



**THE UNIVERSITY of TEXAS**

**HEALTH SCIENCE CENTER AT HOUSTON**

Office of Technology Management

## **LIPOSOME-MEDIATED TRANSFECTION OF CENTRAL NERVOUS SYSTEM CELLS**

**Market:** According to the Center for Disease Control, at least 1.4 million people sustain a traumatic brain injury each year in the United States. Of these about 50,000 die, 250,000 are hospitalized, and 1.1 million are treated and released from emergency departments.

Those who survive the initial trauma must fight the risk of the secondary effects from brain injury, which includes the loss of brain cells due to increased brain edema, uncontrollable intracranial pressure, production of free radicals and toxic molecules, and the loss of neurofilament proteins following injury.

**Current Problems:** It is widely recognized that delivery of neurotrophins to the central nervous system enhances the recovery of function of brain cells following trauma to the brain and spinal cord. However, rapid protein degradation and the presence of the blood-brain barrier have significantly limited the routes for administration of neurotrophins. Therefore, a new method capable of promoting nervous system cell repair and regeneration by increasing the expression of neurotrophins would represent a significant improvement in the treatment of central nervous system injury.

**Technology:** The University of Texas Health Science Center at Houston (UTHSC-H) has patented a method to rescue neurofilament proteins following traumatic brain injury by utilizing a liposome-mediated delivery of neurotrophic factors to stimulate nervous system cell repair and regeneration. This technology rescues neurofilament loss due to traumatic brain injury by increasing the availability of neurotrophins. Specifically, this method utilizes a liposome delivery system to administer the neurotrophins, nerve growth factor and brain-derived nerve growth factor. This technology could prove to be of great value in the treatment of all patients presenting head trauma, spinal cord injury, stroke, or other diseases of the central nervous system.

### **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:** U.S. Patent No. 6,096,716; August 1, 2000

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

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