Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Deciphering isoform specific role of apolipoprotein E in condensate driven pathological aggregation of tau

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Apolipoprotein E4 (ApoE4) is the strongest genetic risk factor for Alzheimer's disease, yet the molecular mechanism underlying its neurotoxicity remains unclear. Here, we investigated whether the conformational intermediates of ApoE4, often described as molten-globule-like states, contribute to its pathogenic effects. Using transgenic models of *Drosophila melanogaster*, we show that molten globule-like states are a strong correlator of the neurotoxicity of the ApoE isoforms. Further, using single molecule techniques, we examined whether and how apoE isoforms may influence the biomolecular condensates and subsequent liquid-to-amyloid fibril transition of tau in vitro. Our results suggest that apoE4 promotes amyloid aggregation of tau. We find that this is due to the impaired ability of ApoE4 to maintain its lipidation state. Taken together, our study suggests that improved lipidation of apoE4 as a potential therapeutic strategy for Alzheimer's disease.

Wednesday, Mar 18th 2026

11:30 Hrs (Tea / Coffee 11:15 Hrs)

Auditorium, TIFRH