Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting Information

Polymerization-Induced Self-Assembly of (2-(4-vinylbenzyl) iso-indoline-1,3-dione) for the Synthesis of Hydrazine Responsive Block copolymer Nanoparticles

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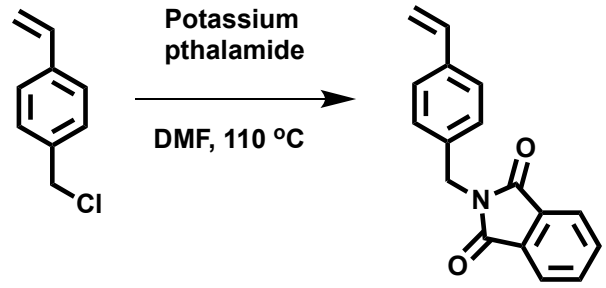
Monomer Synthesis Scheme:



Scheme S1: Synthesis of **VBzPHT** monomer.

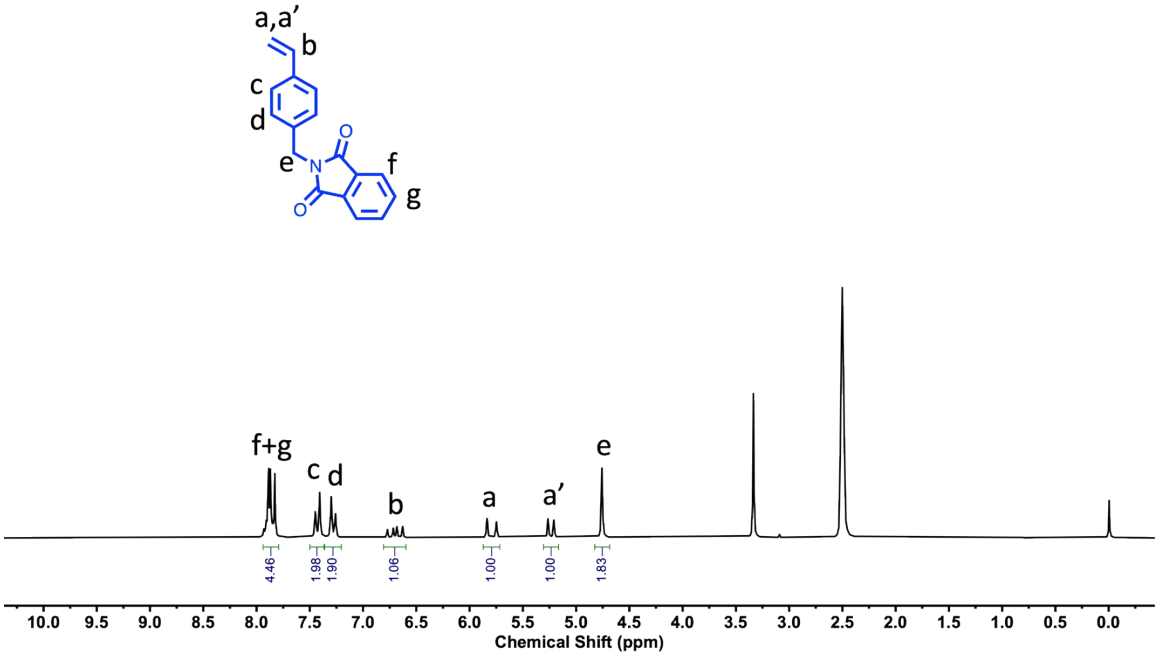


Figure S1: ^{1}H NMR spectra for **VBzPHT** monomer in DMSO-d6.

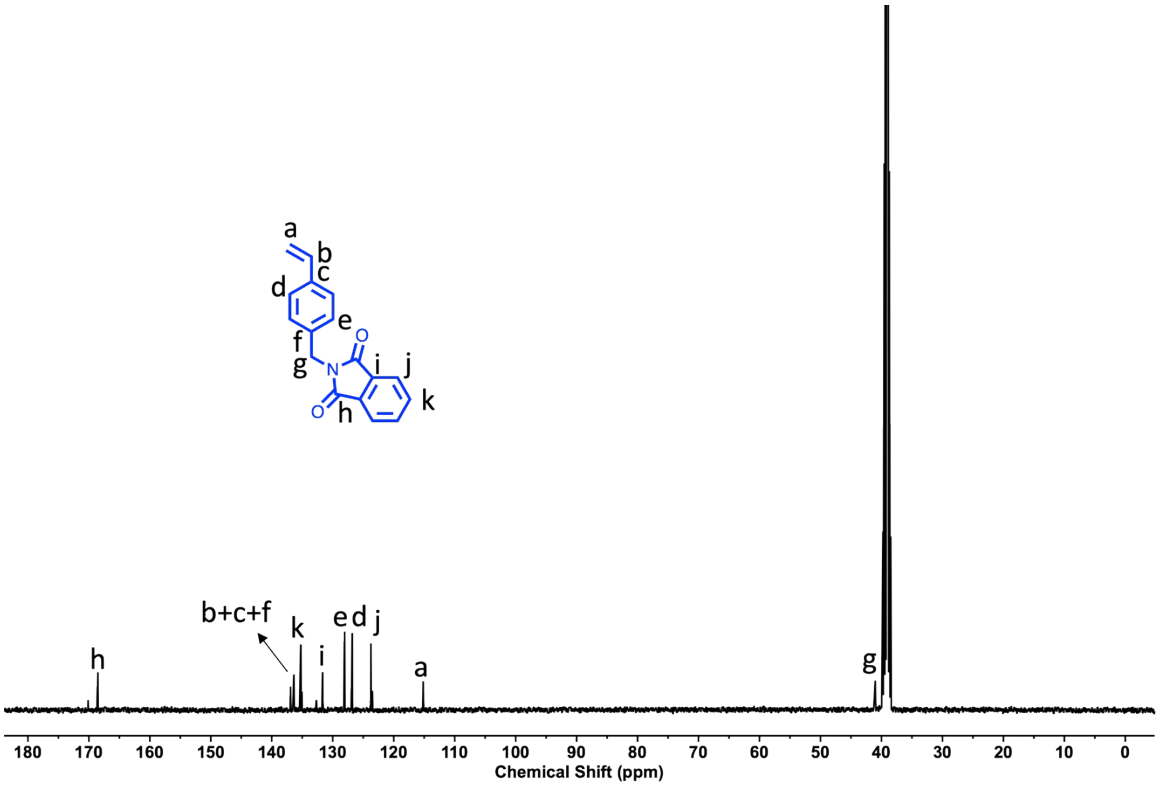


Figure S2: ^{13}C NMR spectra for **VBzPHT** monomer in DMSO-d6.

