

Electronic supplementary information for:

Multiresponsive of highly water-soluble
poly(3-hexylthiophene)-*block*-poly(phenylisocyanide)
block copolymers

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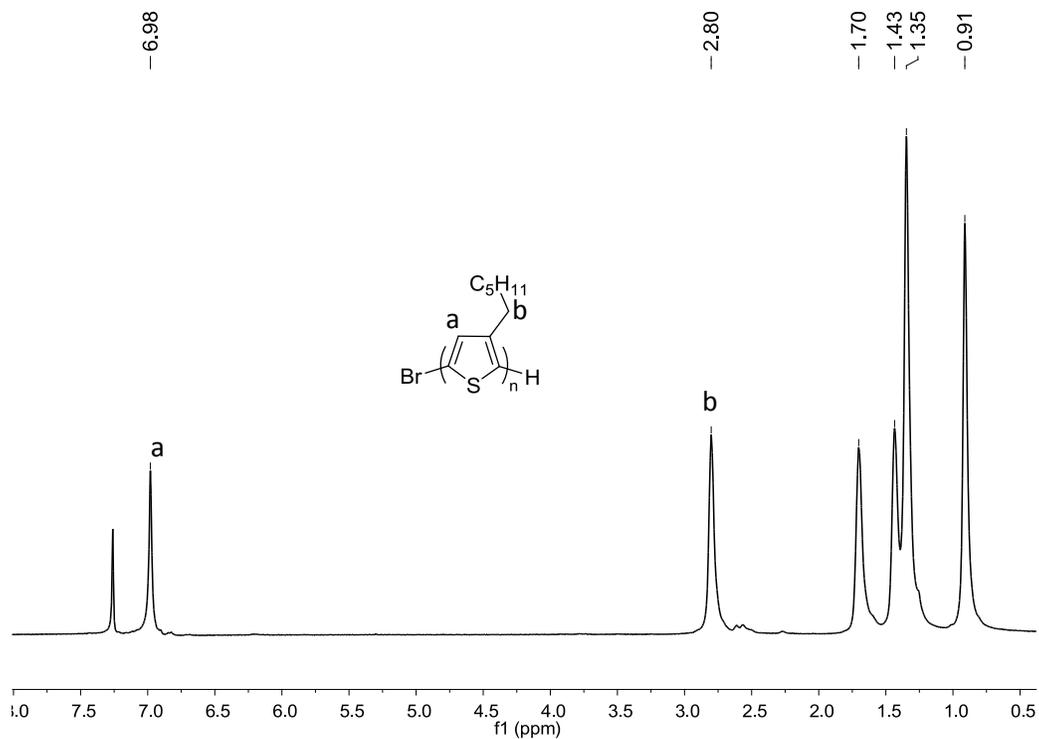


Fig. S1 ^1H NMR spectrum of poly-1₃₀ in CDCl_3 at 25 °C (600 MHz).

