

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. 3)¹

Infinity Pharmaceuticals, Inc.
(Name of Issuer)

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

45665G303
(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)

January 8, 2020
(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 8,485,575
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 8,485,575
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 8,485,575	
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) 14.9%	
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 6,631,136
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 6,631,136
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 6,631,136	
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) 11.6%	
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 1,254,993
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 1,254,993
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,254,993	
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) 2.2%	
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 1,254,993
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 1,254,993
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,254,993	
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) 2.2%	
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 17,426,968
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 17,426,968
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 17,426,968	
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) 30.6%	
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 17,426,968
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 17,426,968
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 17,426,968	
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) 30.6%	
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 17,426,968
	9	SOLE DISPOSITIVE POWER - 0 -
	10	SHARED DISPOSITIVE POWER 17,426,968
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 17,426,968	
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) 30.6%	
14	TYPE OF REPORTING PERSON IN	

The following constitutes Amendment No. 3 to the Schedule 13D filed by the undersigned (“Amendment No. 3”). This Amendment No. 3 amends the Schedule 13D as specifically set forth herein.

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

Item 3 is hereby amended and restated to read as follows:

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 8,485,575 Shares beneficially owned by BVF is approximately \$12,612,545, including brokerage commissions. The aggregate purchase price of the 6,631,136 Shares beneficially owned by BVF2 is approximately \$9,791,293, including brokerage commissions. The aggregate purchase price of the 1,254,993 Shares beneficially owned by Trading Fund OS is approximately \$1,867,561, including brokerage commissions. The aggregate purchase price of the 1,055,264 Shares held in the Partners Managed Account is approximately \$1,444,335, including brokerage commissions.

Item 4. Purpose of Transaction.

Item 4 is hereby amended to add the following:

On January 8, 2020 (the “Closing Date”), the Issuer entered into a funding agreement (the “Funding Agreement”) with Partners and Royalty Security, LLC, a wholly owned subsidiary of Partners, (the “Buyer”) providing for the acquisition by the Buyer of the Issuer’s interest in all royalty payments based on worldwide annual net sales of the compound known as IPI-926, or patidegib (such compound known as the “Licensed Product”) less those royalty payments owed by the Issuer to third parties including Purdue Pharmaceutical Products L.P. (“Purdue”) and Mundipharma International Corporation Limited (“MICL”) (“Third Party Royalty Obligations”) (all royalty payments less Third Party Royalty Obligations, “Royalty”). Such royalties are owed to the Issuer pursuant to that certain License Agreement dated as of June 28, 2013 (as modified, amended, replaced or restated from time to time, the “License Agreement”) by and between the Issuer and PellePharm, Inc. (“PellePharm”).

Pursuant to the Funding Agreement, the Issuer received \$20 million (the “Upfront Purchase Price”) less certain transaction expenses. The Issuer transferred to the Buyer (i) the Royalty, (ii) the License Agreement (subject to the Issuer’s rights to milestone payments and rights to equity in PellePharm under the License Agreement), and (iii) certain patent rights established in the Funding Agreement, with (i), (ii), and (iii) together referred to as “Transferred Assets.” The Issuer preserved its rights under the License Agreement to receive shares of common stock issued by PellePharm, subject to the terms and conditions set forth in the License Agreement.

In addition to the Upfront Purchase Price, the Issuer will also be entitled to receive a \$5 million milestone payment from the Buyer if PellePharm’s ongoing Phase 3 clinical trial of patidegib topical gel (i) has met its primary endpoint, or (ii) is positively concluded (on the basis of efficacy) at the interim analysis as determined by an independent monitoring committee (the “Milestone Payment”).

