

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13G
(Rule 13d-102)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT
TO RULES 13d-1(b), (c), AND (d) AND AMENDMENTS THERETO FILED
PURSUANT TO RULE 13d-2(b)

(Amendment No. 12)¹

Xenon Pharmaceuticals Inc.

(Name of Issuer)

Common Shares, no par value per share

(Title of Class of Securities)

98420N105

(CUSIP Number)

December 31, 2021

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
 Rule 13d-1(c)
 Rule 13d-1(d)

¹ The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the *Notes*).

1	NAME OF REPORTING PERSON Biotechnology Value Fund, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 2,295,557 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 2,295,557 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,295,557 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 4.4% (1)	
12	TYPE OF REPORTING PERSON PN	

(1) Includes 488,000 shares of Common Stock (defined in Item 2(d)) underlying certain shares of Series 1 Preferred (defined in Item 4).

1	NAME OF REPORTING PERSON BVF I GP LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 2,295,557 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 2,295,557 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,295,557 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 4.4% (1)	
12	TYPE OF REPORTING PERSON OO	

(1) Includes 488,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON Biotechnology Value Fund II, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 1,672,817 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 1,672,817 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,672,817 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 3.2% (1)	
12	TYPE OF REPORTING PERSON PN	

(1) Includes 383,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON BVF II GP LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 1,672,817 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 1,672,817 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,672,817 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 3.2% (1)	
12	TYPE OF REPORTING PERSON OO	

(1) Includes 383,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON Biotechnology Value Trading Fund OS LP	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Cayman Islands	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 256,181 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 256,181 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 256,181 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) Less than 1% (1)	
12	TYPE OF REPORTING PERSON PN	

(1) Includes 80,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON BVF Partners OS Ltd.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Cayman Islands	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 256,181 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 256,181 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 256,181 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) Less than 1% (1)	
12	TYPE OF REPORTING PERSON CO	

(1) Includes 80,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON BVF GP Holdings LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 3,968,374 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 3,968,374 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,968,374 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 7.6% (1)	
12	TYPE OF REPORTING PERSON OO	

(1) Includes 871,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON BVF Partners L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 4,305,540 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 4,305,540 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,305,540 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 8.2% (1)	
12	TYPE OF REPORTING PERSON PN, IA	

(1) Includes 1,016,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON BVF Inc.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 4,305,540 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 4,305,540 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,305,540 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 8.2% (1)	
12	TYPE OF REPORTING PERSON CO	

(1) Includes 1,016,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

1	NAME OF REPORTING PERSON Mark N. Lampert	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input checked="" type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION United States	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER - 0 -
	6	SHARED VOTING POWER 4,305,540 (1)
	7	SOLE DISPOSITIVE POWER - 0 -
	8	SHARED DISPOSITIVE POWER 4,305,540 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,305,540 (1)	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 8.2% (1)	
12	TYPE OF REPORTING PERSON IN	

(1) Includes 1,016,000 shares of Common Stock underlying certain shares of Series 1 Preferred.

EXPLANATORY NOTE

The following constitutes Amendment No. 12 to the Schedule 13G filed by the undersigned (“Amendment No. 12”). This Amendment No. 12 is being filed to correct certain beneficial ownership of the Reporting Persons as of December 31, 2021 provided on Amendment No. 11 to Schedule 13G.

Item 1(a). Name of Issuer:

Xenon Pharmaceuticals Inc. (the “Issuer”).

Item 1(b). Address of Issuer’s Principal Executive Offices:

200-3650 Gilmore Way
Burnaby, British Columbia
Canada V5G 4W8

Item 2(a). Name of Person Filing

Item 2(b). Address of Principal Business Office or, if None, Residence

Item 2(c). Citizenship

Biotechnology Value Fund, L.P. (“BVF”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

BVF I GP LLC (“BVF GP”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

Biotechnology Value Fund II, L.P. (“BVF2”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

BVF II GP LLC (“BVF2 GP”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

Biotechnology Value Trading Fund OS LP (“Trading Fund OS”)
PO Box 309 Uglan House
Grand Cayman, KY1-1104
Cayman Islands
Citizenship: Cayman Islands

BVF Partners OS Ltd. (“Partners OS”)
PO Box 309 Uglan House
Grand Cayman, KY1-1104
Cayman Islands
Citizenship: Cayman Islands

BVF GP Holdings LLC (“BVF GPH”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

BVF Partners L.P. (“Partners”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

BVF Inc.
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: Delaware

Mark N. Lampert (“Mr. Lampert”)
44 Montgomery St., 40th Floor
San Francisco, California 94104
Citizenship: United States

Each of the foregoing is referred to as a “Reporting Person” and collectively as the “Reporting Persons.”

