

Inter-IISER Chemistry Meet (IICM 2017)

Peptide Foldamers: From Medicinal Chemistry to Biomaterials

Hosahudya N. Gopi*

*Department of Chemistry, Indian Institute of Science Education and Research, Dr. Homi Bhabha
Road, Pune-411 008, India*

e-Mail: hn.gopi@iiserpune.ac.in

Abstract:

Designing synthetic protein structures from non-natural amino acids has immense importance not only to understand novel foldamers but also from the perspective of medicinal chemistry. Significant progress has been achieved in this context using oligomers composed of synthetic β - and γ - amino acids and the mixed sequences containing α/β and α/γ hybrid peptides as well as organic templates.

A variety of functionalized γ -amino acids such as α , β -unsaturated γ -amino acids, β -keto- γ -amino acids and β -hydroxy γ -amino acids have been widely found in many biologically active peptide natural products. We examined the potential utility of these amino acids towards the design of hybrid peptide foldamers. This talk is mainly focusing on the design, structural diversity and potential utility of hybrid peptide foldamers as antibiotics, inhibitors for protein-protein interactions and biomaterials design.