The HSP90 Activator AHA1 Drives Production of Pathological Tau Aggregates

Researchers at the University of South Florida have discovered a novel method of treating tauopathies, including Alzheimer’s disease, by inhibiting the HSP90 co-factor Aha1.

Pathogenic tau aggregation is one of the major hallmarks associated with Alzheimer’s disease and a number of other neurodegenerative diseases. Aggregation of tau protein leads to neurotoxicity and subsequently massive neuronal loss within the brain. There are currently no therapies which treat this underlying pathology, making the creation of effective treatments for these diseases essential. USF inventors have discovered that tau fibrillization and subsequent toxicity is enhanced by co-factors of the protein HSP90, particularly Aha-1; and that the overexpression of Aha-1 leads to an increase in insoluble tau levels, cognitive decline, and neuronal loss.

Fortunately, our inventors have discovered a treatment for the effective inhibition of Aha-1 via a small molecule inhibitor. This treatment has the potential to significantly reduce tau levels and may ultimately reduce neuronal loss and cognitive decline that is associated with Aha-1 overexpression. This method of inhibiting the HSP90 system and its co-factors presents a valuable target for the treatment of Alzheimer’s disease and other tauopathies.

ADVANTAGES:
- Targets underlying pathology of Alzheimer’s disease and other tauopathies
- Cell studies show inhibition of Aha1 reduces tau aggregation
- HSP90 and its co-factors provide novel drug target for future research

Novel Drug Target for Preventing Pathological Tau Aggregates

Image Displays HSP90 and its Co-Factors Enhancing Tau Fibril Formation

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