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# **Rippled Beta-Sheets and Related Materials and Methods**

Tech ID: 34352 / UC Case 2024-776-0

## **BACKGROUND**

Amyloid- $\beta$  (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  $\beta$ -sheets.

#### **TECHNOLOGY DESCRIPTION**

This patent includes methods of forming rippled  $\beta$ -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  $\beta$ -sheets, suggesting that the tendency for racemic peptides to form rippled  $\beta$ -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 ß and Amylin Form Rippled ß-Sheets Rather Than Pleated ß-Sheets - 11/16/2023

## CONTACT

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### **INVENTORS**

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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** 

2024-776-0

# ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ Design Of Functional Protein Materials Based on Beta-Rippled Sheet Architectures

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