Diagnosis and Treatment of Alzheimers' Disease (Case RIH-102)

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Technology description

Brief Description:

Alzheimer's Disease (AD) is a debilitating disease primarily affecting adults over the age of 65, and the worldwide incidence of the disease is growing rapidly. The pathogenesis of AD continues to be a puzzling issue with no effective diagnostic or therapeutic methods currently available. Until relatively recently, the inability to link the neurological and physiological symptoms of AD has limited the ability to clearly target the disease. Published research has indicated that the impairment of cerebral glucose utilization is linked to the onset and progression of AD. The central nervous system (CNS) neurodegeneration observed in AD has been linked to impaired insulin signaling in the brain. Yet, the need remains for effective methods to target the initial stages of AD for diagnostic and therapeutic purposes.

Rhode Island Hospital researchers Suzanne Marie de la Mont and Jack Raymond Wands have developed innovative methods for the diagnosis and treatment of AD. They have discovered in the AD brain an impairment of insulin/insulin-like growth factor (IGF) expression as well as impairment of downstream mediators of insulin/IGF signaling. The technology therefore focuses on the proven relationship between AD and the insulin/IGF signaling pathway. Presented is: a method and kit for diagnosing AD a method for identifying a subject at risk for developing AD; a method for treatment of AD; a method for reducing memory loss and for slowing the onset and progression of AD; and methods for screening agents potential useful in the treatment, improvement or prevention of AD. The diagnostic approach determines insulin levels and function, IGF, and related receptors and signaling molecules. The therapeutic approach uses the administration of insulin agonist and insulin-like growth factor agonist for the treatment, improvement and prevention of the disease. In addition, an animal model of AD is provided to aid in the screening of potential therapeutic agents.

This Rhode Island Hospital technology leverages evidence that impaired insulin signaling in the brain plays a key role in AD pathogenesis. The result is a set of innovative methods for AD diagnosis, for identification of at-risk individuals, and for treatment of AD. The billion dollar global AD market shows growth in diagnostics/biomarkers and therapeutics for symptom treatment, presenting key opportunities for this technology. In addition to its application to the AD market, these diagnostic and therapeutic methods may also be applicable to the diagnosis and treatment of mild cognitive

impairment (MCI) as well as other neurodegenerative diseases in which the insulin/IGF signaling pathway and signaling molecules are involved.

Institution

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