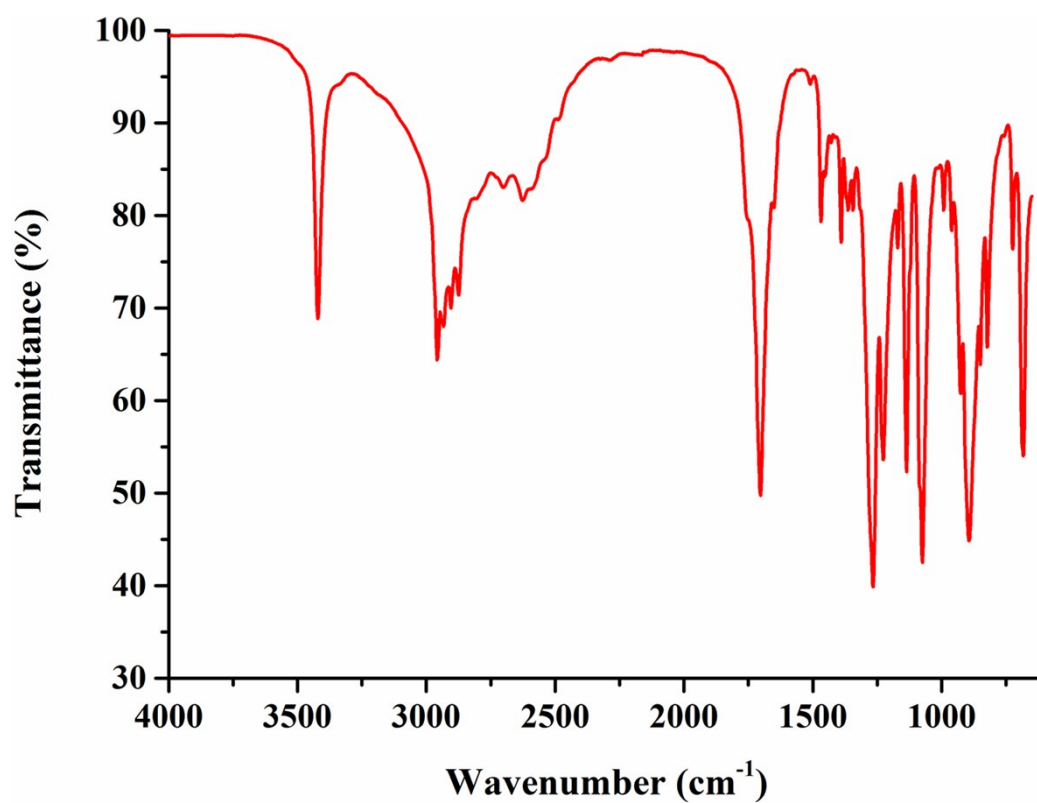
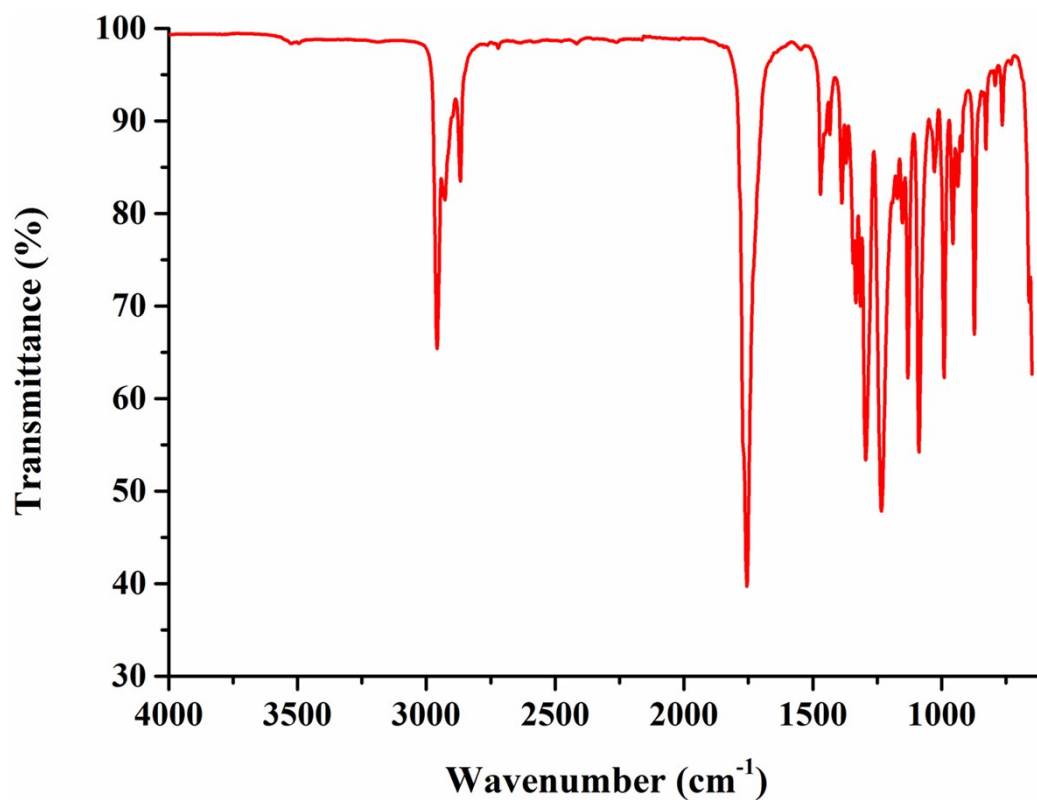


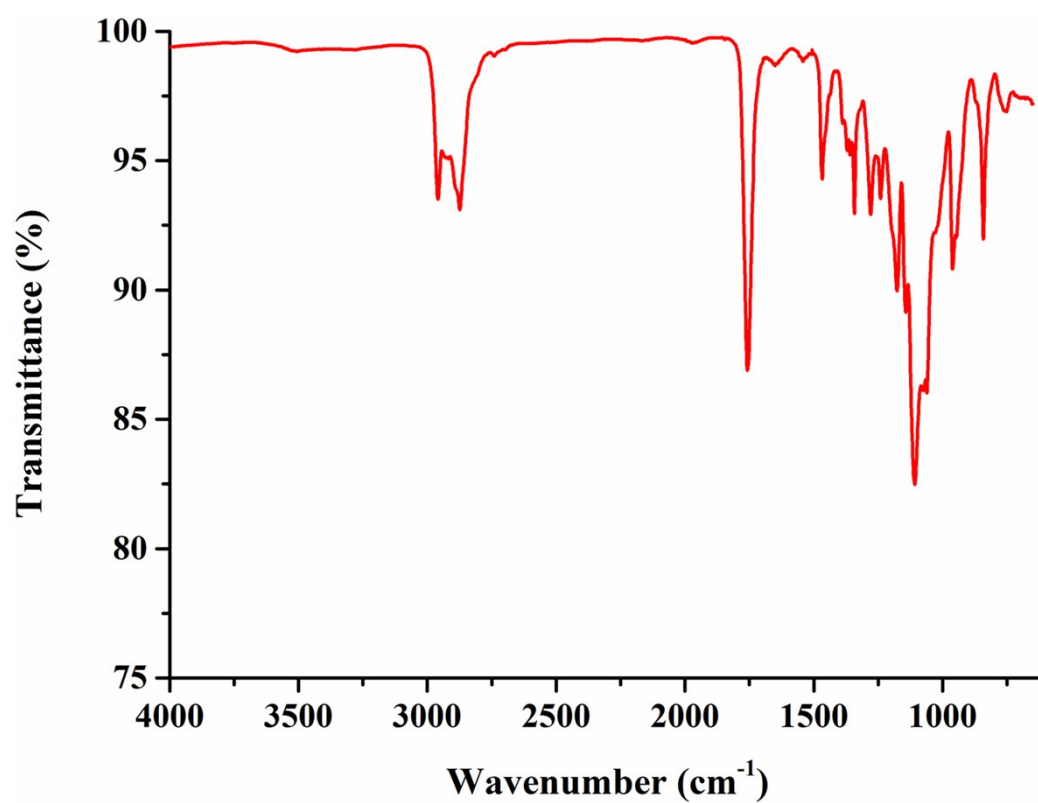
### ATR-FTIR Spectra



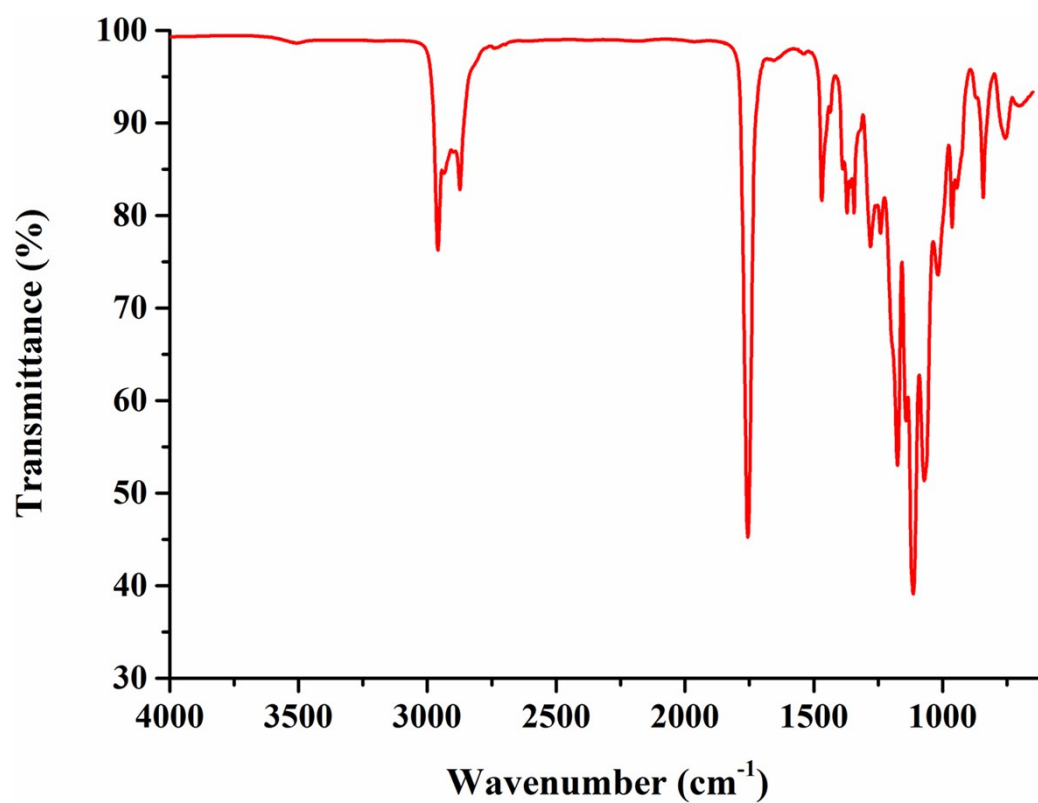
**Figure S1.** ATR-FTIR spectrum of L-2-hydroxy-4-methylpentanoic acid (**2**)



