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

Internal Seminar

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Topic I: Exploring The Nucleotide-Dependent Conformational States Of ParM And The Role Of ATP In The ParM Filament Formation

ParM is a prokaryotic actin homolog that plays an active part in the segregation of the R1 plasmid that imparts multi-drug antibiotic resistance to bacterial cells. It polymerizes in the presence of ATP to form a bipolar double helical filament that actively pushes apart the plasmids during cell division. The hydrolysis of the ATP of the ParM monomer at the end of the filament causes rapid disassembly of the filament. Using solid and solution state NMR spectroscopy, we are studying the nucleotide dependent conformational equilibrium of ParM in its monomeric and filamentous form and will explore the origins of filament formation and disaggregation. These studies will have a significant impact of our understanding of how actins in general function and how their function is regulated.

Topic II: Apolipoprotein-E (ApoE) Binding Studies To Aβ(1-40)/ Aβ(1-42)

Apolipoproteins (ApoE) play many important roles in the body, including transporting cholesterol and cholesterol-like molecules, including beta-amyloid, in and out of cells. Apo-E is present in the lesions that characterize Alzheimer's disease and senile plaques. Apo-E has three isoforms apoE2, apoE3 and apoE4. The isoforms alter the kinetics of abeta(1-40)/abeta(1-42) aggregation differently in-vitro. Also abeta fibrillized in the presence of ApoE differs in morphology compared to the fibrils formed in the absence of ApoE. Abeta(1-40)/(1-42) also interact differently to the ApoE isoforms. In the present work we intend to answer the following questions using solid state NMR spectroscopy. What is the fibrillar structure of abeta which forms in the presence of ApoE? What are the binding sites/binding interactions of ApoE and abeta in all its isoforms?

Wednesday, Mar 28th 2018

2:00 PM (Tea/Coffee at 1:30 PM)

Seminar Hall, TIFR-H