FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

	OIVID APPRO	VAL		
FICIAL OWNERSHIP	OMB Number:	3235-0287		
	Estimated average burden			
Exchange Act of 1934	hours per response:	0.5		
any Act of 1940				

X Section obligation	this box if no long 16. Form 4 or ions may continuition 1(b).	Form 5	STAT		pursua	nt to Section	n 16(a	a) of the S	ecurit	ies Exchar	nge Act of		ERSH	IP	Estim	Number ated ave per resp	rage burder	3235-0287 n 0.5
	nd Address of	Reporting Person* S L P/IL				er Name an ax Phan					x]			ationship of k all applical Director	ole)	g Person	10% Ov	wner
(Last) 1 SANSO 30TH FL	OME ST	First)	(Middle)		3. Date 06/18/	of Earliest 2018	Trans	action (Mo	onth/C	ay/Year)				Officer (g below)	ive title		Other (: below)	specify
(Street) SAN FRANCI	ISCO	A State)	94104 (Zip)		4. If Am	nendment, E	Date o	of Original	Filed	(Month/Da	y/Year)		6. Indi Line)		d by One	Repor	ting Persor	
	`		able I - Non	-Deriva	tive S	Securitie	s An	nuired	Dis	nosed (of or B	enefi	cially (Owned				
1. Title of S	Security (Inst			2. Transac Date (Month/Da	tion	2A. Deeme Execution if any (Month/Da	ed Date,	3. Transa Code (ction	4. Securi	ities Acqu d Of (D) (I	ired (A)	or	5. Amount Securities Beneficiall Owned Fo	y	Form:	Direct Indirect	7. Nature of Indirect Beneficial Ownership
								Code	v	Amount	(A (D) or	Price	Reported Transactio (Instr. 3 an				(Instr. 4)
Common	Stock, \$0.0	0001 par value p	er share ⁽¹⁾	06/18/2	2018			J ⁽⁵⁾		1,105,	391	D	(5)	498,0)25]) ⁽²⁾	
Common	Stock, \$0.0	0001 par value p	er share ⁽¹⁾	06/18/2	2018			J ⁽⁵⁾		705,8	63	D	(5)	318,0)21]	D (3)	
Common	Stock, \$0.0	0001 par value p	er share ⁽¹⁾	06/18/2	2018			J ⁽⁵⁾		188,7	'46	D	(5)	85,0	38]	O ⁽⁴⁾	
			Table II - I			curities Ills, warr								wned				
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/Yea	Code	action (Instr.	5. Number Derivative Securities Acquired (or Dispose (D) (Instr. 3 and 5)	(A) ed of	6. Date Exercisable and Expiration Date (Month/Day/Year) 7. Title and Securities U Derivative S (Instr. 3 and		es Unde re Secu	erlying	lying Derivative of Security (Instr. 5)		Securities Beneficially Dwned Following Reported		11. Natur of Indired Beneficia Ownersh (Instr. 4)		
				Code	v	(A)	(D)	Date Exercisal		Expiration Date	Title		ount or ober of res	or (Instr. 4)		nsaction(s) tr. 4)		
Warrants	(5)	06/18/2018		J ⁽⁵⁾		1,105,391		(5)		(5)	Common Stock, \$0.0001 par value per share	1,1	05,391	(5)	1,105,	,391	D ⁽²⁾	
Warrants	(5)	06/18/2018		J ⁽⁵⁾		705,863		(5)		(5)	Common Stock, \$0.0001 par value per share	70	5,863	(5)	705,8	363	D ⁽³⁾	
Warrants	(5)	06/18/2018		J ⁽⁵⁾		188,746		(5)		(5)	Common Stock, \$0.0001 par value per share	18	8,746	(5)	188,7	746	D ⁽⁴⁾	

Last)	(First)	(Middle)
I SANSOME ST		
BOTH FL		
Street)		
SAN FRANCISCO	CA	94104
City)	(State)	(Zip)
Name and Address of		
BIOTECHNOLO		
Name and Address of BIOTECHNOLO Last) SANSOME ST	OGY VALUI	E FUND L P

