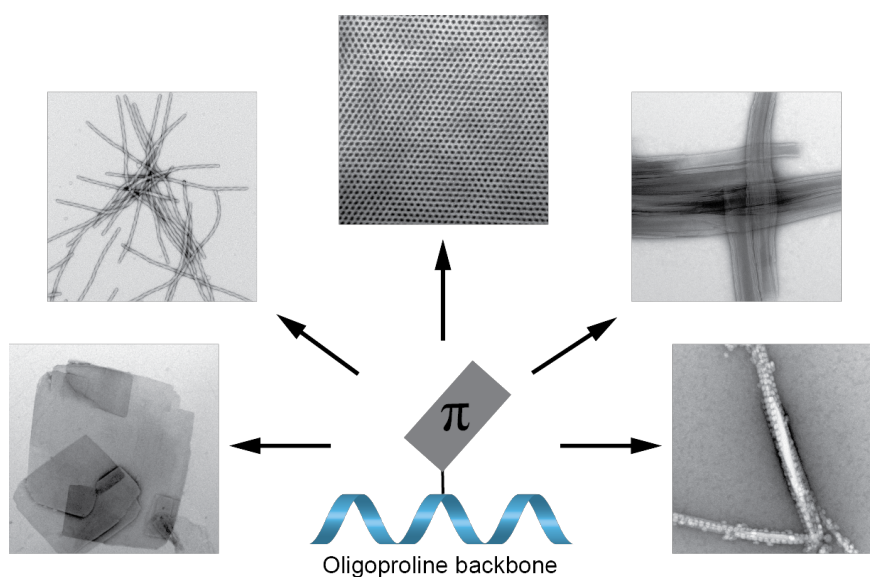


Functionalizable oligoprolines as a platform for the development of extended self-assemblies with tunable morphologies

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Self-assembly of π -conjugated building blocks has become increasingly important for the fabrication of functional nanostructures. Towards this goal, peptides, which readily adopt well-defined secondary structures and are highly modular, have been used to direct chromophore self-assembly into well-organized, chiral nanostructures.¹ The assembly of these conjugates has been controlled by exploiting hydrogen-bonding networks within the peptides. Here we will present the formation of highly ordered supramolecular structures built on non-self-assembling peptidic scaffolds.



Using oligoprolines as scaffolds to direct the self-assembly of conjugated systems, we achieved the hierarchical self-assembly^{2,3} of various types of chromophores into fibrils, sheets, and advanced, novel topologies. Variation in length of the oligoproline and choice of chromophore and linker has allowed for facile access to a variety of supramolecular structures that do not rely on H-bonding between peptides. Thus, oligoprolinone π -system conjugates constitute novel and efficient tools for self-assembly towards functional nanostructures.

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