

## Supporting Information

### **Polymerization of Trimethylene Carbonates Using Organic Phosphoric**

#### **Acids**

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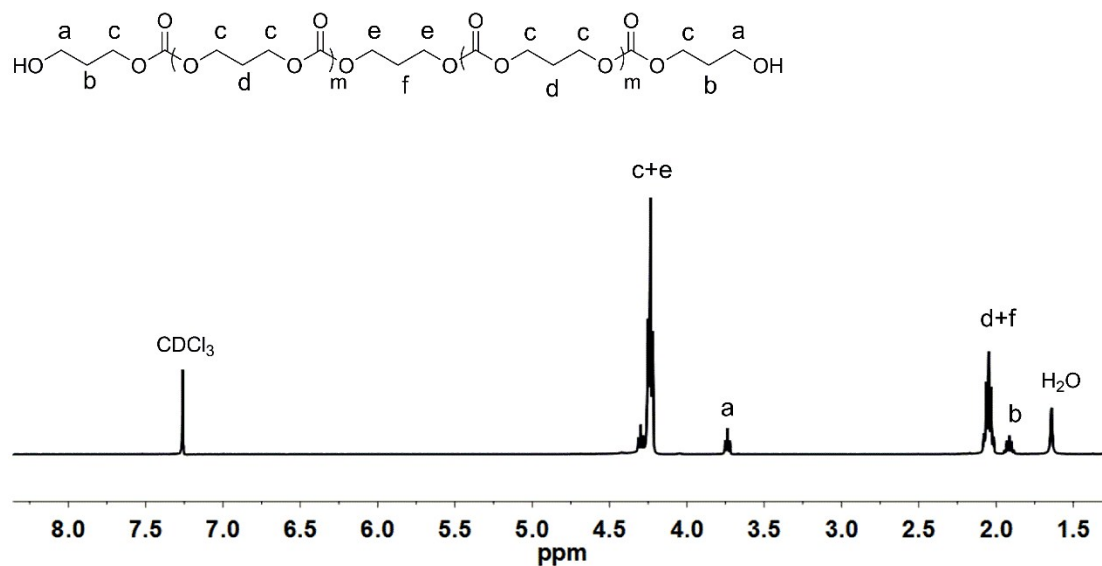


Figure S1.  $^1\text{H}$  NMR spectrum of  $\alpha,\omega$ -dihydroxy telechelic PTMC initiated from 1,3-propanediol in CDCl<sub>3</sub>.

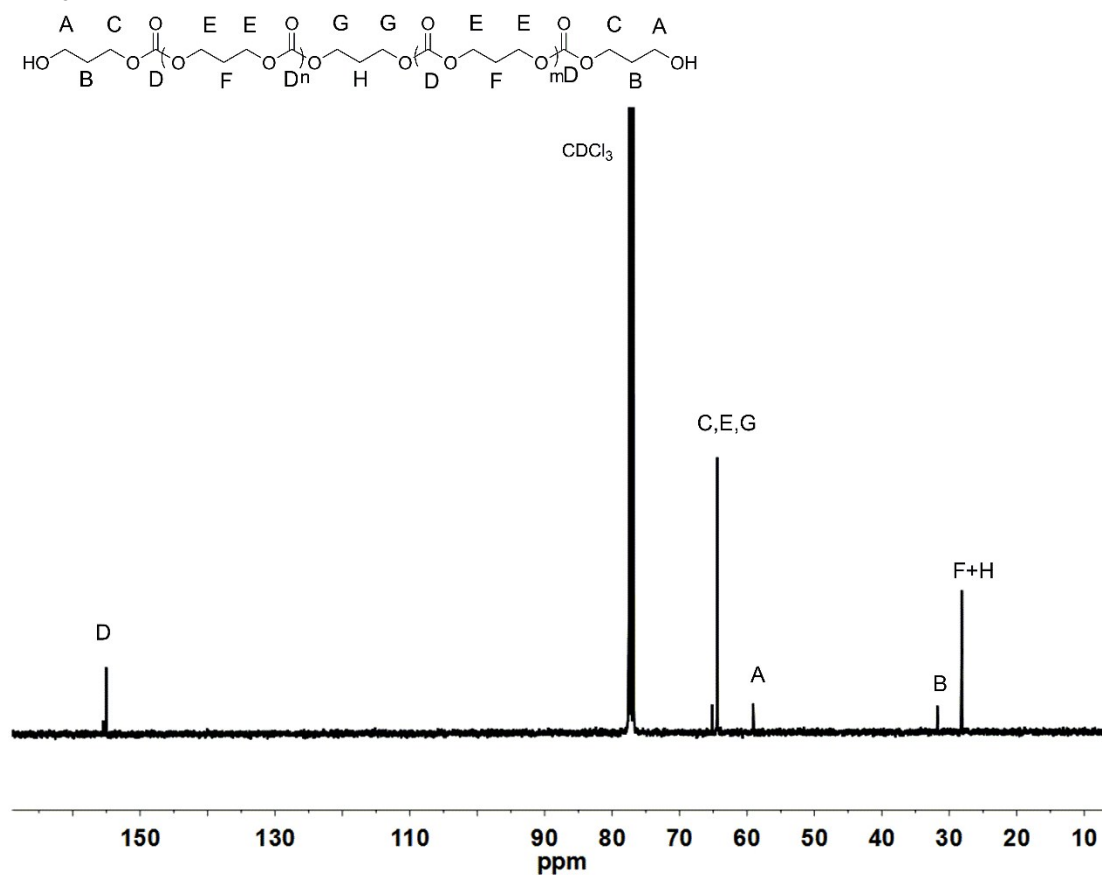


Figure S2.  $^{13}\text{C}$  NMR spectrum of  $\alpha,\omega$ -dihydroxy telechelic PTMC initiated from 1,3-propanediol in CDCl<sub>3</sub>.