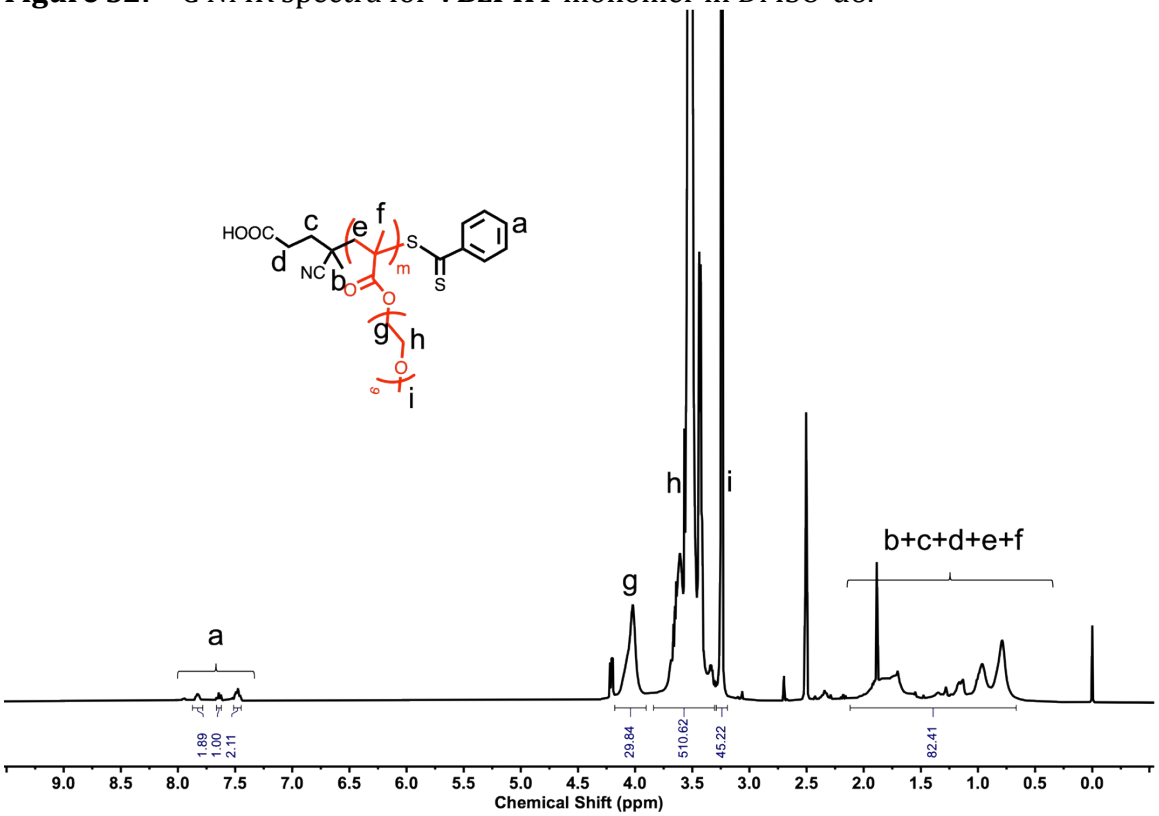


Figure S3: ^{1}H NMR spectra for **macro-CTA** in DMSO-d6.

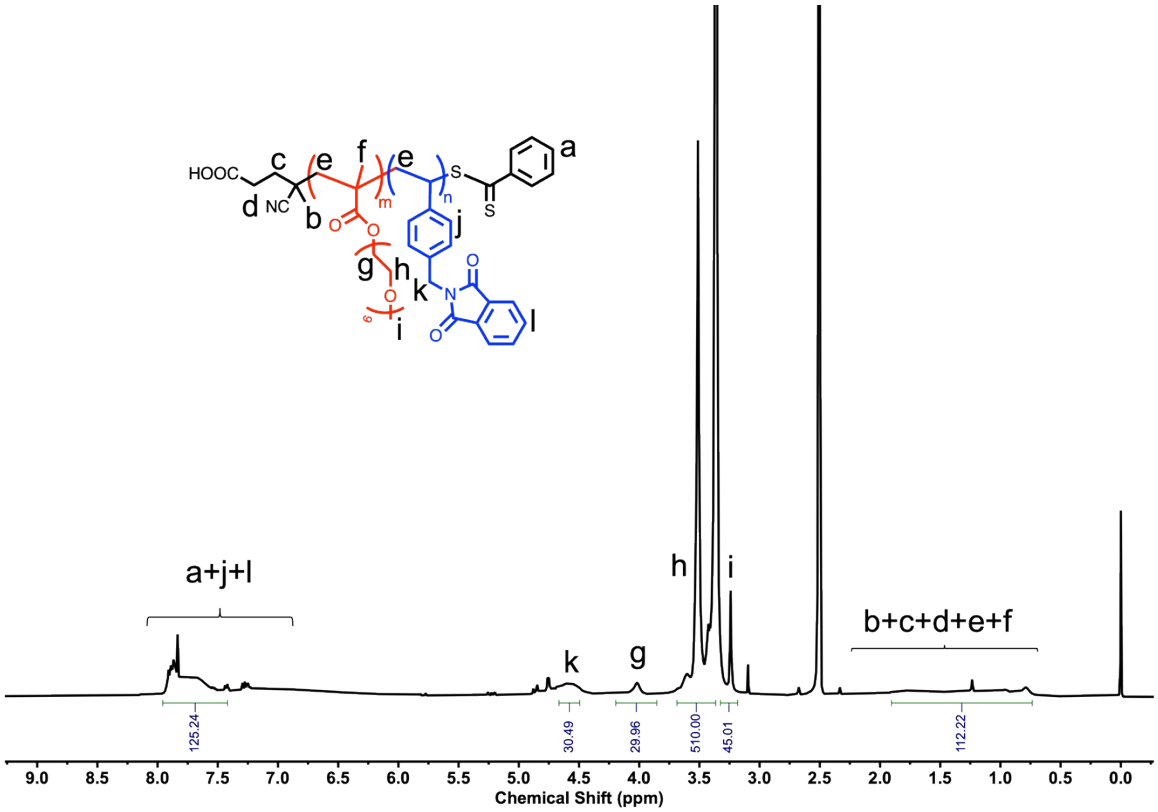


Figure S4: ^{1}H NMR spectra for P1 in DMSO-d6.

