

Seminar

Substituent Effects on Peptide Self-assembly and Phase Separation

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Self-assembly of peptides via monomer-by-monomer addition or liquid-liquid phase separation is an effective strategy to form superstructures that execute biological functions. Both phenomena are attractive models for understanding complex life processes and the development of novel functional materials for applications in engineering and medicine. These supramolecular systems maintain structural integrity and stability via noncovalent interactions such as hydrophobic, π - π stacking, electrostatic and hydrogen bonding, which can be perturbed by both intrinsic and external factors. The Rudra Lab is interested in understanding how seemingly minor alterations to atomic arrangement, such as substitution electron donating or withdrawing groups on phenyl rings or partial substitution with D-amino acids, can dramatically alter assembly potential, molecular packing, and the emergent properties of the resulting materials. Our efforts, in concert with existing design elements, will provide an exponentially broader set of building blocks from which to construct synthetic molecular assemblies, representing a simple yet incredibly powerful tool for the creation and tailoring of custom biomaterials.

Tuesday, Oct 15th 2024

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFR-H