Electronic Supplementary Material (ESI) for Polymer Chemistry.

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Supplementary Information

Telechelic Block Copolymers L-PPI-b-Poly(Epoxides-alt-PA) via Desulfonation of Poly(o-Nitrophenylsulfonyl Activated Aziridines)

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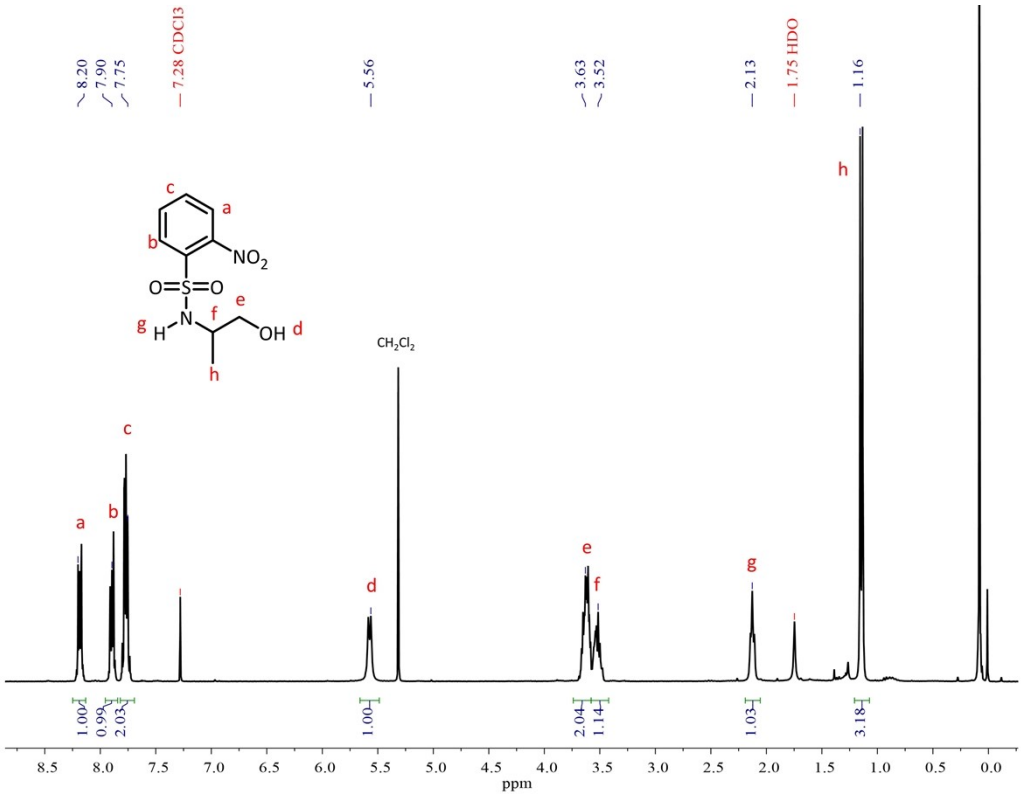

Figure S1. ^{1}H-NMR spectra of initiator N-(2-hydroxy-1-methylethyl)-2-nitrobenzenesulfonamide **I** (300 MHz, in $CDCl_3$ at 25 °C).

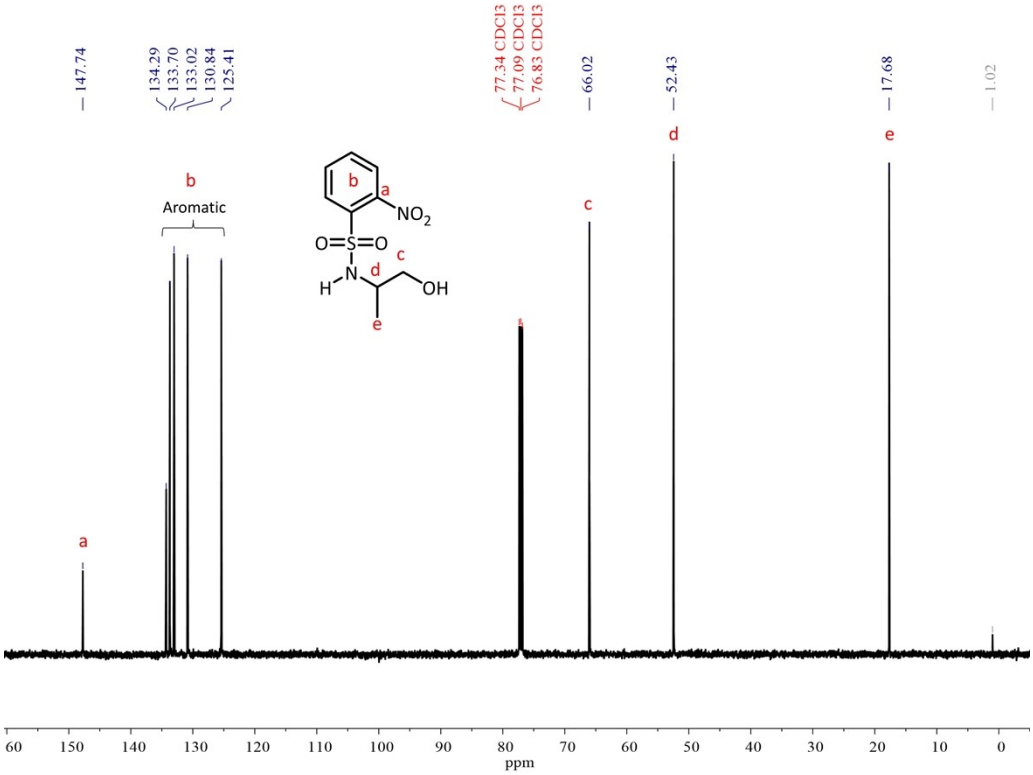

Figure S2. ^{13}C-NMR spectra of initiator N-(2-hydroxy-1-methylethyl)-2-nitrobenzenesulfonamide **I** (500 MHz, in $CDCl_3$ at 25 °C).

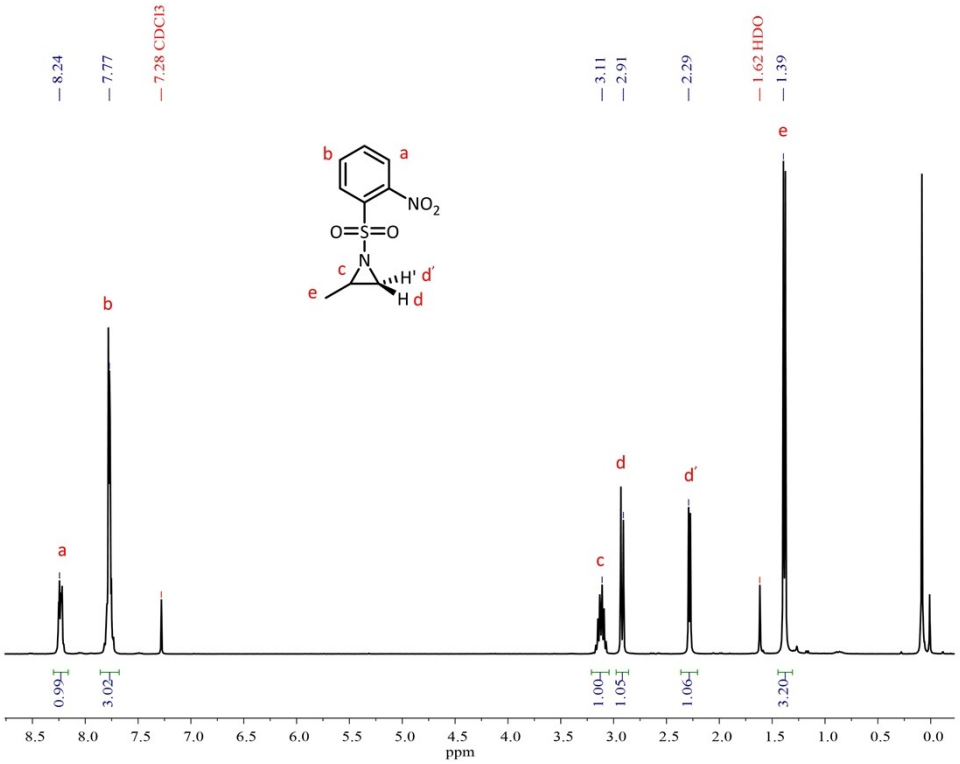

Figure S3. ^{1}H-NMR spectra of 2-methyl-1-(2-nitrophenylsulfonyl) aziridine **(NsMAz)** (300 MHz, in $CDCl_3$ at 25 °C).

