Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Chemical Peptide and Protein Engineering using Novel Hydrophilic Organic Linkers

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Proteins are important biomolecules that participate in various essential biological processes, and protein-protein interactions (PPIs) form the cornerstone of these processes. Sometimes, though, harmful and unwanted PPIs (for example, between human and external proteins (viral, bacterial, etc.)) become the major cause of various diseases. To eradicate such unwanted PPIs, peptidomimetic or proteomimetic drugs have recently gained significant momentum as alternatives to small-molecule therapeutics for their high selectivity and low toxicity. One of the major challenges that this class of drugs poses, though, is maintaining their required three dimensional structure in solution so that they can bind to their target efficiently. In my talk, I will discuss the design and synthesis of various novel hydrophilic organic linkers and show their diverse applications in protein chemistry, especially in stabilising protein secondary and tertiary structures in solution. I will also demonstrate the general utility of these linkers by designing various inhibitors of PPIs with unique structure-function relationships, finally giving rise to highly potent multimeric drug candidates. The developed methodology's wide tolerance for substrates should lead to novel drug development opportunities and the potential to develop high-affinity binders against different protein targets.

Monday, Feb 16th 2026

14:00 Hrs (Tea / Coffee 13:45 Hrs)

Auditorium, TIFRH