TScan Therapeutics Presents Preclinical Data for Solid Tumor Program at the 37th Society for Immunotherapy of Cancer Annual Meeting

November 11, 2022

*TCRs for an HLA-A*02:01 epitope of PRAME now in IND-enabling studies*

Multiplexing TCRs for MAGE-A1 and PRAME demonstrates synergistic cytotoxicity in vitro and in mouse xenograft models

Company continues to discover TCRs for its ImmunoBank, enabling customized multiplexed TCR-T therapy in a broad range of solid tumors

WALTHAM, Mass., Nov. 11, 2022 (GLOBE NEWSWIRE) -- TScan Therapeutics, Inc. (Nasdaq: TCRX), a clinical-stage biopharmaceutical company focused on the development of T cell receptor (TCR)-engineered T cell therapies (TCR-T) for the treatment of patients with cancer, today announced the presentation of two posters at the Society for Immunotherapy of Cancer (SITC) 37th Annual Meeting.

“Perhaps the largest challenge in treating solid tumors with TCR-T therapy is addressing the problems of target heterogeneity and HLA loss,” said Gavin MacBeath, Ph.D., Chief Scientific and Operations Officer. “We are solving this problem by building a diverse collection of therapeutic TCRs to enable customized multiplexed TCR-T therapy. The discovery of PRAME-specific TCRs and the observation that they synergize with our MAGE-A1-specific TCRs marks the next step in our solid tumor program. We are on track to submit IND applications for two TCRs by the end of 2022, with four more to follow in 2023.”

“These data, coupled with previous findings in the field, suggest that a multiplexed approach to treating solid tumors has the potential to achieve meaningful and durable responses,” said Debora Barton, M.D., Chief Medical Officer. “We continue to focus on growing our ImmunoBank and pursuing our clinical and regulatory strategy to bring customized therapies to patients with a broad range of solid tumor malignancies.”

“Discovery of PRAME-specific TCR-T cell therapy candidates for the treatment of solid tumors,” presented by Mollie Jurewicz, Ph.D.

Using TScan’s proprietary ReceptorScan platform, TCRs specific for five different A*02:01 epitopes in PRAME were discovered by screening over 800 million naïve CD8+ T cells from 16 healthy donors to identify over 5,000 relevant TCRs. $PRAME_{425-433}$-specific TCRs demonstrated superior recognition of a PRAME-expressing cell line compared to TCRs for the other four epitopes. Two TCRs compared favorably to a clinical-stage benchmark TCR with respect to cytotoxicity, cytokine release, and T cell proliferation. Safety assessment demonstrated that few off-target peptides were recognized by these lead TCRs, minimal alloreactivity was observed to 110 allotypes tested, and no reactivity to normal primary human cells was found. $PRAME_{425-433}$-specific TCR-T cells were able to control tumor growth *in vivo* following infusion into immunodeficient mice implanted with PRAME-expressing xenografts. These results validate the use of ReceptorScan and SafetyScan to rapidly identify naturally occurring, high affinity, and de-risked TCRs suitable for clinical development.

The Company has advanced several candidate $PRAME_{425-433}$ TCRs into IND-enabling studies and plans to file an IND for TSC-203-A2 in 2023.

“Multiplexed TCR-T cell therapy targeting MAGE-A1 and PRAME enhances the activity of adoptive T cell therapy in pre-clinical models,” presented by Antoine Boudot, Ph.D.

To address antigen heterogeneity, TScan developed a multiplexed TCR-T approach targeting two different cancer testis antigens via two different TCRs. One of these antigens, MAGE-A1, was identified by TScan’s discovery platform as the target of expanded tumor infiltrating T cells from a patient with head and neck cancer. The other antigen, PRAME, is highly expressed in a variety of cancers, including 90% of melanomas, 90% of head and neck cancers, and 50% of non-small cell lung cancers. Using its ReceptorScan platform, TScan developed two TCRs restricted to HLA-A*02:01 epitopes of MAGE-A1 and PRAME. Both TCRs were similar to clinical-stage benchmark TCRs and highly active *in vitro* against cancer cell lines expressing endogenous MAGE-A1 and PRAME. In xenograft mouse models, each TCR was able to control the growth of tumors expressing their cognate antigen. To assess potential synergy, a mixture of two different cell lines expressing either MAGE-A1 or PRAME were grown as xenograft tumors in mice, mimicking the observed heterogeneity of these targets in human tumors. Notably, when treated with multiplexed MAGE-A1/PRAME TCR-T, the mice achieved longer lasting tumor control compared to either singleplexed treatment alone. These findings support the hypothesis that multiplexed TCR-T has the potential to overcome antigen heterogeneity, which may contribute to the observed lack of durability in clinical trials of singleplexed TCR-T therapy.