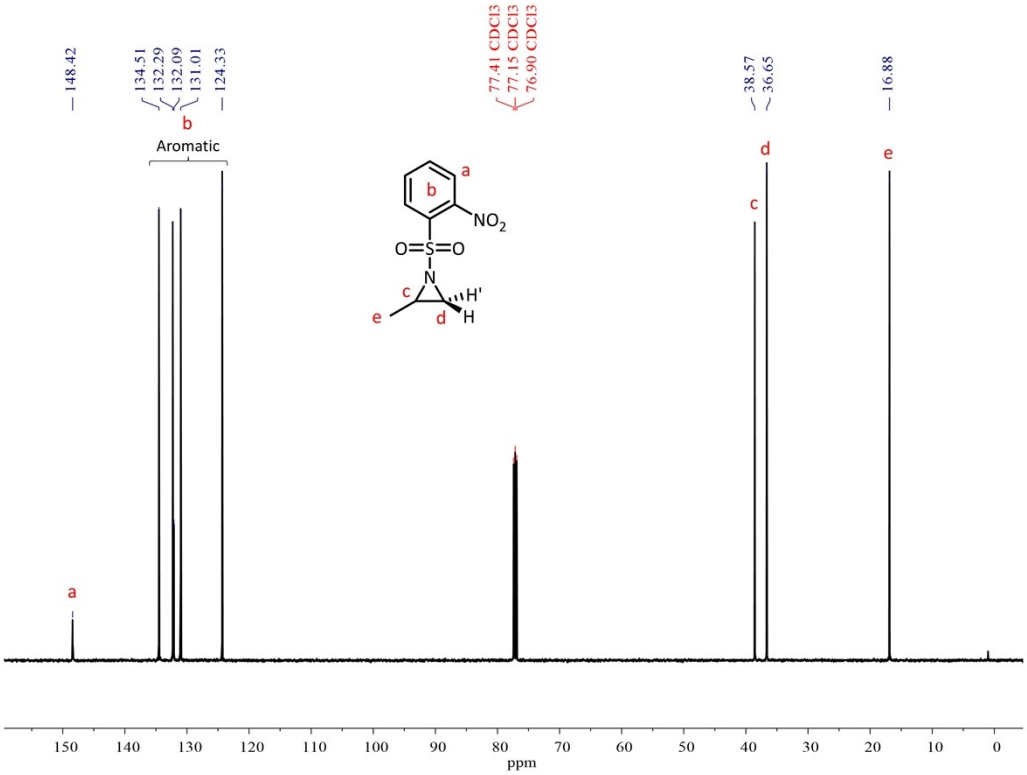

Figure S4. ^{13}C-NMR spectra of 2-methyl-1-(2-nitrophenylsulfonyl) aziridine **(NsMAz)** (500 MHz, in $CDCl_3$ at 25 °C).

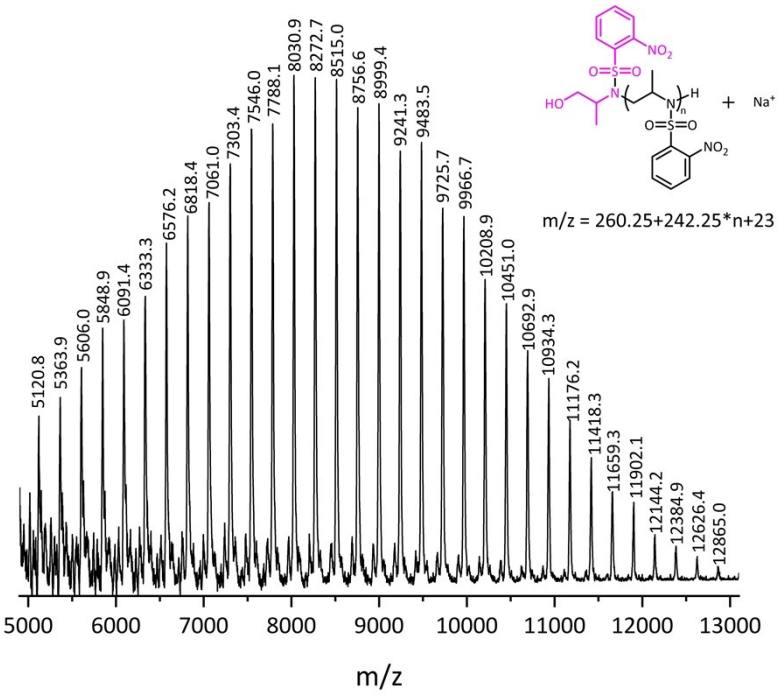

Figure S5. Experimental MALDI TOF mass spectrum of PNsMAz-OH (Entry 2, Table 1).

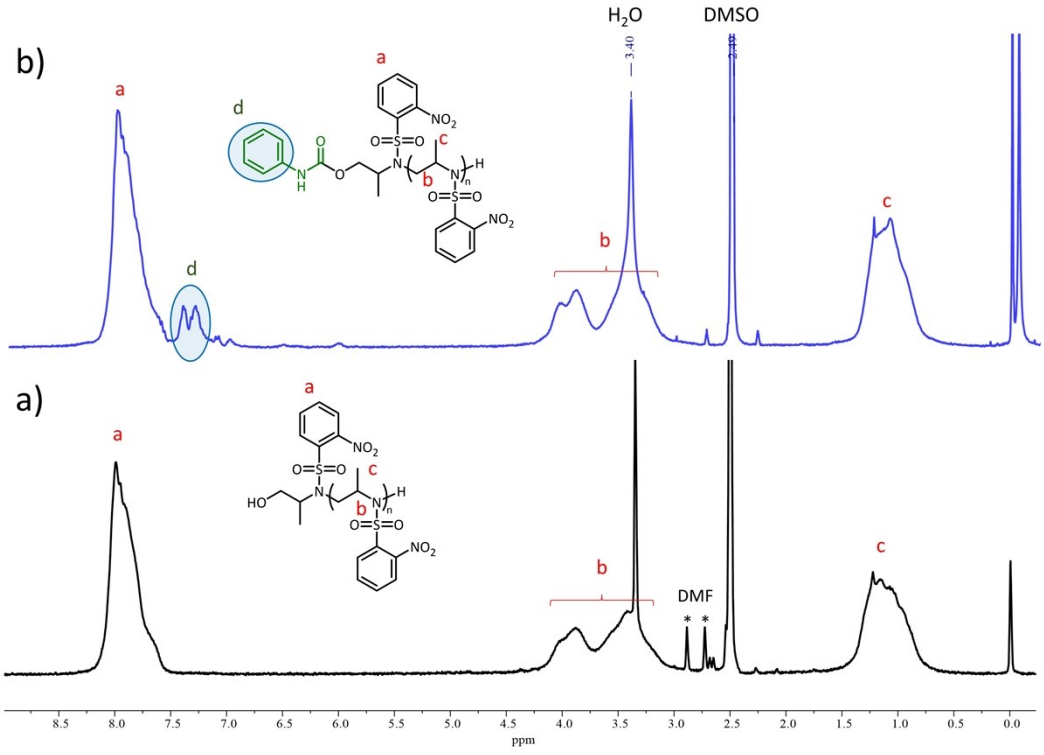

Figure S6. ^{1}H NMR spectrum of a) PNsMAz-OH (Entry 1, Table 1) and b) its α-carbamate derivative obtained after postfunctionalization (300 MHz, in d^{6}-DMSO at 25 °C).