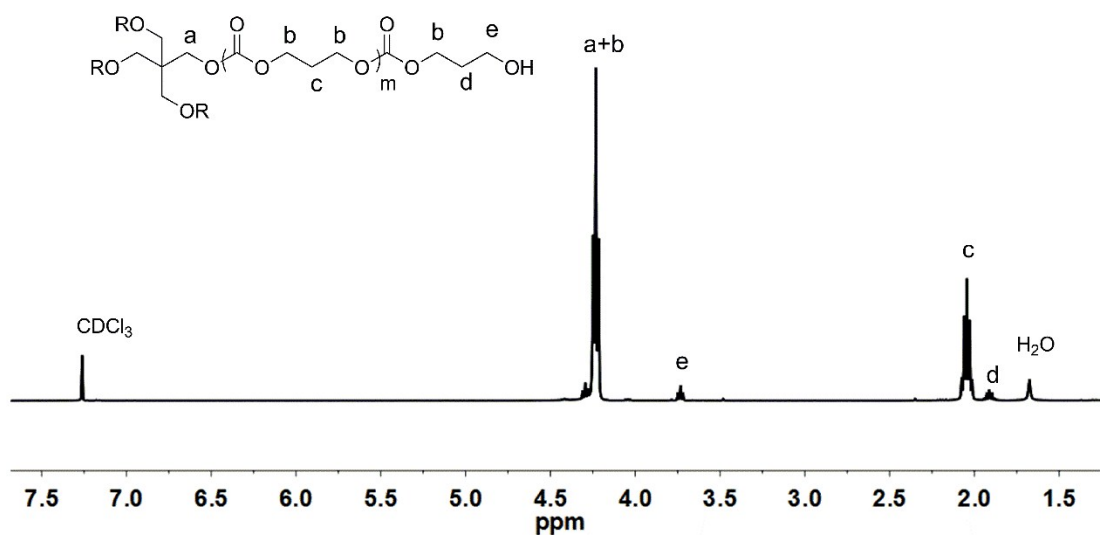


Figure S3  $^1\text{H}$  NMR spectrum of star-shaped PTMC initiated from pentaerythritol in CDCl<sub>3</sub>.

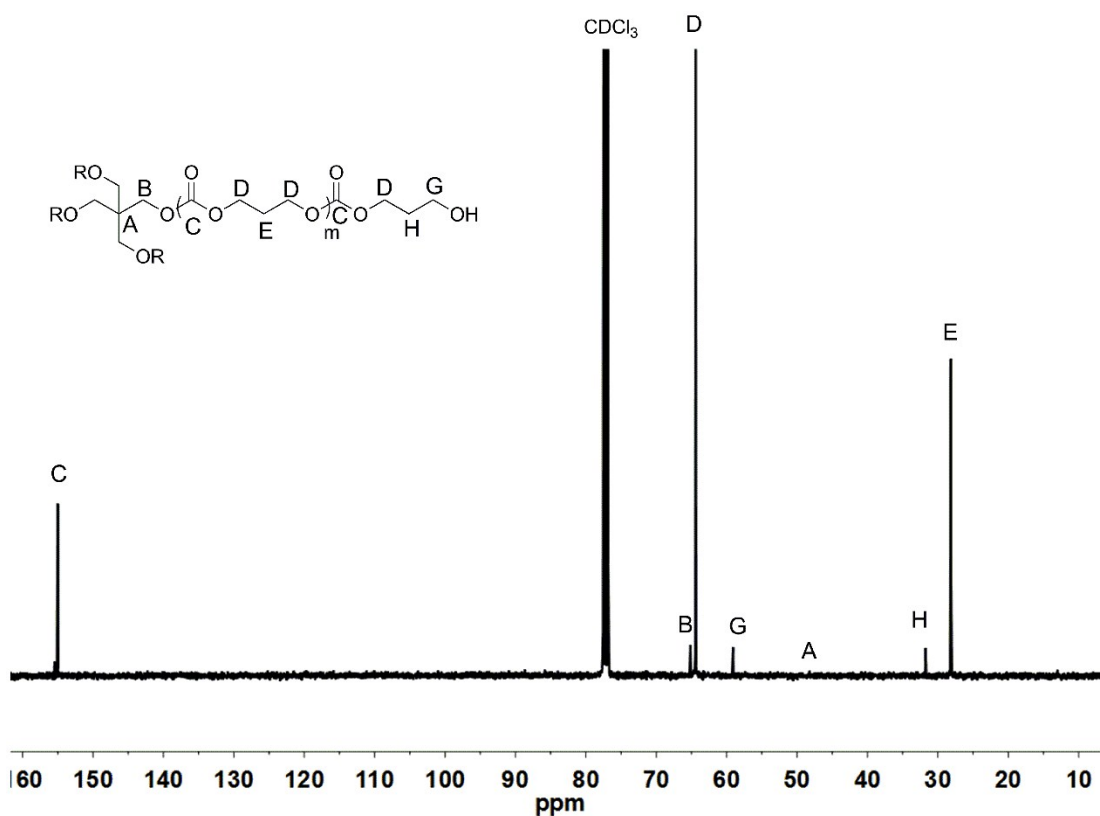


Figure S4  $^{13}\text{C}$  NMR spectrum of star-shaped PTMC initiated from pentaerythritol in CDCl<sub>3</sub>.

