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

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**FORM S-8**  
**REGISTRATION STATEMENT**  
*UNDER*  
*THE SECURITIES ACT OF 1933*

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**Molecular Templates, Inc.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**94-3409596**  
(I.R.S. Employer  
Identification Number)

**9301 Amberglen Blvd, Suite 100**  
**Austin, Texas 78729**  
**(512) 869-1555**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Molecular Templates, Inc. 2018 Equity Incentive Plan**  
(Full Title of the Plan)

**Eric E. Poma, Ph.D.**  
**Chief Executive Officer and Chief Scientific Officer**  
**Molecular Templates, Inc.**  
**9301 Amberglen Blvd, Suite 100**  
**Austin, Texas 78729**  
**(512) 869-1555**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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*Copies to:*

**William C. Hicks, Esq.**  
**Matthew J. Gardella, Esq.**  
**Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.**  
**One Financial Center**  
**Boston, Massachusetts 02111**  
**(617) 542-6000**

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Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, anon-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer   
Non-accelerated filer

Accelerated filer   
Smaller reporting company   
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

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## EXPLANATORY NOTE

This Registration Statement registers an aggregate of 2,254,066 additional shares of common stock, par value \$0.001 per share (“Common Stock”), of Molecular Templates, Inc. (the “Registrant”) reserved for issuance under the Molecular Templates, Inc. 2018 Equity Incentive Plan, as amended (the “2018 Plan”), consisting of an increase of 2,254,066 shares reserved under the 2018 Plan effective January 1, 2023 by operation of the 2018 Plan’s “evergreen” provision. This Registration Statement registers additional securities of the same class as other securities for which registration statements filed on Form S-8 (333-254484), Form S-8 (File No. 333-237148), Form S-8 (File No. 333-230617) and Form S-8 (File No. 333-225826) are effective. Pursuant to Instruction E of Form S-8, the information contained in the Registration Statements on Form S-8 filed with the Securities and Exchange Commission on [June 22, 2018](#), as amended on [August 3, 2018](#) (File No. 333-225826), Form S-8 filed with the Securities and Exchange Commission on [March 29, 2019](#) (File No. 333-230617), Form S-8 filed with the Securities and Exchange Commission on [March 13, 2020](#) (File No. 333-237148), Form S-8 filed with the Securities and Exchange Commission on [March 19, 2021](#) (File No. 333-254484) and Form S-8 filed with the Securities and Exchange Commission on [March 29, 2022](#) (File No. 333-263928) are incorporated by reference herein.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

**Item 3. Incorporation of Documents by Reference.**

The following documents filed by the Registrant with the SEC are incorporated herein by reference:

- (a) our Annual Report on [Form 10-K](#) for the year ended December 31, 2022 filed with the SEC on March 30, 2023;
- (b) All other reports filed pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the document referred to in (a) above (other than the portions of those documents not deemed to be filed); and
- (c) the description of our Common Stock contained in the registration statement on [Form 8-A](#) registering our Common Stock under Section 12(b) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), which was initially filed with the SEC on January 28, 2005, including any amendments or reports filed for the purpose of updating such description.

All reports and other documents filed by the Registrant after the date hereof pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits furnished on such form that relate to such items), prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference herein and to be part hereof from the date of filing of such reports and documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for the purposes of this registration statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this registration statement.

**Item 8. Exhibits.**

Exhibit Index

<u>Exhibit Number</u>	<u>Item</u>
4.1	<a href="#">Amended and Restated Certificate of Incorporation of the Company, as subsequently amended (incorporated by reference to Exhibit 3.1 to the Company’s Annual Report on Form 10-K (File No. 001-32979) filed on March 6, 2014).</a>
4.2	<a href="#">Certificate of Amendment of Amended and Restated Certificate of Incorporation of the Company, dated August 1, 2017 (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K (File No. 001-32979) filed with the Securities and Exchange Commission on August 1, 2017).</a>
4.3	<a href="#">Certificate of Amendment (Name Change) of Amended and Restated Certificate of Incorporation of the Company, dated August 1, 2017 (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K (File No. 001-32979) filed with the Securities and Exchange Commission on August 7, 2017).</a>
4.4	<a href="#">Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Preferred Stock, dated November 22, 2019 (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K (File No. 001-32979) filed on November 25, 2019).</a>

