

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

SCHEDULE 13D
(Rule 13d-101)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT
TO § 240.13d-1(a) AND AMENDMENTS THERETO FILED PURSUANT TO
§ 240.13d-2(a)

(Amendment No.)¹

Five Prime Therapeutics, Inc.
(Name of Issuer)

Common Stock, par value \$0.001
(Title of Class of Securities)

33830X104
(CUSIP Number)

JAMES KRATKY
BVF PARTNERS L.P.
44 Montgomery St., 40th Floor
San Francisco, California 94104
(415) 525-8890

ADAM W. FINERMAN, ESQ.
OLSHAN FROME WOLOSKY LLP
1325 Avenue of the Americas
New York, New York 10019
(212) 451-2300

(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)

December 20, 2019
(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box .

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See § 240.13d-7 for other parties to whom copies are to be sent.

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	SOURCE OF FUNDS WC	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 3,929,792
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 3,929,792
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,929,792	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 10.8%	
14	TYPE OF REPORTING PERSON PN	

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	SOURCE OF FUNDS WC	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 3,078,989
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 3,078,989
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,078,989	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 8.5%	
14	TYPE OF REPORTING PERSON PN	

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	SOURCE OF FUNDS WC	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION CAYMAN ISLANDS	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 536,608
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 536,608
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 536,608	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 1.5%	
14	TYPE OF REPORTING PERSON PN	

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	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION CAYMAN ISLANDS	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 536,608
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 536,608
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 536,608	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 1.5%	
14	TYPE OF REPORTING PERSON CO	

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	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 7,783,001
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 7,783,001
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 7,783,001	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 21.4%	
14	TYPE OF REPORTING PERSON PN, IA	

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	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 7,783,001
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 7,783,001
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 7,783,001	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 21.4%	
14	TYPE OF REPORTING PERSON CO	

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	SOURCE OF FUNDS AF	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION USA	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER - 0 -
	8	SHARED VOTING POWER 7,783,001
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 7,783,001
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 7,783,001	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 21.4%	
14	TYPE OF REPORTING PERSON IN	

The following constitutes the Schedule 13D filed by the undersigned (the "Schedule 13D").

Item 1. Security and Issuer.

This statement relates to shares of the Common Stock, \$0.001 par value (the "Shares"), of Five Prime Therapeutics, Inc., a Delaware corporation (the "Issuer"). The address of the principal executive offices of the Issuer is 111 Oyster Point Boulevard, South San Francisco, California 94080.

Item 2. Identity and Background.

(a) This statement is filed by:

- (i) Biotechnology Value Fund, L.P., a Delaware limited partnership ("BVF");
- (ii) Biotechnology Value Fund II, L.P., a Delaware limited partnership ("BVF2");
- (iii) Biotechnology Value Trading Fund OS LP, a Cayman Islands limited partnership ("Trading Fund OS");
- (iv) BVF Partners OS Ltd., a Cayman Islands limited liability company ("Partners OS"), which serves as general partner of Trading Fund OS;
- (v) BVF Partners L.P., a Delaware limited partnership ("Partners"), which serves as the general partner of each of BVF and BVF2, the investment manager of Trading Fund OS, the sole member of Partners OS, and the investment manager of a certain managed account (the "Partners Managed Account");
- (vi) BVF Inc., a Delaware corporation, which serves as the general partner of Partners; and
- (vii) Mark N. Lampert, who serves as the sole officer and director of BVF Inc.

Each of the foregoing is referred to as a "Reporting Person" and collectively as the "Reporting Persons." Each of the Reporting Persons is party to that certain Joint Filing Agreement, as further described in Item 6. Accordingly, the Reporting Persons are hereby filing a joint Schedule 13D.

(b) The business address of BVF, BVF2, Partners, BVF Inc. and Mr. Lampert is 44 Montgomery St., 40th Floor, San Francisco, California. The business address of Trading Fund OS and Partners OS is PO Box 309 Uglan House, Grand Cayman, KY1-1104, Cayman Islands.

(c) The principal business of each of BVF, BVF2, and Trading Fund OS is investing in securities. The principal business of Partners OS is serving as the general partner of Trading Fund OS. The principal business of Partners is serving as the general partner of each of BVF and BVF2, the investment manager of Trading Fund OS, the sole member of Partners OS, and the investment manager of the Partners Managed Account. The principal business of BVF Inc. is serving as the general partner of Partners. The principal business of Mr. Lampert is serving as the sole officer and director of BVF Inc.

(d) No Reporting Person has, during the last five years, been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) No Reporting Person has, during the last five years, been party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) Mr. Lampert is a citizen of the United States of America.

Item 3. Source and Amount of Funds or Other Consideration.

