

Supplementary Material (ESI) for RSC Advances

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Supporting Information

Synthesis and optoelectronics properties of diblock copolymer of P3HT containing thiol-side chain and its hybrid nanocomposite

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Experimental section

1. Synthesis of 3-[6-(4-methoxyphenoxy)hexyl]thiophene.

Figure S1 shows the spectrum of ^1H NMR (500 MHz, CDCl_3): 7.26 (s, 1H), 6.99 (t, 2H), 6.81 (s, 1H), 2.81 (m, 2H), 2.59(m, 3H), 1.74(m, 2H), 1.53-1.33 (m, 4H).

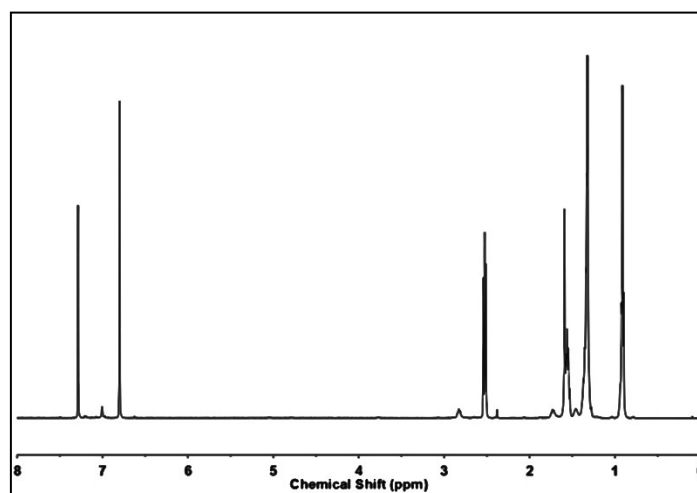


Figure S1. ^1H NMR spectrum of 3-[6-(4-methoxyphenoxy)hexyl]thiophene.

2. Synthesis of 2, 5-dibromo-3-(6-bromohexylthiophene).

Figure S2 shows the spectrum of ^1H NMR (500 MHz, CDCl_3): 7.26 (s, 1H), 6.99 (t, 2H), 3.77 (s, 1H), 3.67 (t, 2H), 2.31 (t, 2H), 1.87 (m, 2H), 1.25-1.53 (m, 6H).

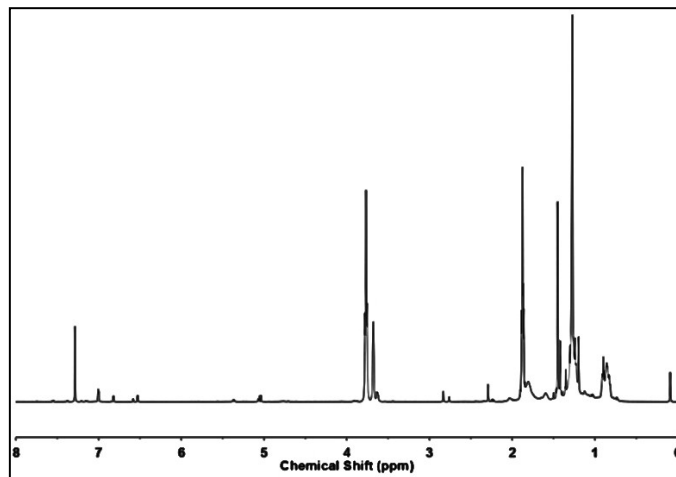


Figure S2. ^1H NMR spectrum of 2, 5-dibromo-3-(6-bromohexylthiophene)

3. Synthesis of diblock copolymer poly(3-hexylthiophene)-b-poly(3-(6-bromohexyl-thiophene))

Figure S3 shows the spectrum of ^1H NMR (500 MHz, CDCl_3): 6.98 (s, 1H), 3.71(t, 2H), 2.82(t, 2H), 1.73(m, 2H), 1.50(m, 4H).

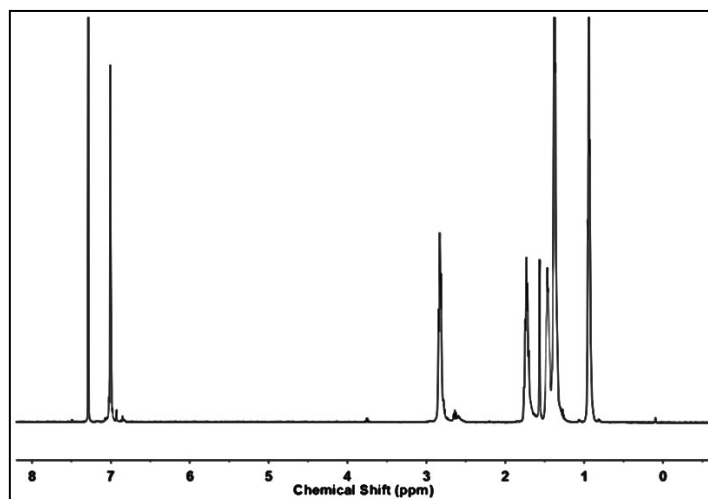


Figure S3. ^1H NMR spectra of (diblock copolymer poly(3-hexylthiophene)-b-poly(3-(6-bromohexylthiophene)) (P3HT-b-P3BPT))

4. Synthesis of diblock copolymer poly(3-hexylthiophene)-b-poly(3-(6-thiolhexyl thiophene)) (DP-P3HT-SH)

Figure S4 shows the spectrum of ^1H NMR spectra of magnified region of DP-P3HT-SH peak at 2.61 ppm.

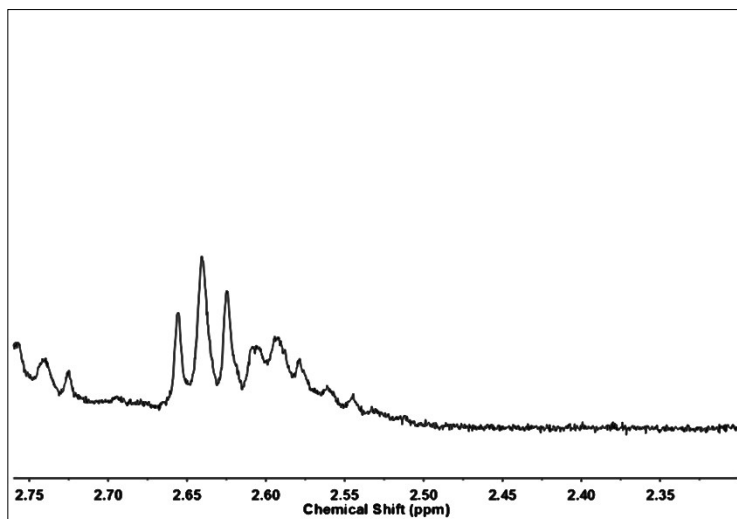


Figure S4. ^1H NMR spectra of magnified region of DP-P3HT-SH peak at 2.61 ppm.