



THE UNIVERSITY of TEXAS

HEALTH SCIENCE CENTER AT HOUSTON

Office of Technology Management

COMPOSITIONS AND METHODS TO MODULATE STEM CELL SURVIVAL, GROWTH, AND DIFFERENTIATION

Market: Regenerative medicine is used to repair or replace damaged tissues and organs. Examples of diseases and conditions include diabetes, heart disease, renal failure, osteoporosis, and spinal cord injuries. The broad indications place a tremendous demand, and therefore a tremendous market on regenerative medicine. Worldwide stem cell therapies, cytokine therapies, and growth factor therapies will likely reach nearly \$21 billion by 2010. The current world market for replacement organs alone is in excess of \$350 billion, with the worldwide market for all regenerative medicine expected to reach \$500 billion by 2010.

Competitors and Current Problems: There are currently very few regenerative medicine products on the market, due largely to the lack of fundamental basic research in regenerative medicine, particularly with respect to more complex tissue interactions. Certainly access to stem cell lines has recently met with challenges. There is a significant need for reagents and methods to optimize the available stem cell reagents.

The Technology: A scientist at the University of Texas Health Science Center at Houston identified a protein that modulates cell growth and differentiation via the ubiquitination pathway. Cloning and characterization of the protein is complete, including sequencing and expression profiling. Further, in vitro studies showed the genes ability to attenuate cell spreading in vitro, regulation of embryonic body formation, and cell growth. Tools developed to study the protein include stably transfected cells expressing the tagged protein, and siRNA. Further analysis showed the protein regulates ubiquitination of specific gene products, including cell adhesion molecules and a cell cycle inhibitor. When overexpressed cell growth is inhibited, and when underexpressed cell growth is enhanced. Using the composition, the inventor further delineated a method for regulating in vitro cell growth for providing undifferentiated stem cells or embryonic cells that are suitable for transplantation into damaged tissues or organs, or for use in tissue repair.

NON-CONFIDENTIAL TECHNOLOGY DESCRIPTION

The preceding is intended to be a non-confidential summary of a novel technology created at the University of Texas Health Science center at Houston (UTHSCH), for which the University has obtained patent protection.

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Patent Status: Pending

License Available: world-wide; exclusive or non-exclusive

To obtain further information about this technology, please contact:
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