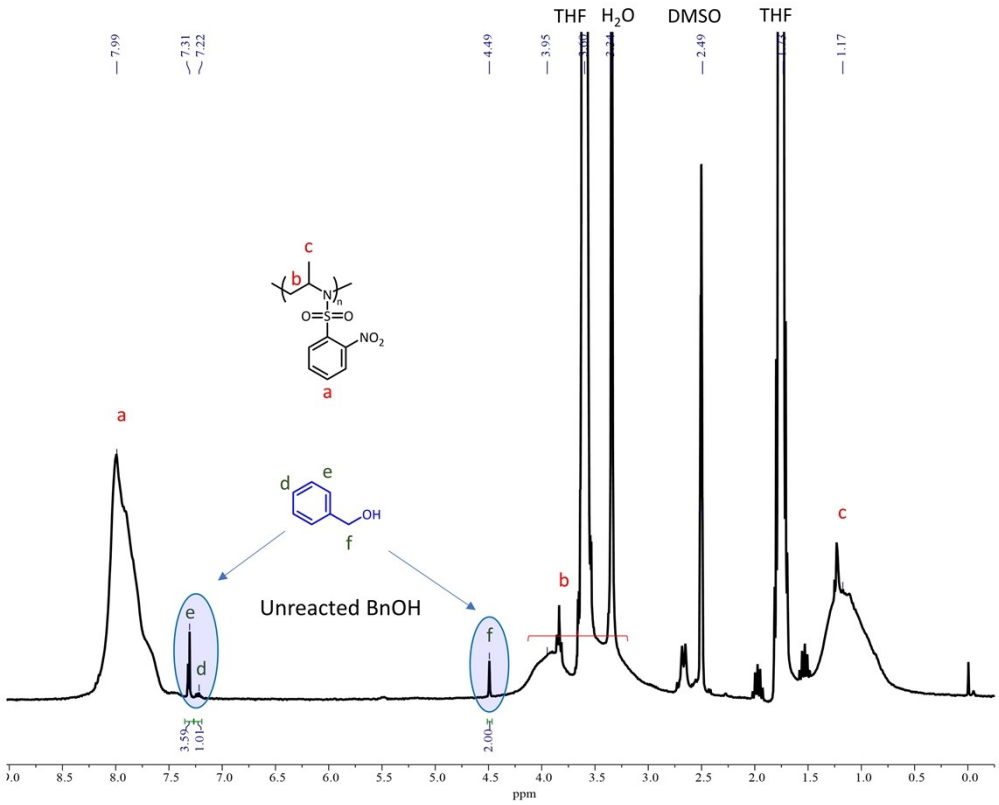

Figure S7. ^{1}H NMR spectrum of mixture in reaction solution (300 MHz, in d^{6}-DMSO at 25 °C, Entry 5, Table 1).

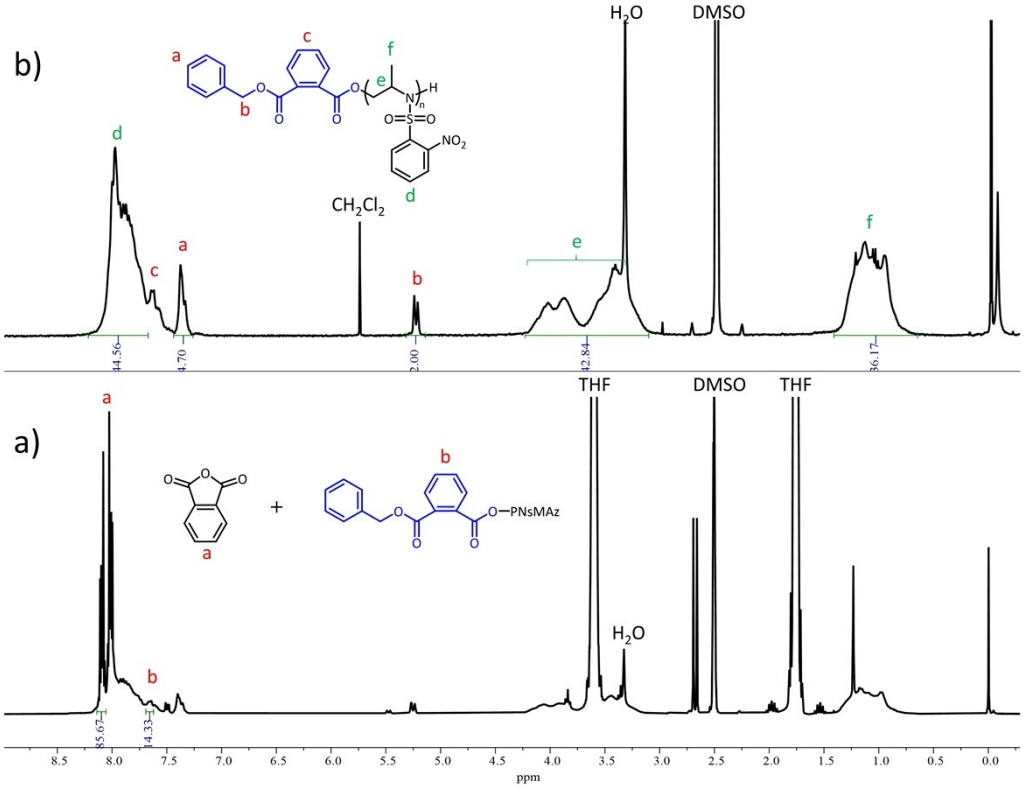

Figure S8. ^{1}H NMR spectrum of a) mixture in reaction solution using BnOH as initiator and b) final purified PNsMAz (300 MHz, in d^{6}-DMSO at 25 °C, Entry 1, Table 2).

