

Supporting Information

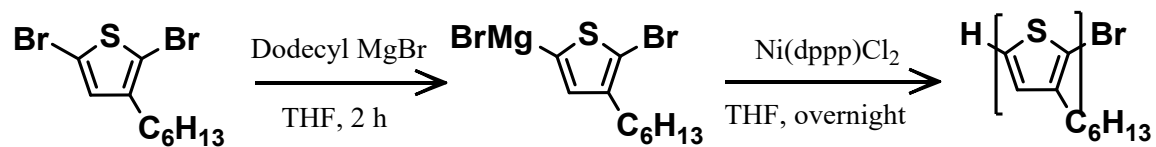
Precision Control of Molecular Weight Ratios in Fully Conjugated Block Copolymers Using Flow Synthesis

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Scheme S1. Synthetic route of monobrominated P3HT. (P3HT-Br)

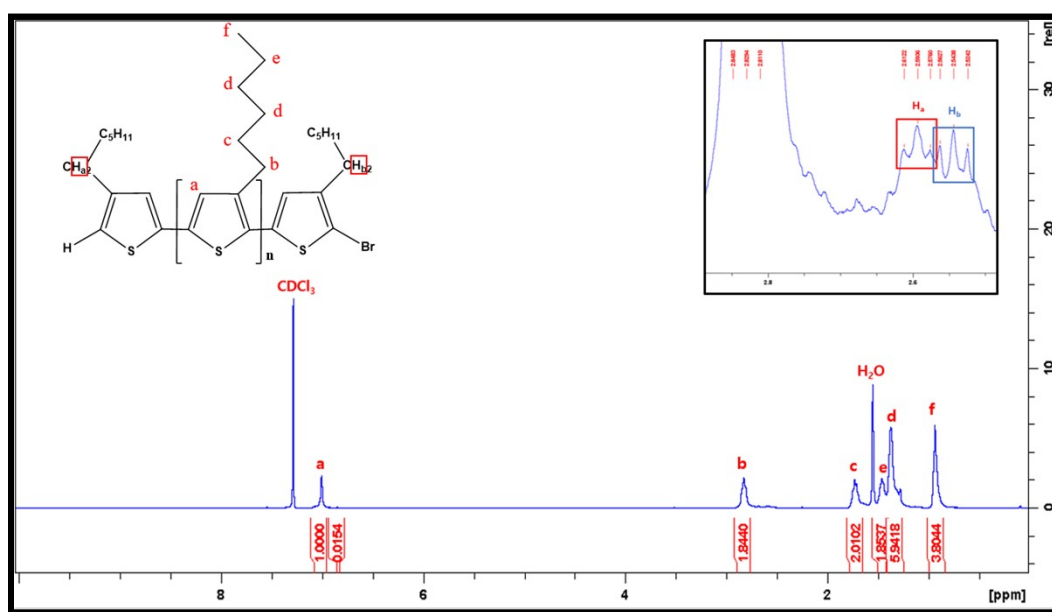


Fig. S1. ¹H NMR spectrum of P3HT-Br.

