

## Synthesis, characterization and application of PEG/PLA multiblock copolymer

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A series of poly (lactic acid) (PLA) and poly (ethylene glycol) (PEG) multiblock copolymers were synthesized through the coupling reaction between the bischloroformates of carboxylated PLA and PEG. The copolymer composition and multiblock structure were confirmed by  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR measurements. The melting temperature  $T_m$  of the PEG domain was influenced by the relative length of the PLA and PEG blocks. This was caused by the strong covalent interconnection between the two domains. Aqueous micelles were prepared from the multiblock copolymer. The critical micelle concentration was determined to be 16–81mg/l by surface tension technique, depending on the length of PCL blocks and PEG blocks. Furthermore, the gelation behavior of the multiblock copolymers and the potential being used as surfactant were briefly illustrated.