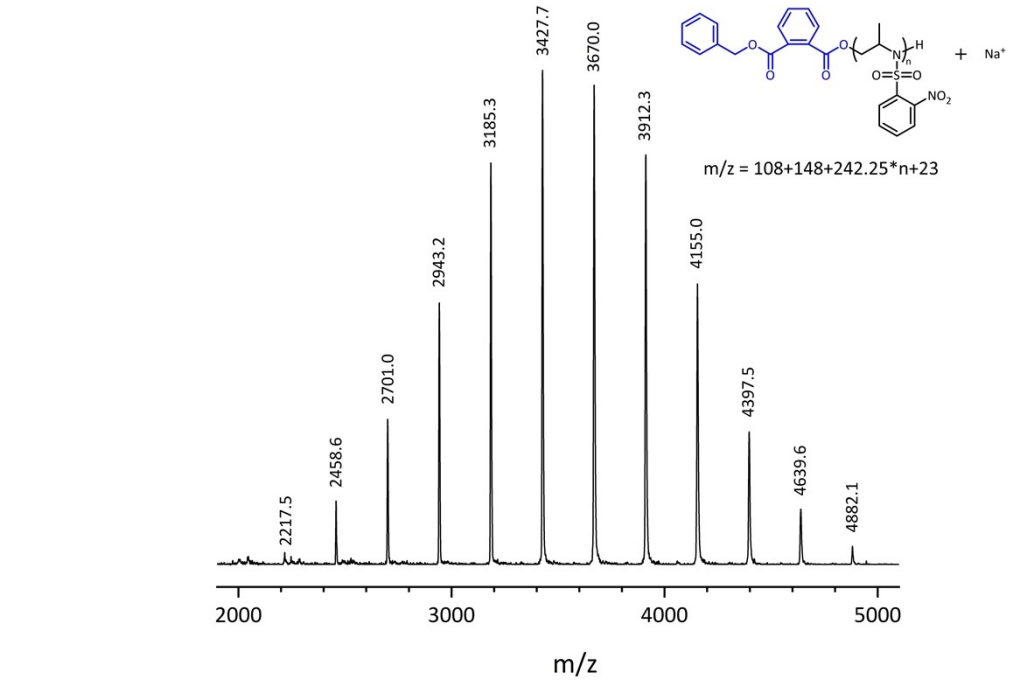

Figure S9. Experimental MALDI TOF mass spectrum of PNsMAz initiated by BnOH with a PA (Entry 1, Table 2).

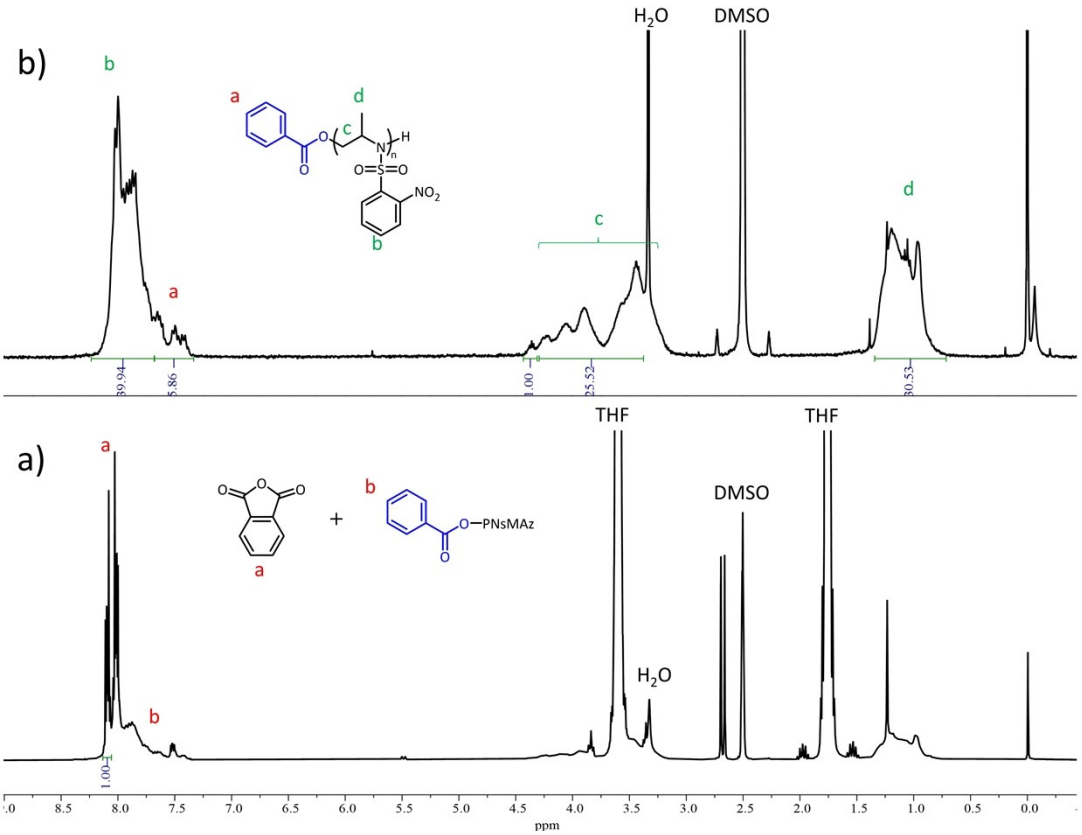

Figure S10. ^{1}H NMR spectrum of a) mixture in reaction solution using BA as initiator and b) final purified PNsMAz (300 MHz, in d^{6}-DMSO at 25 °C, Entry 2, Table 2).

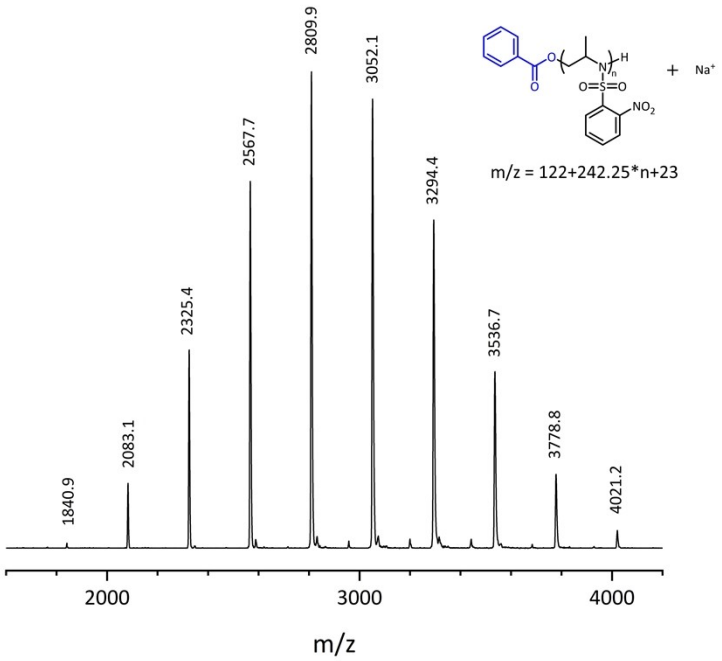

Figure S11. Experimental MALDI TOF mass spectrum of PNsMAz initiated by BA (Entry 2, Table 2).