Pursuant to the Funding Agreement, within 30 days of the Closing Date, the Issuer and Buyer are required to execute and deliver an escrow agreement under which the parties will establish an escrow account (the “Escrow Account”) to be managed by an escrow agent chosen by mutual agreement of the parties (the “Escrow Agent”). All amounts owed by PellePharm to the Issuer under the License Agreement are required to be deposited into the Escrow Account. Amounts paid into the Escrow Account by PellePharm that correspond to Royalties will be paid by the Escrow Agent to the Buyer. Amounts paid into the Escrow Account by PellePharm that do not correspond to Royalties, including Third Party Royalty Obligations and milestone amounts payable by PellePharm under the License Agreement, will be paid by the Escrow Agent to the Issuer. The Issuer will not be independently obligated for the Royalties owed to Buyer under the License Agreement and has no liability for non-payment of the Royalties under the License Agreement as a result of the insolvency, bankruptcy, inability to pay, or other credit event of PellePharm.

Issuer's Option to Repurchase

If the Shares achieve a 20-day volume-weighted average price on the Nasdaq Global Select Market equal to or greater than \$5.00 per share (adjusted for any stock splits, reverse splits, or similar arrangements) (the "Purchase Threshold"), the Issuer has an option to purchase from Partners 100% of the outstanding equity interests of the Buyer, whose sole assets are expected to be Transferred Assets (the "Option") upon or after any time at which the Purchase Threshold has been achieved. To exercise the Option, the Issuer must deliver to Partners (a) notice (the "Option Notice," with the date on which delivery of the Option Notice is given, the "Option Notice Date") of its election to do so prior to the earliest to occur of: (i) the occurrence of certain trigger events identified in the Funding Agreement, including a material failure of the Issuer to perform certain covenants, a failure by the Issuer to cause the Funding Agreement and related agreements to remain in full force and effect, a deficiency in any security interest purported to be created by the Funding Agreement resulting from an act or omission of the Issuer, or another insolvency event of the Issuer (upon the expiration of any applicable cure period) (each, an "Issuer Trigger Event"), (ii) the third anniversary of the Closing Date, or (iii) the date immediately prior to a change of control of the Issuer (together, the "Option Expiration Date"), and (b) within ten (10) business days after the Option Notice is deemed delivered to Partners (the "Repurchase Date"), an amount equal to the Upfront Purchase Price plus the Milestone Payment, if and when paid to the Issuer, plus the Option Premium, defined below, less the aggregate amount of all Royalty payments received by Buyer as of the Option Exercise Date. The exercise of the Option may only occur if the Shares maintain a 20-day volume-weighted average price on Nasdaq of \$5.00 per share (adjusted for any stock splits, reverse splits, or similar arrangements) on each trading day between the Option Notice Date and the Repurchase Date "Option Premium" means an amount accruing daily on (x) the Upfront Purchase Price plus the Milestone Payment, if and when paid to Issuer as of such day, less (y) the aggregate amount of all Royalty payments received by Buyer as of such day, at a rate of 10% per annum, compounded quarterly. For purposes of calculating the Option Premium, in the event of an Issuer Trigger Event, the rate of accrual following the occurrence of such Issuer Trigger Event shall be increased to 20% per annum.

Potential Future Warrants

As part of the consideration to Partners for providing the funding under the Funding Agreement, the Issuer agreed to issue warrants in the future to Partners if the Issuer issued and sold Shares to third parties above a specified threshold and below a specified price.

The Funding Agreement provides that, for so long as the Issuer has not exercised its Option, (a) if, during the 36-month period following the Closing Date, the Issuer issues and sells in the aggregate more than 8,554,345 Shares (including options, warrants, convertible stock, convertible debt and other common-stock equivalents) (the "Warrant Threshold"), and (b) any shares are issued in excess of the Warrant Threshold with consideration to the Issuer of less than \$3.75 per share (as adjusted for any stock splits, reverse stock splits or other similar recapitalization events) (the "Threshold Price"), then the Issuer shall be obligated to issue to Partners warrants to purchase a number of Shares equal to 50% of the number of Shares issued and sold by the Issuer in excess of the Warrant Threshold, with any such Warrants having an exercise price equal to 1.5 times the price per share of such shares issued in excess of the Warrant Threshold.