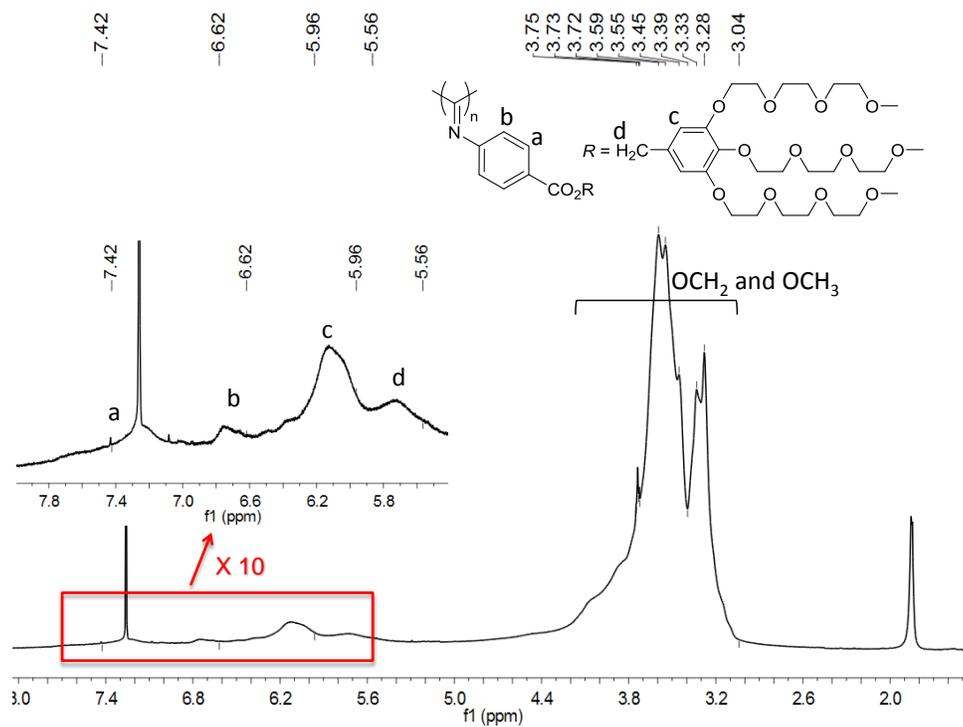


Fig. S2 ^1H NMR spectrum of poly-2₃₀ in CDCl_3 at 25 °C (600 MHz).

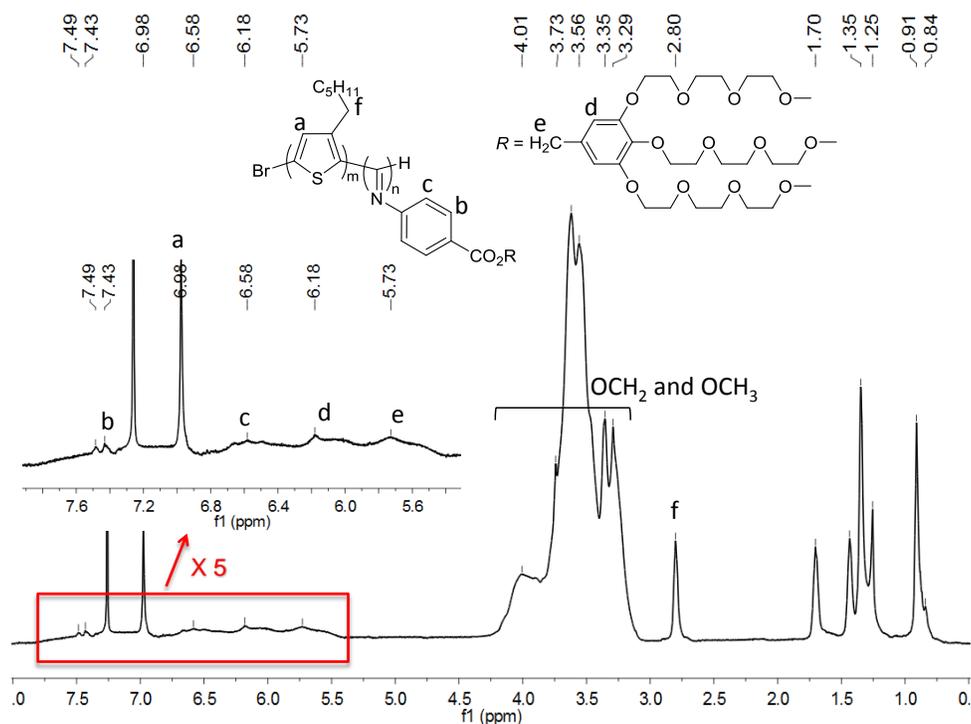


Fig. S3 1H NMR spectrum of poly(**1**₃₀-**b**-**2**₆₀) in $CDCl_3$ at 25 °C (600 MHz).

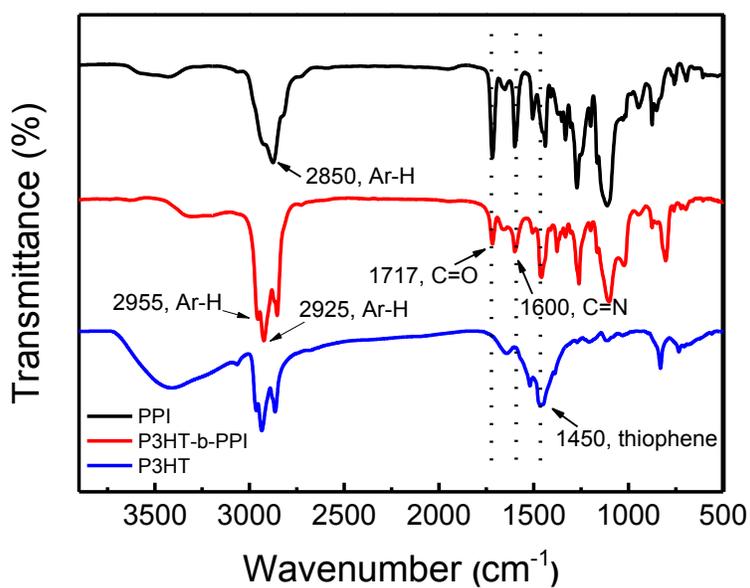


Fig. S4 FT-IR Spectrum of P3HT, PPI homopolymers and P3HT-*b*-PPI block copolymer at 25 °C using KBr pellets.