Exhibit Number	Item
4.5	<a href="#"><u>Amended and Restated Bylaws of the Company, as amended effective March 29, 2019 (incorporated by reference to Exhibit 3.4 to the Company's Annual Report on Form 10-K (File No. 001-32979) filed with the Securities and Exchange Commission on March 29, 2019).</u></a>
5.1*	<a href="#"><u>Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.</u></a>
23.1*	<a href="#"><u>Consent of Ernst &amp; Young LLP.</u></a>
23.2*	<a href="#"><u>Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (contained in Exhibit 5.1 hereto).</u></a>
24.1*	<a href="#"><u>Powers of Attorney (included in the signature page of this registration statement).</u></a>
99.1#	<a href="#"><u>Molecular Templates, Inc. 2018 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-32979) filed with the Securities and Exchange Commission on June 1, 2018).</u></a>
99.2#	<a href="#"><u>Form of Stock Option Grant Notice and Option Agreement for employees under the 2018 Equity Incentive Plan (incorporated by reference to Exhibit 4.6 to the Company's Registration Statement on Form S-8 (File No. 333-225826) filed with the Securities and Exchange Commission on June 22, 2018).</u></a>
99.3#	<a href="#"><u>Form of Stock Option Grant Notice and Option Agreement for non-employee directors under the 2018 Equity Incentive Plan (incorporated by reference to Exhibit 4.7 to the Company's Registration Statement on Form S-8 (File No. 333-225826) filed with the Securities and Exchange Commission on June 22, 2018).</u></a>
107*	<a href="#"><u>Calculation of Filing Fee Table.</u></a>

\* Filed herewith.

# Indicates a management contract or compensatory plan.

## Signatures

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Registration Statement on Form S-8 to be signed on its behalf by the undersigned, thereunto duly authorized, in Austin, Texas on April 3, 2023.

### MOLECULAR TEMPLATES, INC.

By: /s/ Eric E. Poma, Ph.D.

Eric E. Poma, Ph.D.

*Chief Executive Officer and Chief Scientific Officer*

## Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Eric E. Poma, Ph.D., and Jason S. Kim, and each of them acting individually, as his or her true and lawful attorneys-in-fact and agents, each with full power of substitution, for him or her in any and all capacities, to sign any and all amendments to this Registration Statement, including post-effective amendments or any abbreviated registration statement and any amendments thereto filed pursuant to Rule 462(b) increasing the number of securities for which registration is sought, and to file the same, with all exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorneys-in-fact and agents, with full power of each to act alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or his, her or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Eric E. Poma, Ph.D.</u> Eric E. Poma, Ph.D.	Chief Executive Officer and Chief Scientific Officer and Director (Principal Executive Officer)	April 3, 2023
<u>/s/ Jason S. Kim</u> Jason S. Kim	Interim Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	April 3, 2023
<u>/s/ Harold E. Selick, Ph.D.</u> Harold E. Selick, Ph.D.	Director	April 3, 2023
<u>/s/ Jonathan Lanfear</u> Jonathan Lanfear	Director	April 3, 2023
<u>/s/ David Hirsch, M.D., Ph.D.</u> David Hirsch, M.D., Ph.D.	Director	April 3, 2023
<u>/s/ David R. Hoffmann</u> David R. Hoffmann	Director	April 3, 2023
<u>/s/ Kevin M. Lalande</u> Kevin M. Lalande	Director	April 3, 2023
<u>/s/ Corazon "Corsee" Sanders, Ph.D.</u> Corazon "Corsee" Sanders, Ph.D.	Director	April 3, 2023
<u>/s/ Gabriela Gruia, M.D.</u> Gabriela Gruia, M.D.	Director	April 3, 2023

