

Abstract Submitted
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Physical Properties of Anionic Peptide Amphiphile Fibers Grown in the Presence of Cationic Proteins MEGAN GREENFIELD, MONICA OLVERA DE LA CRUZ, SAMUEL STUPP, Northwestern University — We analyze the structure and mechanical properties of fibers formed by anionic peptide amphiphiles (PA) in the presence of cationic proteins with varying charge. The PA molecules, which are composed of a hydrophobic alkyl tail, a beta-sheet forming region, and a hydrophilic epitope region, self-assemble into cylindrical micelles in water at 1% weight concentration in the presence of multivalent salts. The fibers grow in one dimension by forming an internal beta sheet along the middle segment; the hydrophobic tail hides inside the micelle and the epitope region is exposed to the water. Rheology and electron microscopy are used to investigate the physical properties of the resulting PA gels. The correlation between the charge of the cationic proteins used for gelation and the resulting PA gel's structure and mechanical properties are discussed.

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