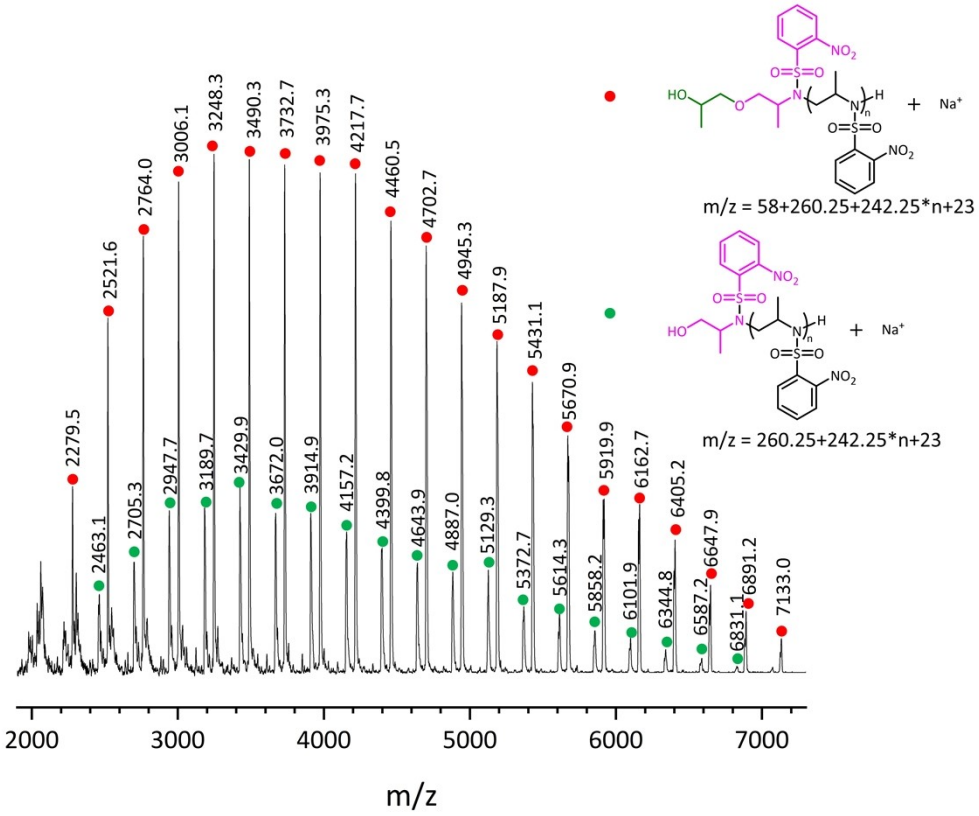

Figure S12. Experimental MALDI TOF mass spectrum of PNsMAz-OH initiated by initiator **I** in PO.

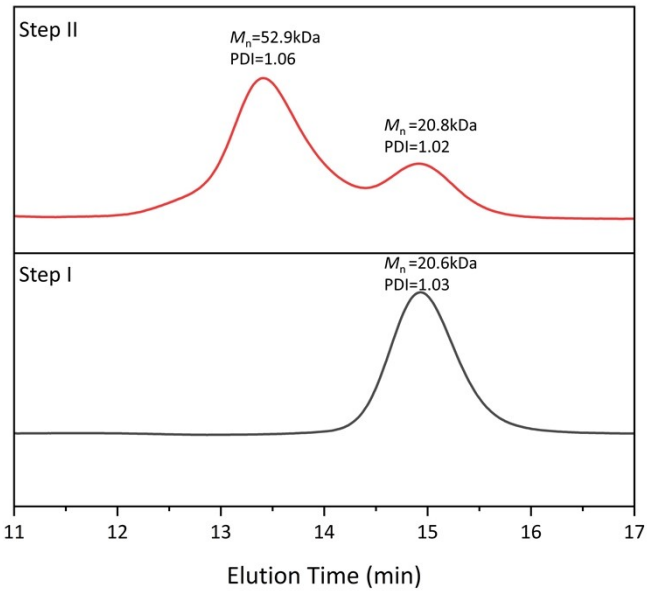

Figure S13. SEC traces of "two step in one pot" polymerization of NsMAz and PA in PO by using BA as initiator (Entry 3, Table 2).

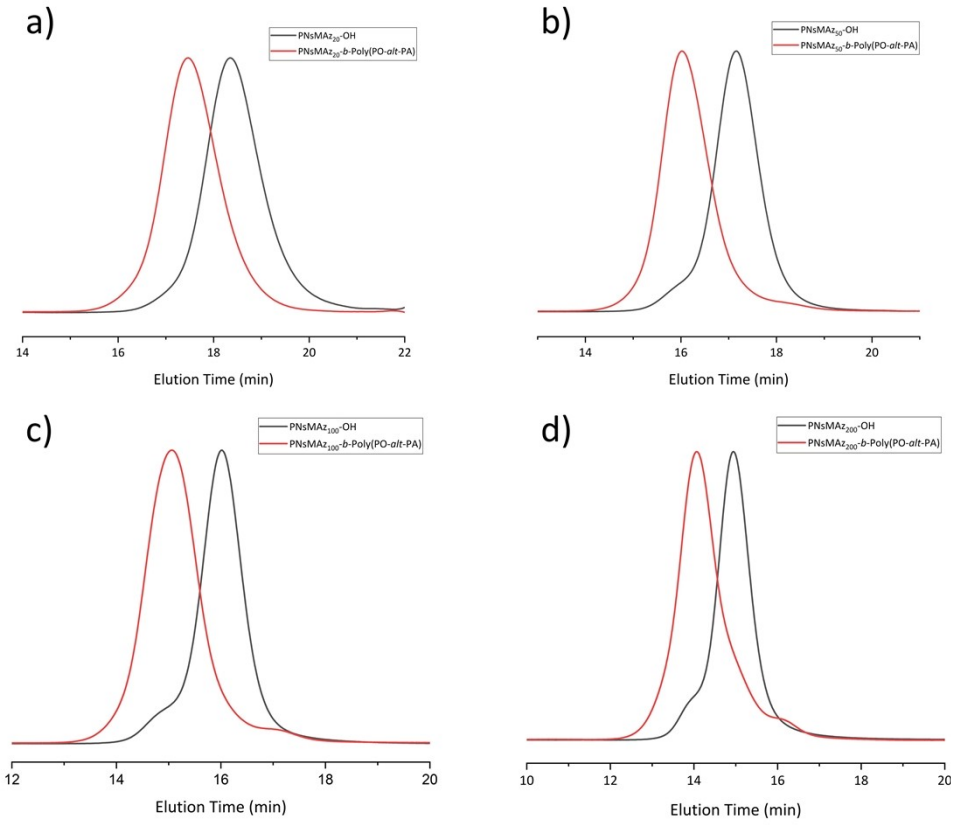

Figure S14. SEC traces of "two step in one pot" copolymerization of a) $PNsMAz_{20}$-OH and $PNsMAz_{20}$-*b*-Poly(PO-*alt*-PA)$_{20}$ (Entry 4, Table 2); b) $PNsMAz_{50}$-OH and $PNsMAz_{50}$-*b*-Poly(PO-*alt*-PA)$_{50}$ (Entry 5, Table 2) c) $PNsMAz_{100}$-OH and $PNsMAz_{100}$-*b*-Poly(PO-*alt*-PA)$_{100}$ (Entry 6, Table 2) d) $PNsMAz_{200}$-OH and $PNsMAz_{200}$-*b*-Poly(PO-*alt*-PA)$_{200}$ (Entry 9, Table 2)

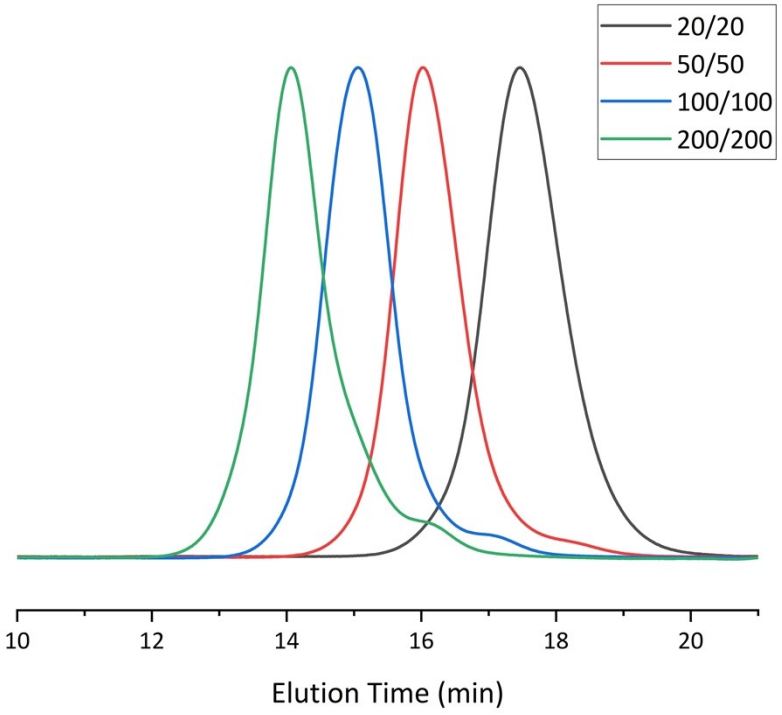

Figure S15. SEC traces of final copolymers PNsMAz-*b*-Poly(PO-*alt*-PA) (Entries 4-6 and 9, Table 2);

