Pathway-Dependent Inhibition Of Proteopathic Seed Transmission
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SUMMARY
UCLA researchers in the Department of Neurology have developed a novel approach to stop the propagation of proteopathic diseases, which could be applied to wide range of neurodegenerative disorders including Alzheimer’s disease and Parkinson’s disease.

BACKGROUND
Proteopathy is a common feature of many neurodegenerative disorders, including Alzheimer’s disease and Parkinson’s disease. Alzheimer’s disease market alone is expected to reach over 2.9 billion USD by 2020. Available treatments are largely ineffective, and currently there is no successful approach for modifying the disease to stop its progression. A method to neutralize the spread of proteopathy that contributes to neurodegeneration would revolutionize how we treat proteopathic neurodegenerative disorders.

INNOVATION
Researchers at UCLA have developed a novel approach to stop the propagation of proteopathic diseases. Recent data has shown that the proteopathy disease propagation occurs when misfolded or aggregate-prone disease-specific proteins spread to other cells. There, these proteopathic “seeds” serve as a template to cause other proteins to misfold, in a manner similar to that of prions. Researchers in the Department of Neurology at UCLA have identified a specific molecular pathway that can be inhibited to stop proteopathic seed delivery, representing a promising strategy to control progression of neurodegenerative disorders.

APPLICATIONS
▶ Alzheimer’s disease
▶ Parkinson’s disease
▶ Lewy body dementia
▶ Front of temporal dementia
▶ Amyotrophic lateral sclerosis
▶ Proteopathic diseases

ADVANTAGES
▶ Gives insight into proteopathic disease progression
▶ Applicable across multiple proteopathic diseases
▶ Allow discovery of new small molecule drugs for neurodegenerative disorders

STATE OF DEVELOPMENT
▶ Identified a specific molecular pathway to stop proteopathic tau seed transmission
▶ Identified small molecule leads that could modulate the pathway and inhibit the seed transmission

RELATED MATERIALS
▶ Simmons, B.J., et. al., Understanding and Interrupting Fischer Azaindolization Reaction. J. American Chemical Society (accepted for publication) (2017).
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PATENT STATUS

Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- New 3D-Exoquant Method For The Analysis Of Surface Molecules And Quantification Of Tissue-Specific Exosomes In Biological Fluids
- Allosteric BACE Inhibitors For Treatment Of Alzheimer’s Disease
- Identification And Development Of Dual nSMase2-AChE Inhibitors For Neurodegenerative Disorders
- Exercise In A Pill: Compounds That Reproduce The Effects Of Exercise On Muscle Metabolism And Growth