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

**SCHEDULE 13G**

Under the Securities Exchange Act of 1934  
(Amendment No. )\*

**Molecular Templates, Inc.**

(Name of Issuer)

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

**608550109**

(CUSIP Number)

**June 16, 2023**

(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)

\* 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 in 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*).

Continued on following pages

Page 1 of 9 Pages

Exhibit Index: Page 8

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<b>1</b>	<b>NAMES OF REPORTING PERSONS</b> K2 HealthVentures Equity Trust LLC	
<b>2</b>	<b>CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP</b> (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	<b>SEC USE ONLY</b>	
<b>4</b>	<b>CITIZENSHIP OR PLACE OF ORGANIZATION</b> Delaware	
<b>NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH</b>	<b>5</b>	<b>SOLE VOTING POWER</b> 0
	<b>6</b>	<b>SHARED VOTING POWER</b> 6,250,860 (1)
	<b>7</b>	<b>SOLE DISPOSITIVE POWER</b> 0
	<b>8</b>	<b>SHARED DISPOSITIVE POWER</b> 6,250,860 (1)
<b>9</b>	<b>AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON</b> 6,250,860 (1)	
<b>10</b>	<b>CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)</b> <input type="checkbox"/>	
<b>11</b>	<b>PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)</b> 9.985% (1)	
<b>12</b>	<b>TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)</b> OO	

(1) See Items 2 and 4

<b>1</b>	<b>NAMES OF REPORTING PERSONS</b> Parag Shah	
<b>2</b>	<b>CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP</b> (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	<b>SEC USE ONLY</b>	
<b>4</b>	<b>CITIZENSHIP OR PLACE OF ORGANIZATION</b> United States of America	
<b>NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH</b>	<b>5</b>	<b>SOLE VOTING POWER</b> 0
	<b>6</b>	<b>SHARED VOTING POWER</b> 6,250,860 (1)
	<b>7</b>	<b>SOLE DISPOSITIVE POWER</b> 0
	<b>8</b>	<b>SHARED DISPOSITIVE POWER</b> 6,250,860 (1)
<b>9</b>	<b>AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON</b> 6,250,860 (1)	
<b>10</b>	<b>CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)</b> <input type="checkbox"/>	
<b>11</b>	<b>PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)</b> 9.985% (1)	
<b>12</b>	<b>TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)</b> HC, IN	

(1) See Items 2 and 4

<b>1</b>	<b>NAMES OF REPORTING PERSONS</b> Anup Arora	
<b>2</b>	<b>CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP</b> (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	<b>SEC USE ONLY</b>	
<b>4</b>	<b>CITIZENSHIP OR PLACE OF ORGANIZATION</b> United States of America	
<b>NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH</b>	<b>5</b>	<b>SOLE VOTING POWER</b> 0
	<b>6</b>	<b>SHARED VOTING POWER</b> 6,250,860 (1)
	<b>7</b>	<b>SOLE DISPOSITIVE POWER</b> 0
	<b>8</b>	<b>SHARED DISPOSITIVE POWER</b> 6,250,860 (1)
<b>9</b>	<b>AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON</b> 6,250,860 (1)	
<b>10</b>	<b>CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)</b> <input type="checkbox"/>	
<b>11</b>	<b>PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)</b> 9.985% (1)	
<b>12</b>	<b>TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)</b> HC, IN	

(1) See Items 2 and 4

Item 1(a). Name of Issuer:

Molecular Templates, Inc. (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:

This Statement is filed on behalf of each of the following persons (collectively, the "Reporting Persons"):

- i. K2 HealthVentures Equity Trust LLC ("K2HV Equity");
- ii. Parag Shah ("Mr. Shah"); and
- iii. Anup Arora ("Mr. Arora").

This Statement on Schedule 13G relates to shares of Common Stock (as defined herein) that the Reporting Persons have the right to acquire within 60 days upon (i) exercise of warrants to purchase 5,103,343 shares of Common Stock at an exercise of \$0.3919 per share, which warrants expire on June 16, 2033, (the "Warrants") directly held by K2HV Equity, and (ii) exercise of a contingent value right to convert up to \$3,000,000 of the remaining balance of the Issuer's outstanding debt obligations to K2 Health Ventures LLC under the Loan and Security Agreement, dated as of May 21, 2020, into 6,124,011 shares of Common Stock in lieu of receiving cash payment (the "CVR") directly held by K2HV Equity. Pursuant to the terms of each of the Convertible Secured Contingent Value Right Agreement, dated June 16, 2023 (the "CVR Agreement") and the Warrant, the Reporting Persons may not convert any portion of the CVR, or exercise any portion of the Warrant, into shares of Common Stock to the extent that, upon conversion or exercise, the beneficial ownership of the Reporting Persons (including any other persons or entities whose beneficial ownership of Common Stock would be aggregated with the Reporting Persons' beneficial ownership for purposes of Section 13(d) of the Act) would exceed 9.985% of the total number of shares of Common Stock outstanding (the "Beneficial Ownership Limitations"). The Reporting Persons may waive either Beneficial Ownership Limitation upon 61 days' prior written notice to the Issuer (for the CVR, such notice may be sent on or after the earlier of (i) December 15, 2023, or (ii) such date that the Reporting Persons received a notice of a proposed Change in Control (as such term is defined in the CVR Agreement) transaction), provided that in no event shall the Reporting Persons beneficially own in excess of 19.99%.

