Abstract Submitted
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Biomimetic Micellar Networks JOHN ZUPANCICH, MARC HILLMYER, FRANK BATES, University of Minnesota — The self-assembly of amphiphilic block copolymers in dilute aqueous solution has been used to prepare structural analogues of fibrous materials common in physiology. The dependence of aggregate structure on amphiphile composition has been documented for a number of polymeric systems and by controlling the relative extent of hydrophilicity to hydrophobicity, block copolymers can be designed to target specific morphologies. Cell interactions with self-assembled structures can be promoted through conjugation of peptides or other targeting moieties to the constituent amphiphiles. The covalent attachment of RDG-containing peptides to the hydrophilic terminus of poly(ethylene oxide)-b-polybutadiene and the dilute solution behavior of these modified polymeric amphiphiles has been studied. An overall amphiphile composition conducive to worm-like micelle formation was targeted, and cross-linking of the hydrophobic core of these aggregate structures resulted in solution properties akin to fibrillar collagen gels.

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