Fate Therapeutics
Guiding cells to improve life

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Fate Therapeutics Receives Allowance of First U.S. Patent for Induced Pluripotent Stem Cell Technology

San Diego, CA – Fate Therapeutics, Inc. received a Notice of Allowance from the United States Patent and Trademark Office for U.S. Patent Application Number 10/997,146 entitled "Methods for Reprogramming Somatic Cells." Upon issuance, the patent will cover foundational induced pluripotent stem cell (iPSC) technology for identifying agents that enable the reprogramming of human somatic cells, including pluripotency genes, small molecules and biologics. The invention by Rudolf Jaenisch, M.D., founding member of the Whitehead Institute for Biomedical Research and scientific founder of Fate Therapeutics, has a priority date of November 26, 2003 and is believed to be the earliest art that describes broad methods and key agents to reprogram human somatic cells to a pluripotent state. Fate Therapeutics holds an exclusive license to the application in commercial fields, including for drug discovery and therapeutic purposes.

"Dr. Jaenisch's prescient vision in 2003 for creating human iPSCs and how reprogrammed cells could be used to revolutionize drug discovery and enable cell-based therapies is truly unparalleled," said Paul Grayson, president and CEO of Fate Therapeutics. "This first invention provides protectable compositions for identifying pluripotency genes, small molecules and proteins for cellular reprogramming. The reliable and efficient generation of iPSCs is crucial to the development of an industrialized iPSC technology platform where panels of disease-specific phenotypes can be studied for targeted drug discovery."

The Notice of Allowance represents the earliest allowed claims in the U.S. for iPSC technology. In this 2003 application (20080280362), Dr. Jaenisch first describes the groundbreaking potential to generate human pluripotent cells from somatic cells without using embryos, oocytes and/or nuclear transfer technology and how reprogrammed somatic cells can enable autologous cell therapy, including the treatment, prevention or stabilization of neurological diseases such as Alzheimer's, Parkinson's or ALS. In addition, the application covers compositions used in screening for agents to generate these pluripotent cells and further describes specific agents that can be used to reprogram human somatic cells, including certain genes, classes of small molecules and pluripotency proteins. Fate Therapeutics also holds an exclusive license to other inventions of Dr. Jaenisch relating to iPSC technology including PCT/US2008/004516 with a priority date of April 7, 2007, which describes the reprogramming of human somatic cells using one or more pluripotency factors, including Oct3/4, Sox2 and/or Klf4, and combinations thereof.

"With its early priority dates and territory reach, the Jaenisch portfolio is formidable," continued Mr. Grayson. "The disclosures include descriptions of human somatic cell reprogramming and its commercial relevance, methods of human iPSC generation using one or more, as opposed to all, of the key pluripotency factors and compositions to discover next-generation reprogramming agents. We look forward to collaborating with academia and industry to maximize this powerful platform for therapeutic benefit."

Because iPSCs have been shown to behave similarly to embryonic stem cells with the ability to differentiate into various cell types, such as cardiomyocytes, hepatocytes, neurons and pancreatic cells, and can be created from any adult somatic cell, like a skin cell, iPSC technology has significant commercial and medical value. For example, iPSCs can be used to assess drug toxicity across diverse genetic backgrounds, enable the development of disease model systems for basic research and drug discovery and may ultimately result in personalized cell therapies. Fate Therapeutics is using iPSCs to recreate adult stem cell niche environments for the discovery of "stem cell modulator" compounds that act in vivo for therapeutic benefit.

In addition to its exclusive license to the iPSC-related inventions of Dr. Jaenisch, Fate Therapeutics has also exclusively in-licensed from The Scripps Research Institute (TSRI) a portfolio of inventions by Sheng Ding, Ph.D., associate professor at The Scripps Research Institute and a scientific founder of Fate Therapeutics. In April of last year, under a research collaboration with Fate Therapeutics and TSRI, Dr. Ding and his team of scientists became the first group to publish research demonstrating completely non-viral, non-genetic reprogramming methods by using cell penetrating proteins. Dr. Ding also created novel small molecule conditions to generate iPSCs in a manner that is 200 times more efficient than, and twice as fast as, conventional methods for reprogramming adult human cells. The protein-based reprogramming breakthrough was honored as the Top Technology of 2009 by The Scientist, and the Company's iPSC technology received the 2009 North American Technology Innovation Award from Frost & Sullivan.