Dual Targeting Agents For Alzheimer's Disease

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BRIEF DESCRIPTION

Alzheimer’s Disease is a prevalent neurodegenerative disorder affecting 10% of people over age 65. It is characterized by a progressive loss of cognitive function and memory impairments that are associated with increased peptide and protein aggregation in the brain. The invention herein describes a novel therapy for Alzheimer’s Disease which would promote the removal of toxic Amyloid-beta peptides out of the brain.

FULL DESCRIPTION

Alzheimer’s Disease (AD) is a neurodegenerative disorder that affects 10% of people over age 65, and is characterized by progressive memory and cognitive impairments. AD is characterized by increased amyloid-beta (Aβ) and neurofibrillary tangles in the brain. Aβ cannot cross the blood brain barrier (BBB), there is currently no known way to remove Aβ from the brain.

Researchers at UCI have developed a novel method for removing Aβ from the brain. The method involves introducing a dual functional agent in the brain that binds Aβ and promotes its active BBB transport by P-glycoprotein (PGP). By using a linked molecule with high affinity for binding Aβ on one end and high substrate affinity for a BBB transport protein, this novel method allows for the toxic peptides to effectively be towed across the BBB and out of the brain. This provides an efficient and targeted treatment for reducing the accumulation of Aβ in the brain of AD patients.

SUGGESTED USES

-Alzheimer’s Disease Treatment

-Other brain disorders associated with increased toxic macromolecules (ex. Cerebral amyloid angiopathy)

ADVANTAGES

§ Targeted solution (would not damage healthy brain tissue)

§ Effective at removing Aβ plaques

o Other methods established to date focus on reducing aggregation of Aβ

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,679,103	06/20/2023	2016-767

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OTHER INFORMATION

CATEGORIZED AS

- » **Biotechnology**
  - » Health
- » **Medical**
  - » Disease: Central Nervous System
  - » Therapeutics
- » **Research Tools**
  - » Other
  - » Protein Synthesis

RELATED CASES

2016-767-0

STATE OF DEVELOPMENT

§ Three bifunctional molecules have been synthesized that have high affinity for Aβ plaques and PGP

§ Preliminary assessment of bifunctional molecules were performed using AD human brain slices

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