February 27, 2019

New Data on Molecular Templates' Engineered Toxin Bodies to be Presented at the American Association of Cancer Research (AACR) Annual Meeting 2019

Presentations will feature data on 1) CD38-targeted ETB TAK-169, 2) CD20-targeted ETB MT-3724 in combination with chemotherapy or IMiDs, 3) PD-L1-targeted ETB for direct cell kill approach to PD-L1 expressing cancers, 4) Bispecific ETBs for targeted cancer treatment

AUSTIN, Texas, Feb. 27, 2019 (GLOBE NEWSWIRE) -- Molecular Templates, Inc., (Nasdaq: MTEM) a clinical stage biopharmaceutical company focused on the discovery and development of Engineered Toxin Bodies (ETBs), a new class of targeted biologic therapies that possess unique mechanisms of action in oncology, today announced that new data on its pipeline programs and technology platform will be presented in four posters at the American Association of Cancer Research (AACR) Annual Meeting 2019, to be held March 29 - Apr 3, 2019 at the Georgia World Congress Center in Atlanta, Georgia.

Preclinical data on TAK-169, the company's CD38-targeted ETB (partnered with Takeda Pharmaceutical Company Limited), will be presented for the first time at the AACR meeting. This molecule is the most potent ETB that Molecular Templates has developed against any target to date. Importantly, in preclinical models, TAK-169 is active in the presence of daratumumab and active against daratumumab resistant cells.

"We are excited to be presenting new data on multiple pipeline programs as well as potential new applications of our ETB technology platform," said Eric Poma, Ph.D., CEO and CSO of Molecular Templates. "We believe that TAK-169 could be an important new therapy for multiple myeloma patients and these new preclinical data support our rationale for the partnership we announced with Takeda in September 2018. We look forward to the start of clinical development for TAK-169 this year. We believe that data on our CD20 and PD-L1 ETBs support our clinical development plans for those programs. Furthermore, the data on bispecific ETBs highlight the breadth of potential application of our technology, which we expect to drive continued pipeline expansion and partnership opportunities."

Date:	Monday, April 1
Time:	1:00pm – 5:00pm Eastern Time
Session:	Immunology: Therapeutic Antibodies 3
Abstract #:	2384
Location:	Georgia World Congress Center, Exhibit Hall B, Poster Section 25, Poster Board Number 8
Poster Title:	*TAK-169, an Exceptionally Potent CD38 Targeted Engineered Toxin Body, as a Novel Direct Cell Kill Approach for the Treatment of Multiple Myeloma*
Authors:	Erin K. Willert[1], Garrett L. Robinson[1], Jack P. Higgins[1], Jensing Liu[1], Janice Lee[2], Sakeena Syed[2], Yuhong Zhang[2], Dan Tavares[2], Anya Lublinsky[2], Nibedita Chattopadhyay[2], Haiqing Wang[2], Laura Packer[2], Pu Shi[2], Carole Harbison[2], Sanjay Patel[2], John Newcomb[2] [1]Molecular Templates Inc., Austin, TX; 2Takeda, Cambridge, MA

Molecular Templates will present on its CD38-targeted ETB, TAK-169. Although CD38 is a poorly internalizing receptor, TAK-169 is able to efficiently internalize and directly kill CD38-expressing cells. This novel mechanism of action may be relevant in patients who have progressed after or are unlikely to respond to CD38-targeted antibody therapy. TAK-169 has demonstrated potent cytotoxicity across a range of myeloma cell lines with a range of CD38 expression in vitro as well as in patient-derived samples including those with previous exposure to daratumumab. Furthermore, TAK-169 retains activity in the presence of excess approved, CD38 targeted therapeutic daratumumab. In xenograft models, complete regressions were observed using both a once-weekly and bi-weekly schedule of TAK-169. Tolerability studies in non-human primates demonstrate that repeat administration is tolerated at doses that are expected to be efficacious. TAK-169 is expected to enter the clinic in 2019.

Date:	Monday, April 1
Time:	1:00pm – 5:00pm Eastern Time
Session:	Experimental and Molecular Therapeutics: Apoptosis, Necrosis, and Cancer Cell Survival
Abstract #:	2060
Location:	Georgia World Congress Center, Exhibit Hall B, Poster Section 9, Poster Board Number 12
Poster Title:	*Combination of CD20 targeted Engineered Toxin Body, MT-3724, with chemotherapy or IMiDs for the treatment of Non Hodgkin's Lymphoma*
Authors:	Jack P. Higgins, Aimee Iberg, Caleigh Howard & Erin K. Willert

MT-3724 is a CD20-targeted ETB that has demonstrated single agent anti-tumor activity in heavily pre-treated relapsed/refractory (R/R) Non-Hodgkin’s lymphoma (NHL) patients in a Phase I clinical study. The combination of MT-3724 with chemotherapeutic agents (doxorubicin, gemcitabine, bendamustine, and vincristine) or an immunomodulatory (IMiD) agent (lenalidomide) all demonstrated additive or synergistic cytotoxicity of NHL cell lines. Additional clinical studies to evaluate MT-3724 as single agent and in combination with gemcitabine and oxaliplatin (GEMOX) or lenalidomide are underway and expected to generate data in 2019.

