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论文

两亲性三嵌段共聚物PAA-PHB-PAA的合成及表征

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摘要:

本文用ATRP方法, 以两端溴化的聚β-羟基丁酸酯链段(Br-PHB-Br)作为大分子引发剂, 丙烯酸叔丁酯为单体, 合成了一种新的三嵌段共聚物聚丙烯酸叔丁酯-聚β-羟基丁酸酯-聚丙烯酸叔丁酯(PtBA-PHB-PtBA). 在酸性条件下进一步水解, 得到了一种两亲性的聚丙烯酸-聚β-羟基丁酸酯-聚丙烯酸(PAA-PHB-PAA)三嵌段共聚物.

关键词: 原子转移自由基聚合(ATRP); 两亲性三嵌段共聚物; 合成; 表征

Synthesis and Characterization of Amphiphilic Triblock Copolymers PAA-PHB-PAA

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Abstract:

A new biodegradable PtBA-PHB-PtBA triblock copolymer was successfully synthesized by ATRP method with Br-PHB-Br as macroinitiator, tert-butyl acrylate as monomer and CuBr/PMDETA as the catalyst system. Cleavage of the tert-butyl ether groups of the PtBA-PHB-PtBA triblock copolymer was then performed via hydrolysis with trifluoroacetic acid as the catalyst in dichloromethane to afford the amphiphilic PAA-PHB-PAA triblock copolymer. The hydrolysis is successful but trace tert-butyl ether groups still remain in the backbone. The molecular weight characteristics and chain structures were conformed by GPC and NMR, respectively. Because of hydrophilic and biocompatibility, the amphiphilic triblock copolymers have potential applications in the field of drug release.

Keywords: Atom transfer radical polymerization; Amphiphilic triblock copolymer; Synthesis; Characterization

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