FORM 4

## UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

TATEMENT	OF (	CHANGES	IN RE	ENFFICIA	I OWNERS	<b>HI</b>

l	OMB APPRO	IVAL
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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

Name and Address of Reporting Person*     KLEIN JOSEPH III										g Symbol CALS IN	<u>VC</u> [ 101			all applic	cable)	g Pers	son(s) to Iss 10% Ov Other (s	ner	
(Last) (First) (Middle) C/O IONIS PHARMACEUTICALS, INC. 2855 GAZELLE COURT				01/	3. Date of Earliest Transaction (Month/Day/Year) 01/16/2018									below)			below)		
(Street) CARLSBAD CA 92010				_   4. II _	Line) X Foi									Form f	or Joint/Group Filing (Check Applicable rm filed by One Reporting Person rm filed by More than One Reporting rson				
(City)	(Si		(Zip)																
			le I - No			_			·	, Di	sposed o			ally (				1.	
Date			Date	Transaction te onth/Day/Year)		2A. Deemed Execution Date, if any (Month/Day/Year)		3. Transaction Code (Instr. 8)		4. Securities Acquired (A) Disposed Of (D) (Instr. 3, 4			4 and 5) Secu Bene Own		es ially Following	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)		7. Nature of Indirect Beneficial Ownership	
									Code V		Amount	(A) or (D) Price			Reported Transaction (Instr. 3 and				Instr. 4)
Common Stock (				01/16	/2018	C	01/16/2018		M <sup>(1)</sup>		1,600(1)	A	\$35.	.53 11,		,539		D	
Common Stock 01/16				01/16	/2018	2018 01/10		/2018	S <sup>(1)</sup>		1,600(1)	D	\$52.1	<b>\$52.13</b> <sup>(2)</sup> 9		,939		D	
Common Stock 01/16				/2018	01/16/20		/2018	<b>M</b> <sup>(1)</sup>		1,400(1)	A	\$35.	53	11	1,339		D		
Common Stock 01/16/2				/2018	018 01/16/2018		S <sup>(1)</sup>		1,400(1)	D	\$52.9	52.97 <sup>(3)</sup> 9		,939		D			
Common Stock														100		I 1	By son		
		Т	able II								posed of converti				wned				
1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deer Executio if any (Month/E	n Date,	4. Transa Code (l 8)		on of		6. Date Exercis Expiration Date (Month/Day/Ye		ite	7. Title and Amount of Securities Underlying Derivative Secur (Instr. 3 and 4)		De Se (In	Price of rivative curity str. 5)	9. Number derivative Securities Beneficiall Owned Following Reported Transactio (Instr. 4)	ly	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
					Code	v	(A)		Date Exercisa	ble	Expiration Date	Title	Amount or Number of Shares						
Employee Stock Option (right to buy)	\$35.53	01/16/2018	01/16	/2018	М			3,000	07/01/20	)18	06/30/2024	Common Stock	3,000		\$0	9,000		D	

## Explanation of Responses:

- 1. Acquired as a result of exercising a stock option pursuant to Rule 10b5-1 Trading Plan. The purchase and sale reported on this Form 4 was effective pursuant to Rule 10b5-1 Trading Plan adopted by the reporting person on 10/11/2017.
- 2. The price reported in Column 4 is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$51.77 to \$52.581, inclusive. The reporting person undertakes to provide to Ionis Pharmaceuticals, Inc., any security holder of Ionis Pharmaceuticals, Inc. or the staff of the Securities and Exchange Commission, upon request, full information regarding the number of shares sold at each separate price within the ranges set forth in footnote (2) on this Form 4.
- 3. The price reported in Column 4 is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$52.80 to \$53.15, inclusive. The reporting person undertakes to provide to Ionis Pharmaceuticals, Inc., any security holder of Ionis Pharmaceuticals, Inc. or the staff of the Securities and Exchange Commission, upon request, full information regarding the number of shares sold at each separate price within the ranges set forth in footnote (3) on this Form 4.

## Remarks:

/s/B. Lynne Parshall, attorneyin-fact

01/17/2018

\*\* 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.