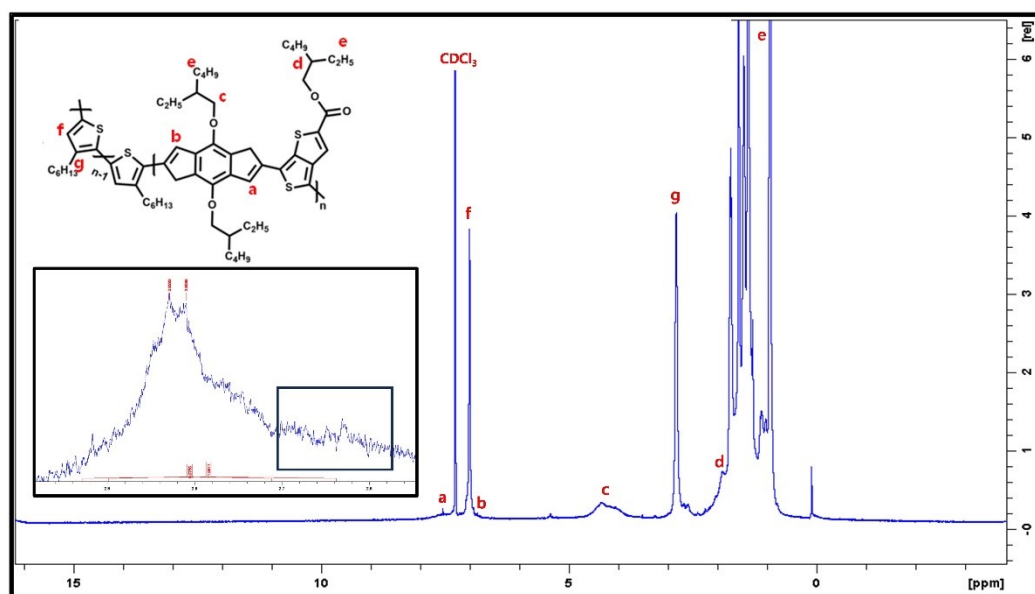


Fig. S2. ¹H NMR spectrum of P3HT-*b*-PTB7.

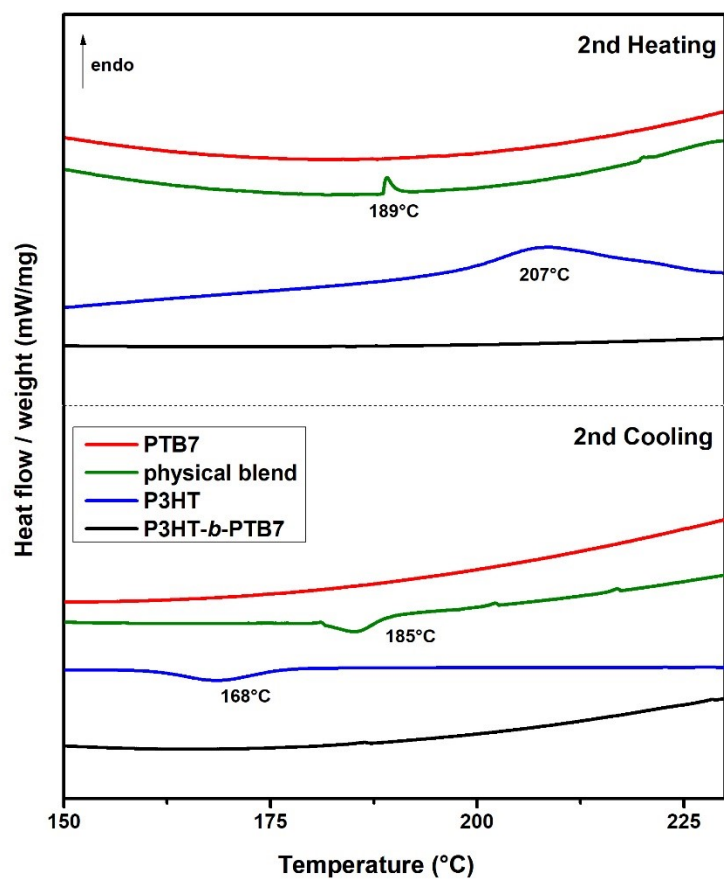


Fig. S3. The differential scanning calorimetry (DSC) graphs of P3HT, PTB7, P3HT-*b*-PTB7, and physical blend (P3HT:PTB7, 30:70) with heating/cooling rate of 10 °C min⁻¹ under nitrogen atmosphere.