The Shares purchased by BVF, BVF2 and Trading Fund OS were purchased with working capital (which may, at any given time, include margin loans made by brokerage firms in the ordinary course of business) in open market purchases, except as otherwise noted. The aggregate purchase price of the 3,929,792 Shares beneficially owned by BVF is approximately \$28,732,732, including brokerage commissions. The aggregate purchase price of the 3,078,989 Shares beneficially owned by BVF2 is approximately \$23,136,405, including brokerage commissions. The aggregate purchase price of the 536,608 Shares beneficially owned by Trading Fund OS is approximately \$4,095,032, including brokerage commissions. The aggregate purchase price of the 237,612 Shares held in the Partners Managed Account is approximately \$1,804,721, including brokerage commissions.

Item 4. Purpose of Transaction.

The Reporting Persons purchased the Shares based on the Reporting Persons' belief that the Shares, when purchased, were undervalued and represented an attractive investment opportunity. Depending upon overall market conditions, other investment opportunities available to the Reporting Persons, and the availability of Shares at prices that would make the purchase or sale of Shares desirable, the Reporting Persons may endeavor to increase or decrease their position in the Issuer through, among other things, the purchase or sale of Shares on the open market or in private transactions or otherwise, on such terms and at such times as the Reporting Persons may deem advisable.

No Reporting Person has any present plan or proposal which would relate to or result in any of the matters set forth in subparagraphs (a) - (j) of Item 4 of Schedule 13D except as set forth herein or such as would occur upon or in connection with completion of, or following, any of the actions discussed herein. The Reporting Persons intend to review their investment in the Issuer on a continuing basis. Depending on various factors including, without limitation, the Issuer's financial position and investment strategy, the price levels of the Shares, conditions in the securities markets and general economic and industry conditions, the Reporting Persons may in the future take such actions with respect to their investment in the Issuer as they deem appropriate including, without limitation, engaging in communications with management and the Board of the Issuer, engaging in discussions with stockholders of the Issuer and others about the Issuer and the Reporting Persons' investment, making proposals to the Issuer concerning changes to the capitalization, ownership structure, board structure (including board composition) or operations of the Issuer, purchasing additional Shares, selling some or all of their Shares, engaging in short selling of or any hedging or similar transaction with respect to the Shares, or changing their intention with respect to any and all matters referred to in Item 4.

Item 5. Interest in Securities of the Issuer.

(a) The aggregate percentage of Shares reported owned by each person named herein is based on 36,391,851 Shares outstanding as of November 5, 2019, as disclosed in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 6, 2019.

As of the close of business on December 26, 2019, (i) BVF beneficially owned 3,929,792 Shares, representing percentage ownership of approximately 10.8% of the Shares outstanding, (ii) BVF2 beneficially owned 3,078,989 Shares, representing percentage ownership of approximately 8.5% of the Shares outstanding, (iii) Trading Fund OS beneficially owned 536,608 Shares, representing percentage ownership of approximately 1.5% of the Shares outstanding, and (iv) 237,612 Shares were held in the Partners Managed Account, representing percentage ownership of less than 1% of the Shares outstanding.

Partners OS, as the general partner of Trading Fund OS, may be deemed to beneficially own the 536,608 Shares beneficially owned by Trading Fund OS, representing percentage ownership of approximately 1.5% of the Shares outstanding.

Partners, as the general partner of BVF and BVF2, the sole member of Partners OS, and the investment manager of Trading Fund OS and the Partners Managed Account, may be deemed to beneficially own the 7,783,001 Shares beneficially owned in the aggregate by BVF, BVF2, Trading Fund OS, and the Partners Managed Account, representing percentage ownership of approximately 21.4% of the Shares outstanding.

BVF Inc., as the general partner of Partners, may be deemed to beneficially own the 7,783,001 Shares beneficially owned by Partners, representing percentage ownership of approximately 21.4% of the Shares outstanding.

Mr. Lampert, as a director and officer of BVF Inc. may be deemed to beneficially own the 7,783,001 Shares beneficially owned by BVF Inc., representing percentage ownership of approximately 21.4% of the Shares outstanding.

(b) Each of BVF, BVF2, and Trading Fund OS, shares with Partners voting and dispositive power over the Shares each such entity beneficially owns. Trading Fund OS, shares with Partners OS, voting and dispositive power over the Shares beneficially owned by Trading Fund OS. Partners, BVF Inc. and Mr. Lampert share voting and dispositive power over the 7,783,001 Shares they may be deemed to beneficially own with BVF, BVF2, Trading Fund OS, Partners OS and the Partners Managed Account.

(c) Schedule A annexed hereto lists all transactions in securities of the Issuer during the past sixty days by the Reporting Persons. All of such transactions were effected in the open market, except as otherwise noted.

(d) No person other than the Reporting Persons is known to have the right to receive, or the power to direct the receipt of dividends from, or proceeds from the sale of, the Shares.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.

