

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP**

OMB APPROVAL	
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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See instruction 1(b).

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>Arch Venture Fund VII LP</u>  (Last) (First) (Middle) 8725 WEST HIGGINS ROAD SUITE 290  (Street) CHICAGO IL 60631  (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>bluebird bio, Inc. [ BLUE ]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable)  Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below)
	3. Date of Earliest Transaction (Month/Day/Year) 06/24/2013	
	4. 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 Acquired, Disposed of, or Beneficially Owned**

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	06/24/2013		C		1,793,588 <sup>(1)</sup>	A	\$0.00	1,793,588	D <sup>(2)</sup>	

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

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)		8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				
Series C Convertible Preferred Stock	(2)	06/24/2013		C		19,971,242		(2)	(2)	Common Stock	1,052,946	(2)	0	D <sup>(2)</sup>	
Series D Convertible Preferred Stock	(3)	06/24/2013		C		14,047,762		(2)	(2)	Common Stock	740,642	(2)	0	D <sup>(2)</sup>	

1. Name and Address of Reporting Person\*  
Arch Venture Fund VII LP  
 (Last) (First) (Middle)  
 8725 WEST HIGGINS ROAD  
 SUITE 290  
 (Street)  
 CHICAGO IL 60631  
 (City) (State) (Zip)

1. Name and Address of Reporting Person\*  
ARCH Venture Partners VII, L.P.  
 (Last) (First) (Middle)  
 8725 WEST HIGGINS ROAD  
 SUITE 290  
 (Street)  
 CHICAGO IL 60631  
 (City) (State) (Zip)

1. Name and Address of Reporting Person\*  
ARCH Venture Partners VII, LLC  
 (Last) (First) (Middle)  
 8725 WEST HIGGINS ROAD

SUITE 290

(Street)  
CHICAGO IL 60631

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

BYBEE CLINTON

(Last) (First) (Middle)

8725 WEST HIGGINS ROAD  
SUITE 290

(Street)  
CHICAGO IL 60631

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

CRANDELL KEITH

(Last) (First) (Middle)

8725 WEST HIGGINS ROAD  
SUITE 290

(Street)  
CHICAGO IL 60631

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

NELSEN ROBERT

(Last) (First) (Middle)

8725 WEST HIGGINS ROAD  
SUITE 290

(Street)  
CHICAGO IL 60631

(City) (State) (Zip)

**Explanation of Responses:**

1. Represents the total number of shares received upon conversion of shares of the Issuer's Series C Convertible Preferred Stock (the "Series C Shares") and Series D Convertible Preferred Stock (the "Series D Shares" and together with the Series C Shares, collectively, the "Preferred Shares").
2. Beneficial ownership consists of 1,793,588 shares of Common Stock held by ARCH Venture Fund VII, L.P. ("ARCH Fund VII"). The sole general partner of ARCH Fund VII is ARCH Venture Partners VII, L.P. ("ARCH Partners VII"), which may be deemed to be the beneficial owner of the shares held by ARCH Fund VII. The sole general partner of ARCH Partners VII is ARCH Venture Partners VII, LLC ("ARCH VII LLC"), which may be deemed to be the beneficial owner of the shares held by ARCH Fund VII. ARCH Partners VII and ARCH VII LLC disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein. The managing directors of ARCH VII LLC are Keith Crandell, Clinton Bybee and Robert Nelsen, and they may be deemed to beneficially own the shares held by ARCH Fund VII. Messrs. Crandell, Bybee and Nelsen disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein.
3. Effective upon the closing of the Issuer's initial public offering of its Common Stock, each Preferred Share automatically converted at a ratio of 18.967-to-one into the number of shares of Common Stock shown in column 7. The Preferred Shares had no expiration date.

**Remarks:**

By: /s/ Mark McDonnell, as  
Attorney-in-Fact for Keith  
Crandell, Managing Director of 06/26/2013  
the general partner of the general  
partner of ARCH Fund VII

/s/ Mark McDonnell, as  
Attorney-in-fact for Keith  
Crandell, Managing Director of 06/24/2013  
the general partner of ARCH  
Partners VII

/s/ Mark McDonnell, as  
Attorney-in-Fact for Keith  
Crandell, Managing Director of 06/24/2013  
ARCH VII LLC

/s/ Mark McDonnell, as  
Attorney-in-Fact for Clinton 06/24/2013  
Bybee

/s/ Mark McDonnell, as Attorney-  
in-Fact for Keith Crandell 06/24/2013

/s/ Mark McDonnell, as  
Attorney-in-Fact for Robert 06/24/2013  
Nelsen

\*\* 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 4 (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.**