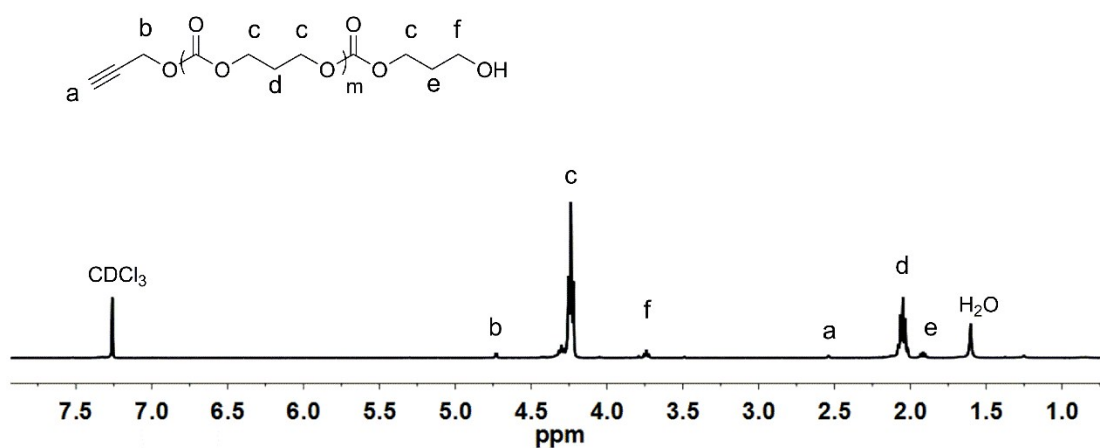


Figure S5 <sup>1</sup>H NMR spectrum of end-functionalized PTMC initiated from propargyl alcohol in CDCl<sub>3</sub>.

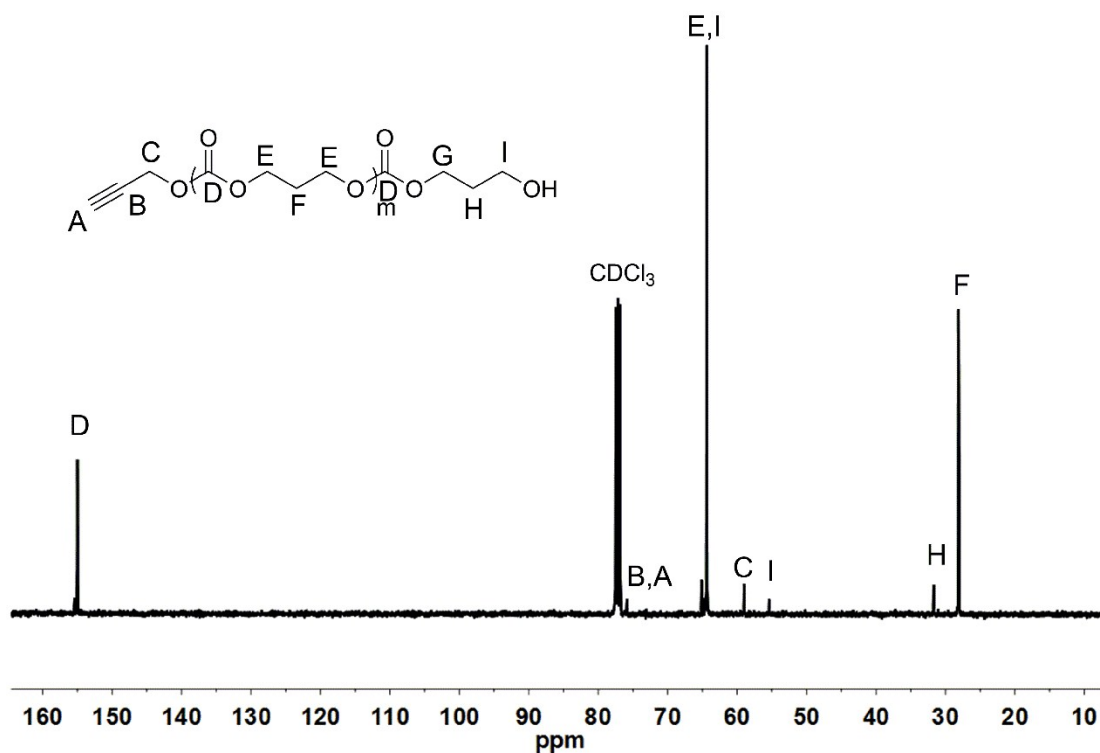


Figure S6. <sup>13</sup>C NMR spectrum of end-functionalized PTMC initiated from propargyl alcohol in CDCl<sub>3</sub>.

