

Preventing Synuclein Accumulation as a Strategy for Improving Neuronal Survival and Regeneration after Spinal Cord Injury

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BACKGROUND

Protein aggregation is associated with a number of diseases (Alzheimer's, Parkinson's, and amyloidosis), and is believed to be responsible for tissue damage after traumatic injury to the spinal cord or brain. It is hypothesized that removing such aggregates can alleviate symptoms and minimize tissue damage.

INNOVATION

This invention describes a new application of a known drug, called CLR01. CLR01 is a "molecular tweezer" that can disaggregate amyloidogenic proteins, such as amyloid- β . According to new findings, CLR01 can be applied to the injury site of the spinal cord, and improve neuronal survival by inhibiting the post-injury aggregation of α -synuclein.

APPLICATIONS

- ▶ Improve neuronal survival and regeneration following spinal cord injury
- ▶ Improve neuronal survival and regeneration following traumatic brain injury

ADVANTAGES

There are currently no therapeutics that specifically target toxic protein aggregates following spinal cord and traumatic brain injury.

STATE OF DEVELOPMENT

The molecular tweezer has been tested in a lamprey model of spinal cord injury. Not only was significantly less synuclein aggregation observed, neuronal survival was also greatly increased.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,918,657	02/16/2021	2013-708

RELATED MATERIALS

- ▶ Attar A., Bitan G. "Disrupting self-assembly and toxicity of amyloidogenic protein oligomers by 'molecular tweezers' – from the test tube to animal models". *Curr. Pharm. Des.* 2014;20(15):2469-83.

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Inhibition Of Lipofuscin Aggregation By Molecular Tweezers](#)
- ▶ [New Molecular Tweezers Against Neurological Disorders And Viral Infections](#)
- ▶ [Small Molecule "Molecular Tweezers" that Inhibit Amyloid- \$\beta\$ Fiber Formation](#)
- ▶ [Treatment Of Lysosomal Storage Disorders](#)

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OTHER INFORMATION

KEYWORDS

Spinal injury, brain injury, aggregation, alpha-synuclein, amyloid

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Health
- ▶ **Medical**
 - ▶ Disease: Central Nervous System
 - ▶ Disease: Musculoskeletal Disorders
 - ▶ Therapeutics

RELATED CASES

2013-708-0

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