

**INITIAL STATEMENT OF 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 MILLENNIUM PHARMACEUTICALS INC (Last) (First) (Middle) 40 LANDSDOWNE STREET (Street) CAMBRIDGE, MA 02139 (City) (State) (Zip)		2. Date of Event Requiring Statement (Month/Day/Year) 08/01/2017	3. Issuer Name and Ticker or Trading Symbol Molecular Templates, Inc. [MTEM]	4. Relationship of Reporting Person(s) to Issuer (Check all applicable) ____ Director ____ X ____ 10% Owner ____ Officer (give title below) ____ Other (specify below)	5. If Amendment, Date Original Filed(Month/Day/Year)	6. Individual or Joint/Group Filing(Check Applicable Line) ____ Form filed by One Reporting Person ____ X ____ Form filed by More than One Reporting Person
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**Table I - Non-Derivative Securities Beneficially Owned**

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
Common Stock	2,922,993	D <u>LI</u>	

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

SEC 1473 (7-02)

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)		4. Conversion or Exercise Price of Derivative Security	5. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			

**Reporting Owners**

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
MILLENNIUM PHARMACEUTICALS INC 40 LANDSDOWNE STREET CAMBRIDGE, MA 02139		X		
Takeda Pharmaceuticals International AG THURGAUERSTRASSE 130, 8152 GLATTPARK, V8		X		
Takeda Pharma A/S LANGEBJERG 1, 4000 ROSKILDE, G7		X		
Takeda A/S DYBENDAL ALLE 10, 2630 TAASTRUP, G7		X		
Takeda Europe Holdings B.V. JUPITERSTRAAT 250, 2132 HK HOOFDDORP, P7		X		
TAKEDA PHARMACEUTICAL CO LTD 12-10, NIHONBASHI 2-CHOME, CHUO-KU TOKYO, M0 103-8668		X		
Takeda Pharmaceuticals U.S.A., Inc. ONE TAKEDA PARKWAY DEERFIELD, IL 60015		X		

**Signatures**

/s/ James Kehoe, Chief Financial Officer, Takeda Pharmaceutical Company Limited <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>
/s/ Brett R. Budzinski, Attorney-in-Fact for Millennium Pharmaceuticals, Inc. <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>
/s/ Brett R. Budzinski, Attorney-in-Fact for Takeda Pharmaceuticals U.S.A., Inc. <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>
/s/ Brett R. Budzinski, Attorney-in-Fact for Takeda Pharmaceutical International AG <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>
/s/ Brett R. Budzinski, Attorney-in-Fact for Takeda Pharma A/S <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>
/s/ Brett R. Budzinski, Attorney-in-Fact for Takeda A/S <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>
/s/ Brett R. Budzinski, Attorney-in-Fact for Takeda Europe Holdings B.V. <small>Signature of Reporting Person</small>	09/08/2017 <small>Date</small>

**Explanation of Responses:**

\* If the form is filed by more than one reporting person, see Instruction 5(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 are owned directly by Millennium Pharmaceuticals, Inc. ("Millennium"). Millennium is a wholly-owned direct subsidiary of Takeda Pharmaceuticals U.S.A., Inc. ("Takeda USA"). Takeda Pharmaceutical Company Limited ("Takeda") owns 73.37% of Takeda USA, and Tal ("Takeda Europe") owns 13.17% of Takeda International. Takeda Denmark is a wholly-owned direct subsidiary of Takeda A/S. Takeda owns 76.09% of Takeda A/S, and Takeda Europe owns 23.91% of Takeda A/S. Takeda Europe is a wholly-owned direct subsidiary of Takeda. Takeda

**Remarks:**

Exhibit List: Exhibit 24.1 Power of Attorney for Millennium Pharmaceuticals, Inc.; Exhibit 24.2 Power of Attorney for Takeda Pharmaceuticals U.S.A., Inc.; Exhibit 24.3 Power of Attorney for Takeda Pharmaceuticals International AG;

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

Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.

