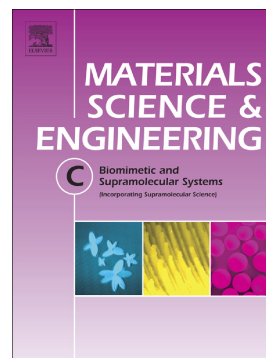


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Synthesis and characterization of amphiphilic block polymer poly(ethylene glycol)-poly(propylene carbonate)-poly(ethylene glycol) for drug delivery

Hongchun Li, Yongsheng Niu



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**Synthesis and characterization of amphiphilic block polymer  
poly(ethylene glycol)-poly(propylene carbonate)-poly(ethylene glycol)  
for drug delivery**

**Hongchun Li and Yongsheng Niu\***

College of Chemistry & Pharmacy, Qingdao Agricultural University, Qingdao  
266109 China

Tel: +86-532-86080895, Email : ysnui2004@163.com

**ABSTRACT**

A novel amphiphilic block polymer poly(ethylene glycol)-poly(propylene carbonate)-poly(ethylene glycol) (PEG-PPC-PEG) was synthesized via the dicyclohexylcarbodiimide condensation reaction of double PEG-bis-amine and HOOC-PPC-COOH. The obtained copolymer was characterized by NMR to determine its structure. Using the PEG-PPC-PEG as the carrier and using doxorubicin (DOX) as a model drug, DOX-loaded nanoparticles with core shell structure were synthesized by self-assembly in water. The nanoparticles properties such as particle size, drug loading, encapsulation efficiency (EE) and drug release behavior were investigated as a function of the hydrophobic block length of PPC segments and compared with each other. The results showed that the EE was up to 88.8%. Nanoparticles were found to have a certain effect on the controlled release of DOX.

**KEYWORDS:** Amphiphilic block polymer; Poly(propylene carbonate); Condensation reaction; Poly(ethylene glycol); Drug Delivery

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