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Molecular Templates Presents Clinical Data at the American Society of Clinical Oncology (ASCO) Annual Meeting 2018

ASCO Posters Feature Data on MT-3724 and Evofosfamide

AUSTIN, Texas, June 04, 2018 (GLOBE NEWSWIRE) -- Molecular Templates, Inc. (Nasdaq:MTEM), a clinical stage biopharmaceutical company focused on the discovery and development of Engineered Toxin Bodies, a new class of targeted biologic therapies that possess unique mechanisms of action in oncology, today announced that data on two of its pipeline programs were presented at the American Society of Clinical Oncology (ASCO) Annual Meeting 2018, held June 1-5 in Chicago, Illinois.

MT-3724

Poster Title:	*Safety and Efficacy of Anti-CD20 Immunotoxin MT-3724 in Relapsed/Refractory B-cell non-Hodgkin Lymphoma (NHL) in a Phase 1 Study*
First Author:	Paul A. Hamlin, MD, Memorial Sloan Kettering Cancer Center

The poster summarized interim results from a Phase I and Phase Ib extension study of B-cell non-Hodgkin's lymphoma (NHL) patients treated with MT-3724 who had previously relapsed after anti-CD20 Mab and chemotherapy. Consistent with the mechanism of action, enzymatic ribosome inactivation, the best activity is observed in heavily pretreated patients with relapsed or refractory diffuse large B-cell lymphoma (DLBCL) (N=18; median of five prior therapies).

Patients with high circulating levels of rituximab (RTX) at study entry showed poor response to MT-3724 due to competitive inhibition and blocking of CD20 receptor by RTX. As a result, the ongoing Phase Ib extension and future studies of MT-3724 will enroll only patients with low levels of RTX.

The preliminary objective response rate in DLBCL patients with low serum Rituxan levels at study entry (N=10) was 30%, with a disease control rate of 70%, including two stable disease patients that had tumor reductions of 47% and 49%. The ongoing Phase Ib study will further characterize the response rate and duration of response.

MT-3724 was generally well tolerated and a redefined maximum tolerated dose (MTD) of 50 mcg/kg with a maximum of 6 mg per dose was implemented based on experience with patients with high body weight who received a high total dose at 75mcg/kg. Enrollment in the study has recently resumed after approval of the new MTD.

In addition to this ongoing Phase Ib extension, Molecular Templates expects to start Phase II combinations studies in 2H18 and a Phase II monotherapy study at the end of the year that

may be pivotal.

Evofosfamide

Poster Title:	*Unexpected Pharmacokinetics of Evofosfamide Observed in Phase III MAESTRO Study*
First Author:	Jack P. Higgins, Ph.D., Molecular Templates, Inc.

This poster compares the pharmacokinetic (PK) profile of evofosfamide from the Phase II ("404" study) and Phase III ("MAESTRO") trials completed in patients with advanced pancreatic cancer. The Phase II ("404") study of evofosfamide in pancreatic cancer (N=214) showed promising response rates, progression-free survival, and overall survival. MAESTRO, a Phase III study in the same patient population (N=693) failed to replicate the clinical benefit seen in the Phase II ("404") study. A new ethanol-based formation was introduced before the initiation of MAESTRO and the drug exposure was substantially lower than the exposure in the Phase II ("404") study at the same dose. In the Japanese MAESTRO patients who received evofosfamide (N=59), substantially higher drug exposure was observed with correspondingly better clinical outcomes versus patients in the study from the rest of the world. We surmise that the formulation change may have adversely affected drug exposure and may have caused the reduced clinical benefit observed in MAESTRO.

Evofosfamide (in the current ethanol-based formulation) at higher doses is currently being evaluated in a Phase I study, in combination with ipilimumab, in an attempt to replicate the exposure seen with the previous formulation in Phase II ("404") study. Molecular Templates plans to explore potential partnership opportunities for further development of evofosfamide.

About Molecular Templates

Molecular Templates is focused on the discovery, development and commercialization of next-generation immunotoxins called Engineered Toxin Bodies (ETBs) for the treatment of cancers and other serious diseases. For additional information, please visit Molecular Templates' website at www.mtem.com.

Forward-Looking Statements

This press release contains forward-looking statements for purposes of the Private Securities Litigation Reform Act of 1995 (the "Act"). Molecular Templates disclaims any intent or obligation to update these forward-looking statements, and claims the protection of the Act's Safe Harbor for forward-looking statements. All statements, other than statements of historical facts, included in this press release regarding strategy, future operations, future financial position, future revenue, projected expenses, prospects, plans and objectives of management are forward-looking statements. In addition, when or if used in this press release, the words "may," "could," "should," "anticipate," "believe," "estimate," "expect," "intend," "plan," "predict" and similar expressions and their variants, as they relate to Molecular Templates may identify forward-looking statements. Examples of such statements include, but are not limited to, statements relating to the development of the Company's lead program, MT-3724; the expected timing of submitting various IND applications and initiating studies; and the Company's belief that its proprietary biologic drug platform technology, or ETBs, provides for a differentiated mechanism of action that may address some of the limitations associated with currently available cancer therapeutics.

Forward-looking statements are not guarantees of future performance and involve risks and uncertainties. Actual events or results may differ materially from those discussed in the

forward-looking statements as a result of various factors including, but not limited to, the uncertainties inherent in the preclinical and clinical development process; whether the Company's cash resources will be sufficient to fund its continuing operations for the periods and/or trials anticipated; the ability of the Company to protect its intellectual property rights; and legislative, regulatory, political and economic developments, as well as those risks identified under the heading "Risk Factors" in the Company's filings with the SEC. Any forward-looking statements contained in this press release speak only as of the date hereof, and the Company specifically disclaims any obligation to update any forward-looking statement, whether because of new information, future events or otherwise.

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