Check Applicable Line) Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person

**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)
---------------------------------	---	--	---

**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

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 B Convertible Preferred Stock	(1)	(1)	Common Stock	3,394,194	(1)	D <sup>(2)</sup>	
Series C Convertible Preferred Stock	(3)	(3)	Common Stock	758,121	(3)	D <sup>(2)</sup>	
Series D Convertible Preferred Stock	(4)	(4)	Common Stock	581,933	(4)	D <sup>(2)</sup>	

1. Name and Address of Reporting Person* <u>THIRD ROCK VENTURES LP</u>  (Last) (First) (Middle) <u>29 NEWBURY STREET</u>  (Street) <u>BOSTON MA 02116</u>  (City) (State) (Zip)
--

1. Name and Address of Reporting Person* <u>Third Rock Ventures GP, L.P.</u>  (Last) (First) (Middle) <u>29 NEWBURY STREET</u>  (Street) <u>BOSTON MA 02116</u>  (City) (State) (Zip)
--

1. Name and Address of Reporting Person* <u>TRV GP, LLC</u>  (Last) (First) (Middle) <u>29 NEWBURY STREET</u>  (Street) <u>BOSTON MA 02116</u>  (City) (State) (Zip)
---

**Explanation of Responses:**

1. 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.
2. The general partner of Third Rock Ventures, L.P. is Third Rock Ventures GP, LP ("TRV GP"). The general partner of TRV GP is Third Rock Ventures GP, LLC ("TRV GP, LLC"). TRV GP and TRV GP, LLC disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein.
3. 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.
4. 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.

**Remarks:**

By: Third Rock Ventures GP,  
L.P., its general partner By:  
TRV GP, LLC, its general  
partner By: /s/ Kevin Gillis      06/18/2013  
Kevin Gillis, Manager

By: TRV GP, LLC, its general  
partner By: /s/ Kevin Gillis,      06/18/2013  
Manager

By: /s/ Kevin Gillis, Manager      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.**