

Electronic supplementary information

Efficiency enhancement of P3HT/PCBM bulk heterojunction solar cells by attaching zinc phthalocyanine to chain-end of P3HT

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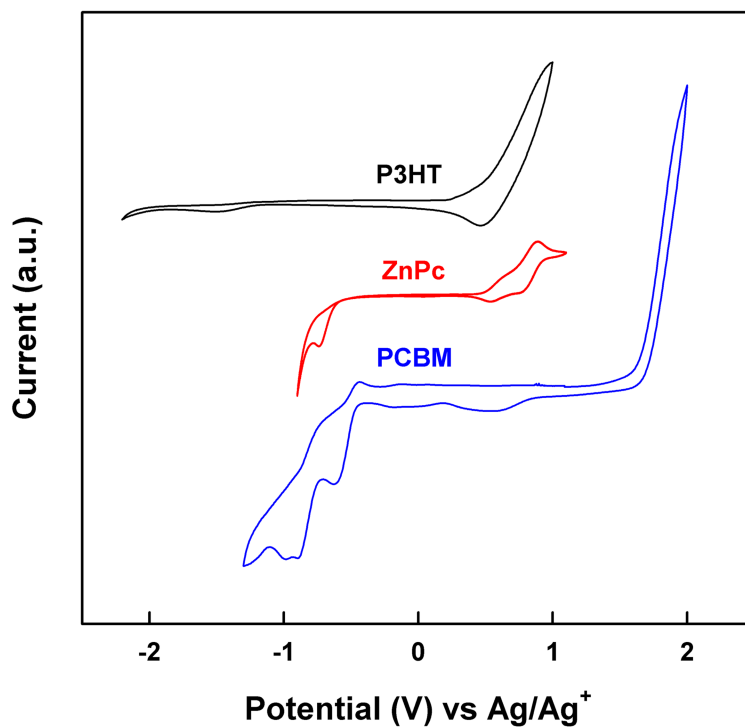


Fig. S1 Cyclic voltammetry measurements of P3HT (black line), ZnPc (red line), and PCBM (blue line).

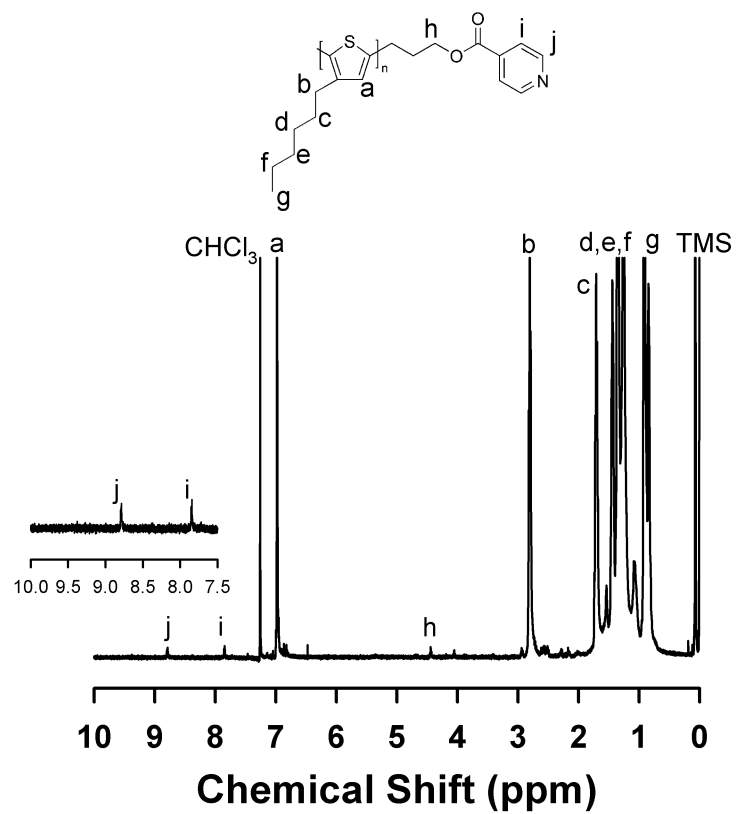


Fig. S2 ^1H NMR spectrum of P3HT-Py.