## POWER OF ATTORNEY

Know all by these present, that the undersigned hereby constitutes and appoints each of Michael Broxson, Gregory Fralish, Paul Sundberg and Brett Budzinski, signing singly, with full power of substitution, as the undersigned's true and lawful attorney-in-fact to:

- (1) execute for and on behalf of the undersigned, forms and authentication documents for EDGAR Filing Access, including without limitation a Form ID or any application materials to enable the undersigned to gain or maintain access to the Electronic Data Gathering, Analysis and Retrieval System of the SEC;
- (2) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such forms and authentication documents;
- (3) execute for and on behalf of the undersigned, in the undersigned's capacity as a shareholder of Molecular Templates, Inc. (the "Company"), any and all instruments, certificates, and documents required to be executed on behalf of the undersigned pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "Exchange Act"), including without limitation Forms 3, 4 and 5 and Schedules 13D and 13G (including any amendments thereto);
- (4) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to prepare, complete and execute any such instruments, certificates, and documents required to be executed on behalf of the undersigned pursuant to Section 13 and Section 16 of the Exchange Act, prepare, complete and execute any amendment or amendments thereto, and file such instruments, certificates and documents with the U.S. Securities and Exchange Commission and any stock exchange or similar authority; and
- (5) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming nor relieving, nor is the Company assuming nor relieving, any of the undersigned's responsibilities to comply with Section 13 or Section 16 of the Exchange Act. The undersigned acknowledges that neither the Company nor the foregoing attorneys-in-fact assume (i) any liability for the undersigned's responsibility to comply with the requirements of the Exchange Act, (ii) any liability of the undersigned for any failure to comply with such requirements or (iii) any obligation or liability of the undersigned for profit disgorgement under Section 16(b) of the Exchange Act.

This Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file forms and execute authentication documents with respect to the undersigned's EDGAR Filing Access or to file any instruments, certificates and documents pursuant to Section 13 and Section 16 of the Exchange Act with respect to the undersigned's holdings of and transactions in securities issued by the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to serve as an employee of Takeda Pharmaceutical Company Limited or one of its subsidiaries.

[Signature page follows]

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of the date set forth below.

MILLENNIUM PHARMACEUTICALS, INC.

By: /s/ Paul Sundberg

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Name: Paul Sundberg  
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Title: Assistant Secretary  
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Date: August 24, 2017  
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## POWER OF ATTORNEY

Know all by these present, that the undersigned hereby constitutes and appoints each of Michael Broxson, Gregory Fralish, Paul Sundberg and Brett Budzinski, signing singly, with full power of substitution, as the undersigned's true and lawful attorney-in-fact to:

- (1) execute for and on behalf of the undersigned, forms and authentication documents for EDGAR Filing Access, including without limitation a Form ID or any application materials to enable the undersigned to gain or maintain access to the Electronic Data Gathering, Analysis and Retrieval System of the SEC;
- (2) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such forms and authentication documents;
- (3) execute for and on behalf of the undersigned, in the undersigned's capacity as a shareholder of Molecular Templates, Inc. (the "Company"), any and all instruments, certificates, and documents required to be executed on behalf of the undersigned pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "Exchange Act"), including without limitation Forms 3, 4 and 5 and Schedules 13D and 13G (including any amendments thereto);
- (4) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to prepare, complete and execute any such instruments, certificates, and documents required to be executed on behalf of the undersigned pursuant to Section 13 and Section 16 of the Exchange Act, prepare, complete and execute any amendment or amendments thereto, and file such instruments, certificates and documents with the U.S. Securities and Exchange Commission and any stock exchange or similar authority; and
- (5) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming nor relieving, nor is the Company assuming nor relieving, any of the undersigned's responsibilities to comply with Section 13 or Section 16 of the Exchange Act. The undersigned acknowledges that neither the Company nor the foregoing attorneys-in-fact assume (i) any liability for the undersigned's responsibility to comply with the requirements of the Exchange Act, (ii) any liability of the undersigned for any failure to comply with such requirements or (iii) any obligation or liability of the undersigned for profit disgorgement under Section 16(b) of the Exchange Act.

This Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file forms and execute authentication documents with respect to the undersigned's EDGAR Filing Access or to file any instruments, certificates and documents pursuant to Section 13 and Section 16 of the Exchange Act with respect to the undersigned's holdings of and transactions in securities issued by the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to serve as an employee of Takeda Pharmaceutical Company Limited or one of its subsidiaries.

[Signature page follows]

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of the date set forth below.

TAKEDA PHARMACEUTICALS U.S.A., INC.

