Docket #: S22-503

Tau-targeting therapy for Alzheimer's disease and other tauopathies

Stanford researchers have developed a targeted therapy for Alzheimer's disease that focuses on inhibiting the spread of tau protein, a key factor in disease progression. By repurposing FDA-approved drugs, this novel approach offers a practical and timely intervention for treating Alzheimer's and related tauopathies.

Alzheimer's disease (AD) is a global health crisis, marked by the buildup of neurofibrillary tangles (NFTs) primarily composed of tau protein. A critical factor in AD progression is the propagation of tau protein, which drives the spread of disease pathology throughout the brain, leading to neuronal damage and accelerated cognitive decline. Current therapeutic approaches mainly target amyloid plaques, another hallmark of AD, but have shown limited success. This has resulted in a significant gap in effective treatments that can halt or reverse the progression of AD, underscoring the urgent need for new therapeutic strategies. The propagation of tau protein presents an untapped opportunity for developing novel interventions.

Our invention addresses this unmet need by targeting tau protein propagation, offering a novel and previously unexplored therapeutic pathway. Stanford researchers have delved into the mechanisms underlying tau propagation and identified specific sequences responsible for this activity. Leveraging this knowledge has enabled the screening of a range of bio-reagents, which identified candidates capable of inhibiting tau propagation. Several of these bio-reagents are FDA-approved drugs, which opens the door to drug repurposing, a strategy that can significantly expedite the development and approval process. In summary, this invention marks a significant advancement in AD treatment by introducing a novel approach that directly targets tau propagation using FDA-approved drugs, thereby offering a practical and timely intervention for treating Alzheimer's disease and related tauopathies.

Stage of Development:

Research - in vitro. The next steps include increasing the test sample size and begining testing on animal AD models.

Applications

- Novel treatment approach for Alzheimer's disease and related tauopathies
- Combination therapy potential

Advantages

- There are no existing effective therapies for Alzheimer's disease and other tauopathies
- Repurposing FDA-approved drugs allows for faster transition to clinical trials
- Reduces costs and regulatory hurdles
- Broad application extending to other tauopathies
- Personalized treatment plans based on patient profiles

Patents

- Published Application: WO2025184593

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