

Modeling Protein Conformational Templating Associated with Neurodegeneration Diseases

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The majority of neurodegeneration disorders such as Alzheimer's disease and Lewy body dementia are associated with the progressive accumulation of aberrant protein inclusions. The microtubule binding protein tau is one of these proteins that form aggregates which spread within the neuroaxis linked to the insidious nature of these disorders. Our laboratory has used a combination of cell culture and mouse experiment paradigms to model protein conformational templating to provide new insights into the biochemical and cellular mechanisms involved in this sequelae. Our studies leverage the array of known disease causal mutations as well as protein post translational modifications that occur during pathological protein aggregation. In addition to providing understanding of the molecular changes that can modulate inclusion formation, these model systems can be leveraged to investigate new experimental therapeutic approaches.

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