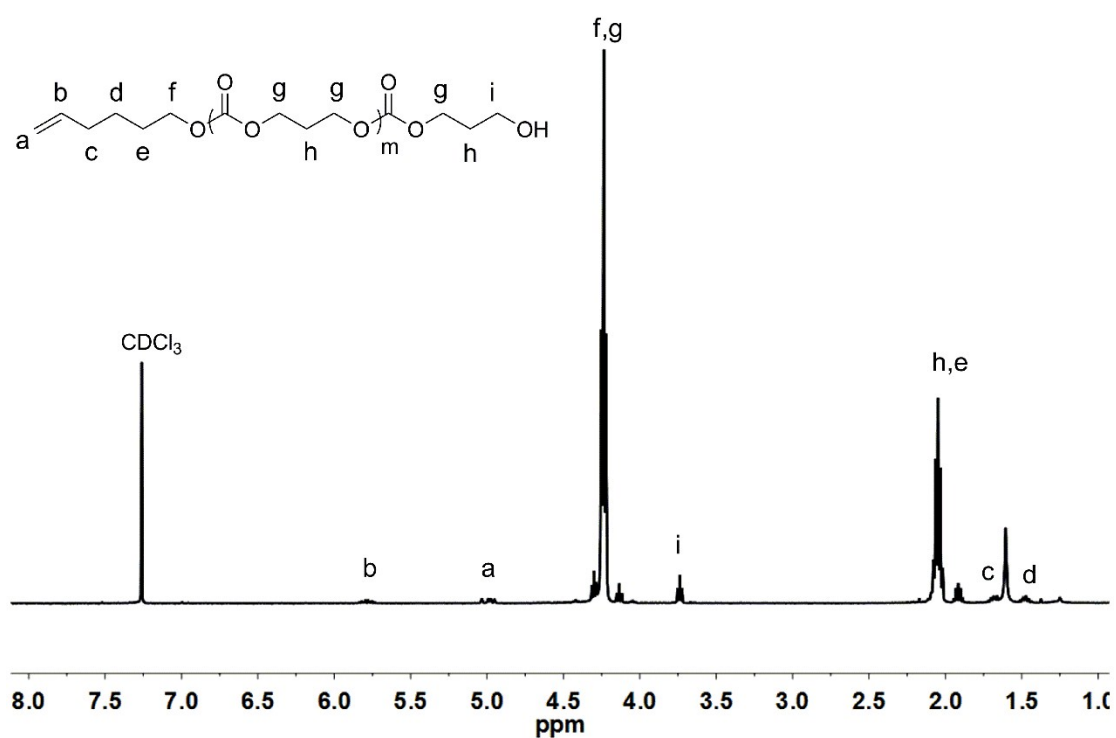


Figure S7. <sup>1</sup>H NMR spectrum of end-functionalized PTMC initiated from 5-hexen-1-ol in CDCl<sub>3</sub>.

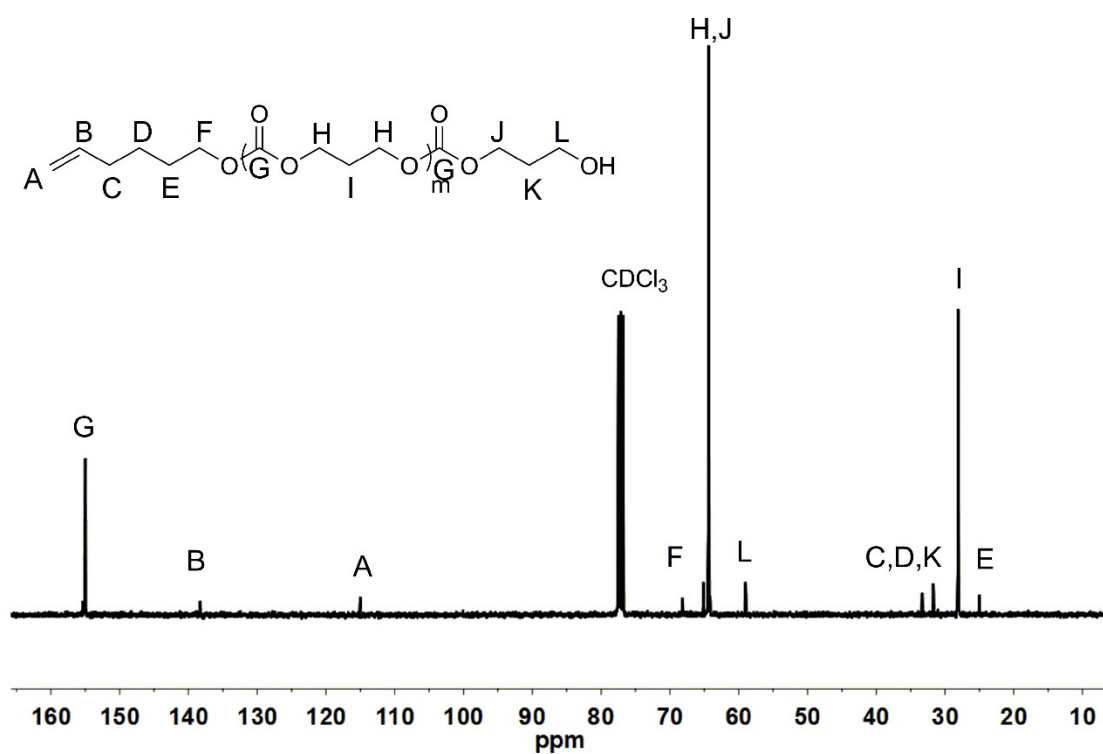


Figure S8. <sup>13</sup>C NMR spectrum of end-functionalized PTMC initiated from 5-hexen-1-ol in CDCl<sub>3</sub>.

