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

Seminar

Quantitative characterization of the soluble oligomers and insoluble fibrils of amyloid proteins using novel fluorescence spectroscopy methods

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Amyloids are fibrillar assembly of proteins implicated in the pathogenesis of several neurodegenerative disorders e.g., Alzheimer's disease, Parkinson's disease etc. Despite significant research over last three decades these diseases remain incurable. Recent developments suggest monomeric proteins aggregate to form oligomeric intermediates followed by fibrillar amyloids. But quantitative characterization of these species remains challenging due to heterogeneous and transient nature of these aggregates. In this talk, I will discuss how the use of novel fluorescence spectroscopy based methods has improved the characterization of oligomers and fibrils of Aβ42. We have used disaggregation of tetramethylrhodamine (TMR) labelled Aβ42 fibrils in denaturing buffers to quantitate the heterogeneity and stability of the amyloids. We have then built a cuvette based fluorescence correlation spectroscopy set up to detect and to characterize the oligomeric intermediates formed in the solution as a function of time. Thus, the approaches used here are highly informative in the quantitative characterization of both the soluble oligomers and insoluble fibrils.

Monday, Jun 24th 2019

4:00 PM (Tea/Coffee at 3:30 PM)

Auditorium, TIFR-H