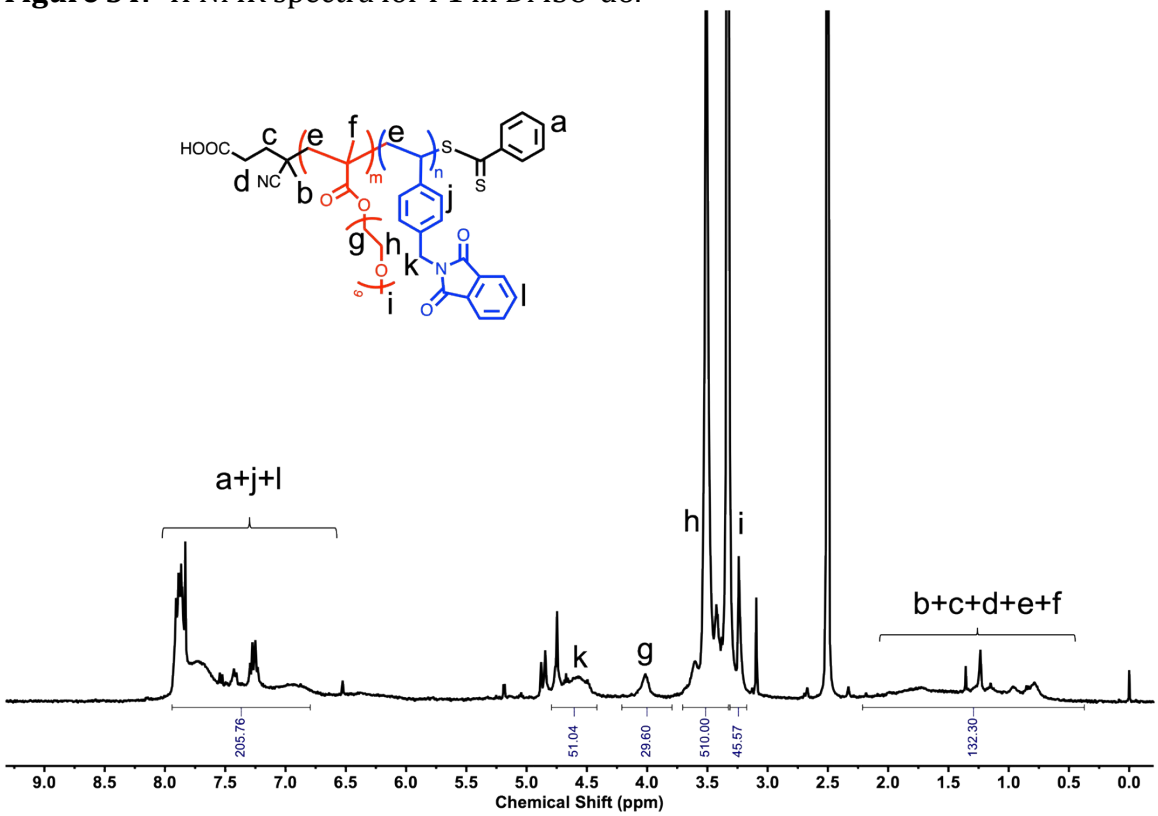


Figure S5: ^{1}H NMR spectra for P2 in DMSO-d6.

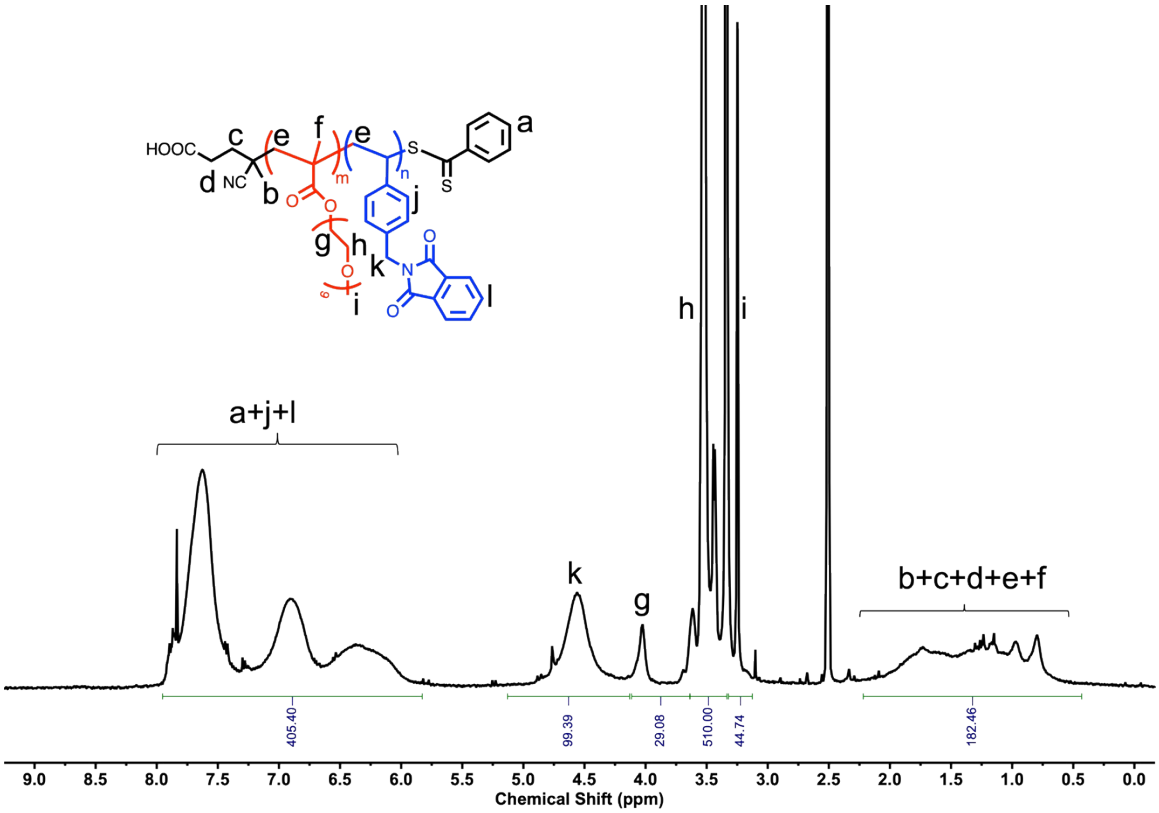


Figure S6: ^{1}H NMR spectra for P3 in DMSO-d6.

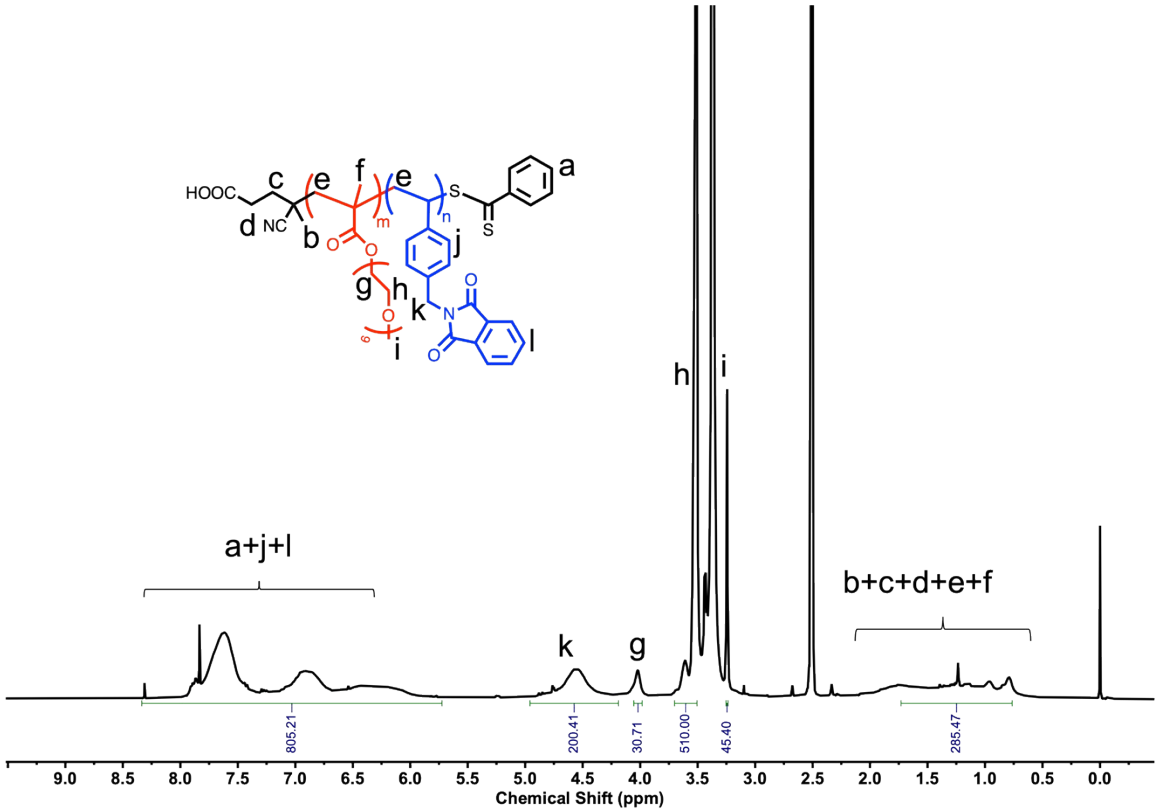


Figure S7: ^{1}H NMR spectra for P4 in DMSO-d6.

