



Peptides to Treat Alzheimer's Disease

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WARF: P140391US02

Inventors: Regina Murphy, Jeffrey Johnson, Patricia Cho, Xiaomeng Lu

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing peptides that target amyloid-beta, a main component of the plaques found in the brains of Alzheimer's patients.

Overview

Amyloid-beta ($A\beta$) peptides play a crucial role in Alzheimer's disease – they are a main component of the toxic amyloid plaques found in patients' brains. $A\beta$ is so dangerous because it can aggregate into misfolded forms and cause a chain reaction.

This link to Alzheimer's disease has motivated the search for compounds that can bind to and inhibit $A\beta$ activity. Numerous small molecules that alter $A\beta$ production and/or aggregation have been explored but none have proven clinically effective. An alternative approach is to use peptides or peptide mimics because they have potential advantages over small molecules in terms of better target affinity and specificity.

In general, two strategies have been employed by researchers in the quest for $A\beta$ -binding peptides: (i) designing peptides using self-complementation or (ii) screening random peptide libraries.

The Invention

UW–Madison researchers have developed a new strategy to design peptides that could be turned into therapeutics to treat or halt the progression of Alzheimer's disease. The cyclized (ring-shaped) peptides are derived from transthyretin (TTR), a protein found in cerebrospinal fluid that is known to bind to $A\beta$ and inhibit its toxicity *in vitro* and *in vivo*. The new peptides mimic both the sequence and the hairpin structure of transthyretin's $A\beta$ binding domain.

Applications

- Developing new $A\beta$ -binding peptides that could be used to treat Alzheimer's disease

Key Benefits

- Potential new weapon against devastating Alzheimer's disease
- Cyclized proteins are more stable (less susceptible to protease cleavage).

Stage of Development

Binding data and preliminary cell culture data show promise. The new peptides strongly interact with $A\beta$ and affect aggregation, and

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Additional Information

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For More Information About the Inventors

- [Jeffrey Johnson](#)

Related Technologies

- [WARF reference number P100028US02 describes compounds that reduce \$\beta\$ -amyloid production and thus may be potential therapeutics for Alzheimer's disease.](#)
- [WARF reference number P06056US describes a method using antibody fragments to help deliver drugs across the blood-brain barrier and potentially treat conditions such as Alzheimer's disease.](#)
- [WARF reference number P120322US02 describes a method using nasal spray to help deliver drugs across the blood-brain barrier and potentially treat conditions such as Alzheimer's disease.](#)

Tech Fields

- [Therapeutics & Vaccines : CNS](#)

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