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

Students' Annual Seminar

Hydrogen / Deuterium Exchange Mass Spectrometry (HDX-MS) reveals structural differences among the Apolipoprotein E Isoforms

Subhrajyoti Dolai

Apolipoprotein E4 (apoE4) is the strongest risk factor in Alzheimer's disease while apoE3 is normal. Difference between ApoE3 and ApoE4 in primary structure is Cys/Arg mutation at 112 position. However structural differences between apoE3 and apoE4 are still unclear. Amide hydrogen/deuterium exchange of proteins monitored by mass spectroscopy (HDX-MS) is a powerful technique for probing conformational dynamics and inter/intra-molecular interactions. We have examined the effects of amino acid substitutions at position 112 on the structure of apoE using HDX-MS. Our results show that kinetics of H-D exchange depend strongly on the nature of the residue at 112. Furthermore, we find signature of EX1 kinetics in apoE4 but not in apoE3. We propose that HDX-MS may be powerful tool to screen small molecule drug candidates to modify the properties of apoE4.

Friday, Apr 26th 2019

10:30 AM (Tea/Coffee at 9:30 AM)

Seminar Hall, TIFR-H