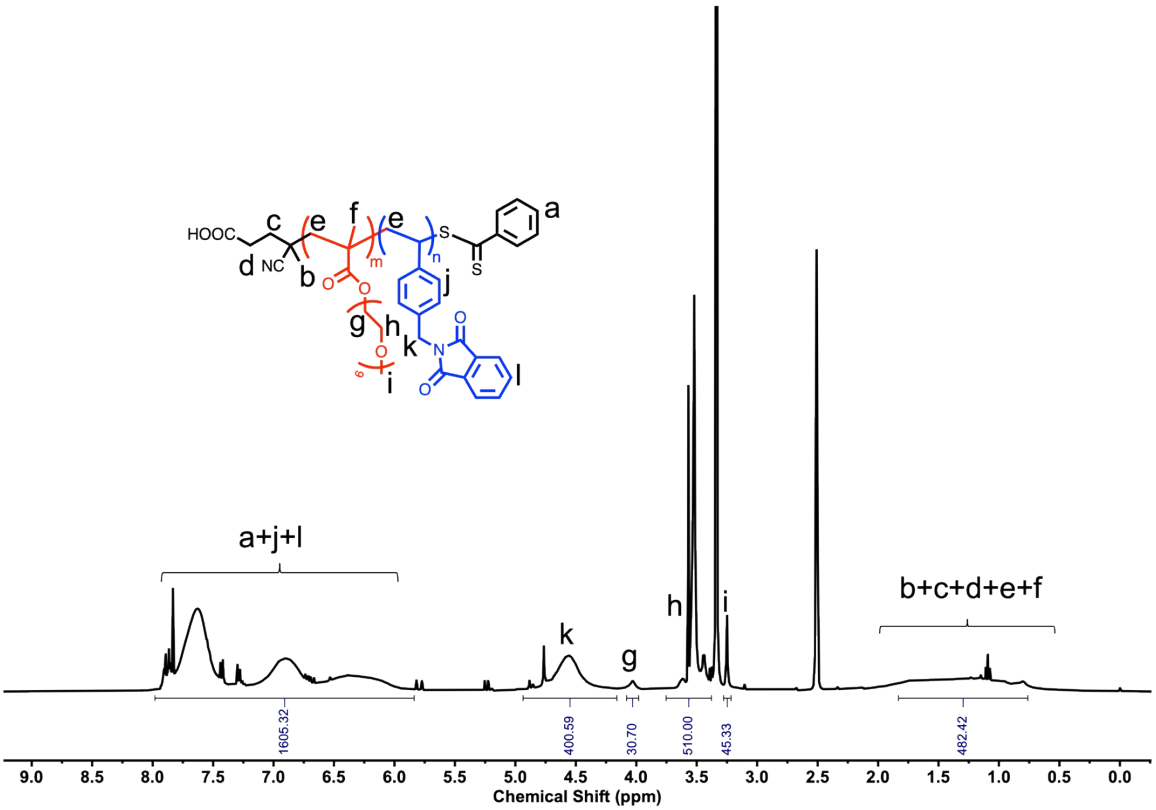


Figure S8: ^{1}H NMR spectra for P5 in DMSO-d6.

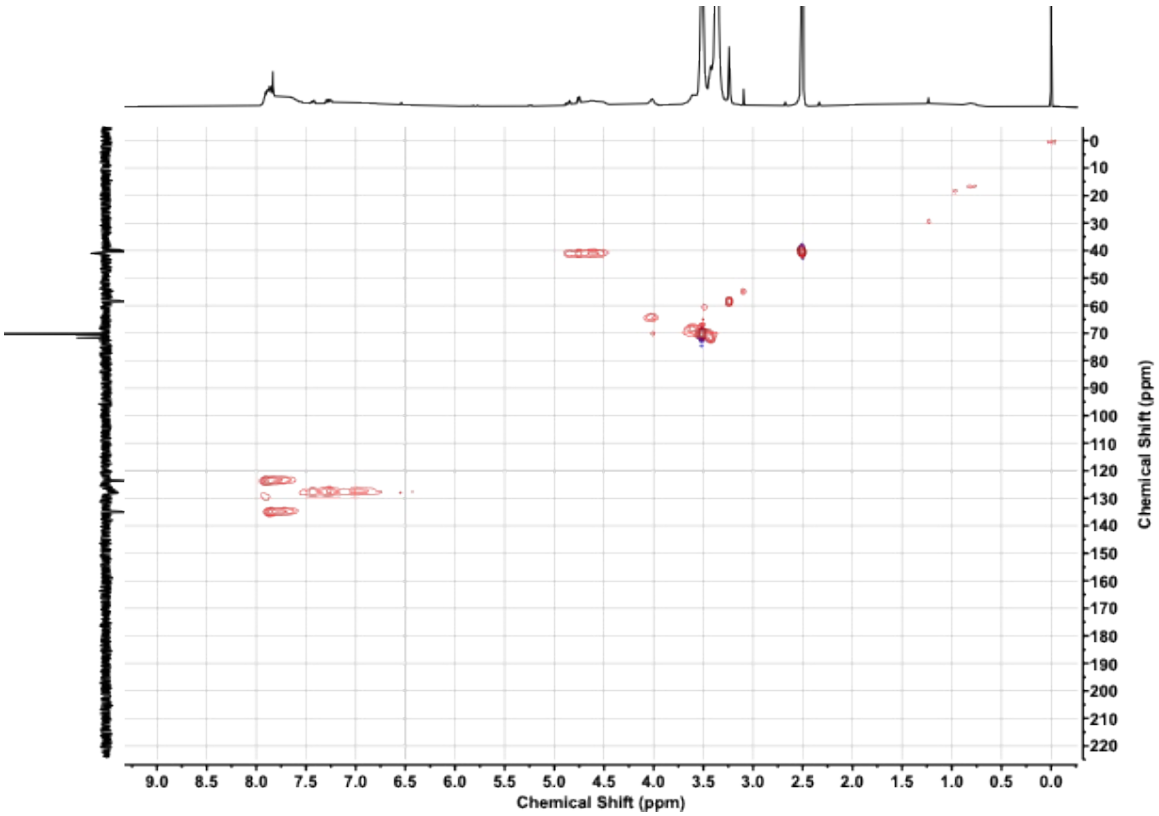


Figure S9: HSQC NMR spectra for P1 in DMSO-d6.