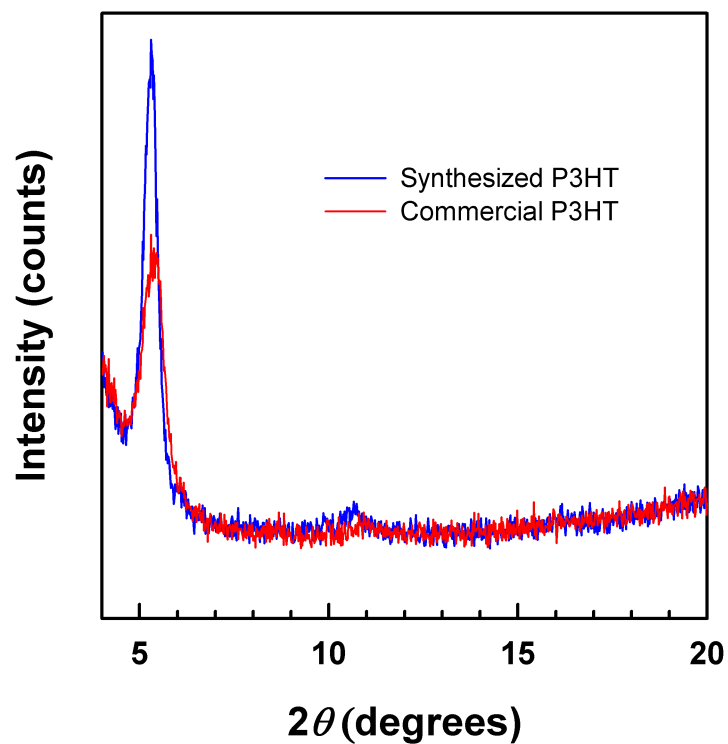


Fig. S3 XRD patterns of P3HT films synthesized in our laboratory (blue line) and purchased from Rieke Metals co. (red line) after thermal annealing at 150 °C for 5 min.