SAN FRANCISCO	CA	94104						
(City)	(State)	(Zip)						
1. Name and Address of Reporting Person* <u>BIOTECHNOLOGY VALUE FUND II LP</u>								
(Last) 1 SANSOME ST 30TH FL	(First)	(Middle)						
(Street) SAN FRANCISCO	CA	94104						
(City)	(State)	(Zip)						
Name and Address of Reporting Person* <u>Biotechnology Value Trading Fund OS LP</u>								
(Last) P.O. BOX 309 UGL	(First) AND HOUSE	(Middle)						
(Street) GRAND CAYMAN	E9	KY1-1104						
(City)	(State)	(Zip)						
1. Name and Address of Reporting Person* BVF Partners OS Ltd.								
(Last) P.O. BOX 309 UGL	(First) AND HOUSE	(Middle)						
(Street) GRAND CAYMAN	E9	KY1-1104						
(City)	(State)	(Zip)						
Name and Address of Reporting Person* BVF INC/IL								
(Last) 1 SANSOME ST 30TH FL	(First)	(Middle)						
(Street) SAN FRANCISCO	CA	94104						
(City)	(State)	(Zip)						
1. Name and Address of Reporting Person* LAMPERT MARK N								
(Last) 1 SANSOME ST 30TH FL	(First)	(Middle)						
(Street) SAN FRANCISCO	CA	94104						
(City)	(State)	(Zip)						

Explanation of Responses:

- 1. This Form 4 is filed jointly by Biotechnology Value Fund, L.P. ("BVF"), Biotechnology Value Fund II, L.P. ("BVF2"), Biotechnology Value Trading Fund OS LP ("Trading Fund OS"), BVF Partners OS Ltd. ("Partners OS"), BVF Partners L.P. ("Partners"), BVF Inc. and Mark N. Lampert (collectively, the "Reporting Persons"). Each of the Reporting Persons is a member of a Section 13(d) group that collectively owned more than 10% of the Issuer's outstanding shares of Common Stock. Each of the Reporting Persons disclaims beneficial ownership of the securities reported herein except to the extent of his or its pecuniary interest therein
- 2. Securities owned directly by BVF. As the general partner of BVF, Partners may be deemed to beneficially own the securities owned directly by BVF. As the investment adviser and general partner of Partners, BVF Inc. may be deemed to beneficially own the securities owned directly by BVF. As a director and officer of BVF Inc., Mr. Lampert may be deemed to beneficially own the securities owned directly by BVF.
- 3. Securities owned directly by BVF2. As the general partner of BVF2, Partners may be deemed to beneficially own the securities owned directly by BVF2. As the investment adviser and general partner of Partners, BVF Inc. may be deemed to beneficially own the securities owned directly by BVF2. As a director and officer of BVF Inc., Mr. Lampert may be deemed to beneficially own the securities owned directly by BVF2.
- 4. Securities owned directly by Trading Fund OS. As the general partner of Trading Fund OS, Partners OS may be deemed to beneficially own the securities owned directly by Trading Fund OS. As the investment manager of Trading Fund OS and the sole member of Partners oS, Partners may be deemed to beneficially own the securities owned directly by Trading Fund OS. As the investment adviser and general partner of Partners, BVF Inc., may be deemed to beneficially own the securities owned directly by Trading Fund OS. As a director and officer of BVF Inc., Mr. Lampert may be deemed to beneficially own the securities owned directly by Trading Fund OS.
- 5. Pursuant to an agreement between the Issuer and the Reporting Persons, the Reporting Persons agreed to exchange in the aggregate 2,000,000 shares of the Company's Common Stock for pre-funded warrants (the "Exchange Warrants") to purchase an aggregate of 2,000,000 shares of Common Stock, subject to adjustment in the event of stock splits, recapitalizations and other similar events affecting Common Stock, with an

BVF Partners L.P., By: BVF Inc., its general partner, By: /s/ 06/20/2018 Mark N. Lampert, President Biotechnology Value Fund, L.P., By: BVF Partners L.P., its 06/20/2018 general partner, By: BVF Inc., its general partner, By: /s/ Mark N. Lampert, President Biotechnology Value Fund II, L.P., By: BVF Partners L.P., its general partner, By: BVF Inc., 06/20/2018 its general partner, By: /s/ Mark N. Lampert, President BVF Partners OS Ltd., By: BVF Partners L.P., its sole member, 06/20/2018 By: BVF Inc., its general partner, By: /s/ Mark N. Lampert, President **Biotechnology Value Trading** Fund OS LP, By: BVF Partners L.P., its investment manager, 06/20/2018 BVF Inc., its general partner, By: /s/ Mark N. Lampert, **President** BVF Inc., By: /s/ Mark N. 06/20/2018 Lampert, President 06/20/2018 /s/ Mark N. Lampert ** 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.