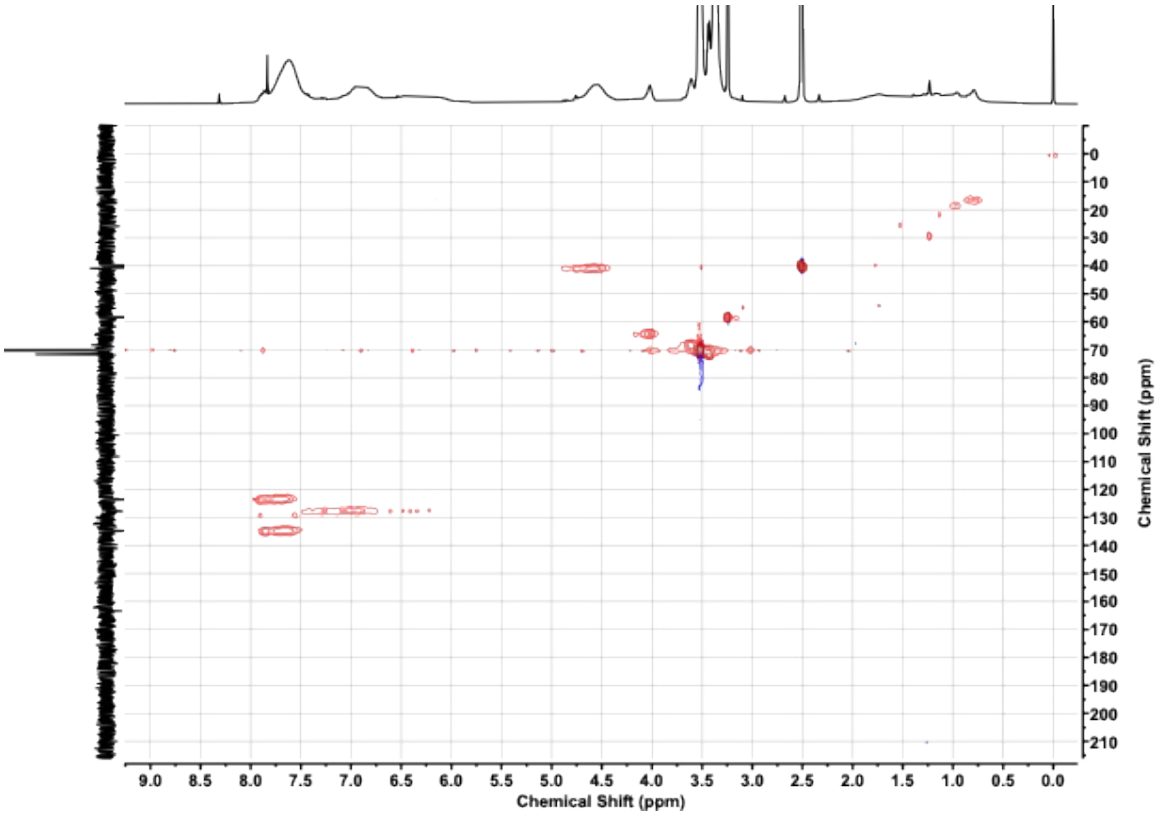


Figure S10: HSQC NMR spectra for P4 in DMSO-d6.

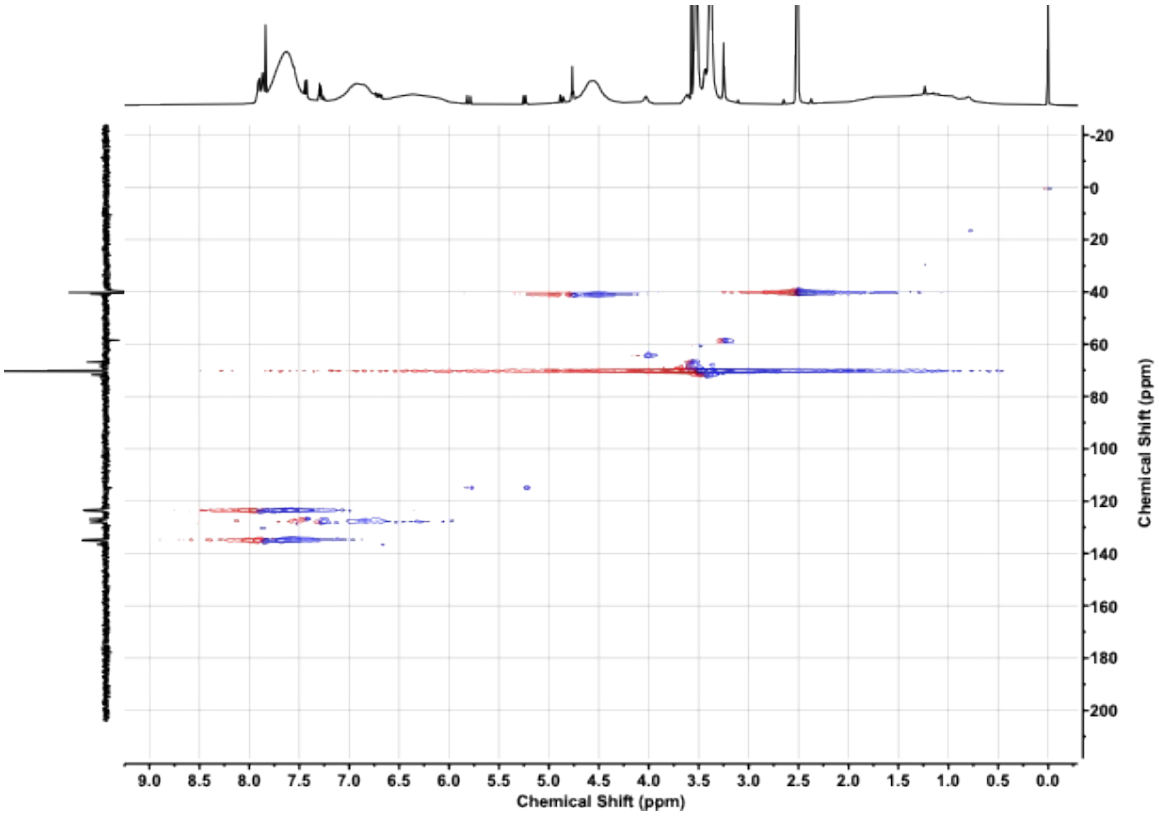


Figure S11: HSQC NMR spectra for P5 in DMSO-d6.