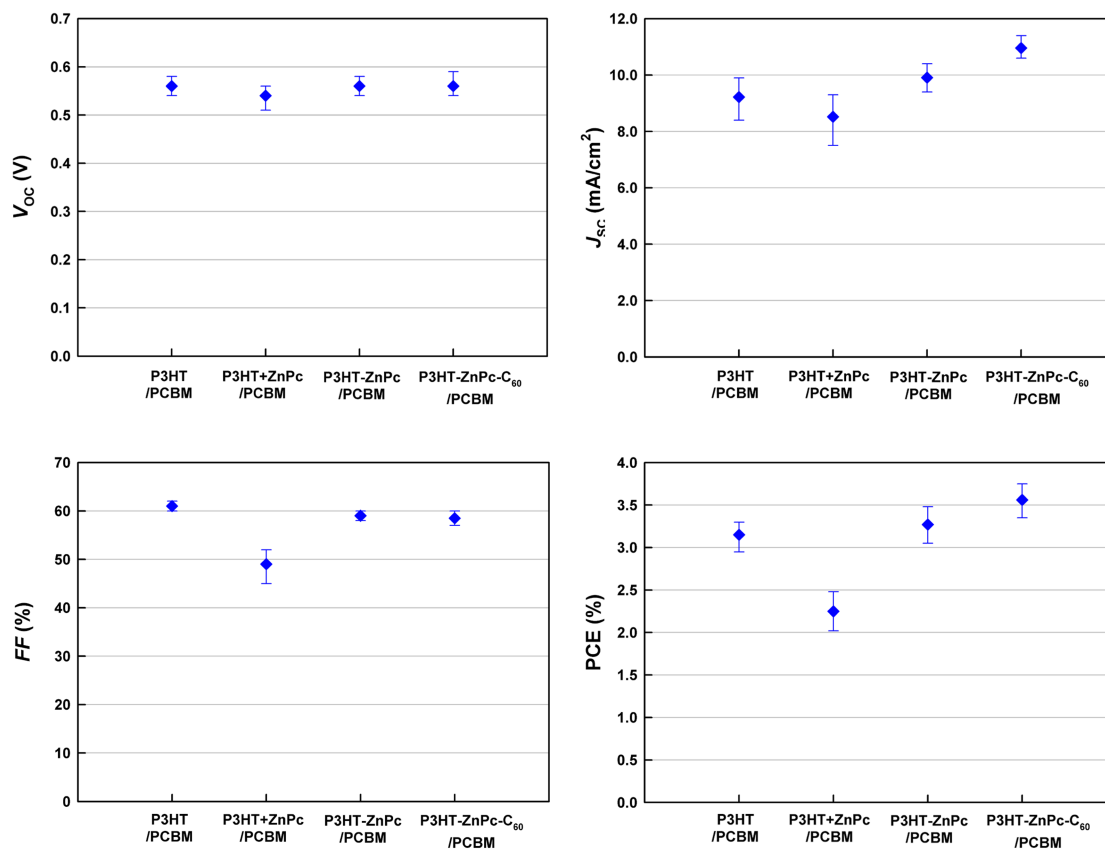


Fig. S4 Average photovoltaic parameters and deviations of P3HT/PCBM, P3HT+ZnPc/PCBM, P3HT-ZnPc/PCBM, and P3HT-ZnPc-C₆₀/PCBM BHJ devices (100 mW/cm², AM 1.5G). All the devices were thermally annealed at 150 °C for 5 min.

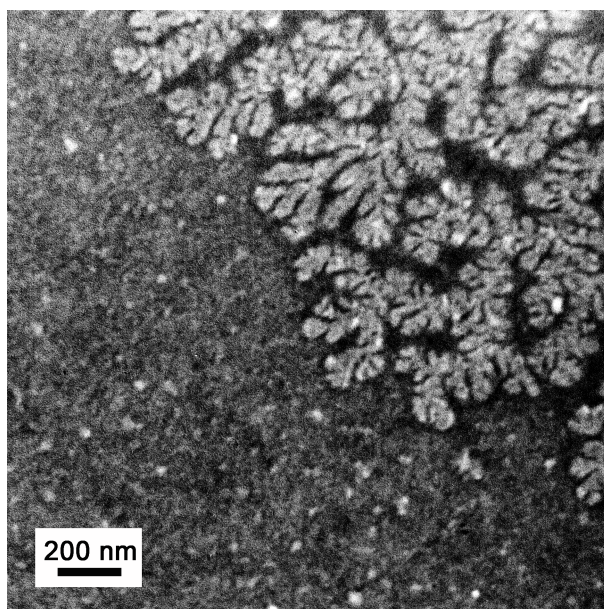


Fig. S5 TEM image of P3HT+ZnPc/PCBM blend film with large amount of ZnPc after thermal annealing at 150 °C for 5 min.

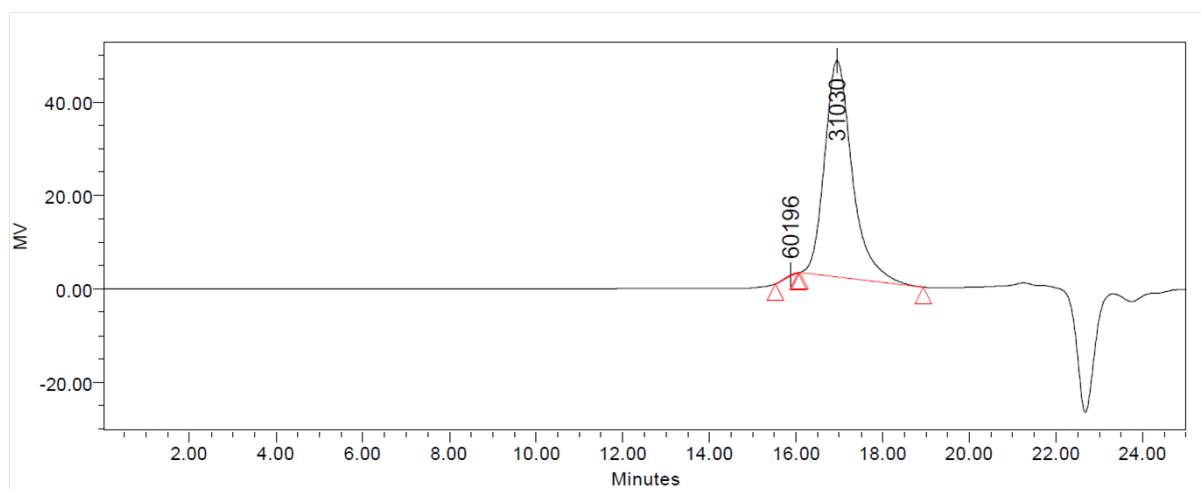


Fig. S6 GPC trace of P3HT-ZnPc-C₆₀.