

Supporting Information

**Self-doped 3-hexylthiophene-*b*-sodium styrenesulfonate block
copolymer: Synthesis and its organized with CdSe quantum dots**

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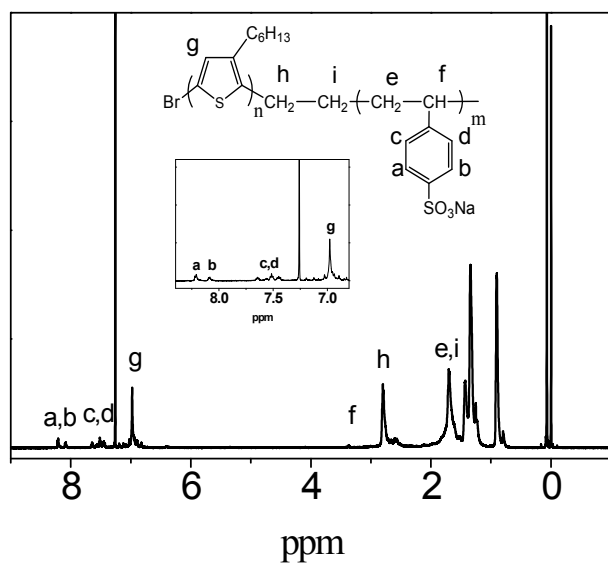


Figure S1. ^1H NMR spectrum of P3HT-*b*-PSSNa-0.4

^1H NMR (500 MHz, CDCl_3): δ_{H} 8.20 (d, 1H), 8.08 (d, 1H), 7.64 (d, 1H), 7.53 (d, 1H), 6.96 (s, 1H), 3.37 (m, 1H), 2.80 (t, 2H), 1.32~1.69 (m, 4H), 1.58~0.76 (m, 13H).
 GPC: M_{n} : 9474, M_{w} : 14218, $M_{\text{w}}/M_{\text{n}}$: 1.5.

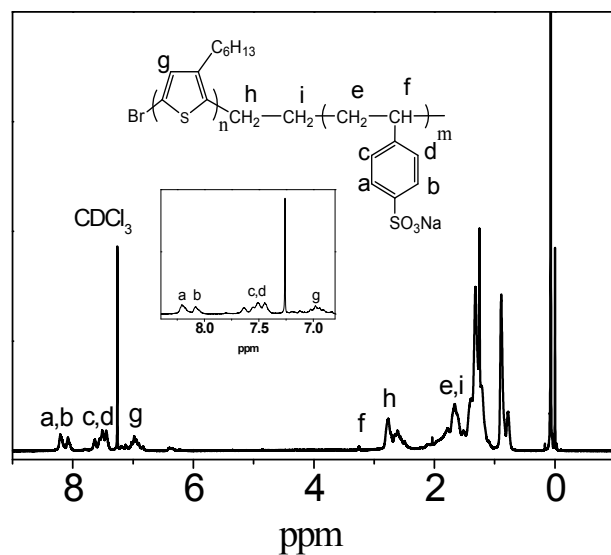


Figure S2. ^1H NMR spectrum of P3HT-*b*-PSSNa-1.7

^1H NMR (500 MHz, CDCl_3): δ_{H} 8.21 (d, 1H), 8.13 (d, 1H), 7.62 (d, 1H), 7.55 (d, 1H), 6.96 (s, 1H), 3.25 (m, 1H), 2.75 (t, 2H), 1.32~1.68 (m, 4H), 1.58~0.86 (m, 13H).

GPC: M_{n} : 19522, M_{w} : 33258, $M_{\text{w}}/M_{\text{n}}$: 1.7.

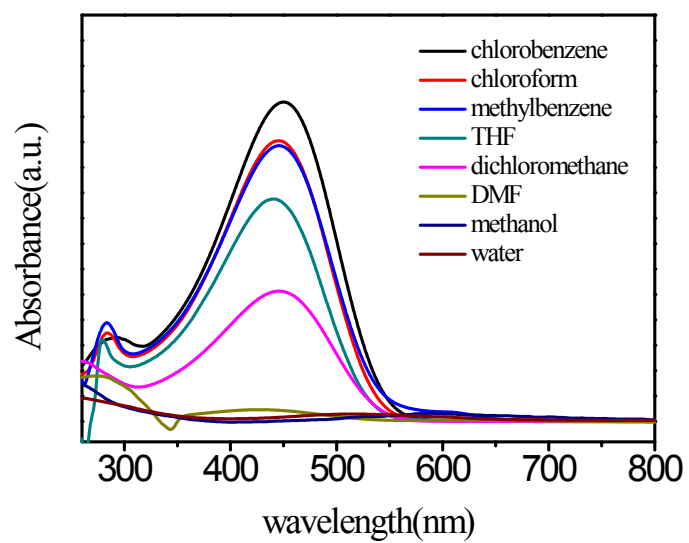


Figure S3. UV-vis spectra of P3HT-*b*-PSSNa-0.2 in different solutions

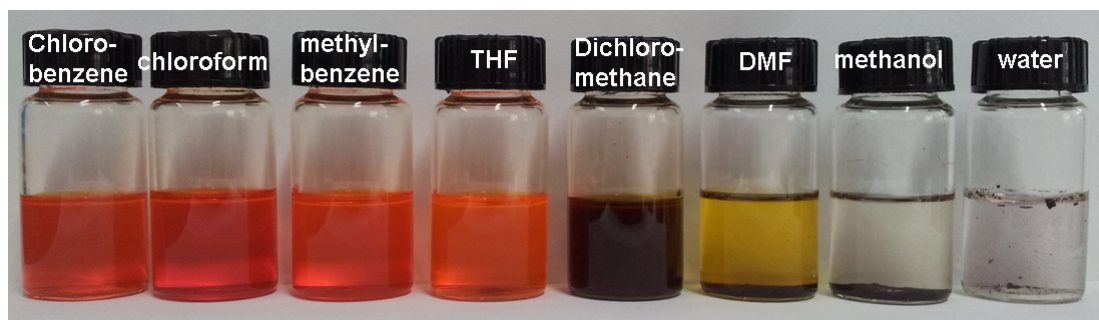


Figure S4. photos of P3HT-*b*-PSSNa-0.2 in different solvents