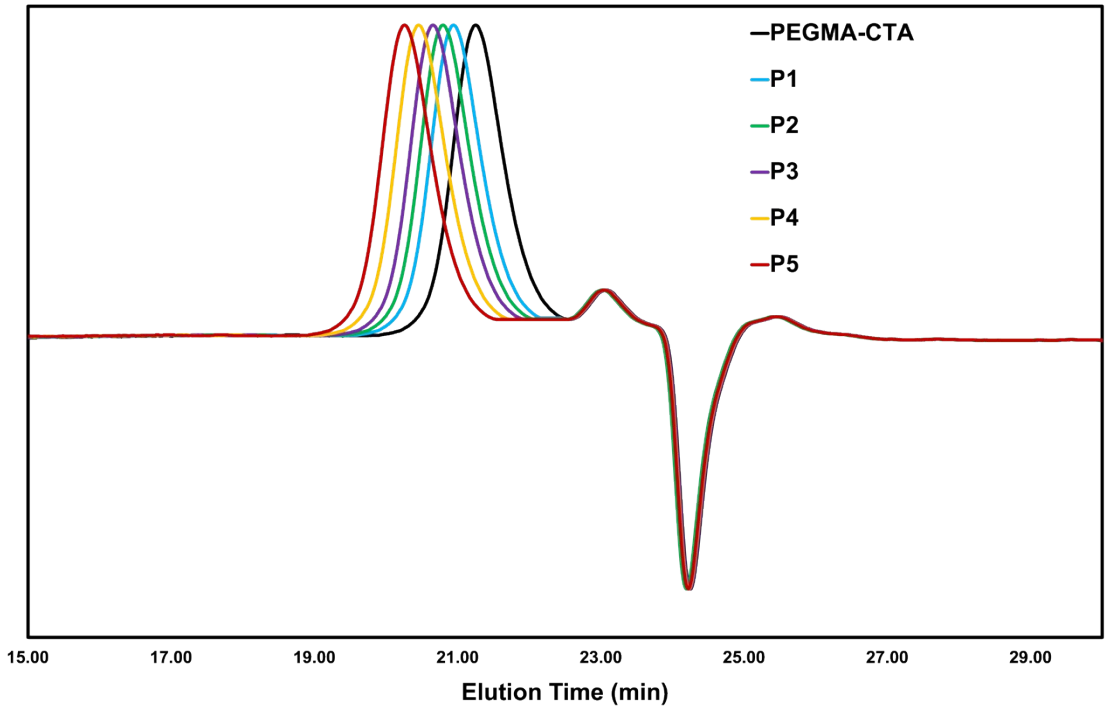


Figure S12: SEC analysis for **PEGMA$_m$-*b*-PVBzPHT$_n$** block copolymer (P1-P5).

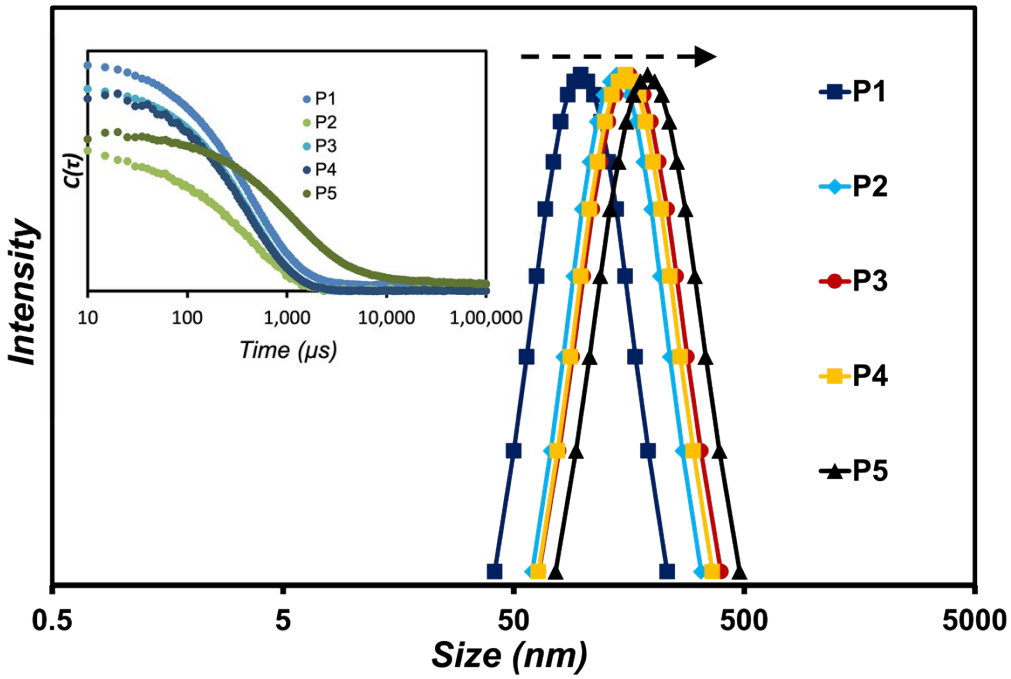


Figure S13: DLS data for **PEGMA$_m$-*b*-PVBzPHT$_n$** block copolymer in water (P1=98 nm (PDI 0.31); P2=139 nm (PDI 0.3); P3= 159 nm (PDI 0.35); P4= 152 nm (PDI 0.32); P5=190 nm (PDI 0.36)); inset shows relative autocorrelation function for P1-P5 in water.

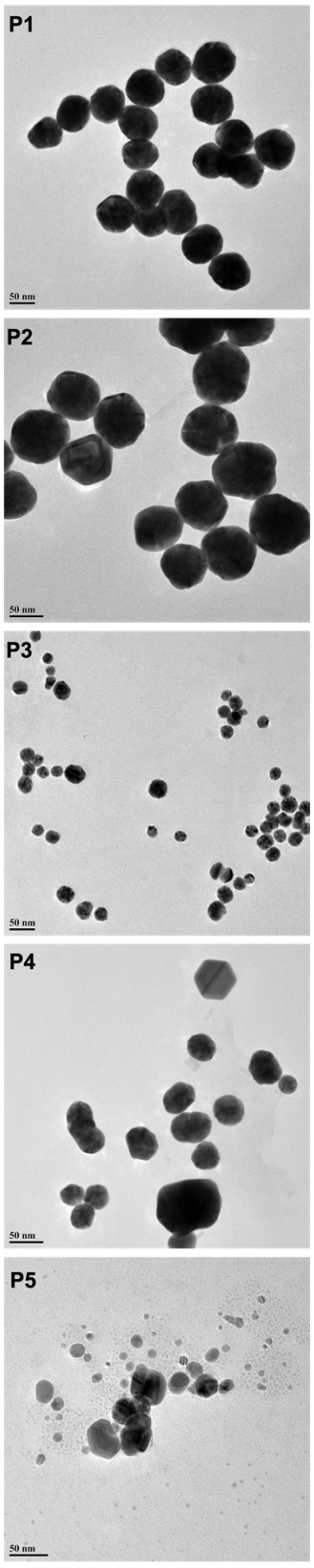


Figure S14: Unstained dry state TEM images for P1-P5 in MeOH.

