

Use of Neurotrophic Factors in Treating Memory Loss and Neurodegenerative Disease

Tech ID: 19509 / UC Case 2001-109-0

BACKGROUND

Recently, clinical trials that genetically express the nerve growth factor gene in the brain have shown efficacy in treating patients with Alzheimer's disease.

TECHNOLOGY DESCRIPTION

UC San Diego researchers have shown that nervous system growth factors BDNF and NT-4/5 have efficacy in reversing age-related memory impairment and enhance neuronal structure when delivered to the entorhinal cortex. The invention includes the specific administration protocols needed to effectively deliver this factor with minimal side effects.

APPLICATIONS

The method is useful in the therapy of defective, diseased, and damaged neurons in the brain for normal aging or in treating neurodegeneration of the type associated with Alzheimer's disease and Parkinson's.

STATE OF DEVELOPMENT

The genes have been tested successfully in animal models, and the administration protocols have been tested successfully in human clinical trials.

RELATED MATERIALS

- ▶ Tuszynski MH, Mafong E, Meyer S. Central Infusions of Brain-Derived Neurotrophic Factor and Neurotrophin-4/5, but not Nerve Growth Factor and Neurotrophin-3, Prevent Loss of the Cholinergic Phenotype in Injured Adult Motor Neurons. *Neuroscience*. 1996 Apr;71(3):761-71.
- ▶ Lu P, Blesch A, Tuszynski MH. Neurotrophism Without Neurotropism: BDNF Promotes Survival but not Growth of Lesioned Corticospinal Neurons. *J Comp Neurol*. 2001 Aug 6;436(4):456-70.
- ▶ Tobias CA, Shumsky JS, Shibata M, Tuszynski MH, Fischer I, Tessler A, Murray M. Delayed Grafting of BDNF and NT-3 Producing Fibroblasts into the Injured Spinal Cord Stimulates Sprouting, Partially Rescues Axotomized Red Nucleus Neurons from Loss and Atrophy, and Provides Limited Regeneration. *Exp Neurol*. 2003 Nov;184(1):97-113.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	7,776,320	08/17/2010	2001-109

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OTHER INFORMATION

CATEGORIZED AS

- ▶ **Medical**
- ▶ Disease: Central Nervous System

RELATED CASES

2001-109-0