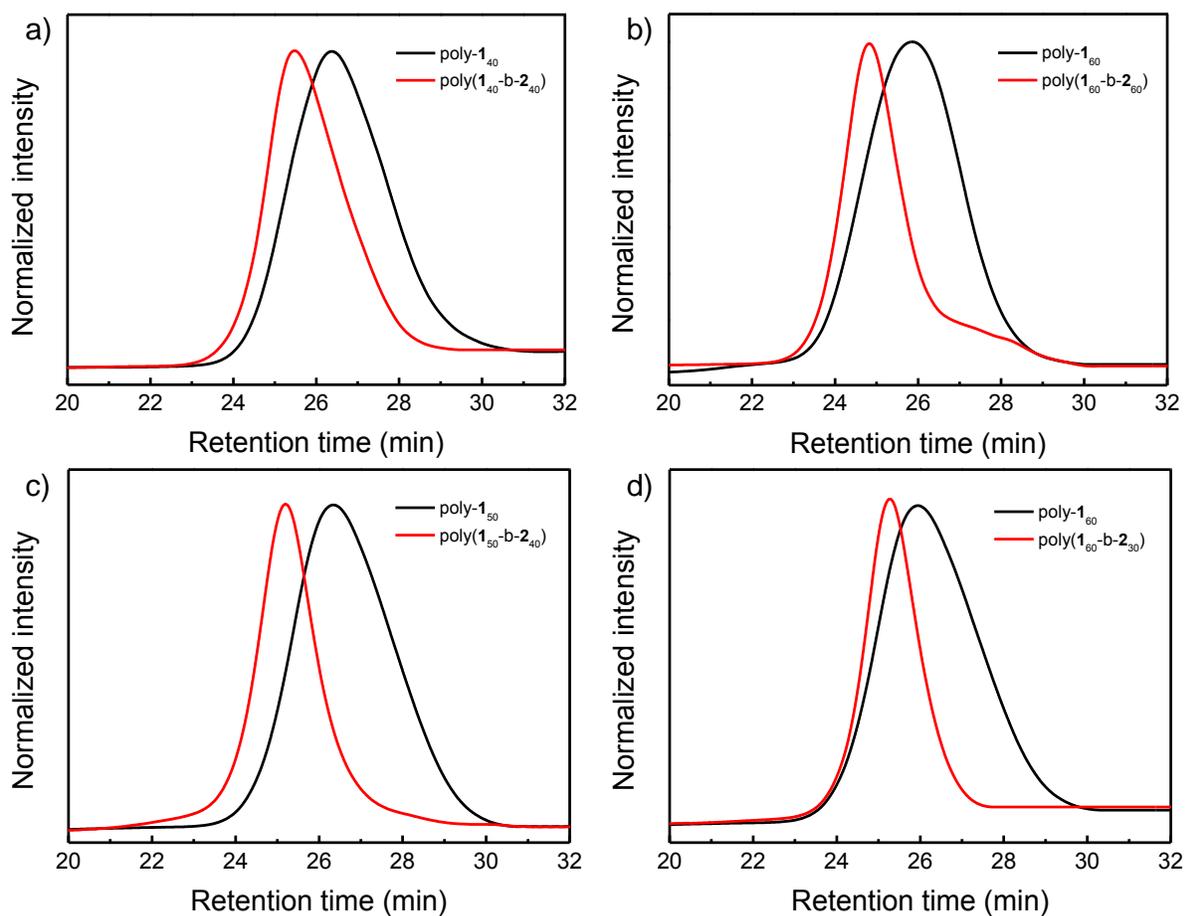


Fig. S5 Size exclusion chromatograms of Ni(II)-terminated P3HT macroinitiators and the resulting P3HT-*b*-PPI block copolymers. (a) run 2, (b) run 3, (c) run 4, and (d) run 5 in Table 1 in main text.

