

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

OMB APPROVAL	
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1. Name and Address of Reporting Person* <u>Leschly Nick</u> (Last) (First) (Middle) C/O BLUEBIRD BIO, INC. 150 SECOND STREET (Street) CAMBRIDGE MA 02141 (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) <input checked="" type="checkbox"/> Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) President and CEO
	3. Date of Earliest Transaction (Month/Day/Year) 09/08/2015	
		6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input 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	09/08/2015		M		125,000	A	\$5.5004	371,521	D	
Common Stock	09/08/2015		S ⁽¹⁾		2,100	D	\$131.0064 ⁽²⁾	369,421	D	
Common Stock	09/08/2015		S ⁽¹⁾		8,300	D	\$131.7037 ⁽³⁾	361,121	D	
Common Stock	09/08/2015		S ⁽¹⁾		5,216	D	\$132.6365 ⁽⁴⁾	355,905	D	
Common Stock	09/08/2015		S ⁽¹⁾		12,241	D	\$133.9559 ⁽⁵⁾	343,664	D	
Common Stock	09/08/2015		S ⁽¹⁾		37,375	D	\$134.8592 ⁽⁶⁾	306,289	D	
Common Stock	09/08/2015		S ⁽¹⁾		22,610	D	\$135.752 ⁽⁷⁾	283,679	D	
Common Stock	09/08/2015		S ⁽¹⁾		25,758	D	\$136.8012 ⁽⁸⁾	257,921	D	
Common Stock	09/08/2015		S ⁽¹⁾		10,200	D	\$137.7611 ⁽⁹⁾	247,721	D	
Common Stock	09/08/2015		S ⁽¹⁾		1,200	D	\$138.53	246,521	D	
Common Stock								7,504	I	Nick Leschly 2001 Trust

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
Stock Option (right to buy)	\$5.5004	09/08/2015		M			125,000	(10)	01/16/2023	Common Stock	125,000	\$0.00	265,269	D	

Explanation of Responses:

- The sales reported in this Form 4 were effected pursuant to a Rule 10b5-1 trading plan adopted by the reporting person on June 30, 2015.
- The range of prices for the transaction reported on this line was \$130.14 to \$131.14. The average weighted price was \$131.0064. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$131.16 to \$132.12. The average weighted price was \$131.7037. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$132.31 to \$133.29. The average weighted price was \$132.6365. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$133.32 to \$134.32. The average weighted price was \$133.9559. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$134.33 to \$135.33. The average weighted price was \$134.8592. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$135.34 to \$136.30. The average weighted price was \$135.7520. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$136.35 to \$137.34. The average weighted price was \$136.8012. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- The range of prices for the transaction reported on this line was \$137.375 to \$138.185. The average weighted price was \$137.7611. The reporting person will provide, upon request by the SEC, the issuer or a

security holder of the issuer, full information regarding the number of shares sold at each separate price.

10. This option to purchase shares of our common stock granted on January 16, 2013 with performance-based vesting criteria that were met as of January 1, 2013. The shares underlying these options vested as follows: 25% vested on January 1, 2014, with the remainder of the shares vesting in equal monthly installments over the following three years.

Remarks:

/s/ Jason F. Cole, Attorney-in-Fact 09/10/2015

** 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.