Date:	Tuesday, April 2
Time:	1:00pm – 5:00pm Eastern Time
Session:	Experimental and Molecular Therapeutics: Pharmacokinetics and Pharmacodynamics / Preclinical Toxicology
Abstract #:	3900
Location:	Georgia World Congress Center, Exhibit Hall B, Poster Section 13, Poster Board Number 20
Poster Title:	*The Safety and efficacy Profile of a PD-L1 Directed, Engineered Toxin Body, as a Novel Targeted Direct-Cell Kill Approach for the Treatment of PD-L1 Expressing Cancers*
Authors:	Hilario J. Ramos, Asis K. Sarkar, Sara Le Mar, Brigitte Brieschke, Joseph D. Dekker, Veronica R. Partridge, Pablo A. Maceda, Michaela M. Sousares, Garrett L. Robinson, Aimee Iberg, Shaoyou Chu, Jensing Liu, Jack P. Higgins, Erin K. Willert.

Molecular Templates has developed PD-L1-targeting ETBs as an approach to directly target

tumor cells and overcome resistance mechanisms against PD-1 and PD-L1 antibodies. The cytotoxicity delivered by PD-L1-specific ETBs is engineered to be independent of a requirement for tumor infiltrating lymphocytes, high tumor mutational burden, or modulatory effects of the tumor microenvironment. Further, the activity is not dependent on blockade of the PD-1/PD-L1 checkpoint axis. Thus, PD-L1-targeting ETBs represent a distinct class of therapeutics with direct cell-kill mechanism of action and ability for activity in patients who have progressed on current standard of care or checkpoint therapy. In this presentation, we highlight the efficacy and safety profile of MT-6020, a human and cynomolgus cross-reactive, PD-L1 targeted, ETB. MT-6020 binds to cell lines expressing non-human primate PD-L1 and elicits cytotoxic responses comparable to those observed on human tumor target cells. Molecular Templates' PD-L1 ETB, MT-6035, is built upon the MT-6020 scaffold and can also deliver a viral peptide for cell surface presentation and targeting by a specific antiviral CTL population for a second and complementary mechanism for tumor cell destruction, referred to as antigen seeding. MT-6020 and MT-6035 represent a novel approach to targeting and destroying tumors expressing PD-L1 that is unlikely to be inhibited by resistance mechanisms to current checkpoint inhibitors, is well tolerated in relevant toxicity models, and has the capacity for activity in indications where standard of care has failed. Molecular Templates expects to initiate clinical development of the PD-L1-targeted-ETB (with antigen seeding) in 2H19.

Date:	Tuesday, April 2
Time:	8:00am – 12:00pm Eastern Time
Session:	Experimental and Molecular Therapeutics: Diagnostics, Biomarkers, and the Tumor Microenvironment
Abstract #:	2984
Location:	Georgia World Congress Center, Exhibit Hall B, Poster Section 11, Poster Board Number 6
Poster Title:	*Design and Characterization of Bispecific Engineered Toxin Bodies for Targeted Cancer Therapy*
Authors:	Aimee Iberg, Garrett L. Cornelison, Caleigh Howard, Paul Amador, Steven Rivera, Michael Jamaleddine, Garrett L. Robinson, Erin K. Willert

To further expand the therapeutic benefit of its ETB platform, Molecular Templates is characterizing ETBs that are targeted through multiple binding domains. Bispecific ETBs that target two epitopes on the same receptor, or two distinct cell surface molecules both expressed on cancer cells, may allow for enhanced activity profiles. These possibilities include: (i) activity in the presence of a competitive binding protein (ii) sustained activity when one target molecule is shed or downregulated, (iii) synergistic binding events to increase overall potency, and (iv) increased specificity towards cancer over normal tissue. Bispecific ETBs have been generated to engage a variety of target combinations, relevant to both solid and hematologic cancer treatment. MTEM is exploring therapeutically relevant target combinations to facilitate the development of a bispecific clinical lead. By pairing the biology and potency of ETB-mediated killing with the expanded targeting possibilities afforded by bispecific molecules, Molecular Templates aims to develop a new class of therapeutics to benefit cancer patients.

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.

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