Foldamers to Target Protein-Protein Interactions

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BMB Seminar Room (near entrance O)

Abstract:
Foldamers are non-natural polymers with a folding behavior comparable to biopolymers. The advances of such non-natural scaffolds as a basis to target biological functions are clear as the investigations on beta-peptides and other classes of homologous peptides give insight into the folding properties of peptides and proteins and serve as a benchmark to validate our knowledge on such processes. These scaffolds can be the basis to tackle pharmaceutical problems and to design nanostructures, diagnostic agents and new catalysts. I will present some of my research on structure formation of several classes of peptide foldamers and comment on their possible application to tackle protein-protein interaction with the example of poly-Proline II recognition.

In the second part of the talk I am going to introduce our efforts (jointly with D. Merkle at IMADA and others) to explore new techniques for molecular docking and landscape analysis. I will present our development of the docking software ParaDockS and some future ideas. If there is still time, I will end the talk with my investigations on the shear force-induced proteolytic cleavage of von Willebrand factor of the blood clotting cascade.

Host: Daniel Merkle