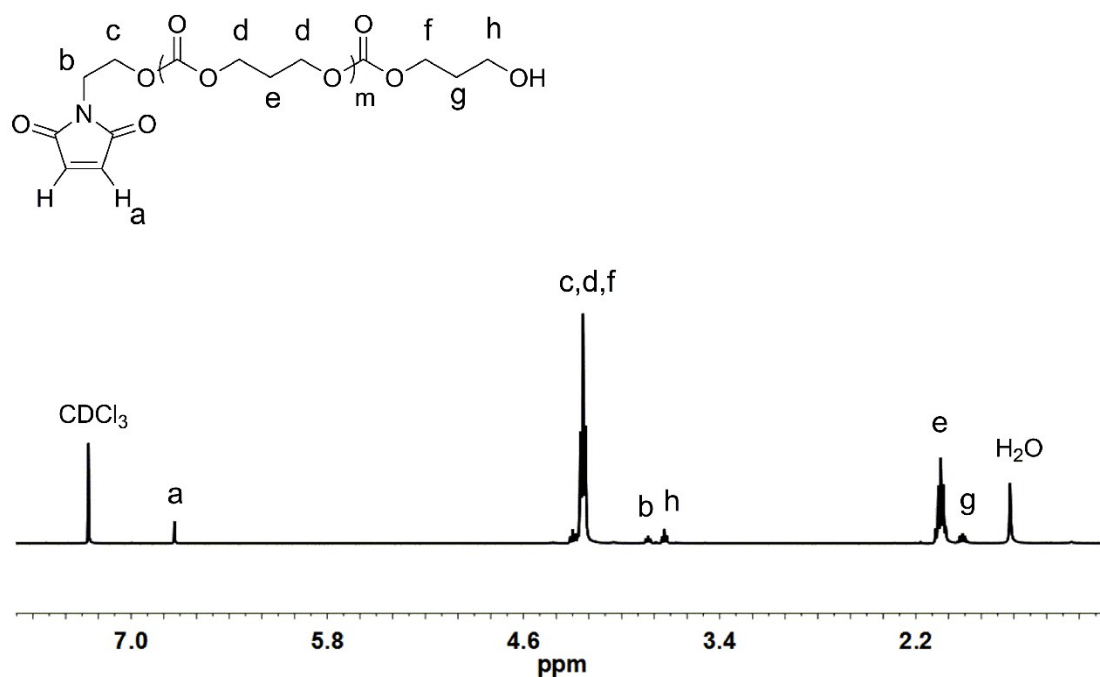


Figure S9.  $^1\text{H}$  NMR spectrum of end-functionalized PTMC initiated from N-(2-hydroxyethyl)maleimide in  $\text{CDCl}_3$ .

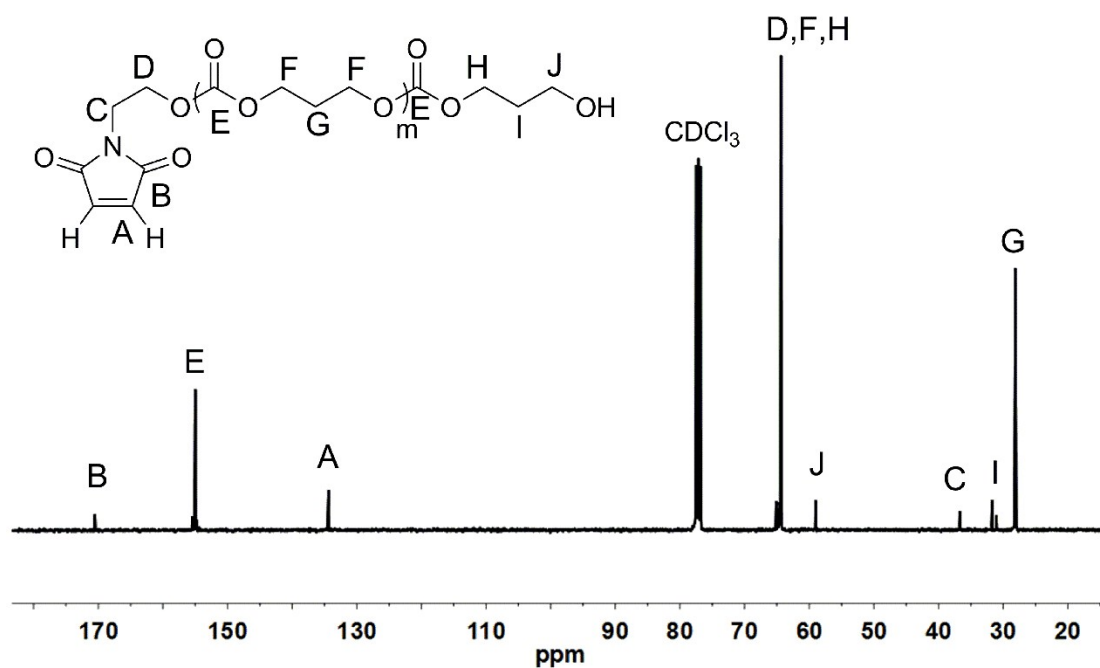


Figure S10.  $^{13}\text{C}$  NMR spectrum of end-functionalized PTMC initiated from N-(2-hydroxyethyl)maleimide in  $\text{CDCl}_3$ .