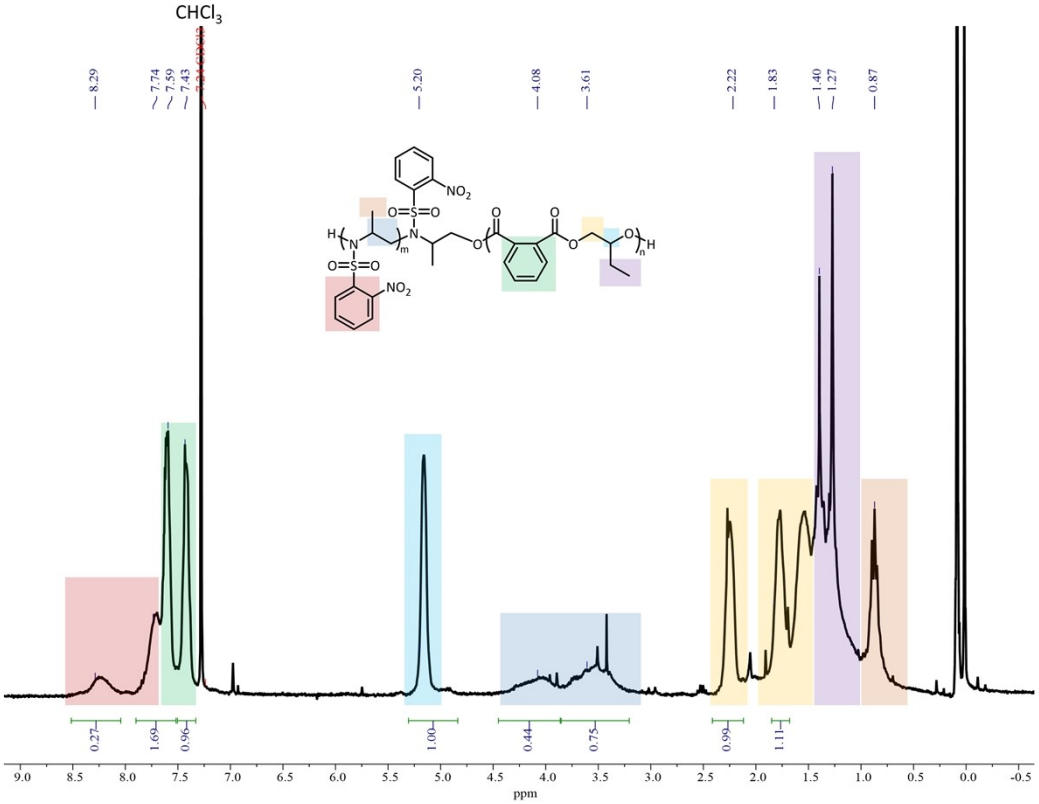

Figure S16. ^{1}H NMR spectrum of PNsMAz-*b*-Poly(BO-*alt*-PA) (300 MHz, in $CDCl_3$ at 25 °C, Entry 13, Table 2).

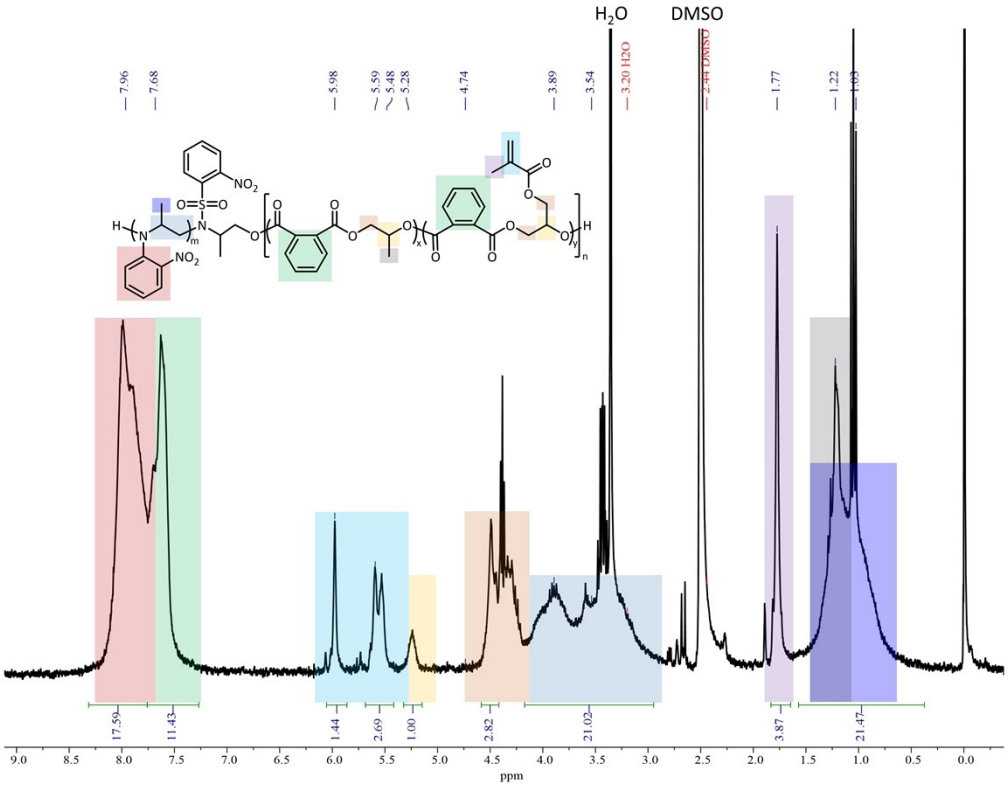

Figure S17. ^{1}H NMR spectrum of PNsMAz-*b*-(Poly(GMA-*alt*-PA)-*co*-Poly(PO-*alt*-PA)) (300 MHz, in *d*^{6}-DMSO at 25 °C, Entry 14, Table 2).