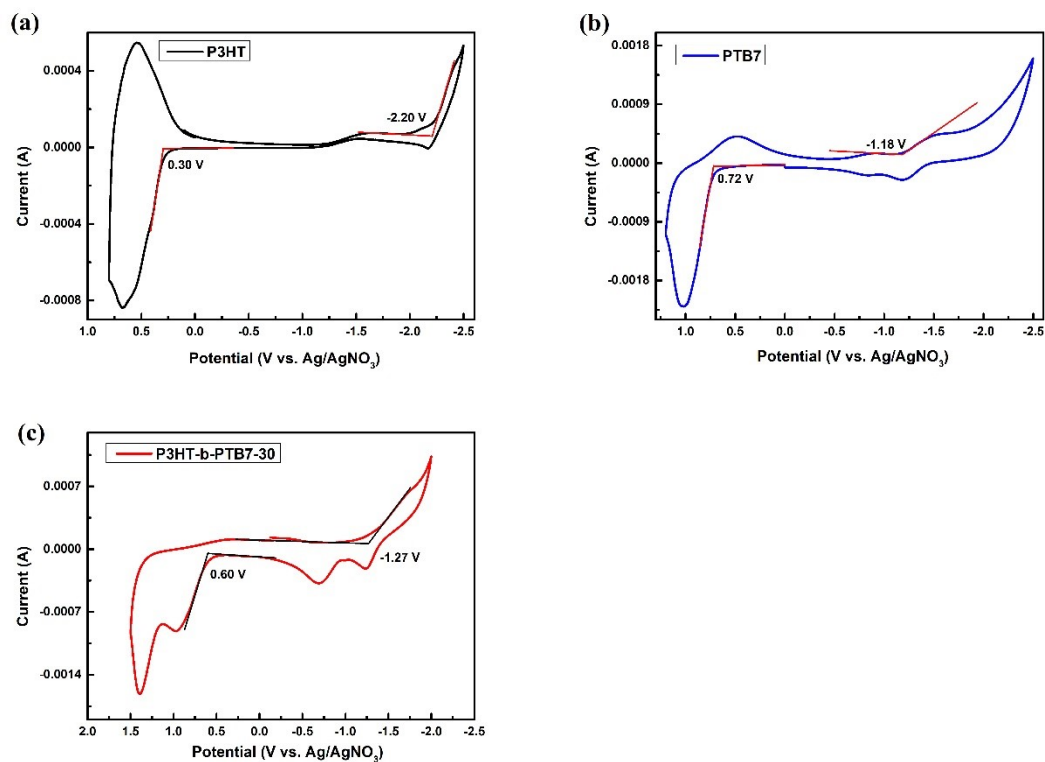


Fig. S4. Cyclic voltammogram of (a) P3HT, (b) PTB7, (c) P3HT-*b*-PTB7-30.

Table S1. Optical and electrochemical properties of P3HT, PTB7, and P3HT-*b*-PTB7-30.

	E_{ox}^a (eV)	E_{red}^a (eV)	LUMO ^b (eV)	HOMO ^c (eV)
P3HT	0.30	-2.20	-2.49	-4.99
PTB7	0.72	-1.18	-3.51	-5.41
P3HT-<i>b</i>-PTB7-30	0.60	-1.27	-3.42	-5.29

^a Obtained from onset potentials in the cyclic voltammogram. ^b LUMO = $-4.8 - (E_{\text{red}} - E_{1/2}^{\text{Fc}/\text{Fc}^+})$.

^c HOMO = $-4.8 - (E_{\text{ox}} - E_{1/2}^{\text{Fc}/\text{Fc}^+})$

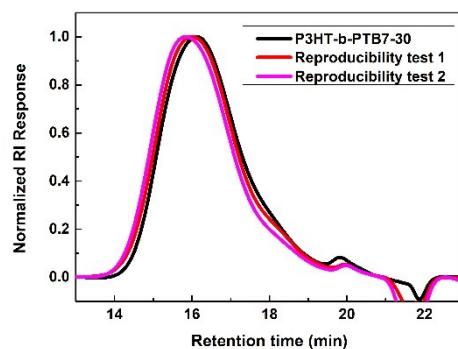


Fig. S5. Normalized GPC graph of three independent experiment for P3HT-*b*-PTB7-30.

