

Synthesis of Core Cross-Linked Micelles Using PEG-PSI block Copolymers

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One fundamental problem with block copolymer micelles is their spontaneous dissociation at concentrations below their critical micelle concentration (CMC). Shell or Core cross linking method is general method to overcome this problem.

We synthesized the Poly(ethylene glycol-block-succinimide) (PEG-b-PSI) amphiphilic block copolymers. The PEG-b-PSI amphiphilic block copolymers formed PEG corona spherical micelles in aqueous solution. PSI part of PEG-b-PSI was easily cross-linked by aminolysis reaction with hexamethylene diamines.

The molecular structure was measured by ^1H NMR spectroscopy. The fixed micellar structures of core cross linked PEG-b-PSI micelles at various conditions were measured by TEM, DLS and SEM.