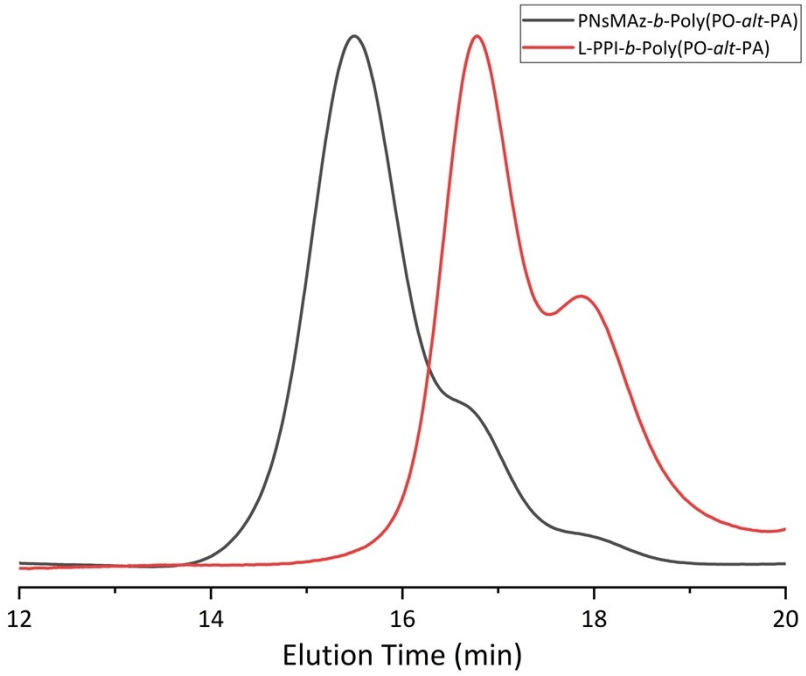

Figure S18. SEC traces of PNsMAz-*b*-Poly(PO-*alt*-PA) and L-PPI-*b*-Poly(PO-*alt*-PA)

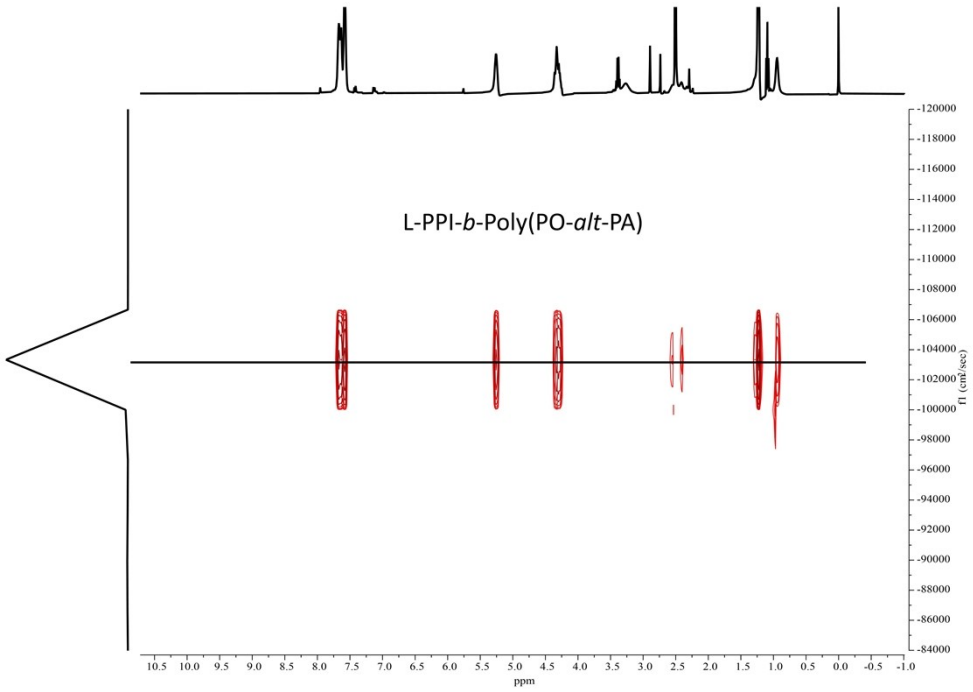

Figure S19. DOSY NMR spectrum of L-PPI-*b*-Poly(PO-*alt*-PA) (400 MHz, in d^6-DMSO).

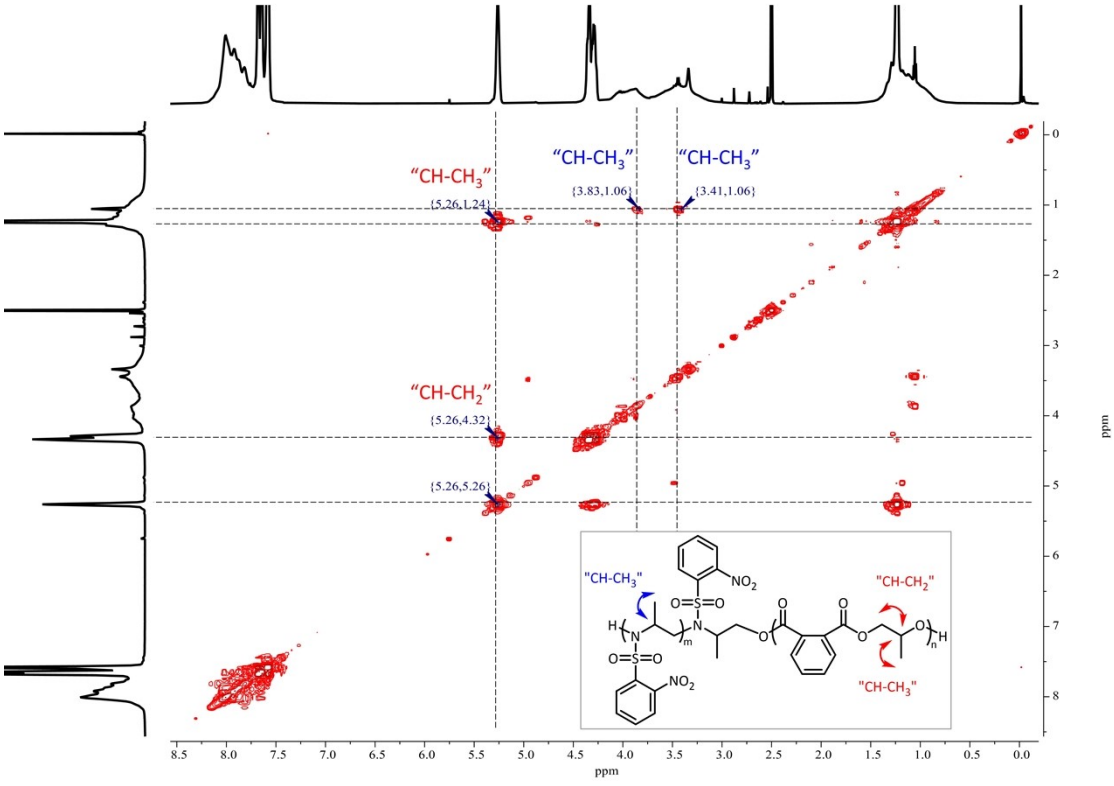

Figure S20. ^{1}H-^{1}H COSY spectrum of PNsMAz-*b*-Poly(PO-*alt*-PA) (600 MHz, in d^6-DMSO).