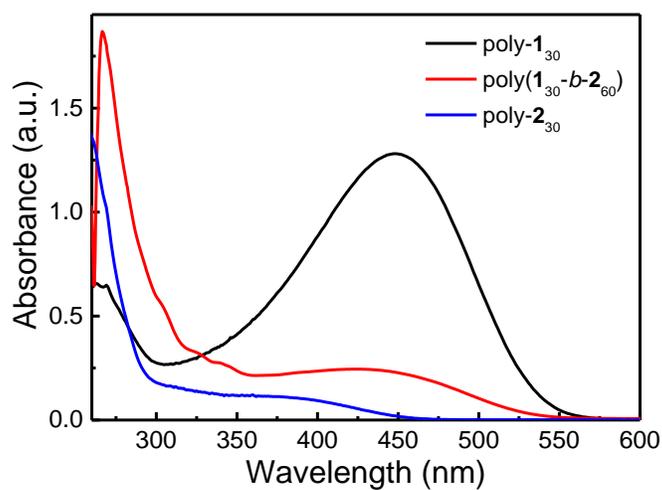


Fig. S6 UV-vis absorption spectra of P3HT, PPI, and P3HT-*b*-PPI block copolymer measured in CHCl₃ at 25 °C ($c = 0.05$ g/L).

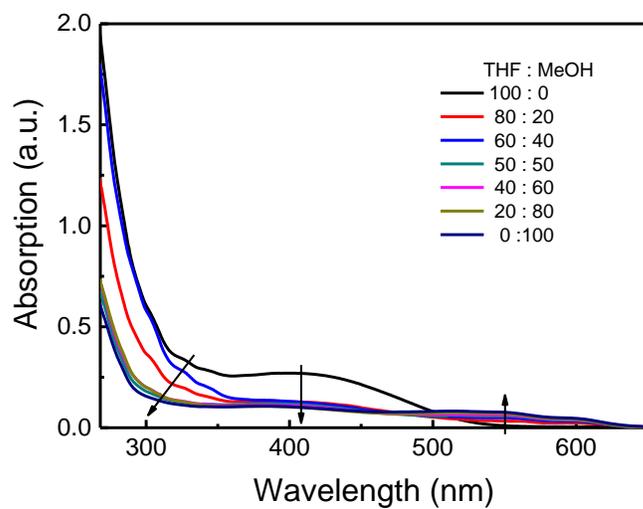


Fig. S7 UV-vis spectra of P3HT-*b*-PPI block copolymer poly(**1**₃₀-*b*-**2**₆₀) in the mixed solvents of THF and methanol at 25 °C ($c = 0.05$ g/L).

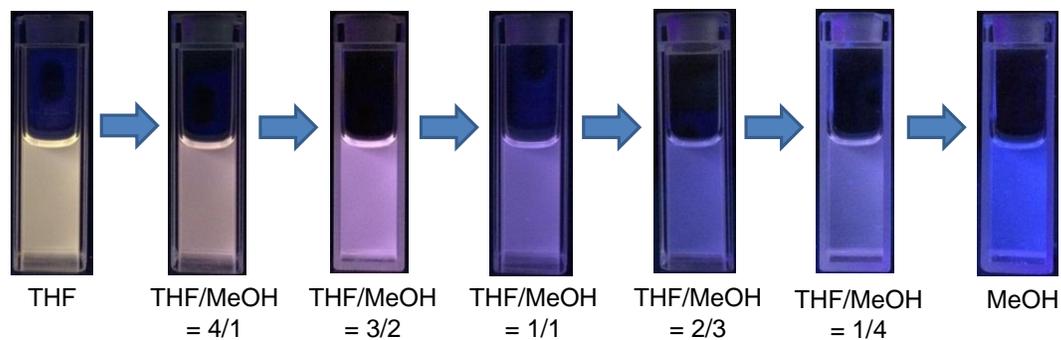


Fig. S8 Photographs of P3HT-*b*-PPI block copolymer poly(**1**₃₀-*b*-**2**₆₀) in the mixed solvents of THF and methanol under UV light (365 nm) ($c = 0.05$ g/L).

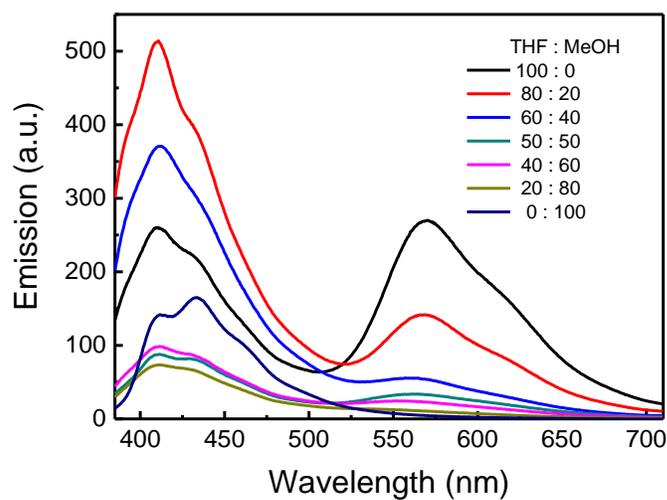


Fig. S9 Fluorescent spectra of P3HT-*b*-PPI block copolymer poly(**1**₃₀-*b*-**2**₆₀) in the mixed solvents of THF and methanol with different volume ratios at 25 °C ($c = 0.05$ g/L).