By: /s/ Paul Sundberg

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Name: Paul Sundberg

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Title: Assistant Secretary

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Date: August 24, 2017

## POWER OF ATTORNEY

Know all by these present, that Takeda Pharmaceuticals International AG, a public limited company incorporated under the laws of Switzerland, registered with the commercial register of Canton Zurich under CHE-113.444.401 and with business address at Thurgauerstrasse 130, 8152 Glattpark - Opfikon (Zurich) ("TPIZ"), in its capacity as a shareholder of Molecular Templates, Inc., a Delaware company with principal offices located at 9301 Amberglenn Blvd, Suite 100, Austin, Texas 78729 (the "Company") hereby constitutes and appoints each of Michael Broxson, Gregory Fralish, Paul Sundberg and Brett Budzinski, signing singly, as the undersigned's true and lawful attorney-in-fact to take the following actions related to the Company in TPIZ's capacity as a shareholder of the Company:

- (1) execute for and on behalf of TPIZ, forms and authentication documents for EDGAR Filing Access, including without limitation a Form ID or any application materials to enable TPIZ to gain or maintain access to the Electronic Data Gathering, Analysis and Retrieval System of the SEC;
- (2) do and perform any and all acts for and on behalf of TPIZ which may be necessary or desirable to complete and execute any such forms and authentication documents;
- (3) execute for and on behalf of TPIZ, in TPIZ's capacity as a shareholder of the Company, any and all instruments, certificates, and documents required to be executed on behalf of TPIZ pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "Exchange Act"), including without limitation Forms 3, 4 and 5 and Schedules 13D and 13G (including any amendments thereto);
- (4) do and perform any and all acts for and on behalf of TPIZ which may be necessary or desirable to prepare, complete and execute any such instruments, certificates, and documents required to be executed on behalf of TPIZ pursuant to Section 13 and Section 16 of the Exchange Act, prepare, complete and execute any amendment or amendments thereto, and file such instruments, certificates and documents with the U.S. Securities and Exchange Commission and any stock exchange or similar authority; and
- (5) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, TPIZ, it being understood that the documents executed by such attorney-in-fact on behalf of TPIZ pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

TPIZ hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as TPIZ might or could do if legal representatives of TPIZ were personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. TPIZ acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of TPIZ, are not assuming nor relieving any of TPIZ's responsibilities to comply with Section 13 or Section 16 of the Exchange Act. TPIZ acknowledges that the foregoing attorneys-in-fact do not assume (i) any liability for TPIZ's responsibility to comply with the requirements of the Exchange Act, (ii) any liability of TPIZ for any failure to comply with such requirements or (iii) any obligation or liability of TPIZ for profit disgorgement under Section 16(b) of the Exchange Act.

This Power of Attorney shall remain in full force and effect until TPIZ is no longer required to file forms and execute authentication documents with respect to TPIZ's EDGAR Filing Access or to file any instruments, certificates and documents pursuant to Section 13 and Section 16 of the Exchange Act with respect to TPIZ's holdings of and transactions in securities issued by the Company, unless earlier revoked by TPIZ at any time at its sole discretion. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to serve as an employee of a subsidiary of Takeda Pharmaceutical Company Limited (Japan) that is registered in the United States.

[Signature page follows]

IN WITNESS WHEREOF, TPIZ has caused this Power of Attorney to become effective as of the last date set forth below.

By: /s/ Mirjam von Zedwitz

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Name: Mirjam von Zedwitz

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Title: Associate General Counsel

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Date: August 25, 2017  
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By: /s/ Andrea Ferrari

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Name: Andrea Ferrari

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Title: Senior Director, Associate General Counsel

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Date: August 25, 2017  
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## POWER OF ATTORNEY

Know all by these present, that Takeda Pharma A/S, a stock limited company incorporated under the laws of Denmark, and with business address at Langebjerg 1, 4000 Roskilde, Denmark ("Takeda Denmark"), in its capacity as a shareholder of Molecular Templates, Inc., a Delaware company with principal offices located at 9301 Amberglen Blvd, Suite 100, Austin, Texas 78729 (the "Company") hereby constitutes and appoints each of Michael Broxson, Gregory Fralish, Paul Sundberg and Brett Budzinski, signing singly, as the undersigned's true and lawful attorney-in-fact to take the following actions related to the Company in Takeda Denmark's capacity as a shareholder of the Company:

- (1) execute for and on behalf of Takeda Denmark, forms and authentication documents for EDGAR Filing Access, including without limitation a Form ID or any application materials to enable Takeda Denmark to gain or maintain access to the Electronic Data Gathering, Analysis and Retrieval System of the SEC;
- (2) do and perform any and all acts for and on behalf of Takeda Denmark which may be necessary or desirable to complete and execute any such forms and authentication documents;
- (3) execute for and on behalf of Takeda Denmark, in Takeda Denmark's capacity as a shareholder of the Company, any and all instruments, certificates, and documents required to be executed on behalf of Takeda Denmark pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "Exchange Act"), including without limitation Forms 3, 4 and 5 and Schedules 13D and 13G (including any amendments thereto);
- (4) do and perform any and all acts for and on behalf of Takeda Denmark which may be necessary or desirable to prepare, complete and execute any such instruments, certificates, and documents required to be executed on behalf of Takeda Denmark pursuant to Section 13 and Section 16 of the Exchange Act, prepare, complete and execute any amendment or amendments thereto, and file such instruments, certificates and documents with the U.S. Securities and Exchange Commission and any stock exchange or similar authority; and
- (5) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, Takeda Denmark, it being understood that the documents executed by such attorney-in-fact on behalf of Takeda Denmark pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