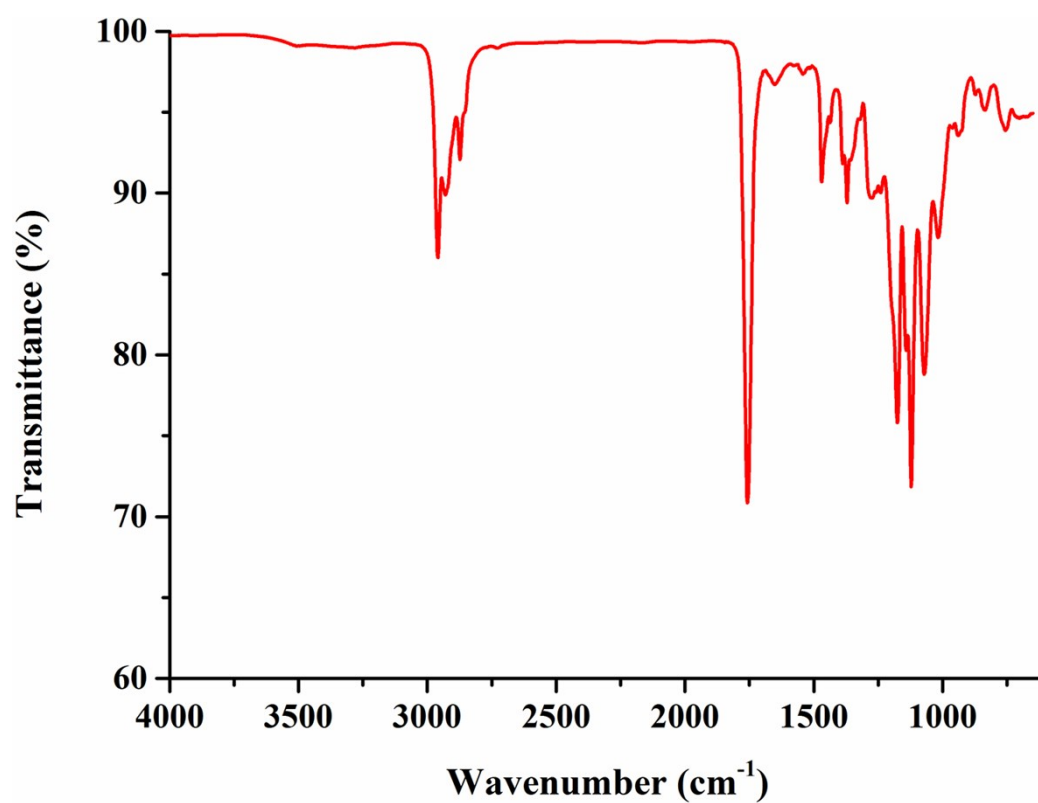
**Figure S2.** ATR-FTIR spectrum of L-3,6-diisobutyl-1,4-dioxane-2,5-dione (**3**)



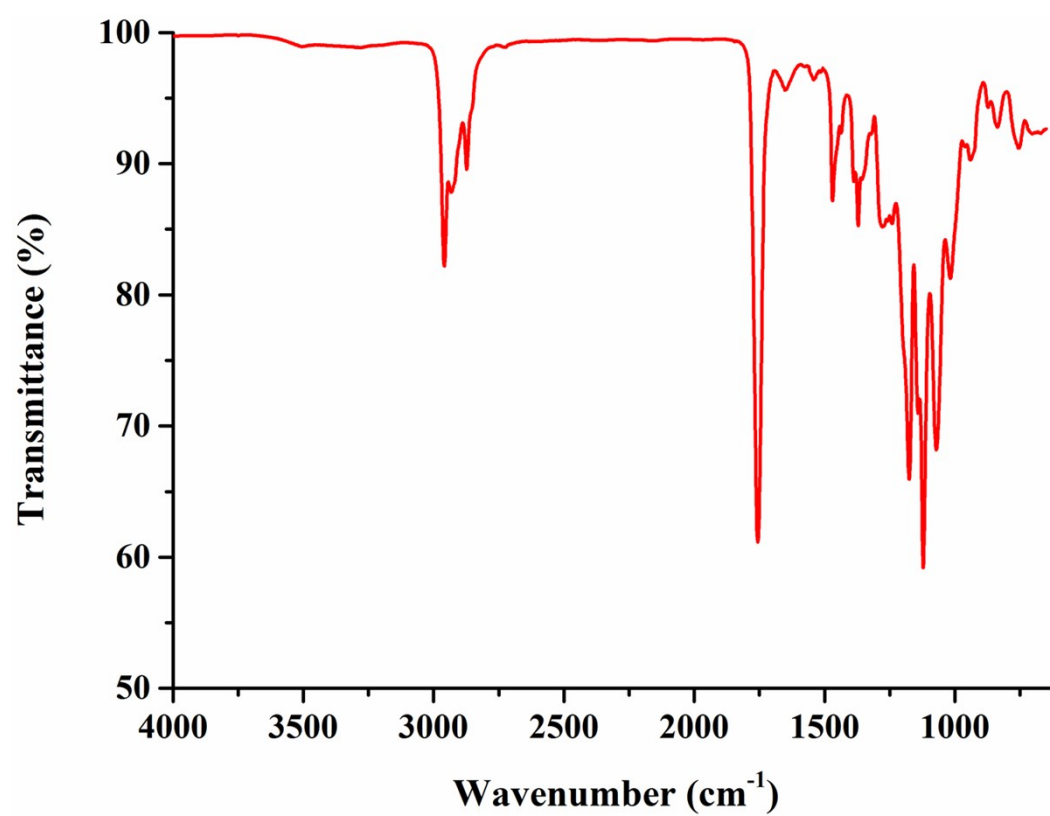
**Figure S3.** ATR-FTIR spectrum of MePEG-PDIBG 6



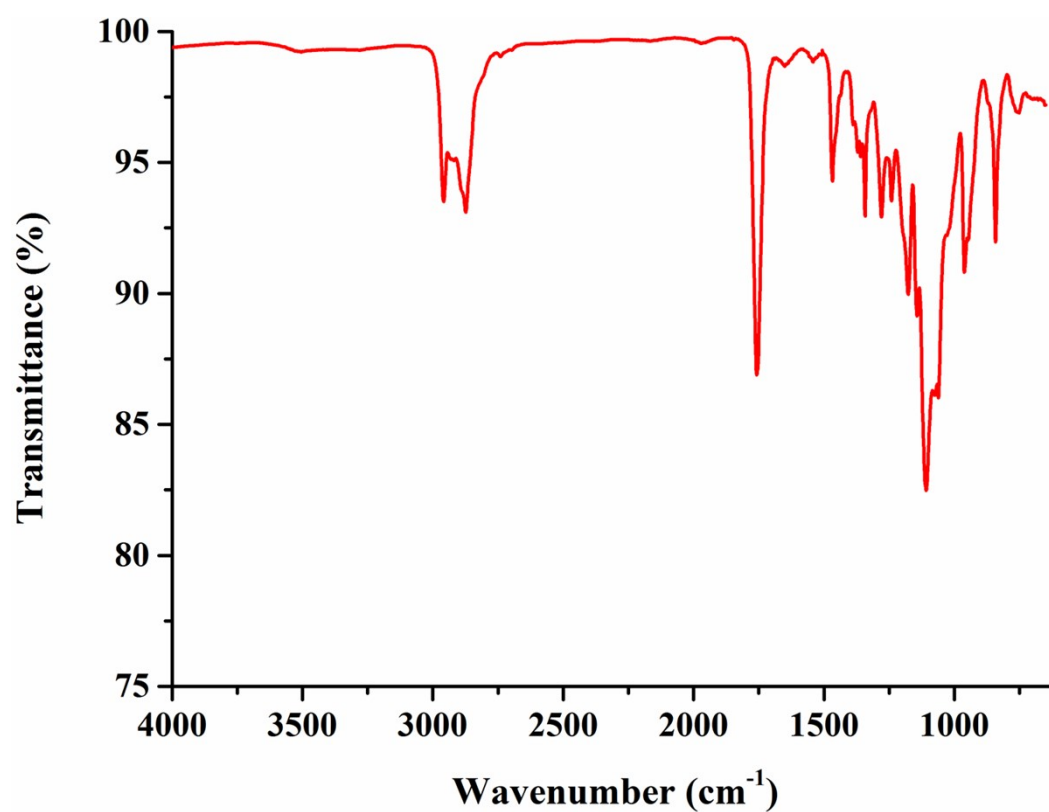
**Figure S4.** ATR-FTIR spectrum of MePEG-PDIBG 7



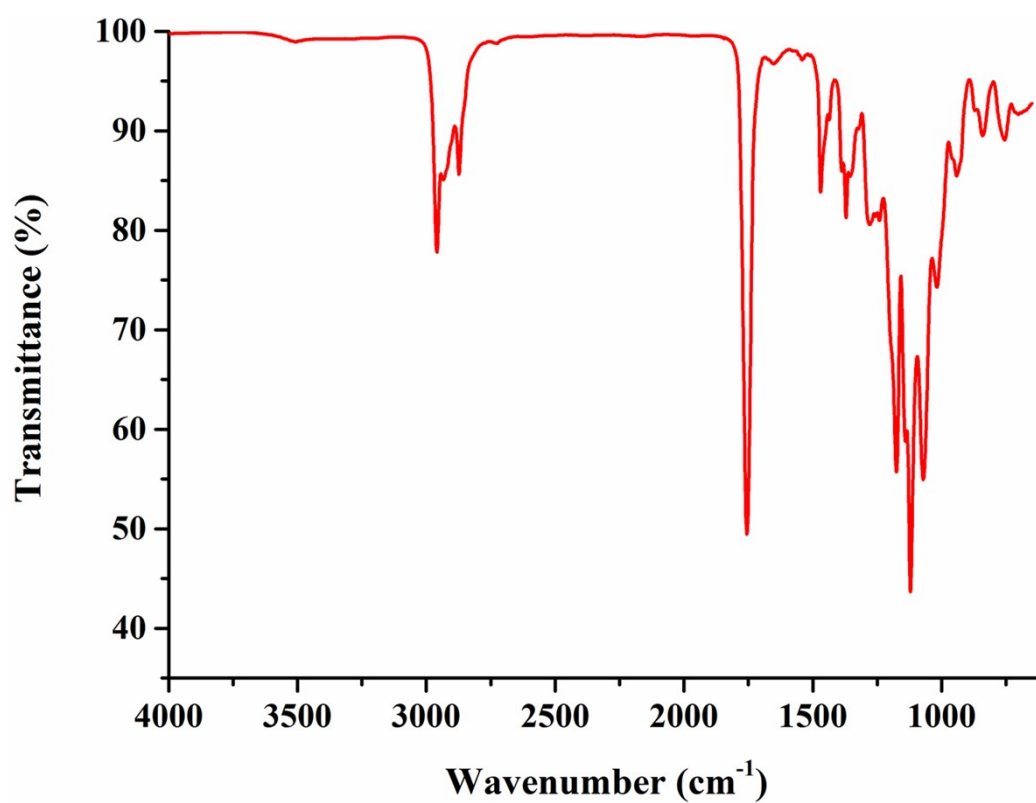
**Figure S5.** ATR-FTIR spectrum of MePEG-PDIBG 8