Item 2(d). Title of Class of Securities:

Common Shares, no par value per share (the “Common Stock”)

Item 2(e). CUSIP Number:

98420N105

Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b), or 13d-2(b) or (c), Check Whether the Person Filing is a:

- | | | |
|-----|-------------------------------------|--|
| | <input checked="" type="checkbox"/> | Not applicable. |
| (a) | <input type="checkbox"/> | Broker or dealer registered under Section 15 of the Exchange Act. |
| (b) | <input type="checkbox"/> | Bank as defined in Section 3(a)(6) of the Exchange Act. |
| (c) | <input type="checkbox"/> | Insurance company as defined in Section 3(a)(19) of the Exchange Act. |
| (d) | <input type="checkbox"/> | Investment company registered under Section 8 of the Investment Company Act. |
| (e) | <input type="checkbox"/> | An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E). |
| (f) | <input type="checkbox"/> | An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F). |
| (g) | <input type="checkbox"/> | A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G). |
| (h) | <input type="checkbox"/> | A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act. |
| (i) | <input type="checkbox"/> | A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act. |
| (j) | <input type="checkbox"/> | Group, in accordance with Rule 13d-1(b)(1)(ii)(J). |
| (k) | <input type="checkbox"/> | Group, in accordance with Rule 240.13d-1(b)(1)(ii)(K). If filing as a non-U.S. institution in accordance with Rule 240.13d-1(b)(1)(ii)(J), please specify the type of institution: _____ |
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Item 4. Ownership

(a) Amount beneficially owned:

The Reporting Persons hold 1,016,000 shares of Series 1 Preferred Shares (the “Series 1 Preferred”) convertible for an aggregate of 1,016,000 shares of Common Stock. Each share of Series 1 Preferred is convertible into one share of Common Stock. The Series 1 Preferred may not be converted if, after such conversion, the Reporting Persons would beneficially own, as determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, in excess of 9.99% of the number of shares of Common Stock then issued and outstanding (the “Beneficial Ownership Limitation”). As of the close of business on December 31, 2021, the Beneficial Ownership Limitation does not limit the conversion of any of the Series 1 Preferred held by the Reporting Persons.

As of the close of business on December 31, 2021, (i) BVF beneficially owned 2,295,557 shares of Common Stock, including 488,000 shares of Common Stock underlying certain shares of Series 1 Preferred, (ii) BVF2 beneficially owned 1,672,817 shares of Common Stock, including 383,000 shares of Common Stock issuable upon the conversion of Series 1 Preferred, and (iii) Trading Fund OS beneficially owned 256,181 shares of Common Stock, including 80,000 shares of Common Stock issuable upon the conversion of Series 1 Preferred.

BVF GP, as the general partner of BVF, may be deemed to beneficially own the 2,295,557 shares of Common Stock beneficially owned by BVF.

BVF2 GP, as the general partner of BVF2, may be deemed to beneficially own the 1,672,817 shares of Common Stock beneficially owned by BVF2.

Partners OS, as the general partner of Trading Fund OS, may be deemed to beneficially own the 256,181 shares of Common Stock beneficially owned by Trading Fund OS.

BVF GPH, as the sole member of each of BVF GP and BVF2 GP, may be deemed to beneficially own the 3,968,374 shares of Common Stock beneficially owned in the aggregate by BVF and BVF2.

Partners, as the investment manager of BVF, BVF2 and Trading Fund OS, and the sole member of Partners OS, may be deemed to beneficially own the 4,305,540 shares of Common Stock beneficially owned in the aggregate by BVF, BVF2 and Trading Fund OS and held in a certain Partners managed account (the “Partners Managed Account”), including 80,985 shares of Common Stock held in the Partners Managed Account, which includes 65,000 shares of Common Stock issuable upon the conversion of Series 1 Preferred held in the Partners Managed Account.

BVF Inc., as the general partner of Partners, may be deemed to beneficially own the 4,305,540 shares of Common Stock beneficially owned by Partners.

Mr. Lampert, as a director and officer of BVF Inc., may be deemed to beneficially own the 4,305,540 shares of Common Stock beneficially owned by BVF Inc.