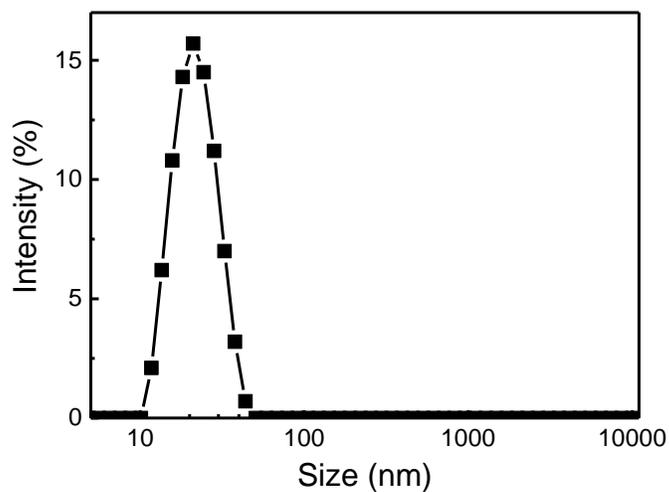


Fig. S10 Dynamic light scattering curve of P3HT-*b*-PPI block copolymer poly(**1**₃₀-*b*-**2**₆₀) in THF (*c* = 0.1 g/L) measured at 25 °C.

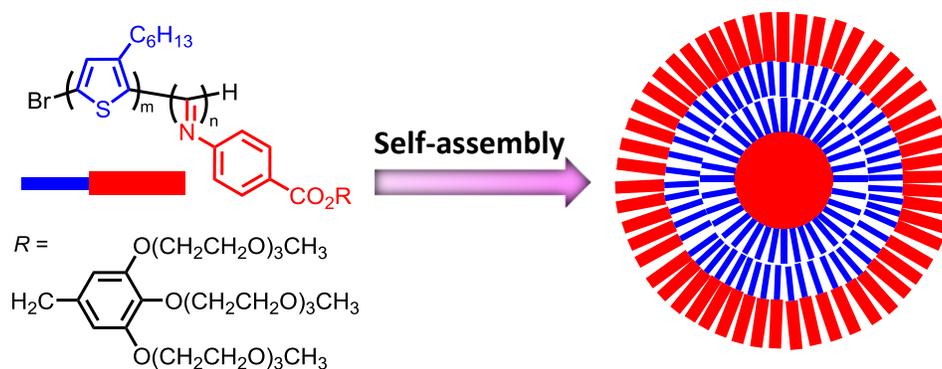


Fig. S11 Proposed self-assembly structure for P3HT-*b*-PPI block copolymer poly(**1**₃₀-*b*-**2**₆₀) in water at 25 °C.

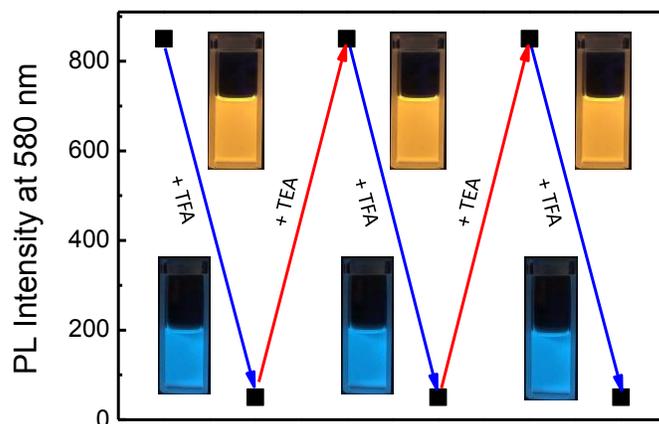


Fig. S12 Reversible emission changes of P3HT-*b*-PPI block copolymer poly(**1**₃₀-*b*-**2**₆₀) in CHCl₃ ($c = 0.05$ g/L) upon alternate addition of TFA (0.15 mM) and TEA (0.15 mM) at 25 °C with excitation at 365 nm.