On December 26, 2019, the Reporting Persons entered into a Joint Filing Agreement in which the Reporting Persons agreed to the joint filing on behalf of each of them of statements on Schedule 13D, with respect to securities of the Issuer, to the extent required by applicable law. A copy of this agreement is attached hereto as Exhibit 99.1 hereto and is incorporated herein by reference.

Partners is the general partner of each of BVF and BVF2 pursuant to limited partnership agreements which authorize Partners, among other things, to invest the funds of BVF and BVF2 in the Shares and other securities and to vote, exercise or convert and dispose of such securities. Pursuant to such limited partnership agreements, Partners is entitled to receive fees based on assets under management and allocations based on realized and unrealized gains on such assets.

Partners is the sole member of Partners OS and the investment manager of Trading Fund OS, pursuant to an investment management agreement which authorizes Partners, among other things, to invest the funds of Trading Fund OS in the Shares and other securities and to vote, exercise or convert and dispose of such securities. Pursuant to such investment management agreement, Partners is entitled to receive fees based on assets under management and allocations based on realized and unrealized gains on such assets.

Pursuant to investment management agreements with certain of the Partners Managed Account, Partners and BVF Inc. have authority, among other things, to invest funds of certain of the Partners Managed Account in the Shares and other securities and to vote, exercise or convert and dispose of such securities. Pursuant to such investment management agreements, Partners and BVF Inc. receive fees based on realized and unrealized gains thereon.

Other than as described herein, there are no contracts, arrangements, understandings or relationships among the Reporting Persons, or between the Reporting Persons and any other person, with respect to the securities of the Issuer.

Item 7. Material to be Filed as Exhibits

- 99.1 Joint Filing Agreement by and among Biotechnology Value Fund, L.P., Biotechnology Value Fund II, L.P., Biotechnology Value Trading Fund OS LP, BVF Partners OS Ltd., BVF Partners L.P., BVF Inc. and Mark N. Lampert, dated December 26, 2019.

SIGNATURES

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: December 26, 2019

BIOTECHNOLOGY VALUE FUND, L.P.

By: BVF Partners L.P., its general partner
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

BIOTECHNOLOGY VALUE FUND II, L.P.

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

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

BVF PARTNERS L.P.

By: BVF Inc., its general partner

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

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

SCHEDULE A**Transactions in the Securities of the Issuer During the Past Sixty Days**

<u>Class of Security</u>	<u>Securities Purchased / (Sold)</u>	<u>Price (\$)</u>	<u>Date of Purchase / Sale</u>
<u>BIOTECHNOLOGY VALUE FUND, L.P.</u>			
Common Stock	1,027	3.8970	10/29/2019
Common Stock	10,389	3.8920	10/30/2019
Common Stock	3,416	3.8500	10/31/2019
Common Stock	496,721	4.0000	11/05/2019
Common Stock	576,097	3.4000	11/22/2019
Common Stock	113,874	4.0180	12/09/2019
Common Stock	281,318	4.0500	12/20/2019
<u>BIOTECHNOLOGY VALUE FUND II, L.P.</u>			
Common Stock	1,133	3.8970	10/29/2019
Common Stock	8,236	3.8920	10/30/2019
Common Stock	2,913	3.8500	10/31/2019
Common Stock	400,470	4.0000	11/05/2019
Common Stock	462,056	3.4000	11/22/2019
Common Stock	18,729	4.0180	12/09/2019
Common Stock	201,096	4.0500	12/20/2019
<u>BIOTECHNOLOGY VALUE TRADING FUND OS LP</u>			
Common Stock	240	3.8970	10/29/2019
Common Stock	1,456	3.8920	10/30/2019
Common Stock	504	3.8500	10/31/2019
Common Stock	70,921	4.0000	11/05/2019
Common Stock	81,857	3.4000	11/22/2019
Common Stock	2,397	4.0180	12/09/2019
Common Stock	32,606	4.0500	12/20/2019
<u>BVF Partners L.P.</u>			
<u>(Through the BVF Partners L.P. Managed Account)</u>			
Common Stock	889	3.8920	10/30/2019
Common Stock	31,888	4.0000	11/05/2019
Common Stock	40,872	3.4000	11/22/2019
Common Stock	4,980	4.0500	12/20/2019

JOINT FILING AGREEMENT

In accordance with Rule 13d-1(k)(1)(iii) under the Securities Exchange Act of 1934, as amended, the persons named below agree to the joint filing on behalf of each of them of a Statement on Schedule 13D dated December 26, 2019 (including amendments thereto) with respect to the shares of Common Stock, \$0.001 par value per share, of Five Prime Therapeutics, Inc., a Delaware corporation. This Joint Filing Agreement shall be filed as an Exhibit to such Statement.

Dated: December 26, 2019

BIOTECHNOLOGY VALUE FUND, L.P.

By: BVF Partners L.P., its general partner
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

BIOTECHNOLOGY VALUE FUND II, L.P.

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

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

BVF PARTNERS L.P.

By: BVF Inc., its general partner

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

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