One Financial Center  
Boston, MA 02111  
617 542 6000  
mintz.com



April 3, 2023

Molecular Templates, Inc.  
9301 Amberglen Blvd, Suite 100  
Austin, Texas 78729

Ladies and Gentlemen:

We have acted as legal counsel to Molecular Templates, Inc., a Delaware corporation (the "Company"), in connection with the preparation and filing with the Securities and Exchange Commission (the "Commission") of a Registration Statement on Form S-8 (the "Registration Statement"), pursuant to which the Company is registering the issuance under the Securities Act of 1933, as amended ("Securities Act"), of an aggregate of 2,254,066 shares (the "Shares") of the Company's common stock, \$0.001 par value per share ("Common Stock"), in accordance with the terms of the Molecular Templates, Inc. 2018 Equity Incentive Plan (the "Plan"). This opinion is being rendered in connection with the filing of the Registration Statement with the Commission. All capitalized terms used herein and not otherwise defined shall have the respective meanings given to them in the Registration Statement.

In connection with this opinion, we have examined the Company's Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, each as currently in effect; such other records of the corporate proceedings of the Company and certificates of the Company's officers as we have deemed relevant; and the Registration Statement and the exhibits thereto.

In our examination, we have assumed the genuineness of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such copies, and the truth and correctness of any representations and warranties contained therein. In addition, we have assumed that the Company will receive any required consideration in accordance with the terms of the Plan.

Our opinion expressed herein is limited to the General Corporation Law of the State of Delaware and we express no opinion with respect to the laws of any other jurisdiction. No opinion is expressed herein with respect to the qualification of the Shares under the securities or blue sky laws of any state or any foreign jurisdiction.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

Based upon the foregoing, we are of the opinion that the Shares, when issued and delivered in accordance with the terms of the Plan, will be validly issued, fully paid and non-assessable.

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BOSTON    LONDON    LOS ANGELES    NEW YORK    SAN DIEGO    SAN FRANCISCO    WASHINGTON  
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.



We understand that you wish to file this opinion with the Commission as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K promulgated under the Securities Act, and we hereby consent thereto. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the 2018 Equity Incentive Plan of Molecular Templates, Inc. of our report dated March 30, 2023, with respect to the consolidated financial statements of Molecular Templates, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2022, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Austin, Texas  
April 3, 2023



**Calculation of Filing Fee Table**

**Form S-8**  
(Form Type)

**Molecular Templates, Inc.**  
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered

Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common Stock, par value \$0.001 per share	457(c) and 457(h)	2,254,066 (1)	\$0.35(2)	\$788,923.10(2)	\$110.20 per \$1,000,000	\$86.94
Total Offering Amount					\$788,923.10		\$86.94
Total Fee Offsets							—
Net Fee Due							\$86.94

- (1) The number of shares of common stock, par value \$0.001 per share (“Common Stock”), of Molecular Templates, Inc. (the “Registrant”) stated above consists of additional shares of common stock available for issuance under the Molecular Templates, Inc. 2018 Equity Incentive Plan, as amended (the “2018 Plan”) by operation of the 2018 Plan’s “evergreen” provision. The maximum number of shares which may be sold upon the exercise of such options or issuance of stock-based awards granted under the 2018 Plan are subject to adjustment in accordance with certain anti-dilution and other provisions of the 2018 Plan. Accordingly, pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), this Registration Statement covers, in addition to the number of shares stated above, an indeterminate number of shares which may be subject to grant or otherwise issuable after the operation of any such anti-dilution and other provisions.
- (2) Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rule 457(c) and Rule 457(h) promulgated under the Securities Act. The offering price per share and the aggregate offering price for shares reserved for future issuance under the 2018 Plan is based on the average of the high and the low price of Registrant’s Common Stock as reported on the Nasdaq Capital Market on March 30, 2023, a date within five business days prior to filing this Registration Statement.