

Supporting Information

Photoinduced Fe-mediated Atom Transfer Radical Polymerization in Aqueous Media

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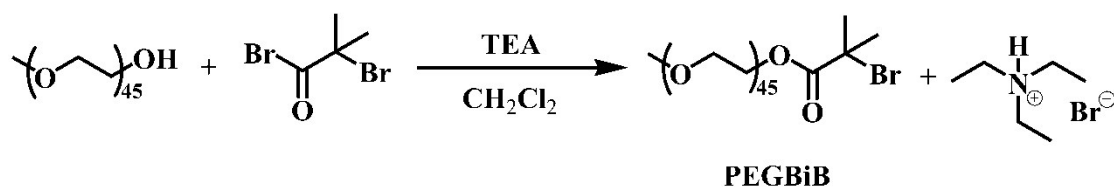
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Synthesis of poly(ethylene glycol) 2-bromoisobutyrate (PEGBiB).

Poly(ethylene glycol) 2-bromoisobutyrate (PEGBiB) was synthesized by the reaction of poly(ethylene glycol) monomethyl ether and α -bromoisobutyryl bromide in Scheme S1. Poly(ethylene glycol) 2-bromoisobutyrate (38.0 g, 20 mmol), triethylamine (5.1 g, 50 mmol) and dichloromethane (100 ml) were placed into a three-neck flask respectively and then cooled to 0 °C. Subsequently, α -bromoisobutyryl bromide (11.5 g, 50 mmol) in 50 ml dichloromethane was added dropwise to the flask. After that, the reaction mixture was stirred for 1 h at 0 °C, followed by stirring another 16 h at 25 °C. The reaction was stopped.



Scheme S1 Synthesis of Poly(ethylene glycol) 2-bromoisobutyrate (PEGBiB).

The reaction mixture was successively washed with dilute hydrochloric acid, saturated sodium bicarbonate solution and water for several times. Finally, the majority of dichloromethane was removed by rotary evaporator, and the product was precipitated into hexane. The initiator was collected and dried in vacuum oven at 50 °C until constant weight. The ^1H NMR of PEGBiB in CDCl_3 was given in Fig. S1. The number of ethylene glycol chain unit was about 45 by calculating from ^1H NMR. Therefore, the molecular weight (M_n) of PEGBiB was about 2161 g/mol.

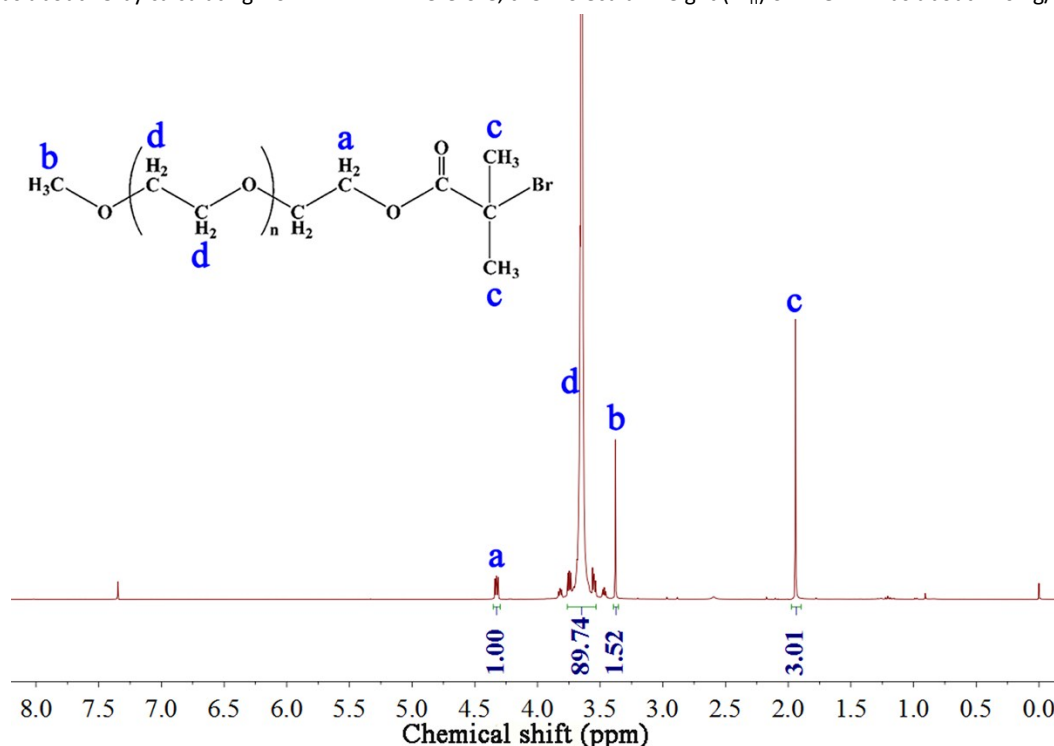


Fig. S1. ^1H NMR of PEGBiB in CDCl_3 .