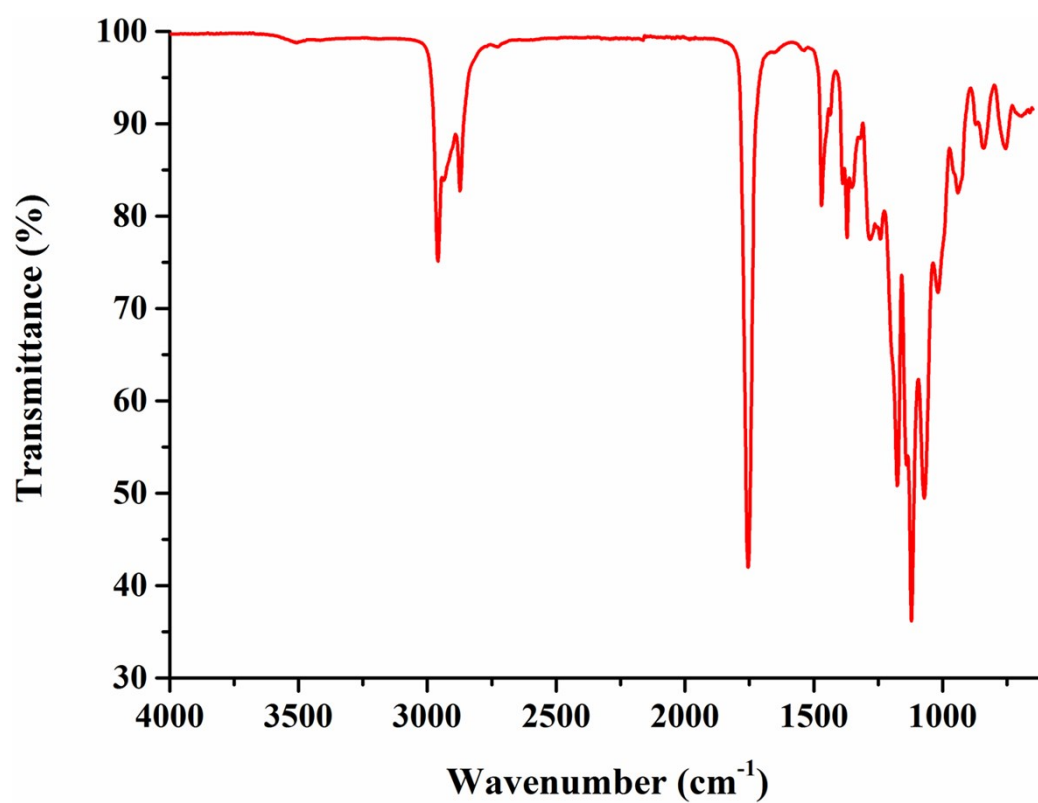
**Figure S6.** ATR-FTIR spectrum of MePEG-PDIBG 11



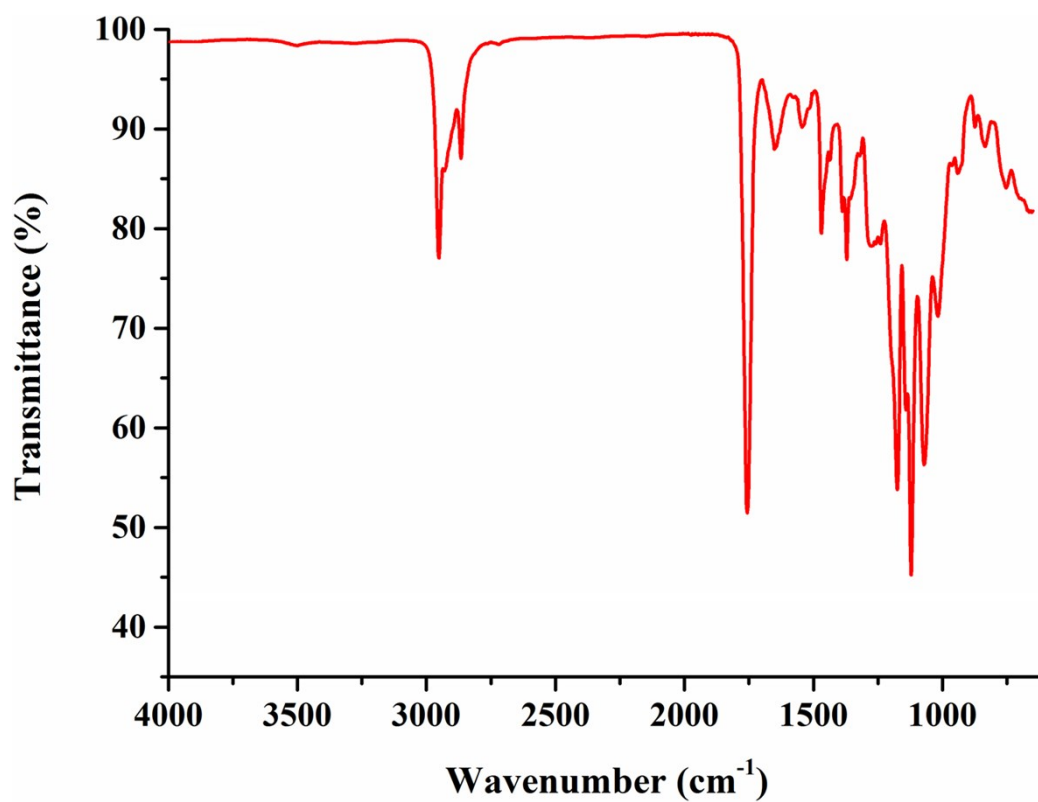
**Figure S7.** ATR-FTIR spectrum of PDIBG-PEG-PDIBG 12