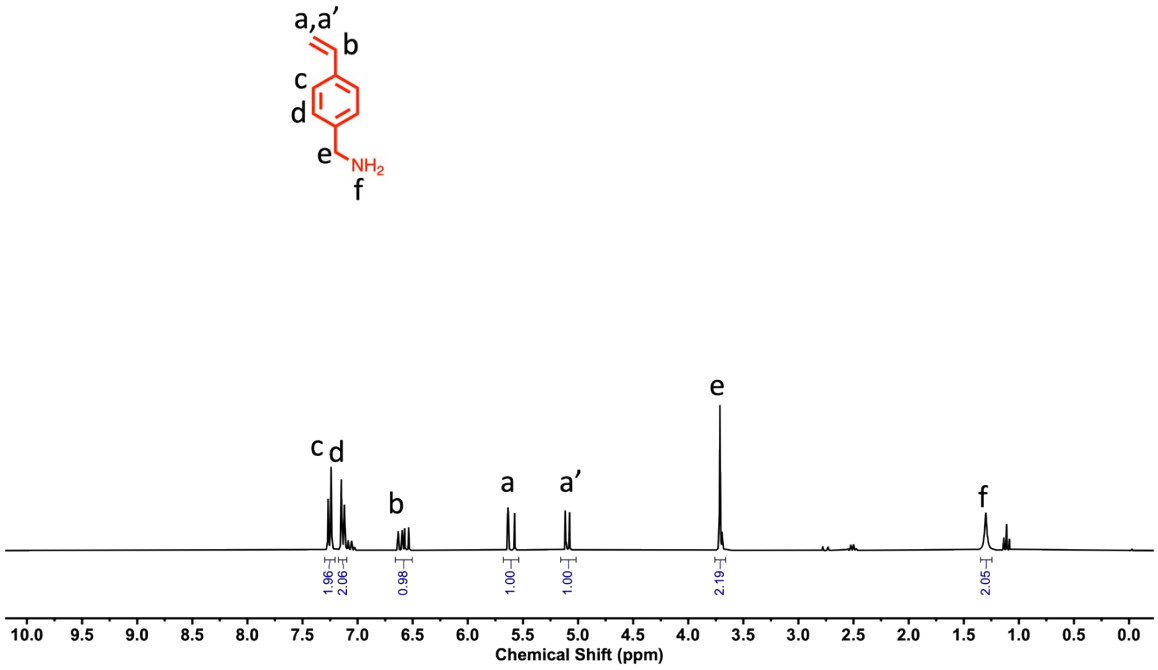


Figure S15: ^{1}H NMR spectra for **$VBzNH_2$** after deprotection in DMSO-d6.

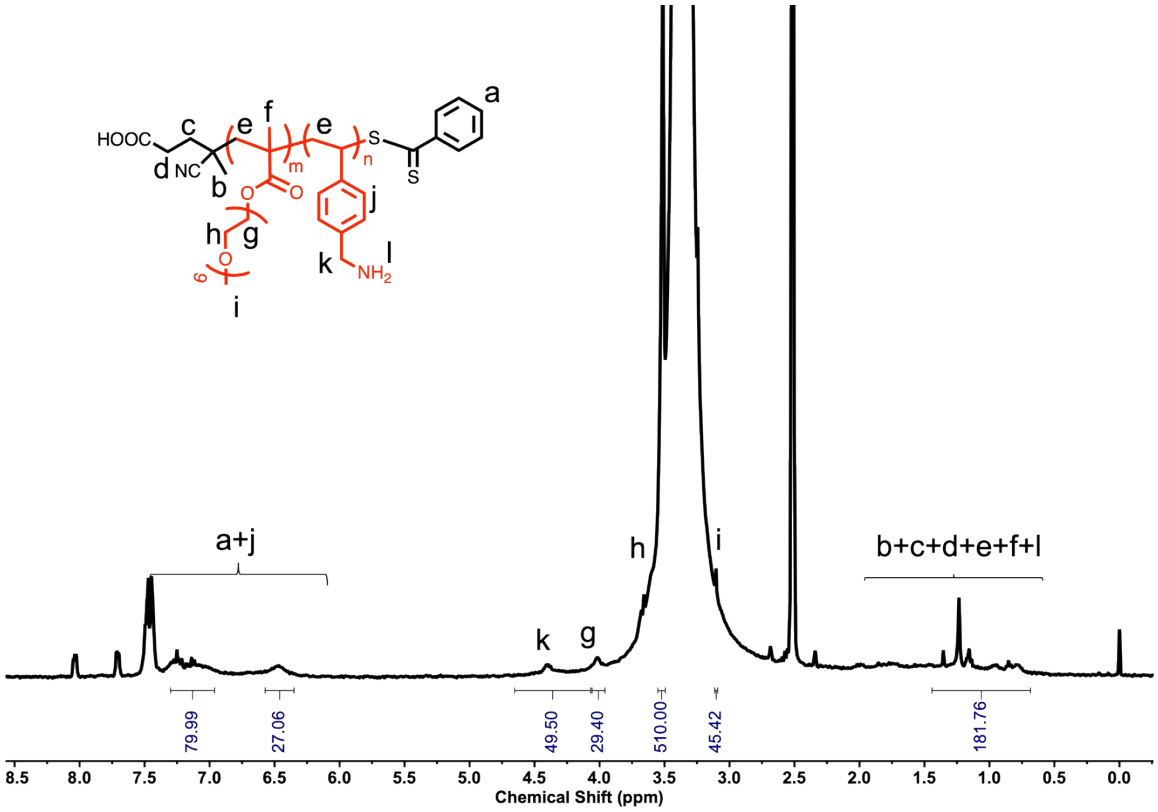


Figure S16: ^{1}H NMR spectra for P2 (after 20 hr deprotection-hydrazine treatment) in DMSO-d6.

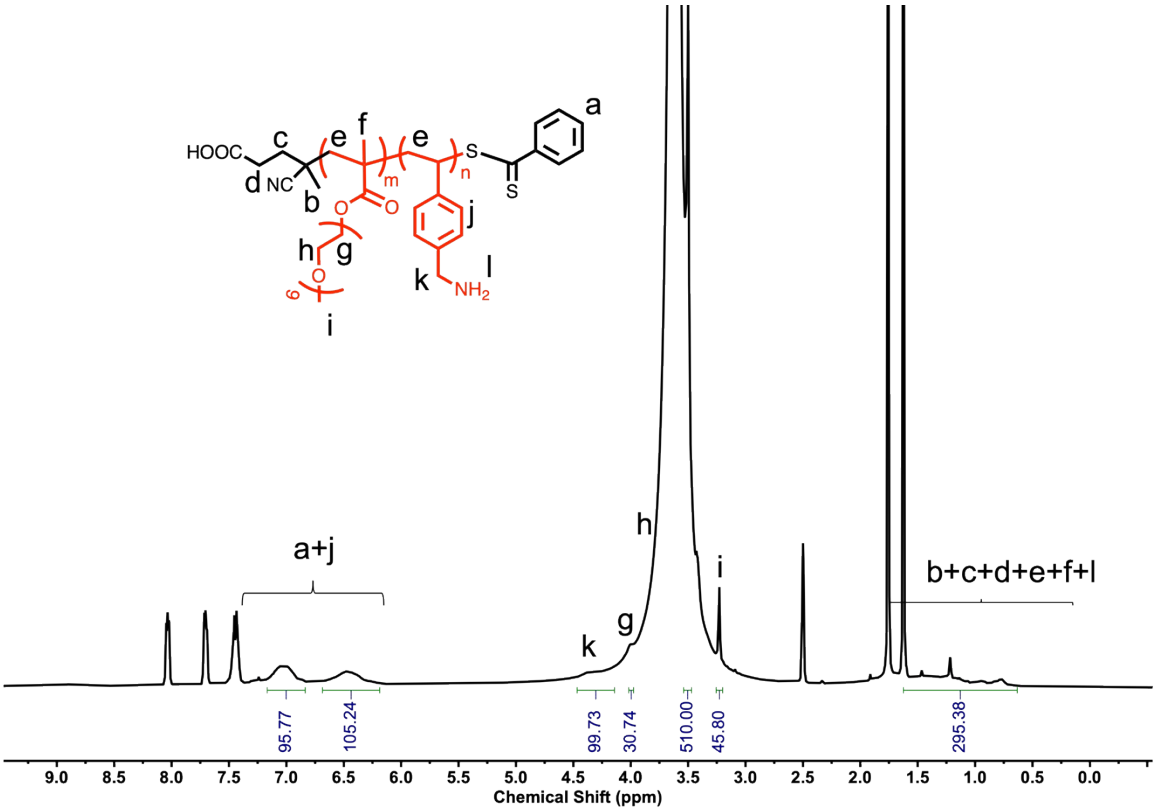


Figure S17: ^{1}H NMR spectra for P3 (after 20 hr deprotection-hydrazine treatment) in DMSO-d6.

