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

Seminar

Mechanisms of axonal autophagy in Alzheimer's disease

Prasad Tammineni

UoH, Hyderabad

Autophagy plays a vital role in cellular quality control by eliminating protein aggregates and damaged organelles. Defective autophagy is associated with many neurological disorders, including Alzheimer's disease (AD). Aberrant autophagic vacuoles (AVs) accumulation within dystrophic neurites is a hallmark feature of AD brains. However, the question remains whether and how axon transport pathways contribute to AD-associated axonal autophagic stress. We have shown that autophagosomes hitch-hike on late endosomes for their transport in distal axons. These pathways are defective in AD neurons, thus contributing to the accumulation of autophagic cargo in axons and presynaptic terminals. Further, we have shown that amyloid oligomers reduced the dynein recruitment to late endosomes. Such deficits disrupt dynein-driven retrograde transport of autophagosomes, thus trapping them in distal axons. Our study provides new mechanistic insights into AD-linked autophagic pathology and builds a foundation for developing potential AD therapeutic strategies by rescuing retrograde transport of endosomes.

Wednesday, Oct 26th 2022

4:00 PM (Tea/Coffee at 3:45 PM)

Auditorium, TIFR-H