**Figure S8.** ATR-FTIR spectrum of PDIBG-PEG-PDIBG 13

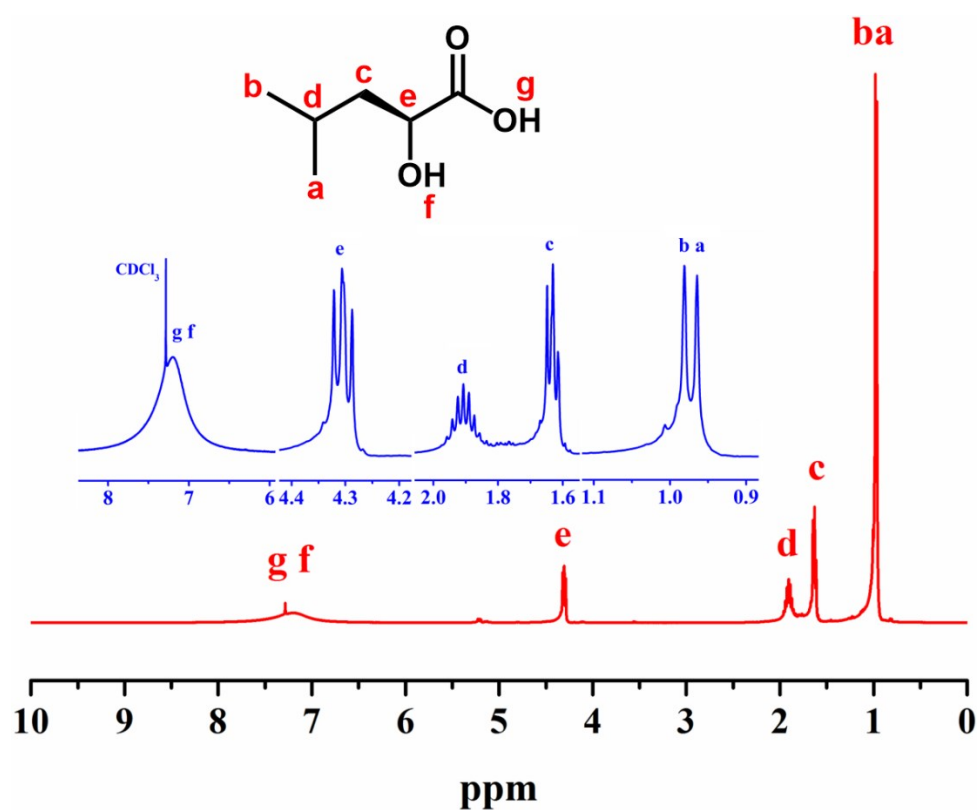


**Figure S9.** ATR-FTIR spectrum of PDIBG-PEG-PDIBG 14

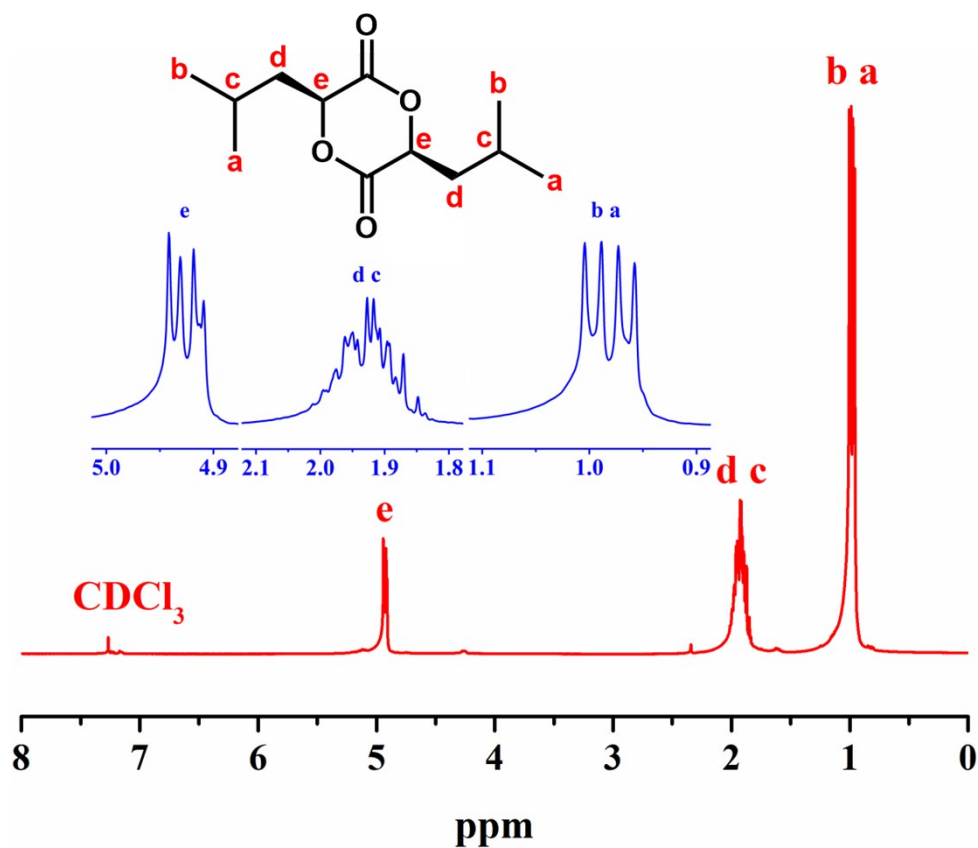


**Figure S10.** ATR-FTIR spectrum of PDIBG-PEG-PDIBG 17

# <sup>1</sup>H NMR Spectra



**Figure S11.** <sup>1</sup>H NMR spectrum of L-2-hydroxy-4-methylpentanoic acid (2)



**Figure S12.** <sup>1</sup>H NMR spectrum of L-3,6-diisobutyl-1,4-dioxane-2,5-dione (3)

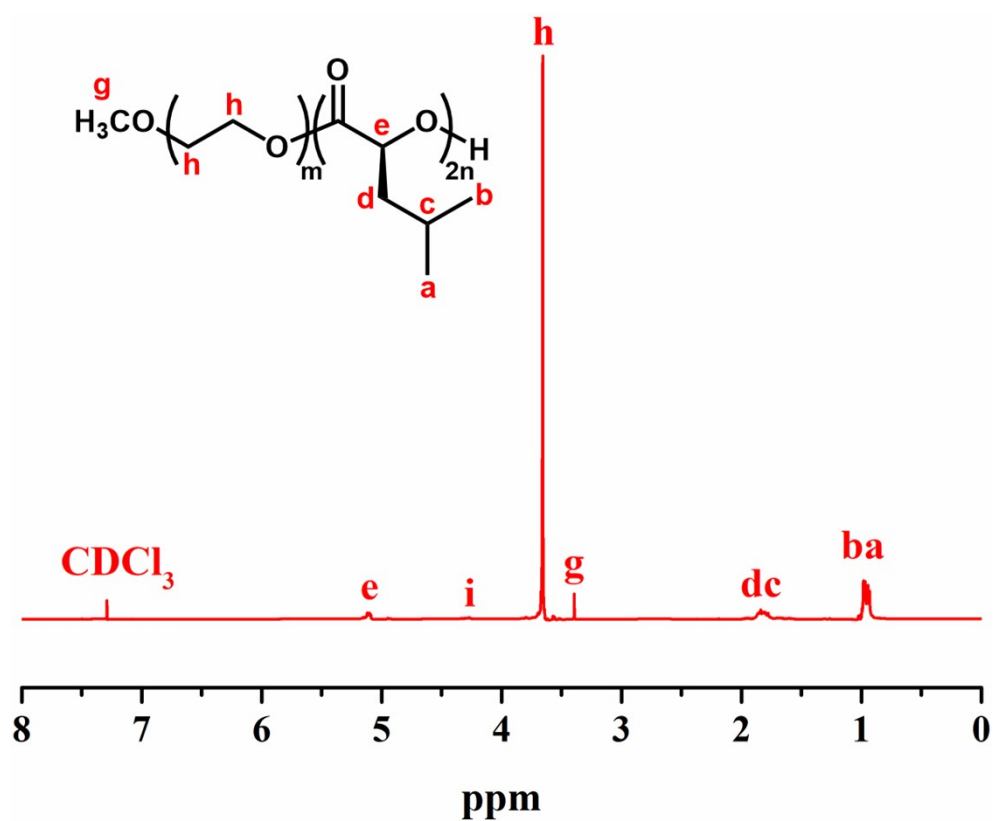


Figure S13. <sup>1</sup>H NMR spectrum of MePEG-PDIBG 6

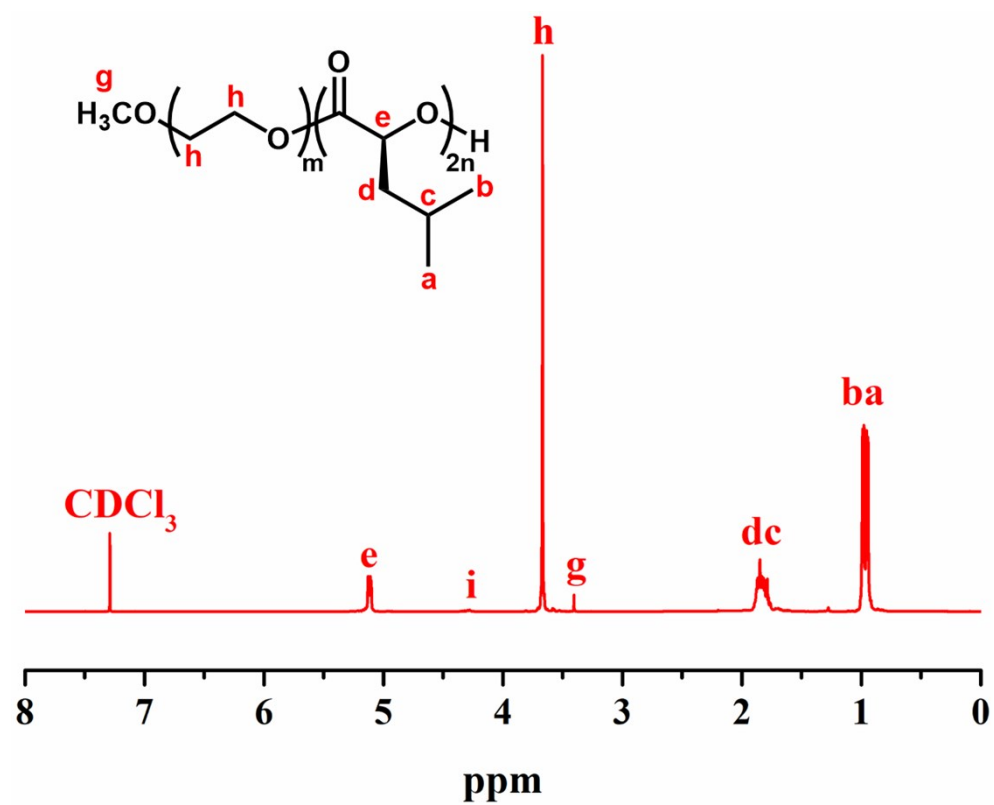
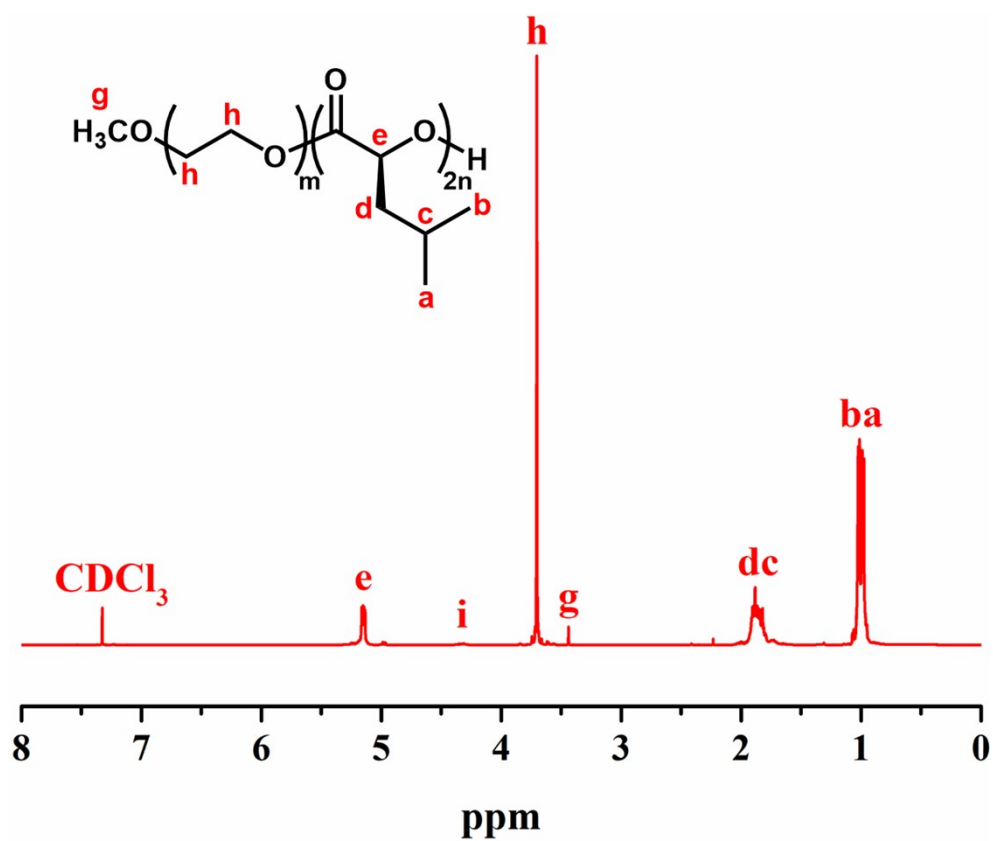
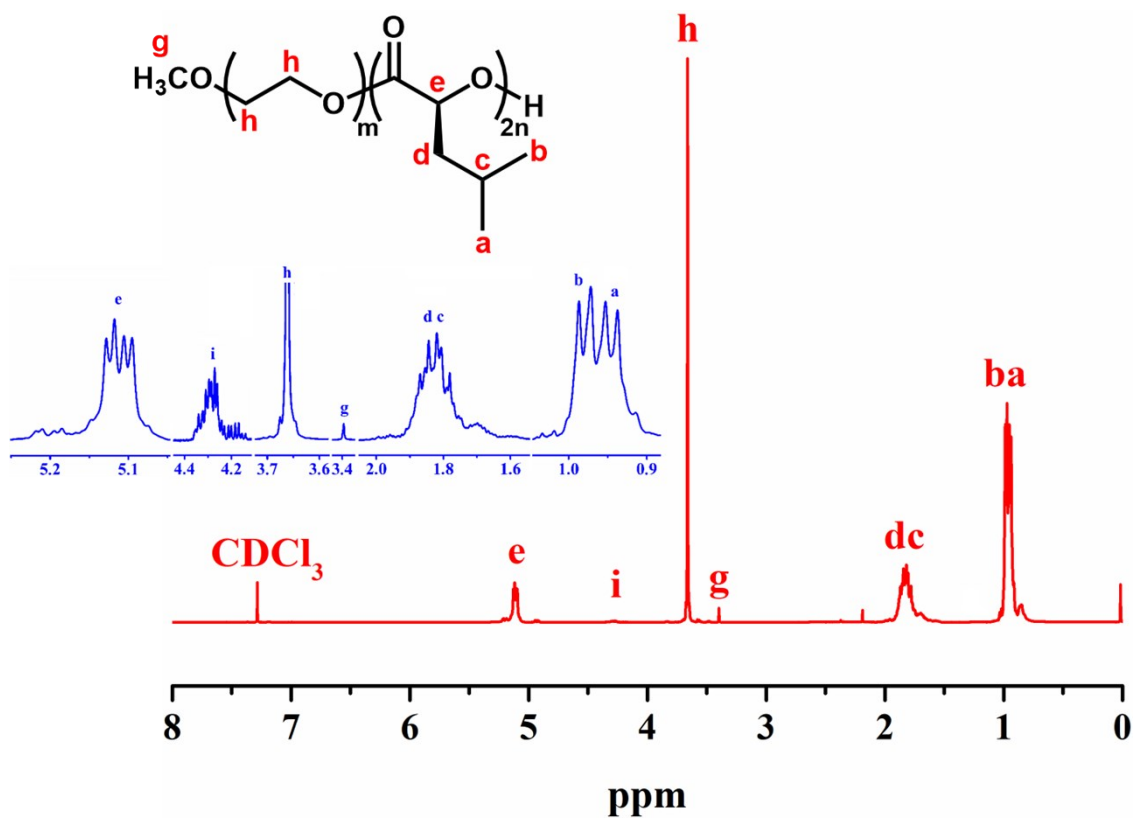