A copy of the posters will be added to the Technology section of the Company’s website and can be accessed here.

About TScan Therapeutics, Inc.

TScan is a clinical-stage biopharmaceutical company focused on the development of T cell receptor (TCR)-engineered T cell therapies (TCR-T) for the treatment of patients with cancer. The Company’s lead TCR-T therapy candidates, TSC-100 and TSC-101, are in development for the treatment of patients with hematologic malignancies to eliminate residual disease and prevent relapse after allogeneic hematopoietic cell transplantation. The Company is also developing multiplexed TCR-T therapy candidates for the treatment of various solid tumors. The Company has developed and continues to build its ImmunoBank, the Company’s repository of therapeutic TCRs that recognize diverse targets and are associated with multiple HLA types, in order to provide customized multiplexed TCR-T therapies for patients with a variety of solid tumors.

Forward-Looking Statements

This release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including, but not limited to, express or implied statements regarding the Company's plans, progress, and timing relating to the Company's plans, progress, and timing relating to the submission of INDs for the Company's solid tumor programs , the Company's current and future research and development plans or expectations, the structure, timing and success of the Company's planned preclinical development and clinical trials, the potential benefits of any of the Company's proprietary platforms or current or future product candidates in treating patients, and the Company's goals, strategy, and focus. TScan intends such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. In some cases, you can identify forward-looking statements by terms such as, but not limited to, "may," "might," "will," "objective," "intend," "should," "could," "can," "would," "expect," "believe," "anticipate," "project," "target," "design," "estimate," "predict," "potential," "plan," "on track," or similar expressions or the negative of those terms. Such forward-looking statements are based upon current expectations that involve risks, changes in circumstances, assumptions, and uncertainties. The express or implied forward-looking statements included in this release are only predictions and are subject to a number of risks, uncertainties and assumptions, including, without limitation: the beneficial characteristics, safety, efficacy, therapeutic effects and potential advantages of TScan's TCR-T therapy candidates; TScan's expectations regarding its preclinical studies being predictive of clinical trial results; the timing of the initiation, progress and expected results of TScan's preclinical studies, clinical trials and its research and development programs; TScan's plans relating to developing and commercializing its TCR-T therapy candidates, if approved, including sales strategy; estimates of the size of the addressable market for TScan's TCR-T therapy candidates; TScan's manufacturing capabilities and the scalable nature of its manufacturing process; TScan's estimates regarding expenses, future milestone payments and revenue, capital requirements and needs for additional financing; TScan's expectations regarding competition; TScan's anticipated growth strategies; TScan's ability to attract or retain key personnel; TScan's ability to establish and maintain development partnerships and collaborations; TScan's expectations regarding federal, state and foreign regulatory requirements; TScan's ability to obtain and maintain intellectual property protection for its proprietary platform technology and our product candidates; the sufficiency of TScan's existing capital resources to fund its future operating expenses and capital expenditure requirements; and the effect of the COVID-19 pandemic, including mitigation efforts and political, economic, legal and social effects, on any of the foregoing or other aspects of TScan's business or operations; and other factors that are described in the "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of TScan's most recent Annual Report on Form 10-K and any other filings that TScan has made or may make with the SEC in the future. Any forward-looking statements contained in this release represent TScan's views only as of the date hereof and should not be relied upon as representing its views as of any subsequent date. Except as required by law, TScan explicitly disclaims any obligation to update any forward-looking statements.

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