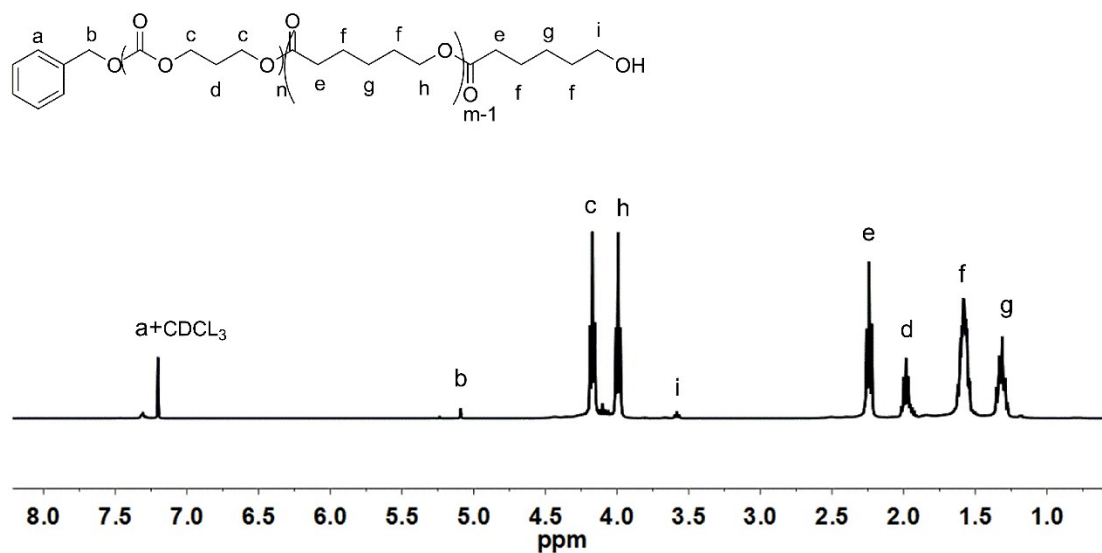


Figure S11. <sup>1</sup>H NMR spectrum of PTMC-*b*-PCL initiated from BnOH in CDCl<sub>3</sub>.

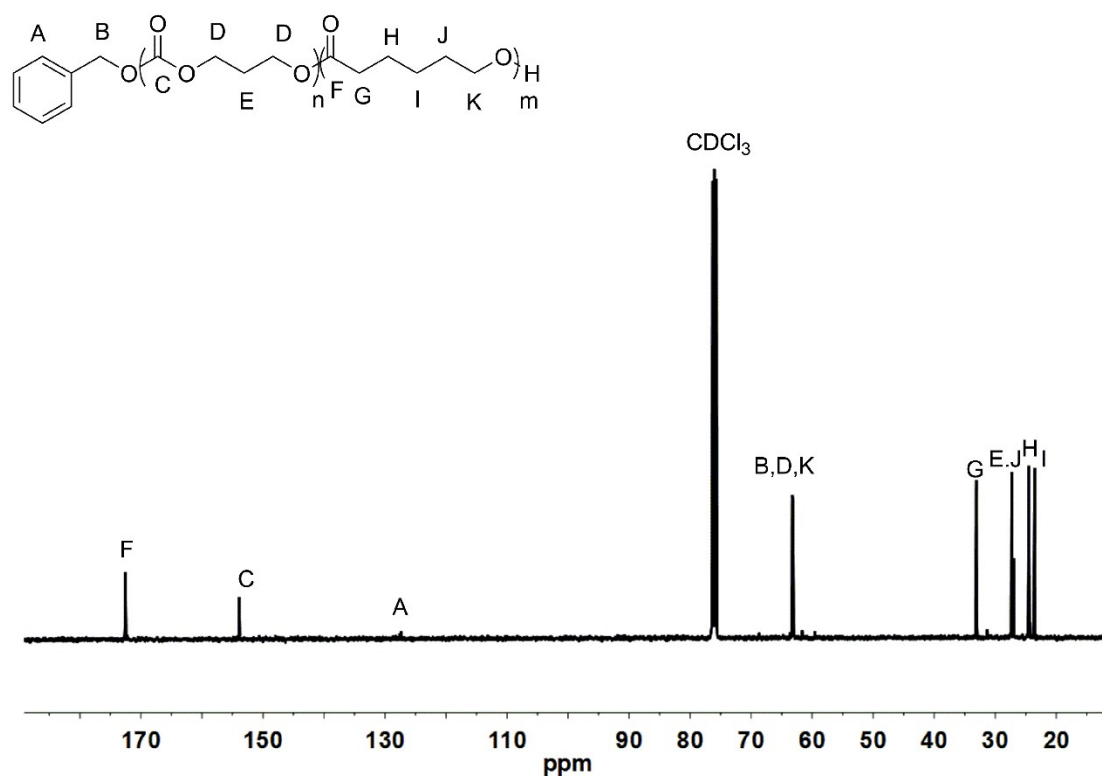


Figure S12. <sup>13</sup>C NMR spectrum of PTMC-*b*-PCL initiated from BnOH in CDCl<sub>3</sub>.

