

FORM 4

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

OMB APPROVAL	
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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person * Longitude Capital Partners III, LLC			2. Issuer Name and Ticker or Trading Symbol Molecular Templates, Inc. [MTEM]			5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input type="checkbox"/> Director <input checked="" type="checkbox"/> 10% Owner <input type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below)		
(Last)	(First)	(Middle)	3. Date of Earliest Transaction (Month/Day/Year) 11/25/2019			6. Individual or Joint/Group Filing (Check Applicable Line) <input type="checkbox"/> Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person		
2740 SAND HILL ROAD, SECOND FLOOR			4. If Amendment, Date Original Filed (Month/Day/Year)					
(Street) MENLO PARK, CA 94025								
(City)	(State)	(Zip)	Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned					

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	11/25/2019		P		937,000 (1)	A	\$ 8	4,198,535	I (2)	By Longitude Venture Partners III, L.P. (2)

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Underlying Securities (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of Derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V		(A)	(D)					

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Longitude Capital Partners III, LLC 2740 SAND HILL ROAD SECOND FLOOR MENLO PARK, CA 94025		X		
Longitude Venture Partners III, L.P. 2740 SAND HILL ROAD SECOND FLOOR MENLO PARK, CA 94025		X		

ENRIGHT PATRICK G 2740 SAND HILL ROAD SECOND FLOOR MENLO PARK, CA 94025		X		
Tammenoms Bakker Juliet 2740 SAND HILL ROAD SECOND FLOOR MENLO PARK, CA 94025		X		

Signatures

/s/ Patrick G. Enright, individually, and as Managing Member of Longitude Capital III, and as Managing Member of Longitude Capital III, General Partner of Longitude Venture III		11/27/2019
**Signature of Reporting Person		Date
/s/ Juliet Tammenoms Bakker		11/27/2019
**Signature of Reporting Person		Date

Explanation of Responses:

* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) These shares were purchased pursuant to an underwritten public offering.

These shares are held by Longitude Venture Partners III, L.P. ("Longitude Venture III"). This report is filed jointly by Longitude Capital Partners III, LLC ("Longitude Capital III"), Longitude Venture III, Patrick G. Enright ("Mr. Enright"), and Juliet Tammenoms Bakker ("Ms. Bakker"), all of whom share beneficial ownership of more than

(2) 10% of the capital stock of the Issuer. Longitude Capital III is the general partner of Longitude Venture III and may be deemed to have voting, investment and dispositive power over the shares held by Longitude Venture III. Mr. Enright and Ms. Bakker are the managing members of Longitude Capital III and may be deemed to share voting, investment and dispositive power over the shares held by Longitude Venture III. Each of Longitude Capital III, Mr. Enright and Ms. Bakker disclaims beneficial ownership of such shares except to the extent of its, his or her pecuniary interest therein.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.

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