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# Fate Therapeutics and University of California San Diego Launch Research Collaboration to Develop iPSC-Derived CAR NK Cell Cancer Immunotherapies

*Product Candidates to Incorporate Chimeric Antigen Receptor Construct Optimized for NK Cell Persistence and Anti-Tumor Activity*

*Master Pluripotent Cell Lines Engineered with Chimeric Antigen Receptors to be used for Off-the-Shelf Targeted Natural Killer Cell Product Candidates*

SAN DIEGO, Dec. 06, 2017 (GLOBE NEWSWIRE) -- Fate Therapeutics, Inc. (NASDAQ:FATE), a clinical-stage biopharmaceutical company dedicated to the development of programmed cellular immunotherapies for cancer and immune disorders, announced today a partnership with the University of California San Diego to develop off-the-shelf, chimeric antigen receptor (CAR)-targeted natural killer (NK) cell cancer immunotherapies. The two-year collaboration is being led by Dan S. Kaufman, M.D., Ph.D., Professor of Medicine in the Division of Regenerative Medicine and Director of Cell Therapy at UC San Diego School of Medicine.

"NK cells have the inherent ability to target a diversity of stress-induced ligands on tumor cells and can be safely administered without the need for individualized patient matching. Additionally, NK cells engineered with chimeric antigen receptors can be targeted to tumors with high specificity. This duality provides CAR NK cells with the unique potential to overcome antigen escape and address tumor heterogeneity, which are distinct advantages over patient-specific CAR T-cell immunotherapies," said Dr. Kaufman. "We have now identified several CAR constructs optimized for NK cell signaling, persistence and cytotoxicity, and combined our targeting content with Fate Therapeutics' induced pluripotent stem cell product platform for development of off-the-shelf CAR-targeted NK cell products using clonal engineered master pluripotent cell lines."

The CAR constructs identified by the collaborators contain transmembrane and co-stimulatory domains that enhance antigen-specific NK cell activation and improve the effector function of NK cells. Fate Therapeutics holds an exclusive license to the intellectual property covering these CAR constructs and maintains an option to exclusively license intellectual property arising from all research and development activities under the collaboration.

At the 59$^{th}$ American Society of Hematology (ASH) Annual Meeting and Exposition, Dr. Kaufman and Fate Therapeutics will present preclinical data on Saturday, December 9, 2017 highlighting CAR-targeted NK cells derived from an induced pluripotent stem cell (iPSC) engineered with a specific CAR construct containing a NKG2D transmembrane domain, a 2B4 co-stimulatory domain and a CD3ζ signaling domain. In preclinical studies using an ovarian cancer xenograft model, the collaborators have shown that a single dose of CAR-targeted NK cells derived from iPSCs engineered with this specific CAR construct markedly inhibited tumor growth and significantly enhanced survival as compared to NK cells containing a CAR construct commonly used for T-cell immunotherapy. Dr. Kaufman was recently awarded $5.15 million by the California Institute for Regenerative Medicine (CIRM) to advance clinical translation of NK cells derived from pluripotent stem cells into a standardized treatment for treating hematologic malignancies.

iPSCs possess the unique dual properties of unlimited self-renewal and differentiation potential into all cell types of the body. The engineering of iPSCs can be done as a one-time genetic modification event and a single iPSC can be selected for creation of a clonal master pluripotent cell line. Similar to master cell lines used for the manufacture of therapeutic antibodies, a clonal master pluripotent cell line can be used to repeatedly create clonal populations of effector cells. This first-of-kind approach enables large-scale generation of off-the-shelf, targeted, homogeneous cell products that can be administered in repeat doses to mediate more effective pharmacologic activity, including in combination with cycles of other cancer treatments.

**About Fate Therapeutics, Inc.**
Fate Therapeutics is a clinical-stage biopharmaceutical company dedicated to the development of programmed cellular immunotherapies for cancer and immune disorders. The Company's hematopoietic cell therapy pipeline is comprised of NK- and T-cell immuno-oncology programs, including off-the-shelf product candidates derived from engineered induced pluripotent cell lines, and immuno-regulatory programs, including product candidates to prevent life-threatening complications in patients undergoing hematopoietic cell transplantation and to promote immune tolerance in patients with autoimmune disease. Its adoptive cell therapy programs are based on the Company's novel *ex vivo* cell programming

approach, which it applies to modulate the therapeutic function and direct the fate of immune cells. Fate Therapeutics is headquartered in San Diego, CA. For more information, please visit www.fatetherapeutics.com.

**Forward-Looking Statements**
This release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the impact, benefits, timing, and conduct of the partnership between the Company and University of California San Diego, as well as the capabilities, expertise, and responsibilities of each, and the therapeutic potential of any cellular immunotherapies developed under the partnership. These and any other forward-looking statements in this 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, risks associated with the success, cost, and timing of research and product development activities under the collaboration, the risk of cessation or delay of any development activities under the collaboration for a variety of reasons, including any inability to develop or manufacture off-the-shelf NK cell products, and the risk that any off-the-shelf NK cell therapies developed under the collaboration may not be suitable for therapeutic applications and may not provide the anticipated therapeutic benefits. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the risks and uncertainties detailed in the Company's periodic filings with the Securities and Exchange Commission, including but not limited to the Company's most recently filed periodic report, and from time to time the Company's other investor communications. Fate Therapeutics is providing the information in this release as of this date and does not undertake any obligation to update any forward-looking statements contained in this release as a result of new information, future events or otherwise.

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