TransCode Therapeutics Announces Positive Results in Non-human Primates with its Lead Therapeutic Candidate, TTX-MC138

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Further Supporting TTX-MC138 Application in Metastatic Cancer

BOSTON, July 31, 2023 (GLOBE NEWSWIRE) -- TransCode Therapeutics, Inc. (NASDAQ: RNAZ), the RNA oncology company committed to more effectively treating cancer using RNA therapeutics, announced today positive results with its lead therapeutic candidate, TTX-MC138, in non-human primates (NHPs), showing that the therapeutic effectively engaged its target and showed favorable pharmacokinetics and tissue distribution.

In the study, non-human primates (n = 4) were injected with a microdose of radiolabeled TTX-MC138 and imaged by positron emission tomography-magnetic resonance imaging (PET-MRI) to determine the pharmacokinetics and tissue distribution of the therapeutic. In addition, the pharmacodynamic activity of radiolabeled TTX-MC138 following a microdose injection was determined by measuring inhibition of the therapeutic target, miRNA-10b, using qRT-PCR. TTX-MC138 demonstrated a long circulation half-life and tissue distribution consistent with hepatic clearance. Importantly, even at a microdose, the therapeutic showed lasting activity and significantly inhibited its target, miRNA-10b, known to be a driver of metastatic progression in a number of cancers. Data from the NHP study were incorporated into a Drug Metabolism and Pharmacokinetics (DMPK) model, intended to model human exposure to TTX-MC38. The model predicted a long circulation and tissue distribution in humans, similar to results seen in preclinical studies of cancer in which complete regressions of metastatic disease were seen.

TTX-MC138 consists of an iron oxide nanocarrier conjugated to a nucleic acid designed to inhibit the oncogenic RNA, microRNA-10b. MiRNA-10b is described as the master regulator of cancer progression in a number of advanced solid tumors. TransCode believes that TTX-MC138 could become a treatment for many of these cancers. Administration of TTX-MC138 has resulted in complete regression of metastatic disease in mouse models of pancreatic and breast cancer. In addition, TTX-MC138 was successfully delivered and demonstrated preliminary efficacy in a case study of spontaneous feline mammary carcinoma.

TransCode's Chief Technology Officer, Zdravka Medarova, commented, "The latest data obtained in non-human primates support the application of TTX-MC138 for the treatment of metastatic cancer. The wealth of pre-clinical evidence pointing towards miRNA-10b's critical role in metastatic progression across most major cancer types suggests that being able to inhibit miRNA-10b in patients with advanced disease could have a dramatic impact on their disease."

"The success of the non-human primate study further de-risks our TTX-MC138 program. Our Phase 0 trial also involves a single microdose of radiolabeled TTX-MC138 followed by noninvasive PET-MRI. Given the similarities between humans and non-human primates relative to anatomy, physiology, and molecular biology, we anticipate comparable results in trial patients to those predicted by the DMPK model in the NHP studies," added Michael Dudley, Chief Executive Officer of TransCode.

The study was done in collaboration with Dr. Peter Caravan, co-director of the Institute for Innovation in Imaging (I3) at Massachusetts General Hospital and a Professor of Radiology at the Athinoula A. Martinos Center for Biomedical Imaging at the Massachusetts General Hospital and Harvard Medical School.

TransCode is enrolling patients in a first-in-human clinical trial with TTX-MC138 in patients with advanced solid cancers (https://clinicaltrials.gov/study/NCT05908773?spons=transcode&rank=1). In this clinical trial, up to 12 patients will be given a single microdose of radiolabeled TTX-MC138 followed by noninvasive PET-MRI. The trial is intended to quantify the amount of TTX-MC138 delivered to metastatic lesions and the pharmacokinetics of the therapeutic candidate in cancer patients. The trial could yield important data regarding TTX-MC138 delivery to clinical metastases that could inform dose selection, dosing frequency, and patient selection to expedite the path to success in later stage clinical trials. This trial is not intended to have therapeutic efficacy.

About TransCode Therapeutics

TransCode is an RNA oncology company created on the belief that cancer can be more effectively treated using RNA therapeutics. Using its iron oxide nanoparticle delivery platform, the Company has created a portfolio of drug candidates designed to target a variety of tumor types with the objective of significantly improving patient outcomes. The Company's lead therapeutic candidate, TTX-MC138, is focused on treating metastatic cancer, which is believed to cause approximately 90% of all cancer deaths totaling over nine million per year worldwide. The Company believes that TTX-MC138 has the potential to dramatically improve clinical outcomes in a range of cancers, including breast, pancreatic, ovarian and colon cancer, glioblastomas and others. Another of the Company's drug candidates, TTX-siPDL1, focuses on treating tumors by targeting a protein called Programmed death-ligand 1 (PD-L1). TransCode also has three cancer-agnostic programs: TTX-RIGA, an RNA–based agonist of the retinoic acid-inducible gene I designed to drive an immune response in the tumor microenvironment; TTX-CRISPR, a CRISPR/Cas9–based therapy platform for the repair or elimination of cancer-causing genes inside tumor cells; and TTX-mRNA, an mRNA-based platform for the development of cancer vaccines designed to activate cytotoxic immune responses against tumor cells.

Forward-Looking Statements

This release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including, without limitation, statements concerning the results of preclinical studies of TTX-MC138 in breast cancer and other tumor types, statements concerning expected clinical results of TransCode's therapeutic candidates, statements concerning the results of RNA research, statements concerning the potential for treating cancer with RNA therapeutics, statements concerning the timing and outcome of expected regulatory filings and clinical trials, including the planned first-in-human study of TTX-MC138, and whether this study will demonstrate proof-of-mechanism, and statements concerning

TransCode's portfolio of drug candidates and TTX technology platform generally. Of note, a Phase 0 clinical trial is an exploratory study, conducted under an exploratory Investigational New Drug (eIND) application. Exploratory IND studies usually involve very limited human exposure to a therapeutic candidate to evaluate mechanism of action in order to inform potential clinical evaluation in future clinical studies, but otherwise have no therapeutic intent. Any forward-looking statements in this press release are based on management's current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to: the risk associated with drug discovery and development; the risk that the results of our planned clinical trials will not be consistent with our pre-clinical studies or expectations; risks associated with the timing and outcome of TransCode's planned regulatory submissions; risks associated with TransCode's planned clinical trials for its product candidates; risks associated with obtaining, maintaining and protecting intellectual property; risks associated with TransCode's ability to enforce its patents against infringers and defend its patent portfolio against challenges from third parties; the risk of competition from other companies developing products for similar uses; risks associated with TransCode's financial condition and its need to obtain additional funding to support its business activities, including TransCode's ability to continue as a going concern; risks associated with TransCode's dependence on third parties; and risks associated with the COVID-19 coronavirus. For a discussion of these and other risks and uncertainties, and other important factors, any of which could cause TransCode's actual results to differ from those contained in or implied by the forward-looking statements, see the section entitled "Risk Factors" in TransCode's Annual Report on Form 10-K for the year ended December 31, 2022, as well as discussions of potential risks, uncertainties and other important factors in any subsequent TransCode filings with the Securities and Exchange Commission. All information in this press release is as of the date of the release; TransCode undertakes no duty to update this information unless required by law.

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