Table S2. Molecular weight and dispersity of P3HT-*b*-PTB7-30 and products of reproducibility tests.

polymer	M_n (kDa)	M_w (kDa)	\bar{D}
P3HT- <i>b</i> -PTB7-30	27.9	64.0	2.30
Reproducibility test 1	28.0	74.7	2.67
Reproducibility test 2	29.2	79.7	2.73

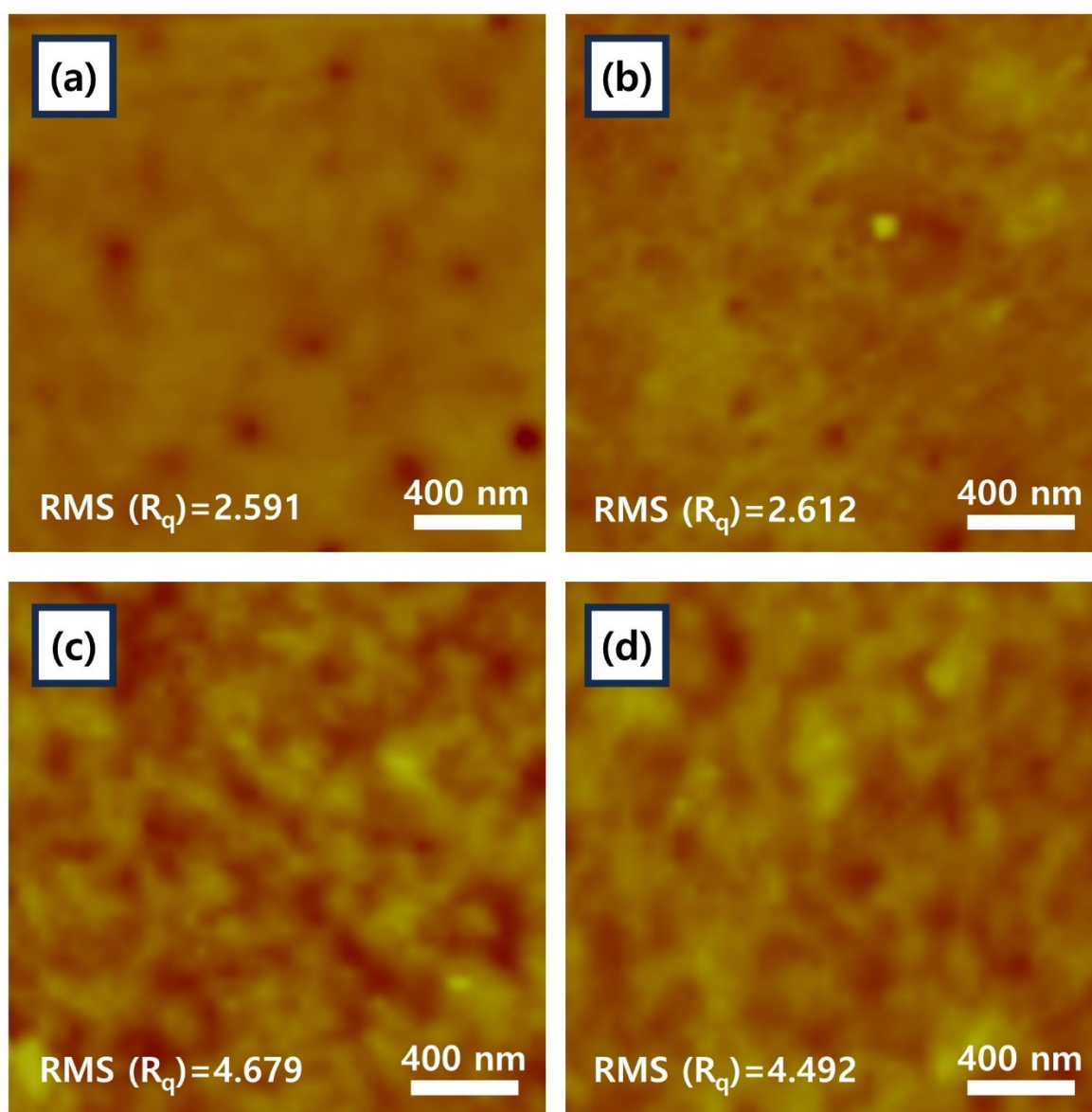


Fig. S6. AFM topography images ($2\ \mu\text{m} \times 2\ \mu\text{m}$) and calculated route mean square roughness (R_q) of fabricated OSC devices. (a) P1:PC₇₁BM, (b) P2:PC₇₁BM, (c) P3HT/PTB7:PC₇₁BM and (d) PTB7:PC₇₁BM