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

Students' Annual Webinar

Lipids and apolipoprotein E alter the pathway of aggregation of Aβ42

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Amyloid aggregation is involved in several neurodegenerative diseases. In Alzheimer's disease (AD) amyloid-β plaques are found to be one of the hallmarks of the disease. In this context it is important to understand the underlying mechanism of amyloid aggregation. There are several microscopic pathways that are involved in the growth of the amyloids e.g., primary nucleation, elongation and secondary nucleation etc. Here in this work, we attempt to investigate the effects of lipid (DMPC) and apolipoprotein E on the various pathways of aggregation of amyloid-β42 (Aβ42) using real time TIRF microscopy. We found that DMPC leads Aβ42 to form lipid-peptide condensates. At early phase of growth, the condensates exhibit liquid -like properties, but at later phase turn into solid -like aggregates. Additionally, we observed that Apolipoprotein E, particularly apoE4 promotes formation of the lipid- Aβ42 condensates, possibly by inhibiting elongation of the regular amyloid fibrils.

Thursday, Apr 28th 2022

4:00 PM