Neuroprotective Peptide for Alzheimer's Disease Treatment

Technology #1384

“Lead Inventors: Shi Du Yan, M.D., M.S., David Stern, M.D., Joyce W. Lustbader, Ph.D., Hao Wu, Ph.D.

Beta Protein Responsible for Alzheimer’s:
Alzheimer’s disease is one of the major causes of dementia, affecting an estimated 35 million across the globe, and its incidence has continued to climb as life expectancies have grown. A great deal of data have emerged to suggest that abnormal forms of the amyloid beta (A-beta) protein is a principal causal factor, by disrupting the function of, and eventually killing, neurons. Despite the development of many drug candidates, clinical trials have shown, at best, only a moderate impact on disease progression.

Alzheimer’s Disease Treatment Inhibits Neuron Death:
This invention describes a novel peptide therapeutic for the treatment of Alzheimer’s disease. Preliminary research identified A-beta -binding alcohol dehydrogenase as an enzyme that binds to A-beta with nanomolar affinity. ABAD is upregulated in Alzheimer’s disease, and co-expression of ABAD in the mutant amyloid precursor protein (mAPP) model potentiates the toxicity of A-beta. The inventors then developed a peptide derived from ABAD’s A-beta-binding domain, that effectively blocks interaction of the two proteins. Further in-vitro studies have shown that this peptide reduces a number of indicators of neurotoxicity in mAPP neurons. This candidate therefore shows great potential for blocking disease progression in patients suffering from Alzheimer’s disease.

Applications:
• Novel biologic for treatment of Alzheimer’s disease
• Abnormal A-beta function has been implicated in other neurological diseases, including Lewy body dementia and Creutzfeld-Jakob disease; this peptide may also have utility in these conditions

Advantages:
• A novel mechanism-of-action: Much effort has been made to reduce the level of A-beta, mostly with lackluster clinical results; this treatment instead focuses on blocking A-beta toxicity
• Strong data in support of efficacy


Licensing Status: Available for Sponsored Research Support

Inventors

David Mark Stern M.D.

Shi Du Yan MD