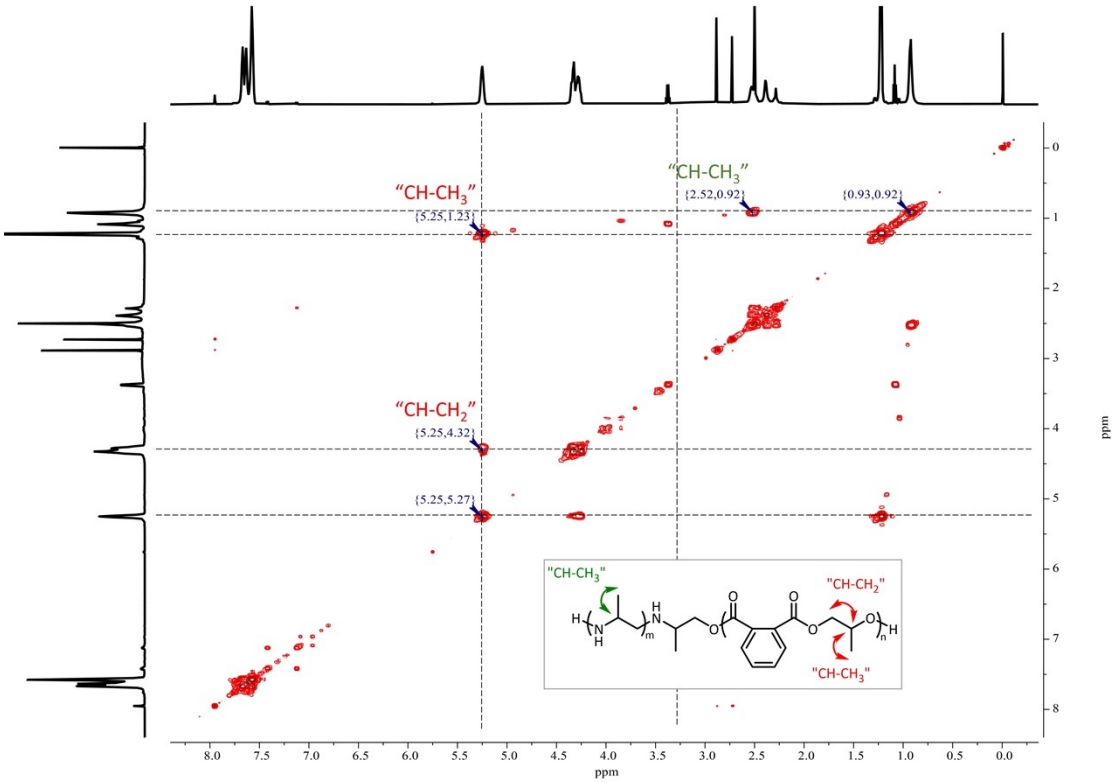

Figure S21. ^{1}H-^{1}H COSY spectrum of L-PPI-*b*-Poly(PO-*alt*-PA) (600 MHz, in *d*^{6}-DMSO).

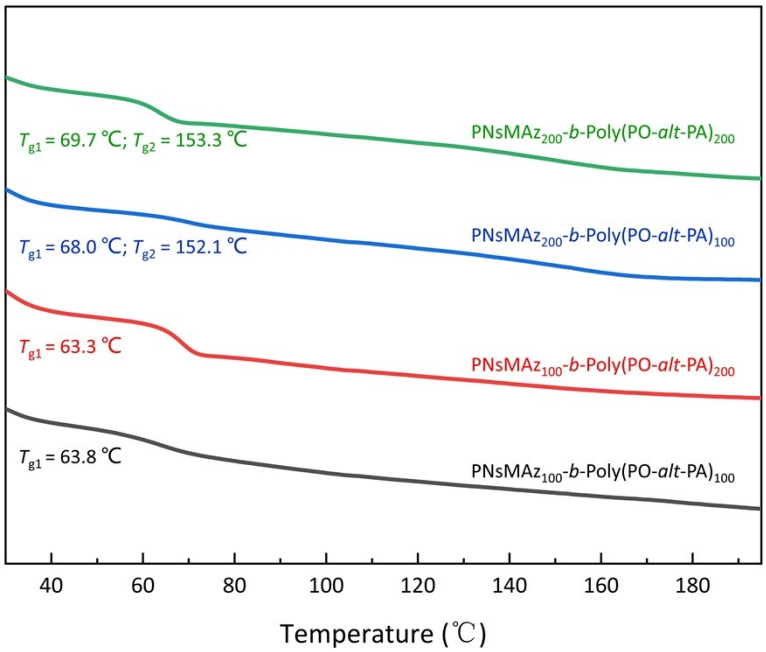

Figure S22. DSC traces of PNsMAz-*b*-Poly(PO-*alt*-PA).

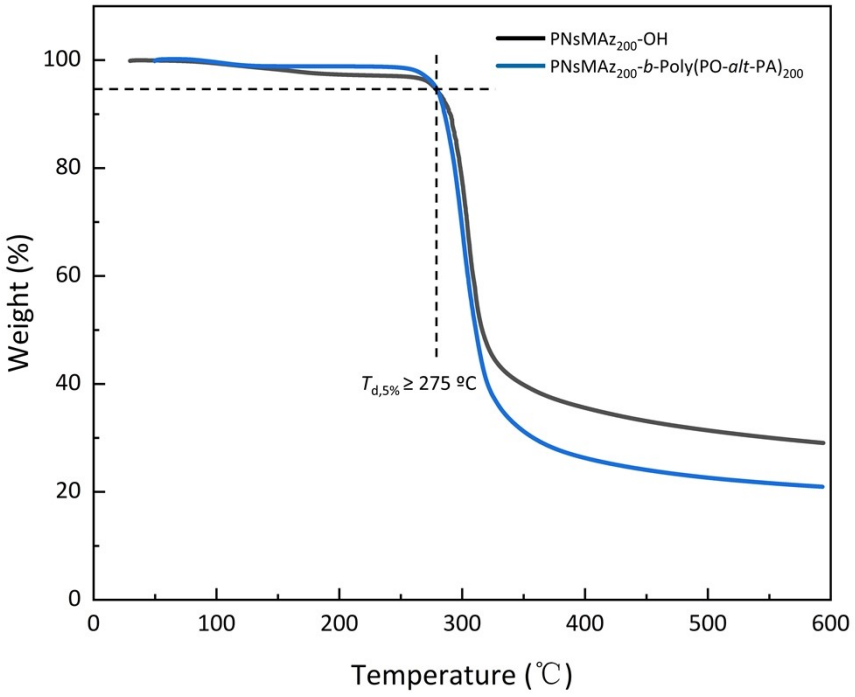

Figure S23. TGA traces of PNsMAz-OH and PNsMAz-*b*-Poly(PO-*alt*-PA).

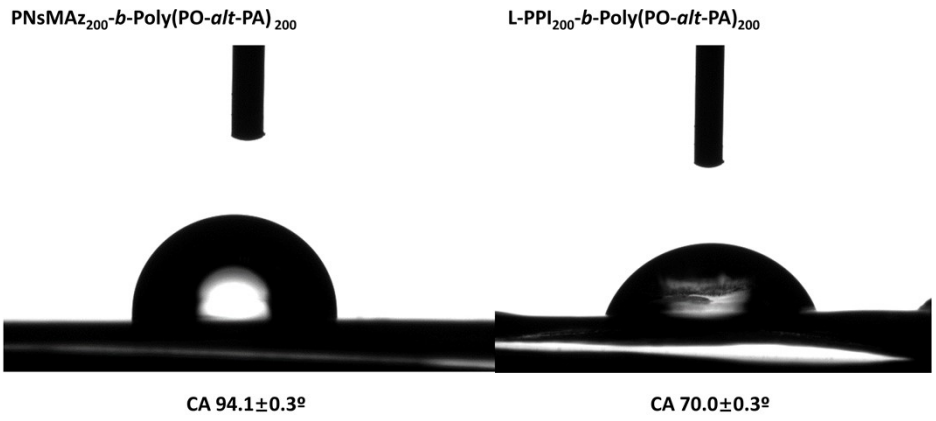

Figure S24. WCA tests of PNsMAz$_{200}$-*b*-Poly(PO-*alt*-PA)$_{200}$ and L-PPI$_{200}$-*b*-Poly(PO-*alt*-PA)$_{200}$.