Figure S14. <sup>1</sup>H NMR spectrum of MePEG-PDIBG 7

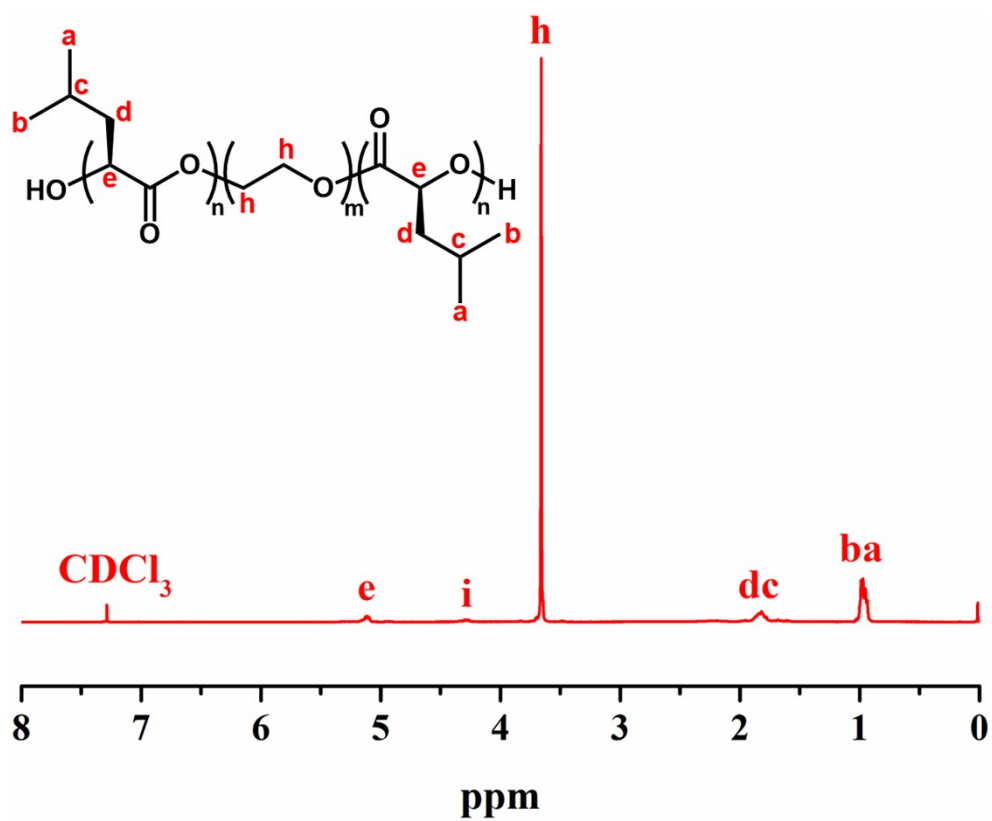


**Figure S15.** <sup>1</sup>H NMR spectrum of MePEG-PDIBG 8

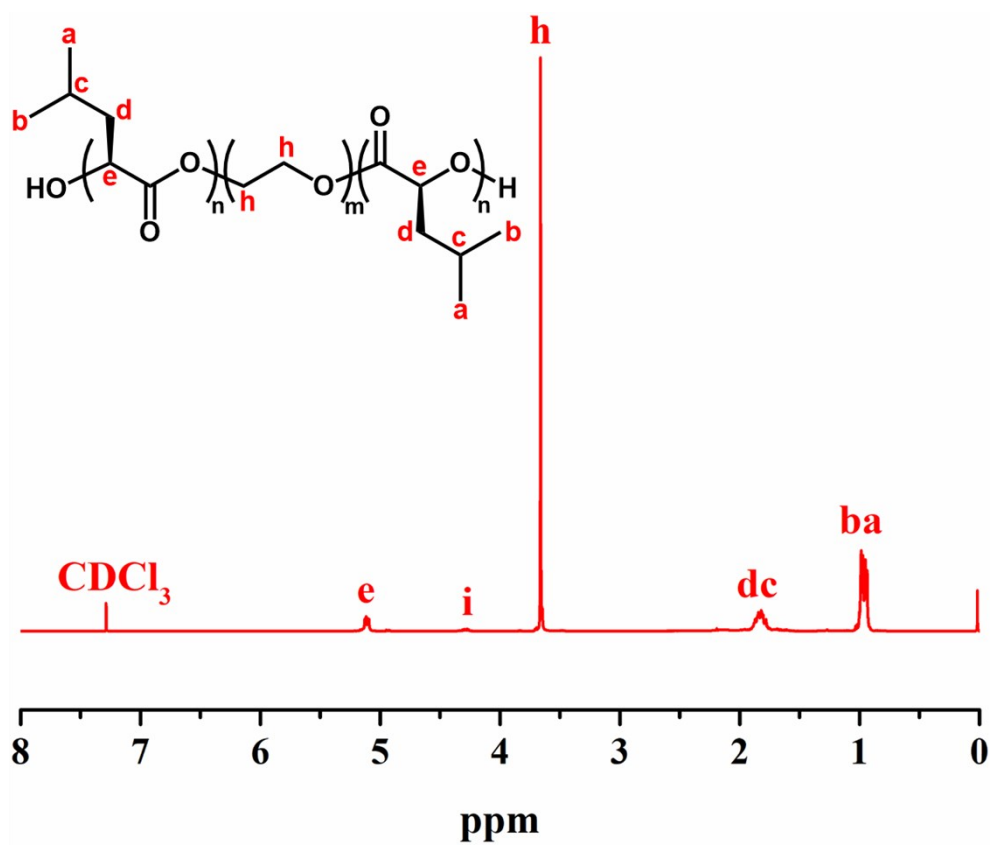


**Figure S16.** <sup>1</sup>H NMR spectrum of MePEG-PDIBG 11

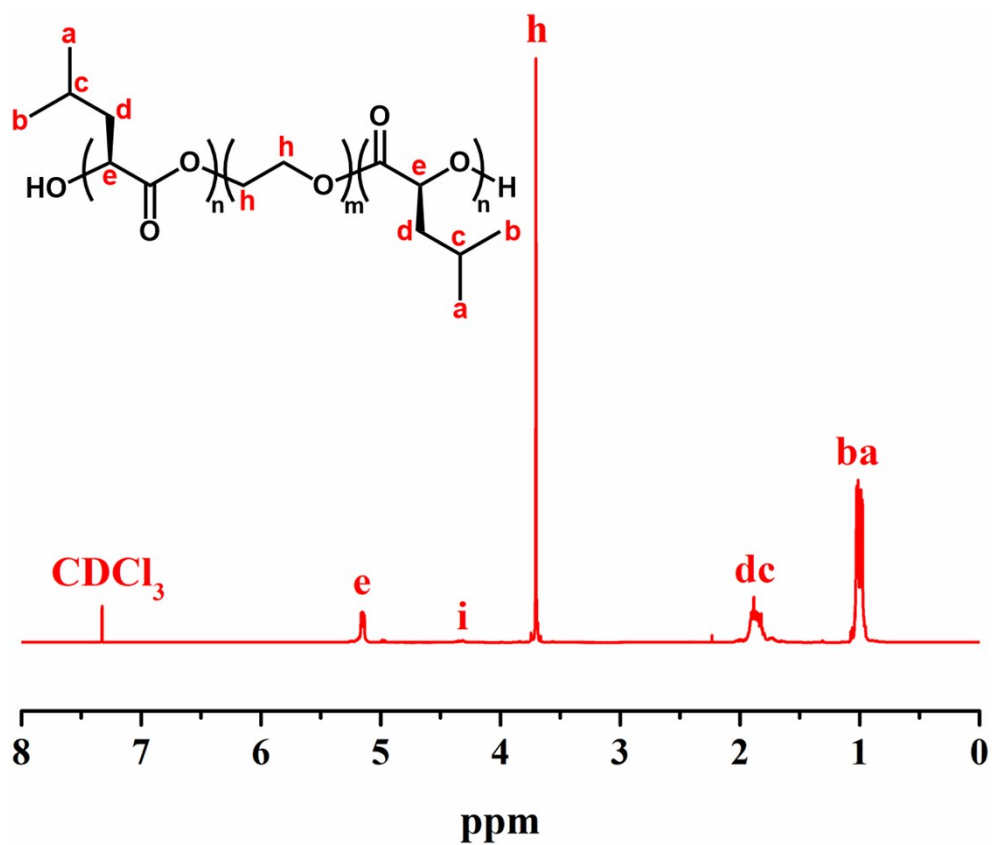




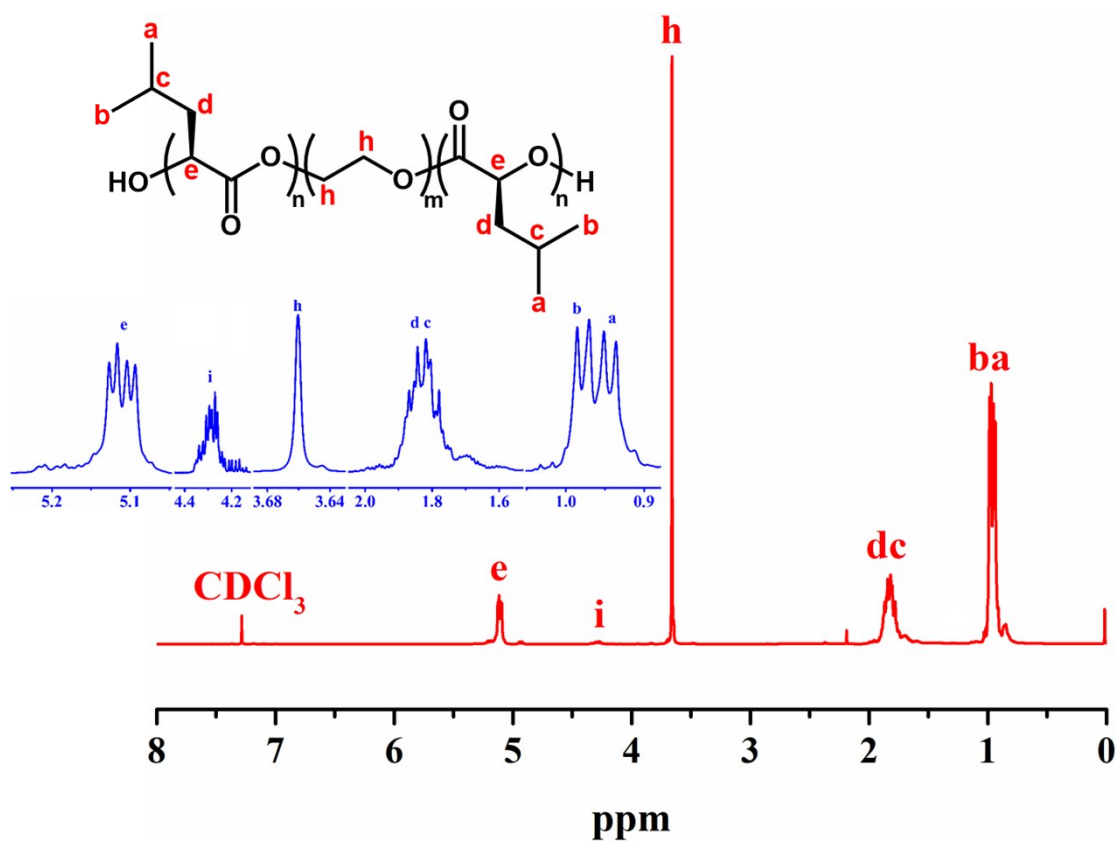
**Figure S17.**  $^1\text{H}$  NMR spectrum of PDIBG-PEG-PDIBG 12