Takeda Denmark hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as Takeda Denmark might or could do if legal representatives of Takeda Denmark were personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. Takeda Denmark acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of Takeda Denmark, are not assuming nor relieving any of Takeda Denmark's responsibilities to comply with Section 13 or Section 16 of the Exchange Act. Takeda Denmark acknowledges that the foregoing attorneys-in-fact do not assume (i) any liability for Takeda Denmark's responsibility to comply with the requirements of the Exchange Act, (ii) any liability of Takeda Denmark for any failure to comply with such requirements or (iii) any obligation or liability of Takeda Denmark for profit disgorgement under Section 16(b) of the Exchange Act.

This Power of Attorney shall remain in full force and effect until Takeda Denmark is no longer required to file forms and execute authentication documents with respect to Takeda Denmark's EDGAR Filing Access or to file any instruments, certificates and documents pursuant to Section 13 and Section 16 of the Exchange Act with respect to Takeda Denmark's holdings of and transactions in securities issued by the Company, unless earlier revoked by Takeda Denmark at any time at its sole discretion. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to serve as an employee of a subsidiary of Takeda Pharmaceutical Company Limited (Japan) that is registered in the United States.

[Signature page follows]

IN WITNESS WHEREOF, Takeda Denmark has caused this Power of Attorney to become effective as of the last date set forth below.



TAKEDA PHARMA A/S

By: /s/ Ghita Astrup  
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Name: Ghita Astrup  
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Title: Managing Director  
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Date: August 25, 2017  
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## POWER OF ATTORNEY

Know all by these present, that Takeda A/S, a stock limited company incorporated under the laws of Denmark, and with business address at Dybendal Alle 10, 2630 Taastrup, Denmark ("Takeda A/S"), in its capacity as a shareholder of Molecular Templates, Inc., a Delaware company with principal offices located at 9301 Amberglen Blvd, Suite 100, Austin, Texas 78729 (the "Company") hereby constitutes and appoints each of Michael Broxson, Gregory Fralish, Paul Sundberg and Brett Budzinski, signing singly, as the undersigned's true and lawful attorney-in-fact to take the following actions related to the Company in Takeda A/S's capacity as a shareholder of the Company:

- (1) execute for and on behalf of Takeda A/S, forms and authentication documents for EDGAR Filing Access, including without limitation a Form ID or any application materials to enable Takeda A/S to gain or maintain access to the Electronic Data Gathering, Analysis and Retrieval System of the SEC;
- (2) do and perform any and all acts for and on behalf of Takeda A/S which may be necessary or desirable to complete and execute any such forms and authentication documents;
- (3) execute for and on behalf of Takeda A/S, in Takeda A/S's capacity as a shareholder of the Company, any and all instruments, certificates, and documents required to be executed on behalf of Takeda A/S pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "Exchange Act"), including without limitation Forms 3, 4 and 5 and Schedules 13D and 13G (including any amendments thereto);
- (4) do and perform any and all acts for and on behalf of Takeda A/S which may be necessary or desirable to prepare, complete and execute any such instruments, certificates, and documents required to be executed on behalf of Takeda A/S pursuant to Section 13 and Section 16 of the Exchange Act, prepare, complete and execute any amendment or amendments thereto, and file such instruments, certificates and documents with the U.S. Securities and Exchange Commission and any stock exchange or similar authority; and
- (5) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, Takeda A/S, it being understood that the documents executed by such attorney-in-fact on behalf of Takeda A/S pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

Takeda A/S hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as Takeda A/S might or could do if legal representatives of Takeda A/S were personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. Takeda A/S acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of Takeda A/S, are not assuming nor relieving any of Takeda A/S's responsibilities to comply with Section 13 or Section 16 of the Exchange Act. Takeda A/S acknowledges that the foregoing attorneys-in-fact do not assume (i) any liability for Takeda A/S's responsibility to comply with the requirements of the Exchange Act, (ii) any liability of Takeda A/S for any failure to comply with such requirements or (iii) any obligation or liability of Takeda A/S for profit disgorgement under Section 16(b) of the Exchange Act.

