

# Structure Based Design of Anti-Parkinson's Disease Compounds Targeting Synuclein Oligomerization

Tech ID: 19415 / UC Case 2007-274-0

## BACKGROUND

Researchers at UC San Diego's School of Medicine have invented a nanostructured device with a significantly improved ZT figure of merit.

The pathogenesis of many neurodegenerative diseases (i.e., Parkinson's disease and Lewy body dementia) is believed to involve the accumulation of alpha-synuclein, although how this buildup results in neuronal degeneration is still unclear. It has been shown that under pathological conditions, alpha-synuclein can aggregate into pentamers and hexamers that form pore-like structures. A better understanding of these oligomerization dynamics and subsequent fibril formation may lead to new avenues of treatment for Parkinson's disease or other neurodegenerative diseases characterized by this type of aggregation phenomenon.

## TECHNOLOGY DESCRIPTION

Recent work by UC San Diego investigators have focused on a specific region of alpha-synuclein critical to the aggregation process. Through the use of structure based design, peptidomimetic and peptide compounds were designed that block alpha-synuclein aggregation and neurodegeneration in an *in-vitro* model system. The initial compounds or their derivatives may serve as lead compounds or core structures that mimic natural chaperones that inhibit aggregation. This approach represents a radical shift from current approaches where reactive dyes are used in conjunction with the aggregated proteins to screen large chemical libraries, which may contain reactive compounds but potentially lack the required high degree of specificity to be a viable therapeutic candidate.

## RELATED MATERIALS

- ▶ [Dynamics of alpha-synuclein Aggregation and Inhibition of Pore-like Oligomer Development by beta-synuclein. Masliah, et. al. The FEBS Journal 274 \(2007\) 1862-1877](#)

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,450,481	05/28/2013	2007-274

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [System for Tracking Sharps and Tools in the Operating Room](#)
- ▶ [Peptides Targeted to the CNS for Clearance of Protein Aggregates in Alzheimer's Disease](#)

## CONTACT

University of California, San Diego  
Office of Innovation and Commercialization  
[innovation@ucsd.edu](mailto:innovation@ucsd.edu)  
tel: 858.534.5815.



## INVENTORS

- ▶ Masliah, Eliezer
- ▶ Rockenstein, Edward M.
- ▶ Tsigelny, Igor F.
- ▶ Wrasidlo, Wolfgang J.

## OTHER INFORMATION

### CATEGORIZED AS

- ▶ **Medical**
  - ▶ Disease: Central Nervous System

### RELATED CASES

2007-274-0