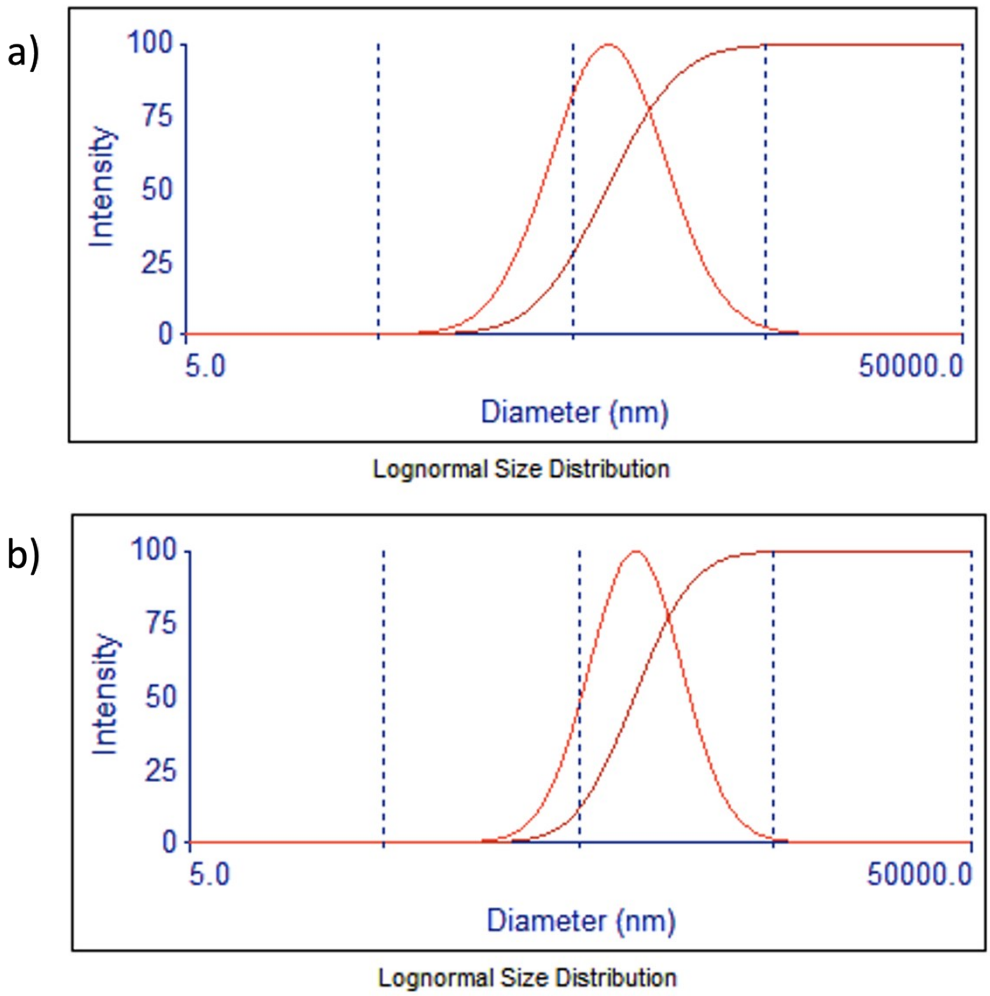


Figure S18: Representative DLS data for **PEGMA$_m$-*b*-PVBzPHT$_n$** block copolymer after hydrazine treatment followed by hydration: (a) P2 after hydrazine treatment (P2= 757 nm, PDI 0.57); (b) P3 after hydrazine treatment (P3= 967 nm, PDI 0.34).

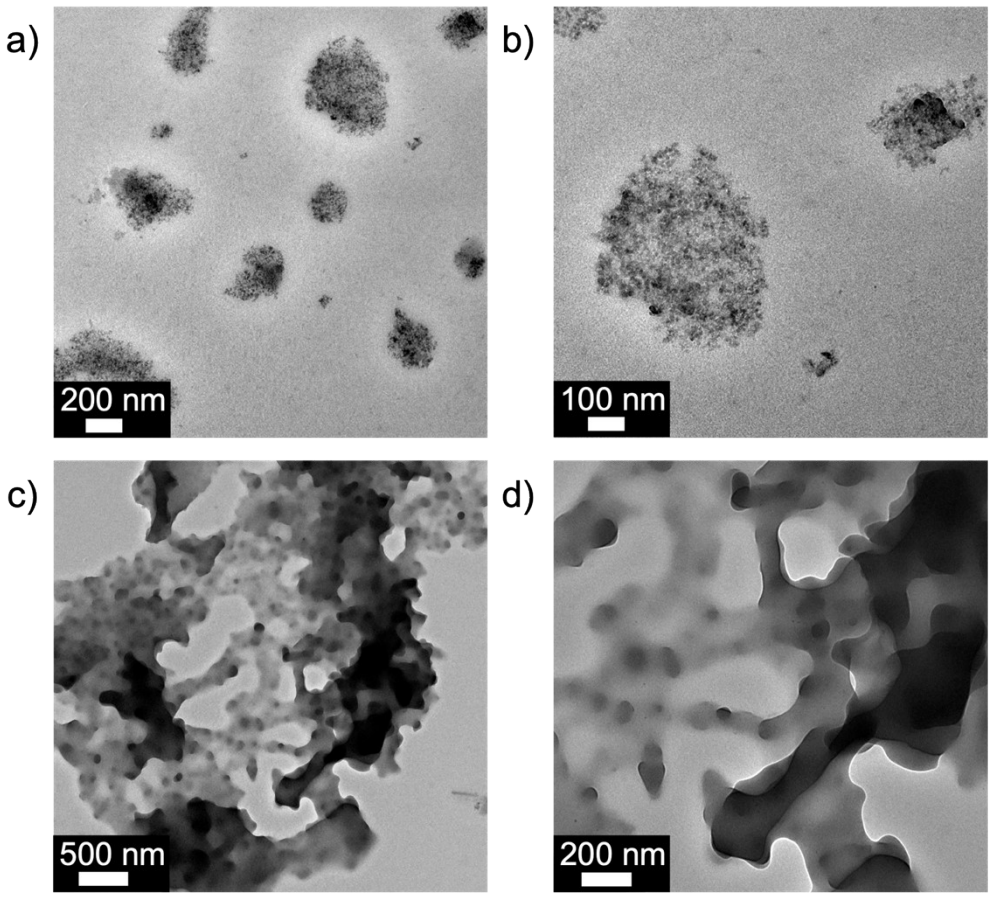


Figure S19: TEM image for **PEGMA-*b*-VBzNH$_2$** block copolymer (after dis-assembly and reassembly): for P2 (a & b); P3 (c & d).