Certain issuances of Shares are excluded from the calculation of the Warrant Threshold, including the grant, exercise, or vesting of options or awards granted pursuant to the Issuer's stock incentive plans or stock purchase plans. Once the Warrant Threshold has been met, the requirement to issue warrants does not apply to certain issuances of Shares, including the grant, exercise, or vesting of options or awards granted pursuant to the Issuer's stock incentive plans or stock purchase plans and, subject to certain limitations, the issuance of Shares in connection with a transaction with an unaffiliated third party that includes a debt financing or a bona fide commercial relationship or any acquisition of assets, merger with, or acquisition of another entity.

Servicing Requirements

The Issuer, on behalf of the Buyer, will perform certain servicing, management and administrative functions with respect to the Transferred Assets, subject to standards set forth in the Funding Agreement. The Issuer may resign as Servicer, and the Buyer may, under certain conditions, remove the Issuer as servicer and retain a replacement third-party servicer. The Issuer will be paid by the Buyer a servicing fee equal to \$1,000 per year in arrears.

Additional Customary Terms

The Funding Agreement contains other customary terms and conditions, including representations and warranties, conditions precedent, indemnities and covenants, including covenants that, among other things, require the Issuer to provide certain information to the Buyer with respect to the License Agreement and the Licensed Product and to cooperate with the Buyer, at the Buyer's expense, to take certain actions under the License Agreement and otherwise with respect to the Licensed Product to protect the Buyer's rights to receive the Royalty payments. These covenants are subject to a number of important exceptions and qualifications.

In addition to exercise of the Option, the Funding Agreement may be terminated by mutual written agreement of the Issuer and the Buyer.

The foregoing description of the Funding Agreement is qualified in its entirety by reference to the Funding Agreement, which the Issuer intends to file as an exhibit to the Issuer's Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Item 5. Interest in Securities of the Issuer.

Items 5(a) – (c) are hereby amended and restated to read as follows:

(a) The aggregate percentage of Shares reported owned by each person named herein is based on 57,028,970 Shares outstanding as of October 21, 2019, as disclosed in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on October 30, 2019.

As of the close of business on January 10, 2020, (i) BVF beneficially owned 8,485,575 Shares, representing percentage ownership of approximately 14.9% of the Shares outstanding, (ii) BVF2 beneficially owned 6,631,136 Shares, representing percentage ownership of approximately 11.6% of the Shares outstanding, (iii) Trading Fund OS beneficially owned 1,254,993 Shares, representing percentage ownership of approximately 2.2% of the Shares outstanding and (iv) 1,055,264 Shares were held in the Partners Managed Account, representing percentage ownership of approximately 1.9% of the Shares outstanding.

Partners OS, as the general partner of Trading Fund OS, may be deemed to beneficially own the 1,254,993 Shares beneficially owned by Trading Fund OS, representing percentage ownership of approximately 2.2% 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 17,426,968 Shares beneficially owned in the aggregate by BVF, BVF2, Trading Fund OS, and the Partners Managed Account, representing percentage ownership of approximately 30.6% of the Shares outstanding.

BVF Inc., as the general partner of Partners, may be deemed to beneficially own the 17,426,968 Shares beneficially owned by Partners, representing percentage ownership of approximately 30.6% of the Shares outstanding.

Mr. Lampert, as a director and officer of BVF Inc. may be deemed to beneficially own the 17,426,968 Shares beneficially owned by BVF Inc., representing percentage ownership of approximately 30.6% 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 17,426,968 Shares they may be deemed to beneficially own with BVF, BVF2, Trading Fund OS, Partners OS and the Partners Managed Account.

(c) The Reporting Persons have not entered into any transactions in the Shares during the past sixty days.

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

Item 6 is hereby amended to add the following:

As described in Item 4 above, Partners, the Buyer and the Issuer entered into the Funding Agreement, which the Issuer intends to file as an exhibit to the Issuer's Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Item 7. Material to be Filed as Exhibits

Item 7 is hereby amended to add the following exhibit:

99.1 The Funding Agreement, dated January 8, 2020 (which the Issuer intends to file as an exhibit to the Issuer's Annual Report on Form 10-K for the fiscal year ended December 31, 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: January 10, 2020

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