Molecular Assembly of Biomimetic Systems

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Molecular biomimetics is mimicking the structures and functions of biological systems at the molecular scale via molecular assembly of biomolecules or synthetic components. Molecular assembly of biomimetic systems can not only serve as experimental models for guiding research on biological evolution in organisms, but also open up new avenues for the design of multifunctional materials with a wide range of applications. In this lecture, we will introduce our recent progress on the molecular assembly of natural molecular machines “motor proteins” into active biomimetic systems, as well as the controlled self-assembly or co-assembly of aromatic dipeptides. The biomedical applications of these biomimetic assemblies, including drug delivery and anticancer therapy are highlighted.