This Power of Attorney shall remain in full force and effect until Takeda A/S is no longer required to file forms and execute authentication documents with respect to Takeda A/S's EDGAR Filing Access or to file any instruments, certificates and documents pursuant to Section 13 and Section 16 of the Exchange Act with respect to Takeda A/S's holdings of and transactions in securities issued by the Company, unless earlier revoked by Takeda A/S at any time at its sole discretion. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to serve as an employee of a subsidiary of Takeda Pharmaceutical Company Limited (Japan) that is registered in the United States.

[Signature page follows]

IN WITNESS WHEREOF, Takeda A/S has caused this Power of Attorney to become effective as of the last date set forth below.

By: /s/ Ghita Astrup

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Name: Ghita Astrup

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Title: Managing Director

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Date: August 25, 2017  
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## POWER OF ATTORNEY

Know all by these present, that Takeda Europe Holdings B.V., a private limited company incorporated under the laws of the Netherlands, and with a business address at Jupiterstraat 250, 2132 HK Hoofddorp, Netherlands ("Takeda Europe"), in its capacity as a shareholder of Molecular Templates, Inc., a Delaware company with principal offices located at 9301 Amberglenn Blvd, Suite 100, Austin, Texas 78729 (the "Company") hereby constitutes and appoints each of Michael Broxson, Gregory Fralish, Paul Sundberg and Brett Budzinski, signing singly, as the undersigned's true and lawful attorney-in-fact to take the following actions related to the Company in Takeda Europe's capacity as a shareholder of the Company:

- (1) execute for and on behalf of Takeda Europe, forms and authentication documents for EDGAR Filing Access, including without limitation a Form ID or any application materials to enable Takeda Europe to gain or maintain access to the Electronic Data Gathering, Analysis and Retrieval System of the SEC;
- (2) do and perform any and all acts for and on behalf of Takeda Europe which may be necessary or desirable to complete and execute any such forms and authentication documents;
- (3) execute for and on behalf of Takeda Europe, in Takeda Europe's capacity as a shareholder of the Company, any and all instruments, certificates, and documents required to be executed on behalf of Takeda Europe pursuant to Section 13 and Section 16 of the Securities Exchange Act of 1934, as amended, and the rules thereunder (collectively, the "Exchange Act"), including without limitation Forms 3, 4 and 5 and Schedules 13D and 13G (including any amendments thereto);
- (4) do and perform any and all acts for and on behalf of Takeda Europe which may be necessary or desirable to prepare, complete and execute any such instruments, certificates, and documents required to be executed on behalf of Takeda Europe pursuant to Section 13 and Section 16 of the Exchange Act, prepare, complete and execute any amendment or amendments thereto, and file such instruments, certificates and documents with the U.S. Securities and Exchange Commission and any stock exchange or similar authority; and
- (5) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, Takeda Europe, it being understood that the documents executed by such attorney-in-fact on behalf of Takeda Europe pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

Takeda Europe hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as Takeda Europe might or could do if legal representatives of Takeda Europe were personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. Takeda Europe acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of Takeda Europe, are not assuming nor relieving any of Takeda Europe's responsibilities to comply with Section 13 or Section 16 of the Exchange Act. Takeda Europe acknowledges that the foregoing attorneys-in-fact do not assume (i) any liability for Takeda Europe's responsibility to comply with the requirements of the Exchange Act, (ii) any liability of Takeda Europe for any failure to comply with such requirements or (iii) any obligation or liability of Takeda Europe for profit disgorgement under Section 16(b) of the Exchange Act.

This Power of Attorney shall remain in full force and effect until Takeda Europe is no longer required to file forms and execute authentication documents with respect to Takeda Europe's EDGAR Filing Access or to file any instruments, certificates and documents pursuant to Section 13 and Section 16 of the Exchange Act with respect to Takeda Europe's holdings of and transactions in securities issued by the Company, unless earlier revoked by Takeda Europe at any time at its sole discretion. This Power of Attorney shall expire as to any individual attorney-in-fact if such attorney-in-fact ceases to serve as an employee of a subsidiary of Takeda Pharmaceutical Company Limited (Japan) that is registered in the United States.

[Signature page follows]

IN WITNESS WHEREOF, Takeda Europe has caused this Power of Attorney to become effective as of the last date set forth below.

TAKEDA EUROPE HOLDINGS B.V.

By: /s/ Jan Herman Timmermans

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Name: Jan Herman Timmermans

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Title: Director

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Date: August 25, 2017  
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