Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad - 500107

Students' Annual Seminar

Biophysical characterization of the interactions between Apolipoprotein E and Amyloid-β peptide

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by extracellular deposition of amyloid β (Aβ) peptides in the brain. Apolipoprotein E (Apo E) is a 299 residues lipoprotein, that plays important role in regulating metabolism of lipids and cholesterol. There are three major isoforms of ApoE namely: ApoE2 (Cys 112, Cys 158), ApoE3 (Cys 112, Arg 158), and ApoE4 (Arg 112, Arg 158). While ApoE is an important functional protein, ApoE4 is a major risk factor for Alzheimer's disease. All three isoforms of ApoE are found to co-deposit in the senile plaques in AD. Recent in vitro studies suggest that WT-ApoE delays the aggregation of Aβ. Here I investigate which region(s) in the sequence of ApoE interact with Aβ. To address this we have prepared three different truncated parts of ApoE4, viz, the N-terminal, C-terminal and the Hinge Domain. Our results suggest that all the three domains of ApoE interact with Aβ42. Furthermore, we find that the effects of the individual domains are additive. Therefore, we hypothesize that structure of ApoE contains multiple independent interacting sites for Aβ42.

Friday, Mar 23rd 2018

04:30 PM (Tea/Coffee at 03:30 PM)

Seminar Hall, TIFR-H