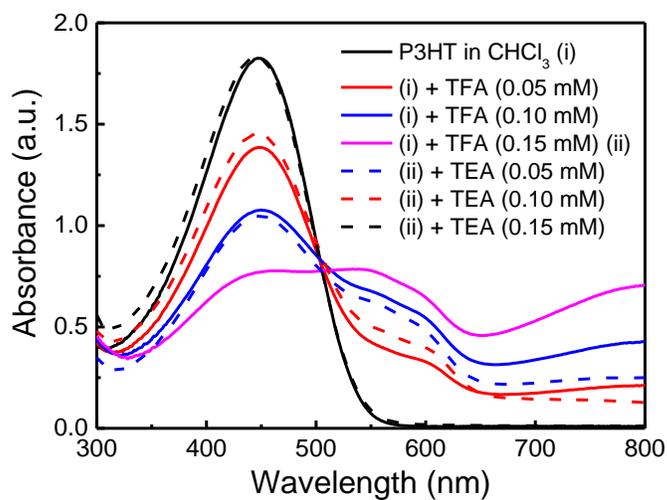


Fig. S13 UV-vis spectra of P3HT homopolymer poly-**1**₃₀ in CHCl₃ upon alternate additions of TFA and TEA at 25 °C ($c = 0.05$ g/L).

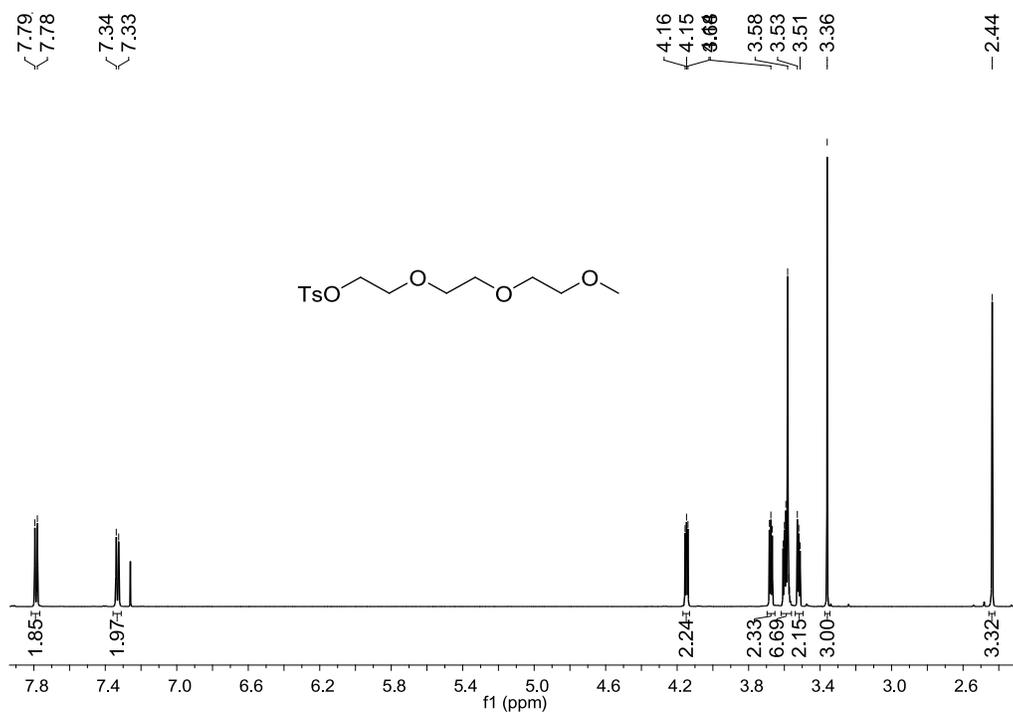


Fig. S14 ^1H NMR spectrum of Me-TEG-Ts in CDCl_3 at 25 °C (600 MHz).