**Figure S18.**  $^1\text{H}$  NMR spectrum of PDIBG-PEG-PDIBG 13

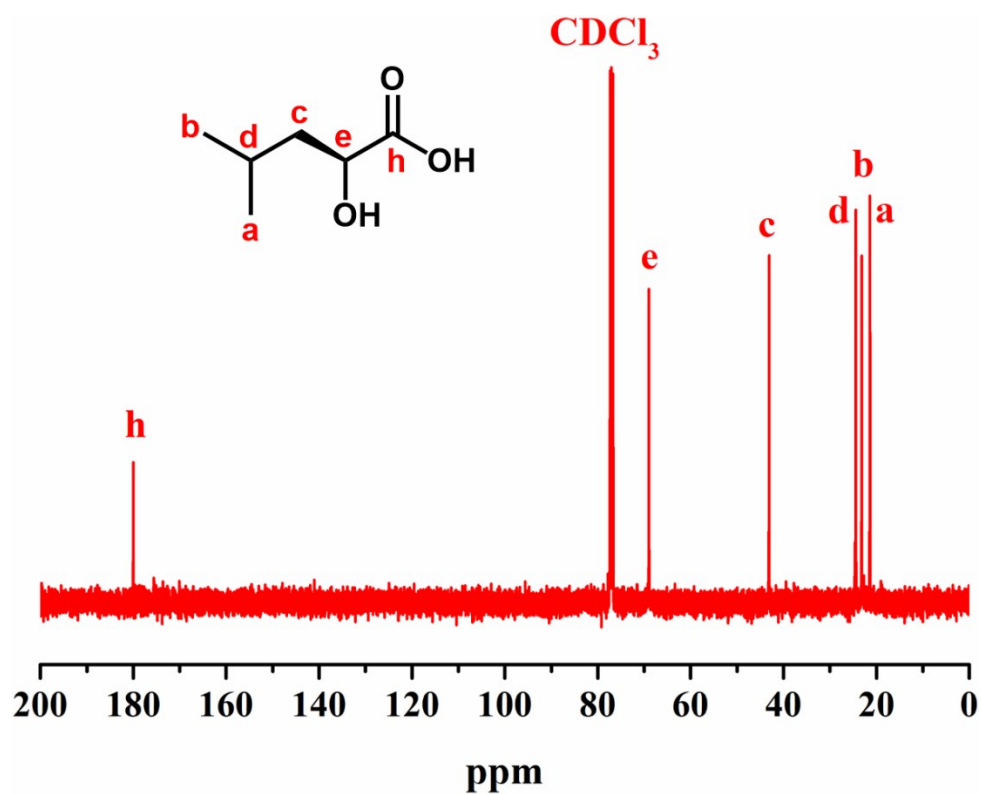


**Figure S19.**  $^1\text{H}$  NMR spectrum of PDIBG-PEG-PDIBG 14

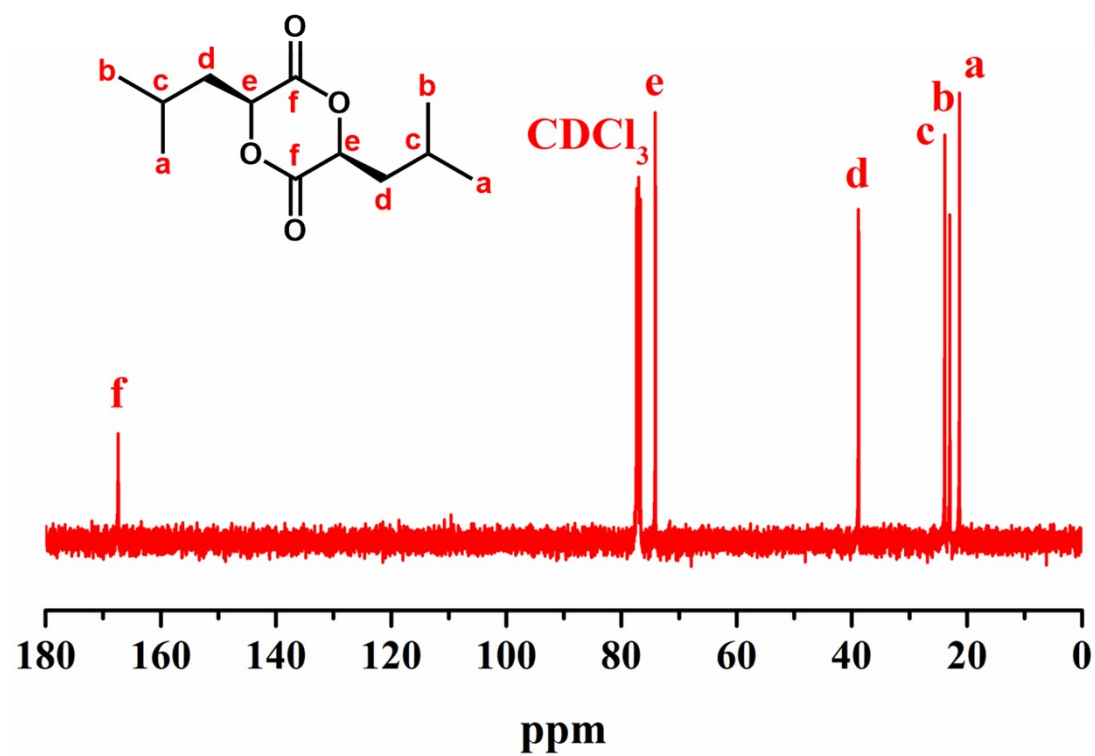


**Figure S20.**  $^1\text{H}$  NMR spectrum of PDIBG-PEG-PDIBG 17

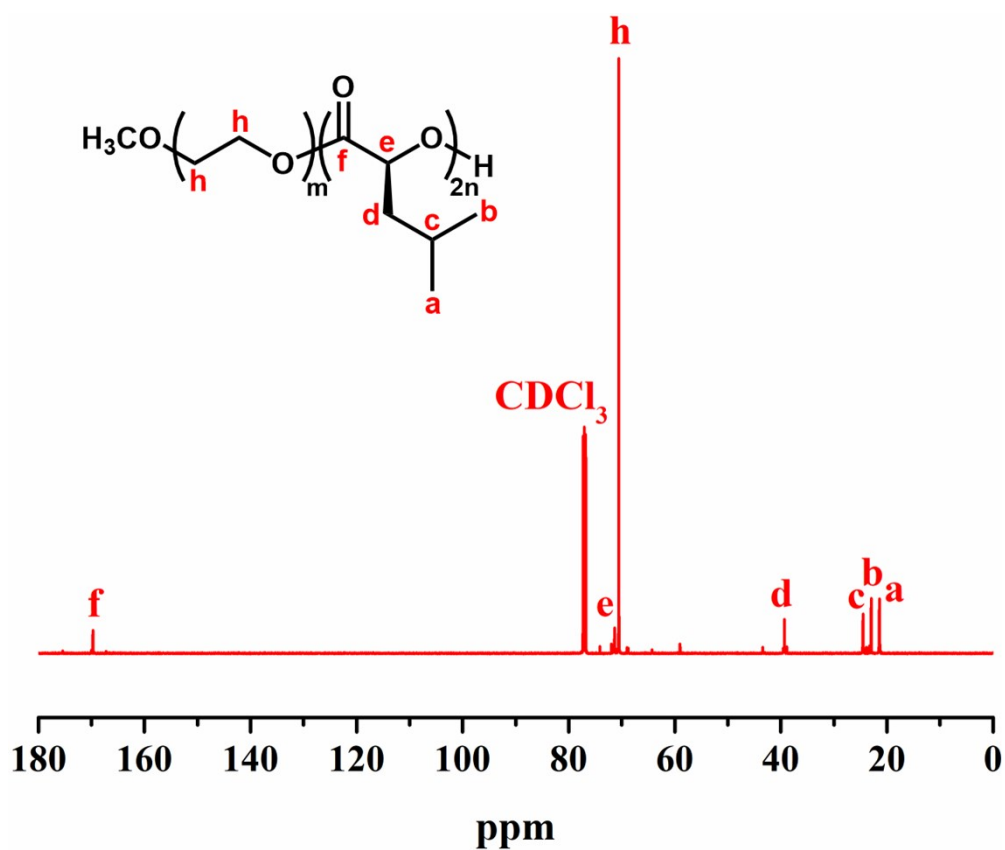
**$^{13}\text{C}$  NMR Spectra**



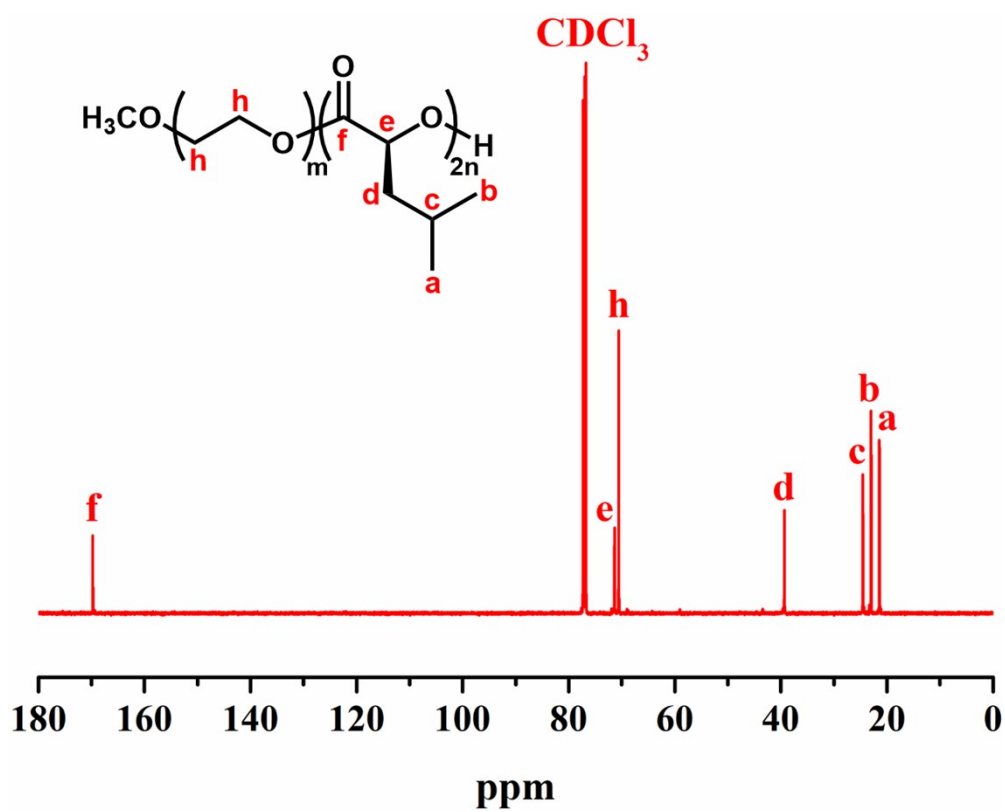
