

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. 2)¹

Molecular Templates, Inc.
(Name of Issuer)

Common stock, par value \$0.001 per share
(Title of Class of Securities)

608550109
(CUSIP Number)

December 31, 2019
(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 shares
	6	SHARED VOTING POWER 1,827,309 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 1,827,309 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,827,309 (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) 4.2% (1)	
12	TYPE OF REPORTING PERSON PN	

(1) Includes 128,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred (defined in Item 4). Excludes 168,508 shares of Common Stock underlying the Warrants (defined in Item 4) that are not exercisable due to the Beneficial Ownership Limitation (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 shares
	6	SHARED VOTING POWER 1,827,309 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 1,827,309 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,827,309 (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) 4.2% (1)	
12	TYPE OF REPORTING PERSON OO	

(1) Includes 128,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 168,508 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 1,434,270 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 1,434,270 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,434,270 (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) 3.3% (1)	
12	TYPE OF REPORTING PERSON PN	

(1) Includes 104,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 108,536 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 1,434,270 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 1,434,270 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,434,270 (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) 3.3% (1)	
12	TYPE OF REPORTING PERSON OO	

(1) Includes 104,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 108,536 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 246,246 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 246,246 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 246,246 (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 18,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 30,190 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 246,246 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 246,246 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 246,246 (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 18,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 30,190 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 3,261,579 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 3,261,579 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,261,579 (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) 7.4% (1)	
12	TYPE OF REPORTING PERSON OO	

(1) Includes 232,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 277,044 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 3,608,332 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 3,608,332 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,608,332 (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 250,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 362,064 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 3,608,332 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 3,608,332 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,608,332 (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 250,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 362,064 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

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 shares
	6	SHARED VOTING POWER 3,608,332 (1)
	7	SOLE DISPOSITIVE POWER 0 shares
	8	SHARED DISPOSITIVE POWER 3,608,332 (1)
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,608,332 (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 250,000 shares of Common Stock currently issuable upon the conversion of certain Series A Convertible Preferred. Excludes 362,064 shares of Common Stock underlying the Warrants that are not exercisable due to the Beneficial Ownership Limitation.

Item 1(a). Name of Issuer:
Molecular Templates, Inc., a Delaware corporation (the "Issuer").

Item 1(b). Address of Issuer's Principal Executive Offices:
9301 Amberglen Blvd., Suite 100
Austin, Texas 78729

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 stock, \$0.001 par value per share (the “Common Stock”)

Item 2(e). CUSIP Number:

608550109

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: _____ |

Item 4. Ownership

(a) Amount beneficially owned:

As of the close of business on December 31, 2019, the Reporting Persons held 250 shares of Series A Convertible Preferred Stock (the "Series A Convertible Preferred") convertible for an aggregate of 250,000 shares of Common Stock. The Series A Convertible 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 (the "Exchange Act"), more than 9.99% of the number of shares of Common Stock then issued and outstanding (the "Series A Blocker"). As of the close of business on December 31, 2019, the Series A Blocker does not limit the conversion of the Series A Convertible Preferred owned by the Reporting Persons.

As of the close of business on December 31, 2019, the Reporting Persons held 362,064 warrants, exercisable for an aggregate of 362,064 shares of Common Stock (the "Warrants"). The Warrants have an exercise price of \$6.8423 per share and expire on August 1, 2024. The Warrants are only exercisable to the extent that the holder, together with its affiliates and any other person or entity acting as a group, would not beneficially own more than 4.99% of the outstanding shares of Common Stock after giving effect to such exercise, as such percentage ownership is determined in accordance with the terms of the Warrants (the "Beneficial Ownership Limitation"). As of December 31, 2019, the Beneficial Ownership Limitation limits the aggregate exercise of the Warrants by the Reporting Persons to zero out of the 362,064 shares of Common Stock underlying the Warrants owned by the Reporting Persons in the aggregate. BVF holds Warrants to purchase 168,508 additional shares of Common Stock which are excluded herein as a result of the Beneficial Ownership Limitation. BVF2 holds Warrants to purchase 108,536 additional shares of Common Stock which are excluded herein as a result of the Beneficial Ownership Limitation. Trading Fund OS holds Warrants to purchase 30,190 additional shares of Common Stock which are excluded herein as a result of the Beneficial Ownership Limitation. The Reporting Persons through certain Partners managed accounts (the "Partners Managed Accounts") hold Warrants to purchase 54,830 additional shares of Common Stock which are excluded herein as a result of the Beneficial Ownership Limitation.

As of the close of business on December 31, 2019, (i) BVF beneficially owned 1,827,309 shares of Common Stock, including 128,000 shares of Common Stock issuable upon the conversion of certain Series A Convertible Preferred, (ii) BVF2 beneficially owned 1,434,270 shares of Common Stock, including 104,000 shares of Common Stock issuable upon the conversion of certain Series A Convertible Preferred, and (iii) Trading Fund OS beneficially owned 246,246 shares of Common Stock, including 18,000 shares of Common Stock issuable upon the conversion of certain Series A Convertible Preferred.

BVF GP, as the general partner of BVF, may be deemed to beneficially own the 1,827,309 shares of Common Stock beneficially owned by BVF.

BVF2 GP, as the general partner of BVF2, may be deemed to beneficially own the 1,434,270 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 246,246 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 3,261,579 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 3,608,322 shares of Common Stock beneficially owned in the aggregate by BVF, BVF2, Trading Fund OS, and the Partners Managed Accounts, including 100,507 shares of Common Stock held in the Partners Managed Accounts.

BVF Inc., as the general partner of Partners, may be deemed to beneficially own the 3,608,332 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 3,608,332 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, Trading Fund OS, and held in the Partners Managed Accounts, 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) 43,854,510 outstanding shares of Common Stock as disclosed by the Issuer in its Prospectus Supplement dated November 20, 2019 and filed with the Securities and Exchange Commission on November 22, 2019 and (ii) certain or all of the 250,000 shares of Common Stock issuable upon the conversion of the Series A Convertible Preferred, as applicable.

As of the close of business on December 31, 2019, (i) BVF beneficially owned approximately 4.2% of the outstanding shares of Common Stock, (ii) BVF2 beneficially owned approximately 3.3% 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 4.2% of the outstanding shares of Common Stock, (v) BVF2 GP may be deemed to beneficially own approximately 3.3% 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 7.4% 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 is held in the Partners Managed Accounts).

(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 the Partners Managed Accounts.

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

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: February 14, 2020

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 Lampert
President

BVF GP HOLDINGS LLC

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

/s/ Mark N. Lampert
MARK N. LAMPERT

Joint Filing Agreement

The undersigned hereby agree that the Statement on Schedule 13G dated February 14, 2020 with respect to the shares of Common Stock of Molecular Templates, Inc., and any further amendments thereto executed by each and any of the undersigned shall be filed on behalf of each of the undersigned pursuant to and in accordance with the provisions of Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended.

Dated: February 14, 2020

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 Lampert
President

BVF GP HOLDINGS LLC

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

/s/ Mark N. Lampert
MARK N. LAMPERT