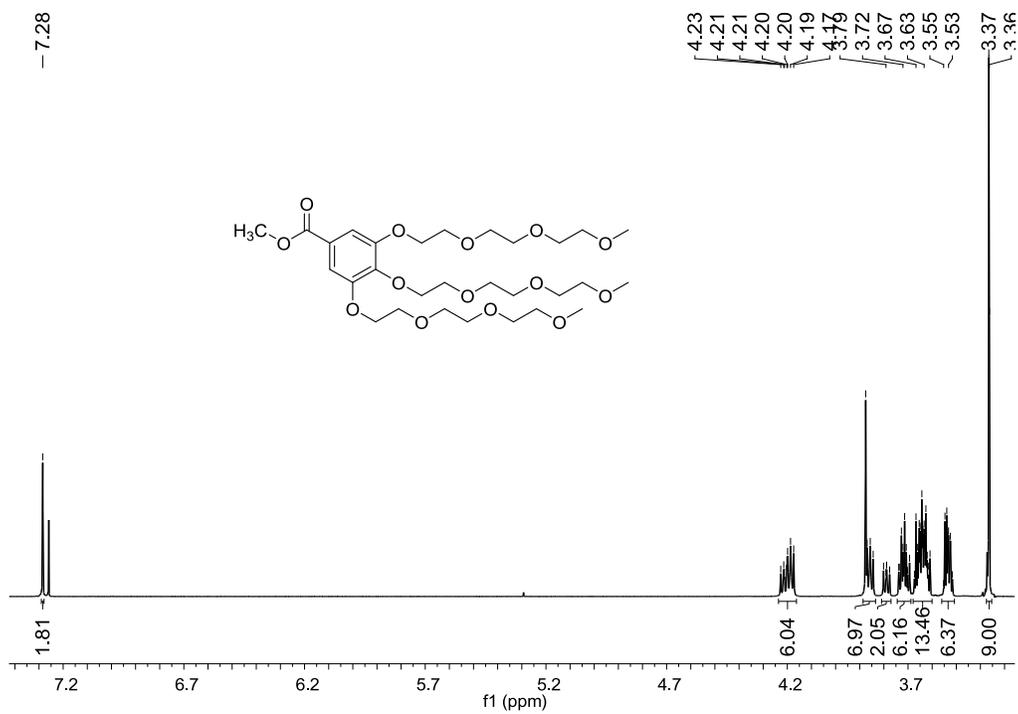


Fig. S15 ^1H NMR spectrum of compound **3** in CDCl_3 at 25 °C (600 MHz).

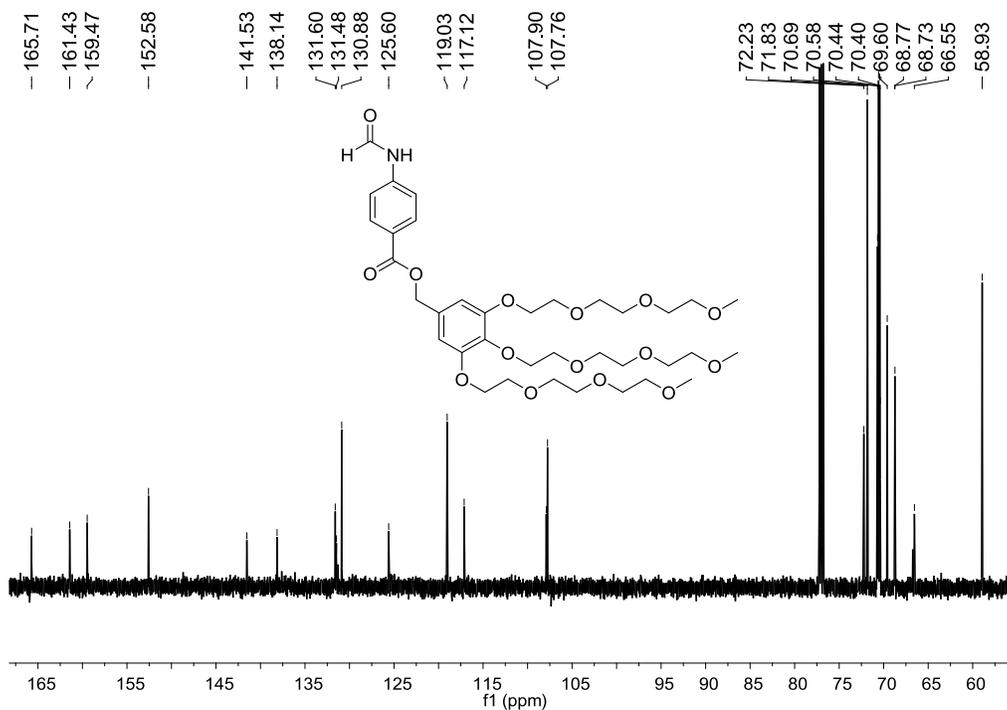


Fig. S22 ¹³C NMR spectrum of compound **7** in CDCl₃ at 25 °C (150 MHz).

