TIFR Centre for Interdisciplinary Sciences
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Internal Seminar

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Exploring the Nucleotide-Dependent Conformational States of ParM and the role of ATP in the parM filament formation

ParM is an actin like protein that plays an active part in the plasmid separation in e.coli cells. ParM polymerizes in the presence of ATP to form double helical filaments that actively push apart the plasmids during cell division. The hydrolysis of the ATP of the parM monomer at the filament end causes rapid disassembly of the filament. The various conformational states accessible for the ParM protomer in the presence of different nucleotides and the role of ATP binding and ATP hydrolysis for the ParM fibril formation is not well understood. We intend to use solution and solid state NMR spectroscopy to answer the above questions.

Apolipoprotein E (ApoE) Binding Studies To Ab(1-40) Amyloid Fibril

ApoE plays many important roles in the body, including transporting cholesterol and lipid molecules, including beta-amyloid, in and out of cells. It was discovered that apoE is present immunohistochemically in the lesions that characterize Alzheimer's disease and senile plaques. ApoE has three isoforms apoE2, apoE3 and apoE4. The isoforms alter the kinetics of abeta(1-40)/abeta(1-42) aggregation differently in-vitro. It is also observed that 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 SSNMR 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.

Monday, Mar 27th 2017

2:00 PM (Tea/Coffee at 1:45 PM)

Seminar Hall, TCIS