The foregoing should not be construed in and of itself as an admission by any Reporting Person as to beneficial ownership of any shares of Common Stock owned by another Reporting Person. BVF GP disclaims beneficial ownership of the shares of Common Stock beneficially owned by BVF. BVF2 GP disclaims beneficial ownership of the shares of Common Stock beneficially owned by BVF2. Partners OS disclaims beneficial ownership of the shares of Common Stock beneficially owned by Trading Fund OS. BVF GPH disclaims beneficial ownership of the shares of Common Stock beneficially owned by BVF and BVF2. Each of Partners, BVF Inc. and Mr. Lampert disclaims beneficial ownership of the shares of Common Stock beneficially owned by BVF, BVF2 and Trading Fund OS and held in the Partners Managed Account, and the filing of this statement shall not be construed as an admission that any such person or entity is the beneficial owner of any such securities.

(b) Percent of class:

The following percentages are based on a denominator that is the sum of (i) 51,589,279 shares of Common Stock outstanding as of November 8, 2021 as disclosed in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 10, 2021, and (ii) 1,016,000 Shares underlying certain Series 1 Preferred, as applicable.

As of the close of business on December 31, 2021, (i) BVF beneficially owned approximately 4.4% of the outstanding shares of Common Stock, (ii) BVF2 beneficially owned approximately 3.2% of the outstanding shares of Common Stock, (iii) Trading Fund OS beneficially owned less than 1% of the outstanding shares of Common Stock, (iv) BVF GP may be deemed to beneficially own approximately 4.4% of the outstanding shares of Common Stock, (v) BVF2 GP may be deemed to beneficially own approximately 3.2% of the outstanding shares of Common Stock, (vi) Partners OS may be deemed to beneficially own less than 1% of the outstanding shares of Common Stock, (vii) BVF GPH may be deemed to beneficially own approximately 7.6% of the outstanding shares of Common Stock and (viii) each of Partners, BVF Inc. and Mr. Lampert may be deemed to beneficially own approximately 8.2% of the outstanding shares of Common Stock (less than 1% of the outstanding shares of Common Stock are held in the Partners Managed Account).

(c) Number of shares as to which such person has:

(i) Sole power to vote or to direct the vote

See Cover Pages Items 5-9.

- (ii) Shared power to vote or to direct the vote
See Cover Pages Items 5-9.
- (iii) Sole power to dispose or to direct the disposition of
See Cover Pages Items 5-9.
- (iv) Shared power to dispose or to direct the disposition of
See Cover Pages Items 5-9.

Item 5. Ownership of Five Percent or Less of a Class.

Not Applicable.

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

BVF GPH, Partners, BVF Inc. and Mr. Lampert share voting and dispositive power over the shares of Common Stock beneficially owned by BVF and BVF2. Partners, BVF Inc. and Mr. Lampert share voting and dispositive power over the shares of Common Stock beneficially owned by Trading Fund OS and held in the Partners Managed Account.

Item 7. Identification and Classification of the Subsidiary That Acquired the Security Being Reported on by the Parent Holding Company or Control Person.

Not Applicable.

Item 8. Identification and Classification of Members of the Group.

See Exhibit 99.1 to Amendment No. 8 to the Schedule 13G filed with the Securities and Exchange Commission on February 14, 2020.

Item 9. Notice of Dissolution of Group.

Not Applicable.

Item 10. Certifications.

By signing below each of the undersigned certifies that, to the best of its knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

SIGNATURE

After reasonable inquiry and to the best of his knowledge and belief, each of the undersigned certifies that the information set forth in this statement is true, complete and correct.

Dated: March 18, 2022

BIOTECHNOLOGY VALUE FUND, L.P.

By: BVF I GP LLC., its general partner

By: /s/ Mark N. Lampert
Mark N. Lampert
Chief Executive Officer

BVF I GP LLC

By: /s/ Mark N. Lampert
Mark N. Lampert
Chief Executive Officer

BIOTECHNOLOGY VALUE FUND II, L.P.

By: BVF II GP LLC, its general partner

By: /s/ Mark N. Lampert
Mark N. Lampert
Chief Executive Officer

BVF II GP LLC

By: /s/ Mark N. Lampert
Mark N. Lampert
Chief Executive Officer

BVF PARTNERS OS LTD.

By: BVF Partners L.P., its sole member
By: BVF Inc., its general partner

By: /s/ Mark N. Lampert
Mark N. Lampert
President

BIOTECHNOLOGY VALUE TRADING FUND OS LP

By: BVF Partners L.P., its investment manager
By: BVF Inc., its general partner

By: /s/ Mark N. Lampert
Mark N. Lampert
President

BVF GP HOLDINGS LLC

By: /s/ Mark N. Lampert
Mark N. Lampert
Chief Executive Officer

BVF PARTNERS L.P.

By: BVF Inc., its general partner

By: /s/ Mark N. Lampert
Mark N. Lampert
President

BVF INC.

By: /s/ Mark N. Lampert
Mark N. Lampert
President

/s/ Mark N. Lampert
MARK N. LAMPERT