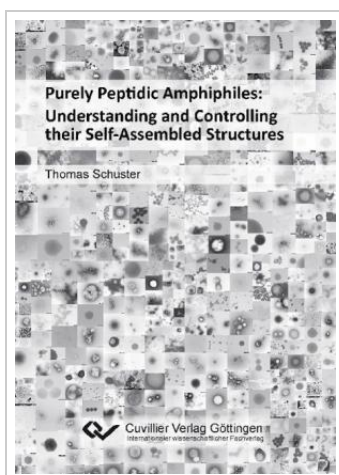




Purely Peptidic Amphiphiles: Understanding and Controlling their Self-Assembled Structures

By Thomas Schuster

Cuvillier Verlag Jul 2011, 2011. Taschenbuch. Condition: Neu. Neuware - Amphiphilic molecules spontaneously self-assemble into a variety of structures in solution. The term amphiphilic indicates that one part of the molecule is attracted to the solvent, while the other is not. Interactions such as between solute-solvent and solute-solute thus determine the organization. Understanding the self-assembly means understanding those interactions and their driving forces. In the first chapter an overview of the self-organization of amphiphilic molecules into supermolecular aggregates of different morphologies is provided, with a focus on purely peptidic amphiphiles, i.e. amphiphiles which consist solely of a different amino acid sequence. In the second chapter the self-assembly of amphiphilic peptides with a specific amino acid sequence into micelles and spherical peptide nanoparticles is described. The undecamer peptide that was used features a repetitive L-tryptophan and D-leucine [LW-DL] motif, representing the hydrophobic block - which is a truncated version of gramicidin A (gA), named gT. The N-terminally attached hydrophilic section was either lysine (K) or acetylated lysine (X) and was optionally terminated with cysteine for post-functionalization of the thiol-group. The uncharged peptide AcC-X3-gT was demonstrated to assemble into micelles and subsequently into peptide particles, termed 'peptide beads'. We hypothesize that the...



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