**Figure S21.**  $^{13}\text{C}$  NMR spectrum of L-2-hydroxy-4-methylpentanoic acid (2)



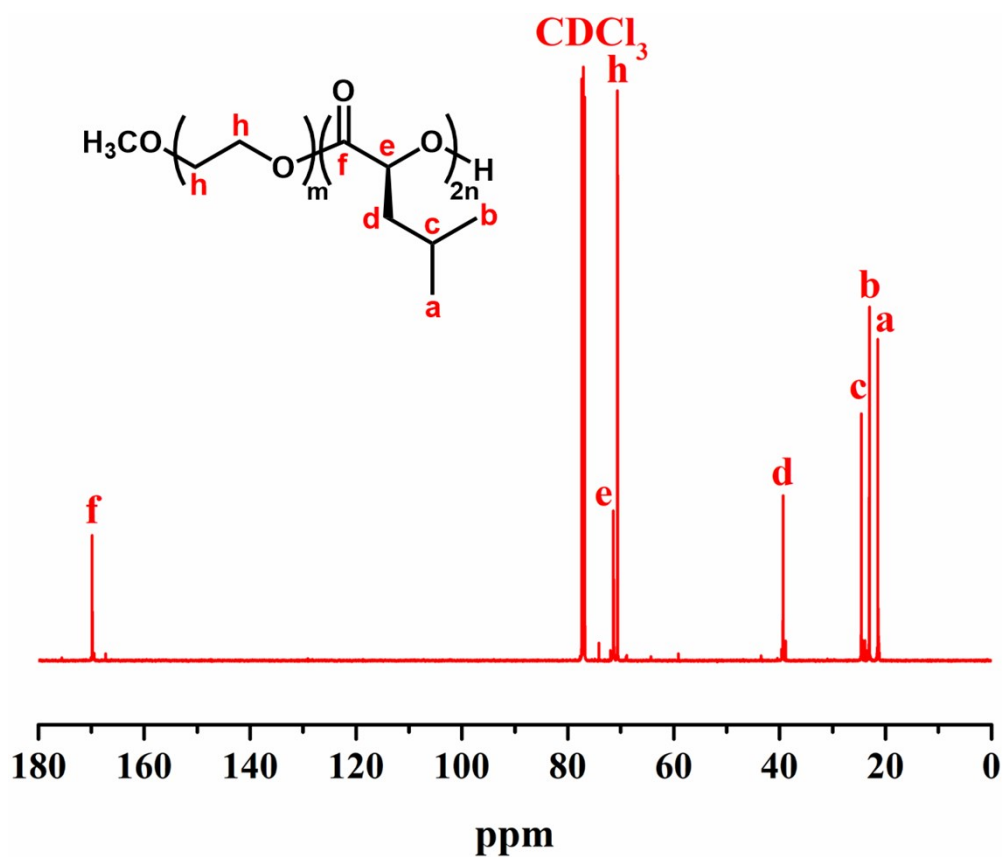
**Figure S22.**  $^{13}\text{C}$  NMR spectrum of L-3,6-diisobutyl-1,4-dioxane-2,5-dione (3)



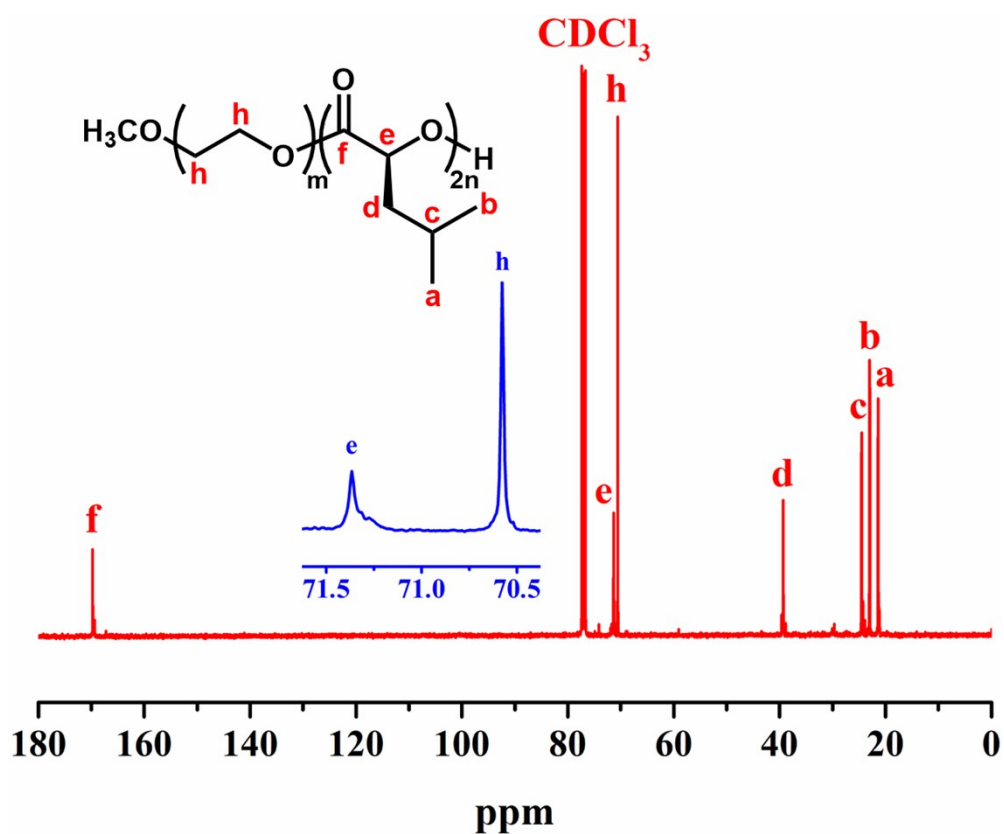
**Figure S23.** <sup>13</sup>C NMR spectrum of MePEG-PDIBG 6



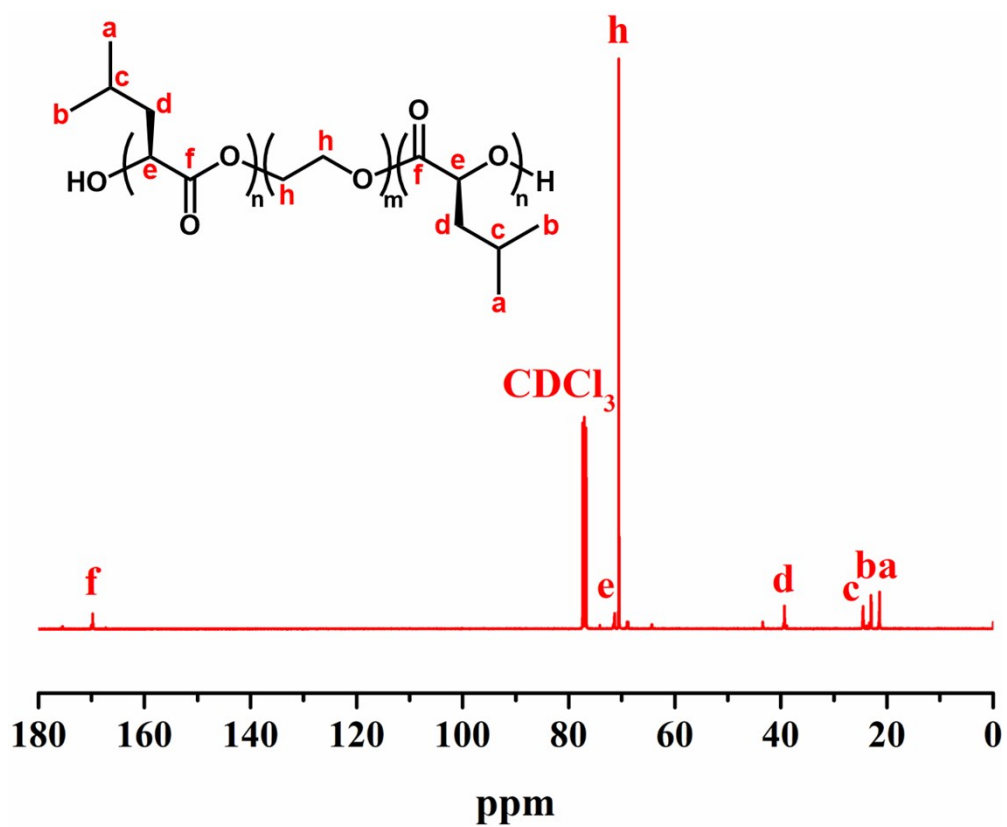
**Figure S24.** <sup>13</sup>C NMR spectrum of MePEG-PDIBG 7



