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Rippled Beta-Sheets and Related Materials and Methods

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BACKGROUND

Amyloid- β ($A\beta$) is a protein that is implicated in Alzheimer's disease. $A\beta$ oligomers aggregate to form amyloid plaques, which are found in the brains of individuals with Alzheimer's disease. These plaques have high polydispersity; they vary in shape and size. Previously, researchers at UC Santa Cruz demonstrated that using a racemic mixture of $A\beta$ promoted fibril formation, an aggregation that is less neurotoxic than plaques of high polydispersity. Furthermore, these racemic counterparts form rippled β -sheets.

TECHNOLOGY DESCRIPTION

This patent includes methods of forming rippled β -sheets using racemic mixtures of small segments of $A\beta$, as well as using racemic mixtures of small segments of amylin, the aggregating toxic peptide of type II diabetes. Atomic-resolution crystallographic studies showed that these structures formed antiparallel rippled β -sheets, suggesting that the tendency for racemic peptides to form rippled β -sheets in three-dimensional systems is greater than previously thought. These methods provide a structural basis for targeting intrinsically disordered proteins.

APPLICATIONS

- ▶ Alzheimer's research
- ▶ diabetes research
- ▶ drug development

ADVANTAGES

- ▶ rippled β -sheets formed with shorter residues

INTELLECTUAL PROPERTY INFORMATION

Patent Pending

RELATED MATERIALS

- ▶ [Racemic Peptides from Amyloid \$\beta\$ and Amylin Form Rippled \$\beta\$ -Sheets Rather Than Pleated \$\beta\$ -Sheets - 11/16/2023](#)

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Rippled Beta-Sheets From Mixed Chirality Linear And Cyclic Peptides](#)
- ▶ [Design Of Functional Protein Materials Based on Beta-Rippled Sheet Architectures](#)
- ▶ [Separation of Methionine Sulfoxide Diastereomers.](#)

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OTHER INFORMATION

KEYWORDS

amyloid, amylin, rippled beta sheets, fibril, Alzheimer's, diabetes, peptide

CATEGORIZED AS

- ▶ **Materials & Chemicals**
 - ▶ Biological
 - ▶ Chemicals
- ▶ **Medical**
 - ▶ Disease: Central Nervous System
 - ▶ Research Tools
- ▶ **Research Tools**
 - ▶ Other

RELATED CASES

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