

Designed amphiphilic β -sheet peptides as functional monolayers and hydrogels

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Amphiphilic peptides can be programmed to yield functional self-assembled structures at interfaces and in bulk. In particular, β -sheet structure provides a simple platform with periodic alternation of hydrophobic and hydrophilic amino acids that may form fibrillar structures in solution and coatings at interfaces. Designed amphiphilic β -sheet peptides, their structures and a few of potential applications will be presented including: calcium-phosphate mineralization induced by hydrogels and coatings to titanium-oxide surfaces, adsorption and sensing of an organophosphate and templating of single crystal silver nanorods by amphiphilic tripeptides.