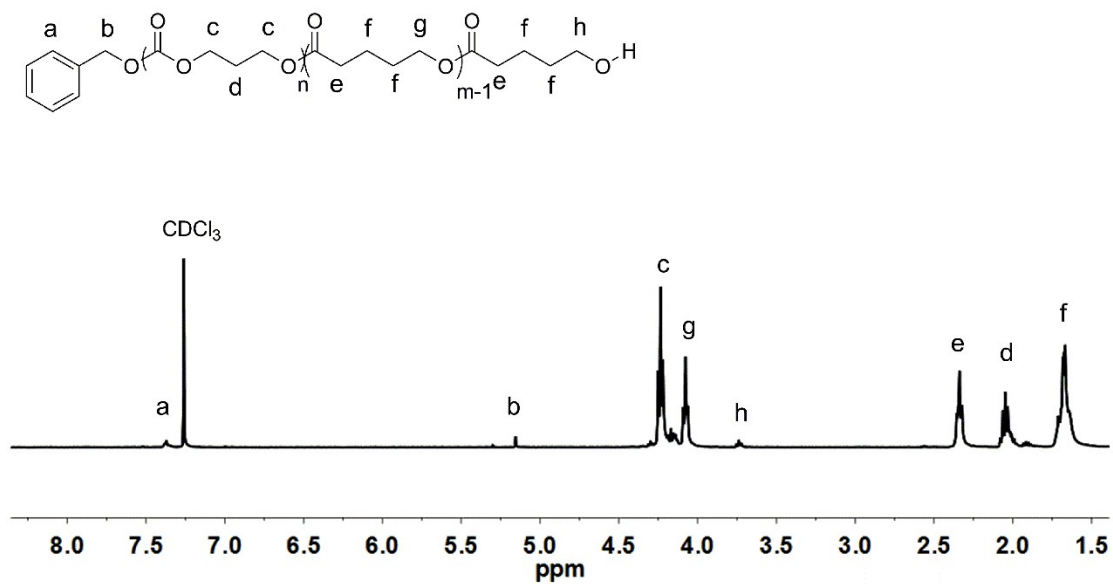


Figure S13. <sup>1</sup>H NMR spectrum of PTMC-*b*-PVL initiated from BnOH in CDCl<sub>3</sub>.

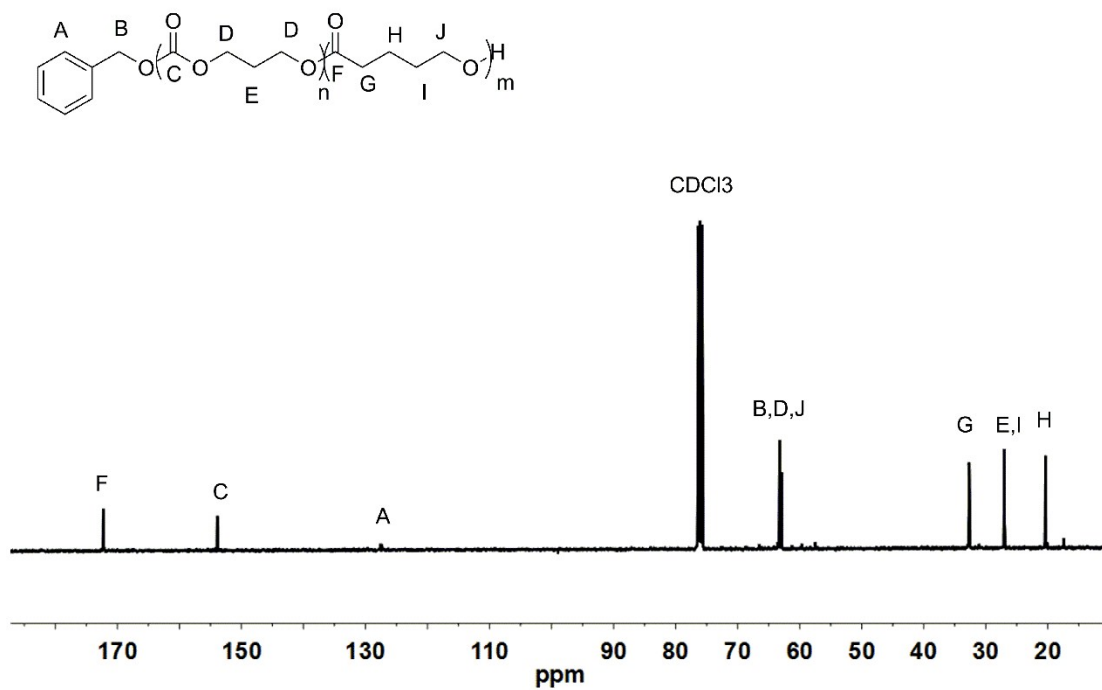


Figure S14. <sup>13</sup>C NMR spectrum of PTMC-*b*-PVL initiated from BnOH in CDCl<sub>3</sub>.