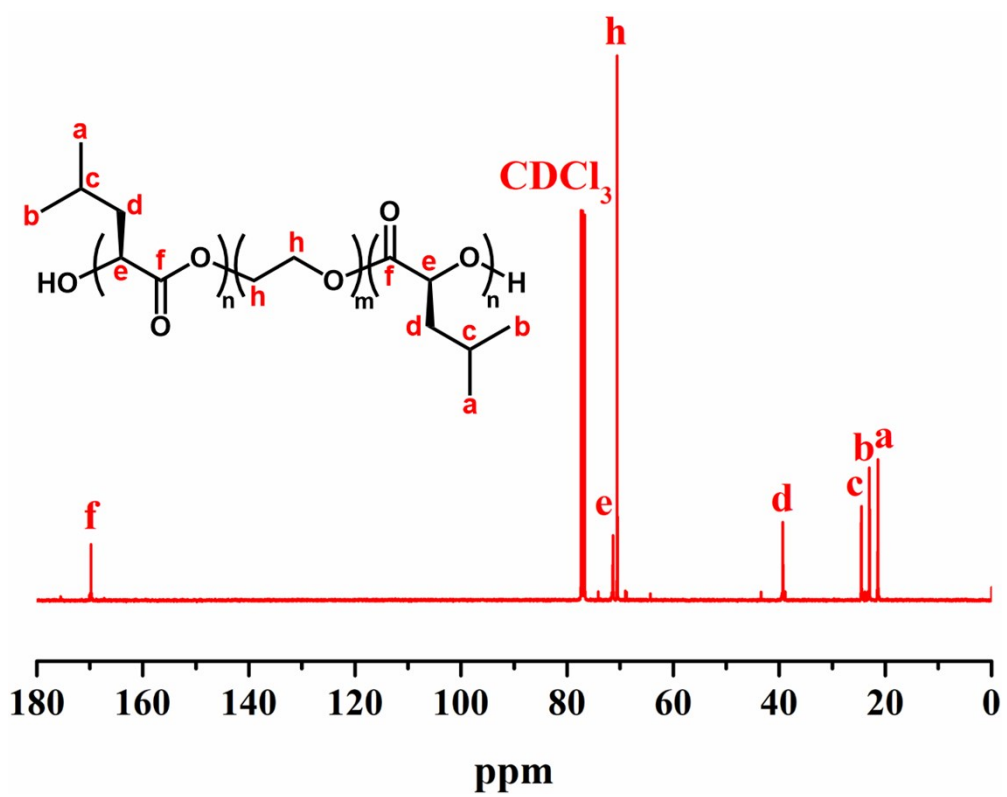
**Figure S25.** <sup>13</sup>C NMR spectrum of MePEG-PDIBG 8



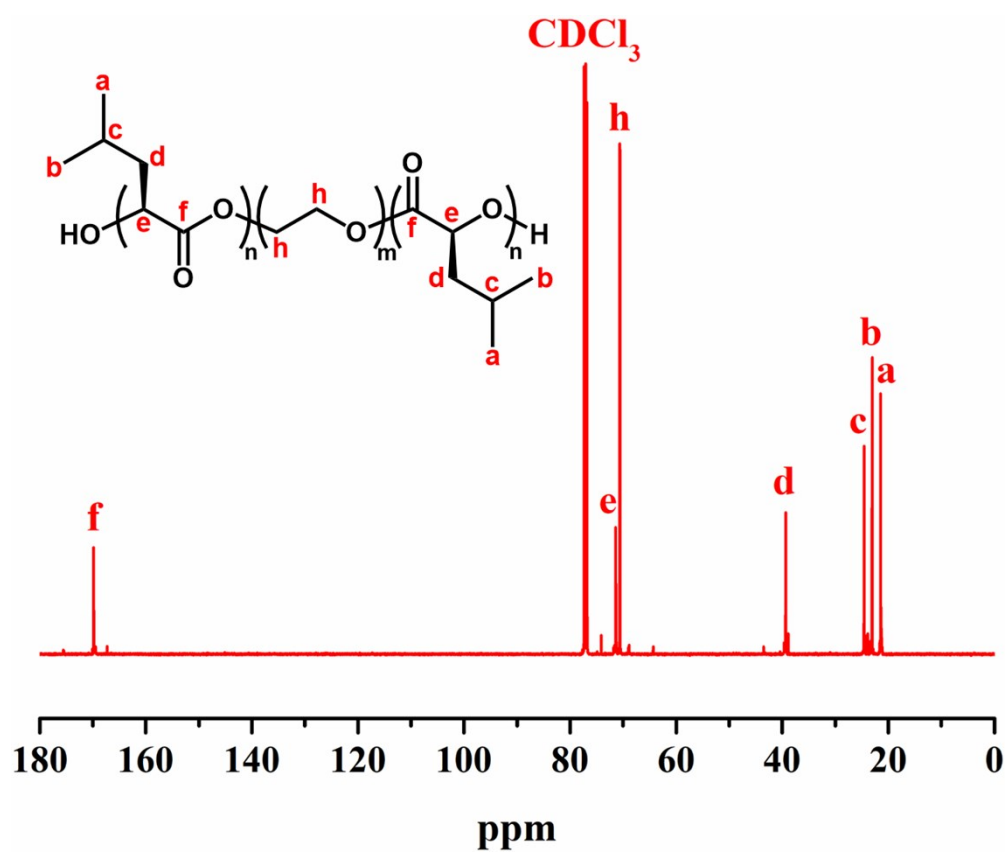
**Figure S26.** <sup>13</sup>C NMR spectrum of MePEG-PDIBG 11



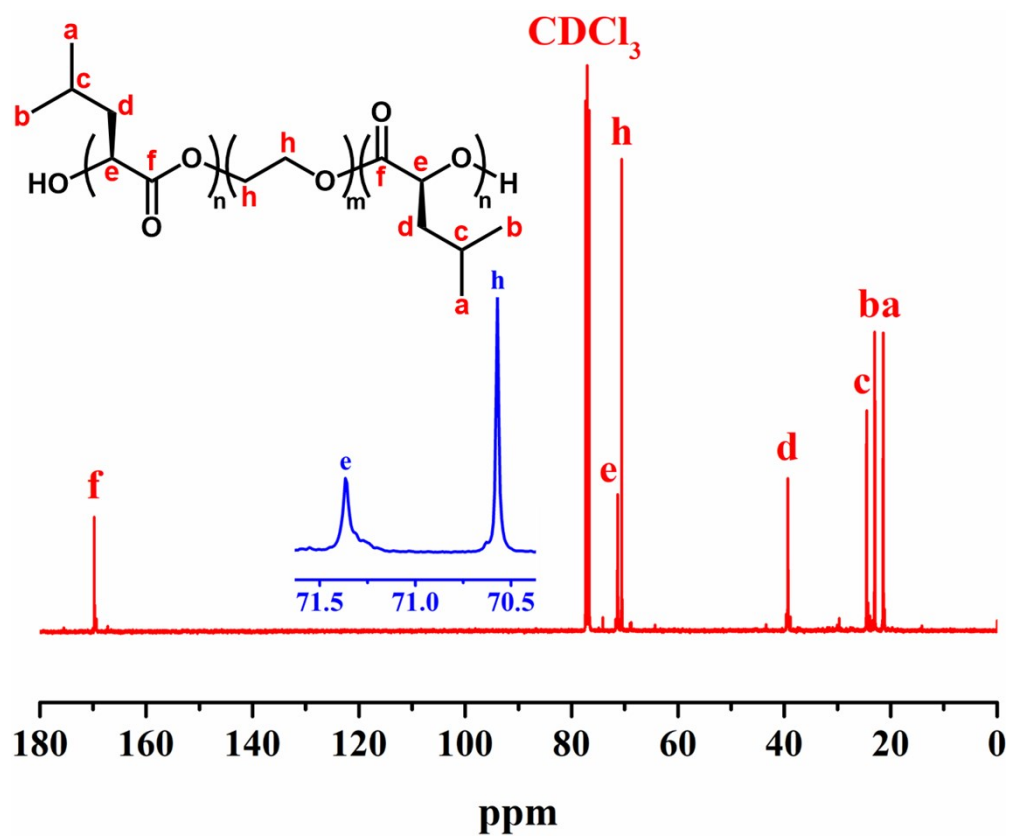
**Figure S27.**  $^{13}\text{C}$  NMR spectrum of PDIBG-PEG-PDIBG 12



**Figure S28.**  $^{13}\text{C}$  NMR spectrum of PDIBG-PEG-PDIBG 13

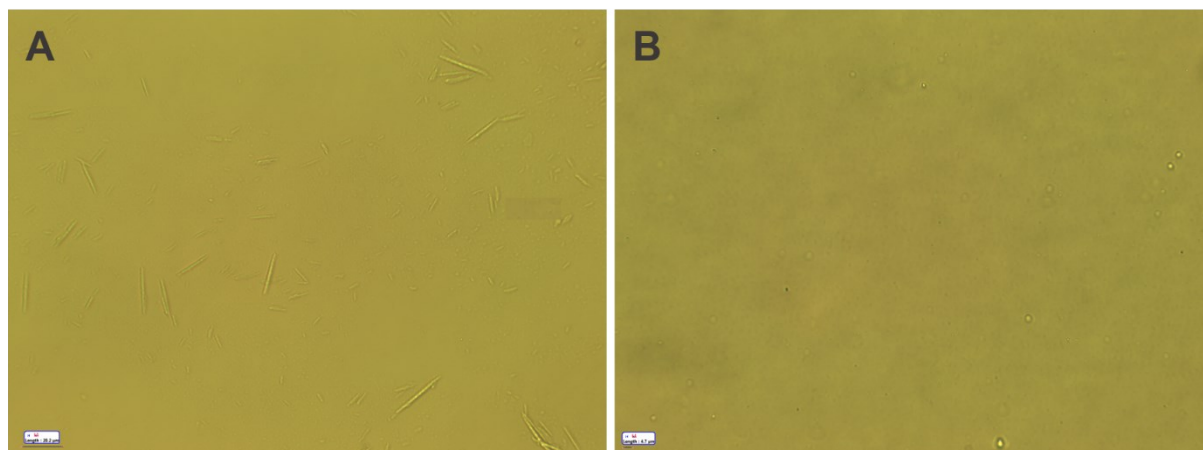


**Figure S29.**  $^{13}\text{C}$  NMR spectrum of PDIBG-PEG-PDIBG 14



**Figure S30.**  $^{13}\text{C}$  NMR spectrum of PDIBG-PEG-PDIBG 17

## Optical Microscope



**Figure S31.** The particle prepared by single emulsion solvent evaporation technique using ethyl acetate (A, scale bar: 20.2  $\mu\text{m}$ ) and dichloromethane (B, scale bar: 4.7  $\mu\text{m}$ ) as a solvent. There are images of the paclitaxel that can't be loaded into the particle (A).