K2HV Equity is an investment vehicle for holding equity securities and may be deemed to directly beneficially own the shares of Common Stock that it has the right to acquire upon conversion of the CVR and exercise of the Warrants, as reported herein. Mr. Shah and Mr. Arora serve as the managing members of K2HV Equity and, in such capacities, may be deemed to indirectly beneficially own the shares of Common Stock that K2HV Equity directly beneficially owns.

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

The business address of each of the Reporting Persons is: 855 Boylston Street, 10th Floor, Boston, MA 02116.

Item 2(c). Citizenship:

K2HV Equity is a Delaware limited liability company. Each of Mr. Shah and Mr. Arora is a citizen of the United States of America.

Item 2(d). Titles of Classes of Securities:

Common Stock, par value \$0.001 per share ("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:

This Item 3 is not applicable.

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Item 4. Ownership:Item 4(a). Amount Beneficially Owned:

As of the date hereof, each of the Reporting Persons may be deemed the beneficial owner of 6,250,860 shares of Common Stock that K2HV Equity has the right to acquire within 60 days upon conversion of the CVR and exercise of the Warrants, subject to the Beneficial Ownership Limitations.

Item 4(b). Percent of Class:

As of the date hereof, each of the Reporting Persons may be deemed the beneficial owner of approximately 9.985% of the shares of Common Stock outstanding, subject to the Beneficial Ownership Limitations.

The percentages set forth herein are calculated based on the sum of: (i) 56,351,647 shares of Common Stock outstanding as of May 8, 2023, as reported in the Issuer's quarterly report on Form 10-Q, filed with the Securities and Exchange Commission on May 15, 2023, and (ii) 6,250,860 shares of Common Stock that are issuable to the Reporting Persons within 60 days upon conversion of the CVR and exercise of the Warrants, subject to the Beneficial Ownership Limitations, which shares have been added to the total shares of Common Stock outstanding in accordance with Rule 13d-3(d)(1)(i)(D) under the Act.

Item 4(c). Number of Shares as to which such person has:K2HV Equity, Mr. Shah and Mr. Arora

(i) Sole power to vote or direct the vote:	0
(ii) Shared power to vote or direct the vote:	6,250,860
(iii) Sole power to dispose or direct the disposition of:	0
(iv) Shared power to dispose or direct the disposition of:	6,250,860

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

This Item 5 is not applicable.

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

This Item 6 is not applicable.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company.

This Item 7 is not applicable.

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

This Item 8 is not applicable.

Item 9. Notice of Dissolution of Group.

This Item 9 is not applicable.

Item 10. Certification. (if filing pursuant to Rule 13d-1(c))

By signing below each Reporting Person 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 our knowledge and belief, the undersigned certify that the information set forth in this statement is true, complete and correct.

Dated: June 26, 2023

**K2 HEALTHVENTURES EQUITY TRUST LLC**

By: /s/ Anup Arora

Name: Anup Arora

Title: Managing Member

**PARAG SHAH**

By: /s/ Parag Shah

**ANUP ARORA**

By: /s/ Anup Arora

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**EXHIBIT INDEX**

<u>Exhibit</u>	<u>Page No.</u>
<a href="#">A</a> – Joint Filing Agreement	9

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**JOINT FILING AGREEMENT**

The undersigned hereby agree that the statement on Schedule 13G with respect to the Common Stock of Molecular Templates, Inc., dated as of June 26, 2023, is, and any amendments thereto (including amendments on Schedule 13D) signed by each of the undersigned shall be, filed on behalf of each of us pursuant to and in accordance with the provisions of Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended.

Dated: June 26, 2023

**K2 HEALTHVENTURES EQUITY TRUST LLC**

By: /s/ Anup Arora

Name: Anup Arora

Title: Managing Member

**PARAG SHAH**

By: /s/ Parag Shah

**ANUP ARORA**

By: /s/ Anup Arora

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