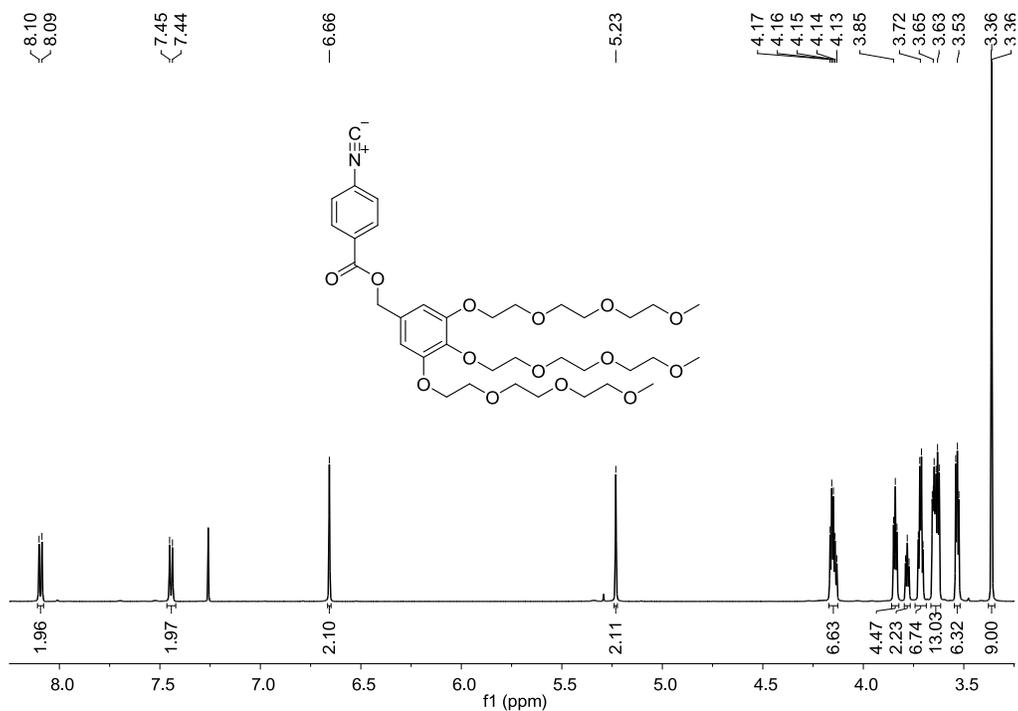


Fig. S23 ¹H NMR spectrum of monomer **2** in CDCl₃ at 25 °C (600 MHz).

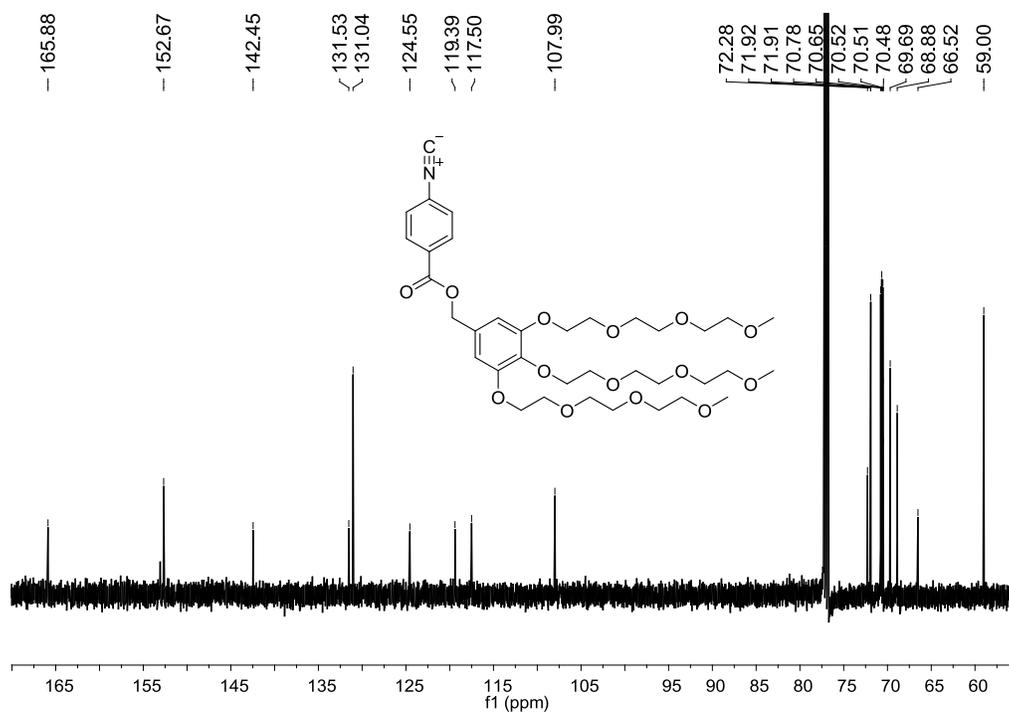


Fig. S24 ^{13}C NMR spectrum of monomer **2** in CDCl_3 at 25°C (150 MHz).