Effect of electron-acceptor content on the efficiency of regioregular double-cable thiophene copolymers in single-material organic solar cells.

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Supporting Information

Synthesis of poly(3-decylthiophene) (PT10H)

3-Decylthiophene (Sigma-Aldrich Merck, Product id. 456357) was converted to 3-decyl-2,5-dibromothiophene and subsequently polymerized to poly(3-decylthiophene) following the procedure described in M. Lanzi et al, *Polymer*, **2003**, *44*, 535-545. Yield: 44%.

^{1}H-NMR ($CDCl_3$, ppm): δ 6.97 (1H, s, *H4*Th); 2.77 (2H, m, ThC*H*$_2$); 1.70-1.11 (16H, bm, C*H*$_2$); 0.90 (3H, t, C*H*$_3$).

^{13}C-NMR ($CDCl_3$, ppm): δ 139.88 (Th*C*3); 133.61 (Th*C*5); 130.73 (Th*C*2); 128.47 (Th*C*4); 31.86 (*C*H$_2$Th); 30.51, 30.08, 29.96, 29.77, 29.42, 29.31, 29.23, 29.04 (central *C*H$_2$), 14.15 (C*H*$_3$).

FT-IR (Ge, cm^{-1}): 3054, 2924, 2855, 1512, 1461, 827, 726.

M_n = 22 KDa; M_w/M_n = 1.25

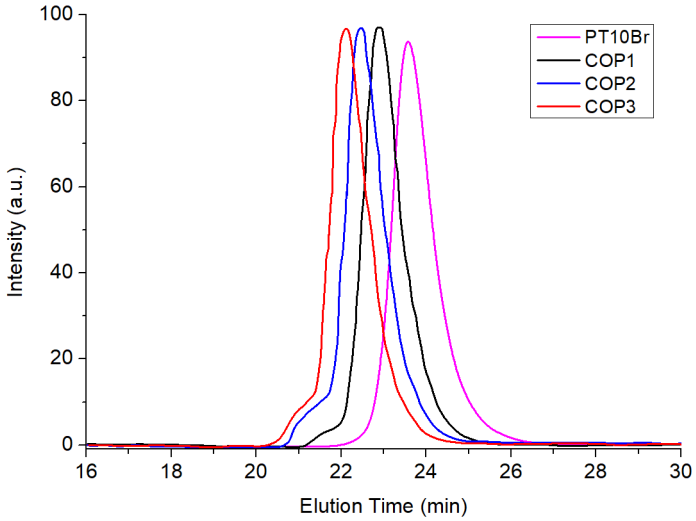

Figure S1. GPC of the examined polymers (intensity vs. elution time).

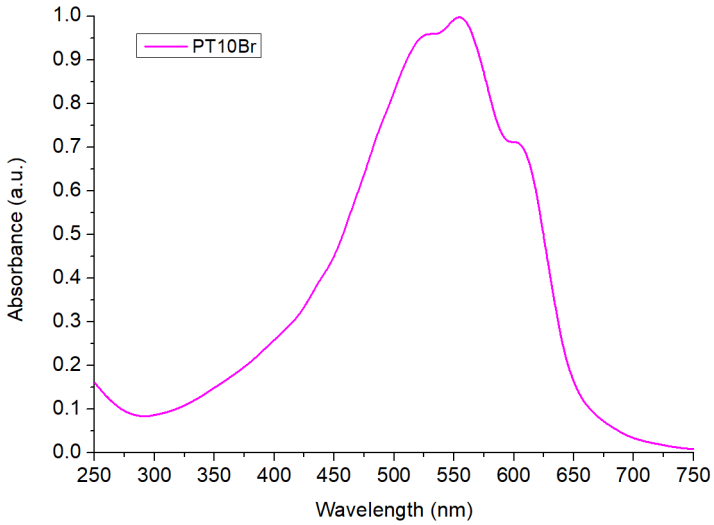

Figure S2. UV-Vis absorption spectrum of PT10Br in film on a quartz slide.

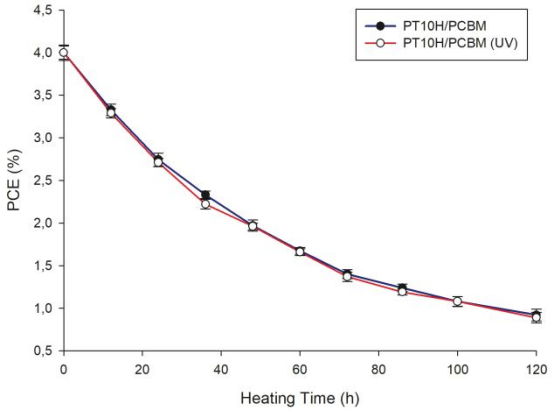

Figure S3. Efficiency of PT10H/PCBM cells heated at 150°C over time (average PCE of four devices). The UV samples were exposed to UV-light for 30 min.