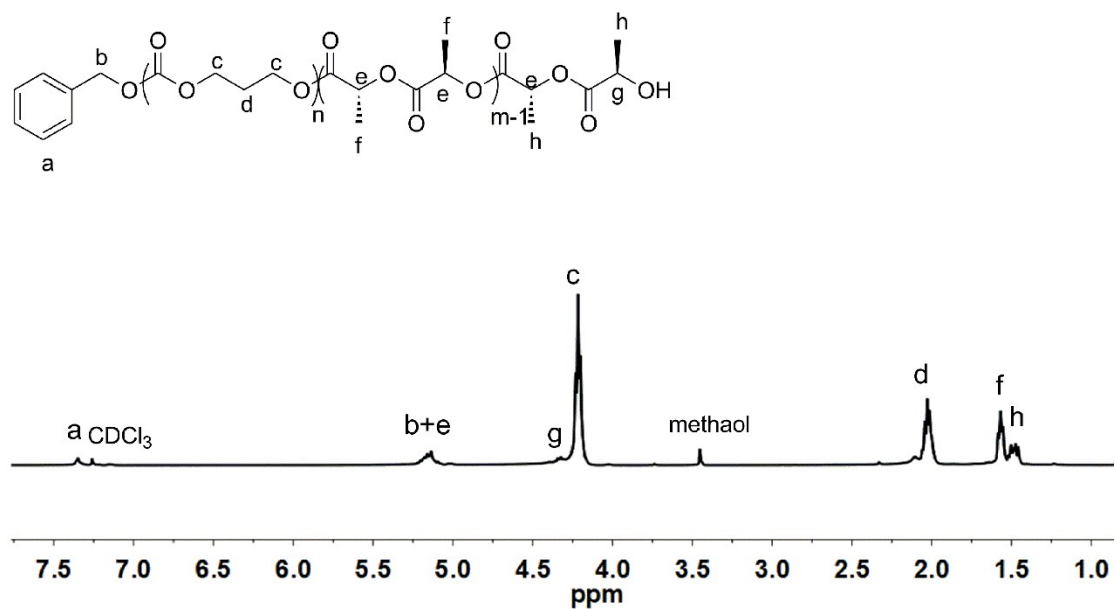


Figure S15. <sup>1</sup>H NMR spectrum of PTMC-*b*-PLLA initiated from BnOH in CDCl<sub>3</sub>.

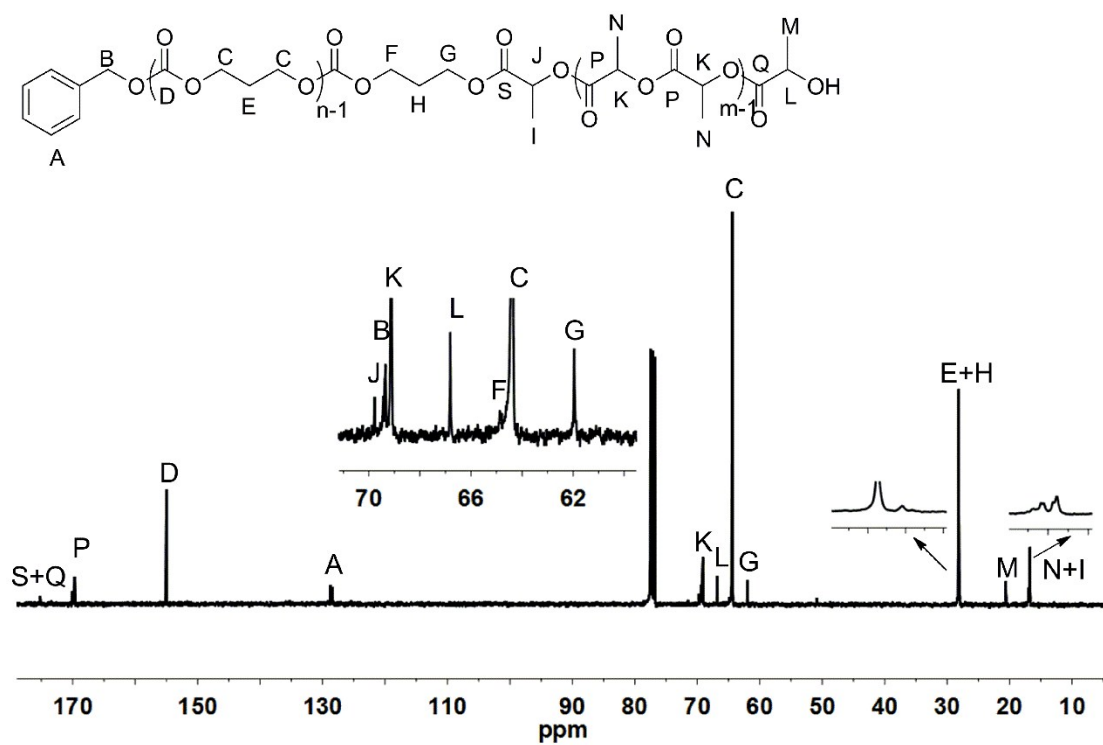


Figure S16. <sup>13</sup>C NMR spectrum of PTMC-*b*-PLLA initiated from BnOH in CDCl<sub>3</sub>.