Supporting Information

Measuring method of hydroxyl value

The specific experimental method as follow: Phthalic anhydride 35 g is dissolved in 250 ml pyridine (calledacetylated mixture solution). After 24 h, some samples is accurately weighed, and 8 ml acetylated mixed solution was added, then reflexing at 115℃ for 1h, then 8 ml pyridine and 16 ml water are added from the top of the condensation tube, continue to react for 15min, then titration is operated by KOH solution (0.5mol/L in water), phenolphthalein is indicator. hydroxyl value=$(0.5(V_1-V_2)M_n)/1000m$, V_1= titrant's volume of blank sample, V_2= titrant ' s volume of experimental sample, m= weight of experimental sample. M_n= measured molecular weight by SEC.

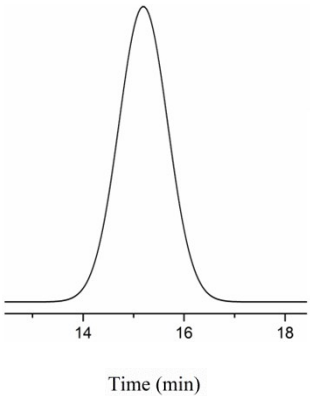

Figure S1 GPC curve of hydroxyl functionalized P3HT, M_n=1673g/mol, M_w/M_n=1.04

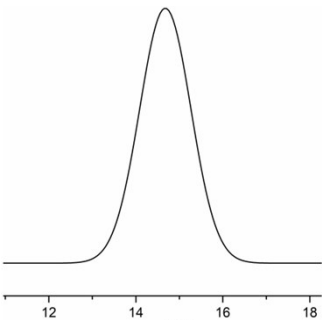

Figure S2 GPC curve of hydroxyl functionalized PS, M_n= 5314 g/mol, M_w/M_n= 1.08

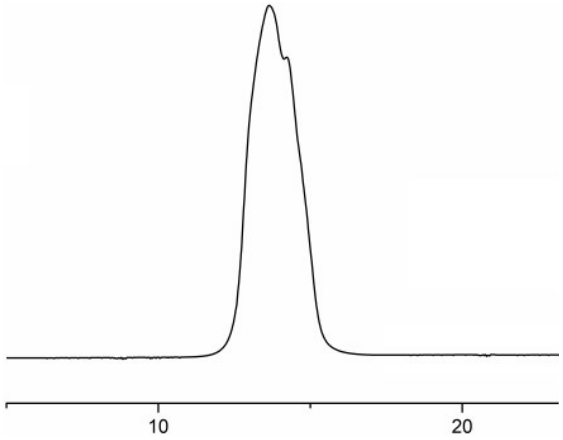

Figure S3 GPC curve of hydroxyl functionalized PB, M_n= 14123g/mol, M_w/M_n=1.03

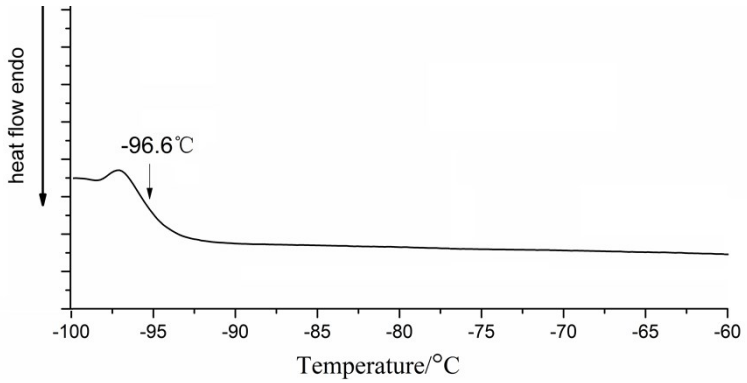

Figure S4 DSC data of hydroxy-terminated PB

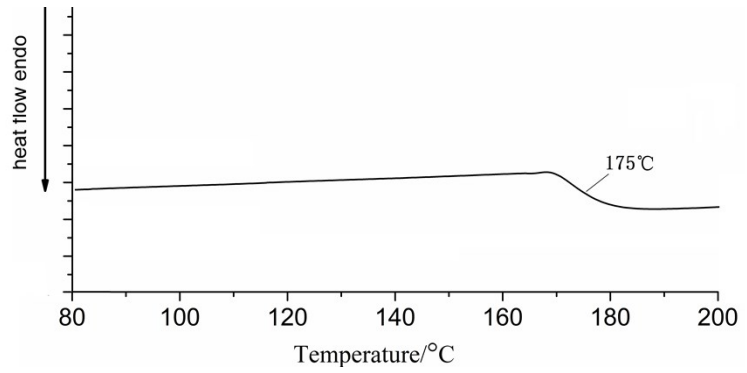

Figure S5 DSC curve of hydroxy-terminated P3HT

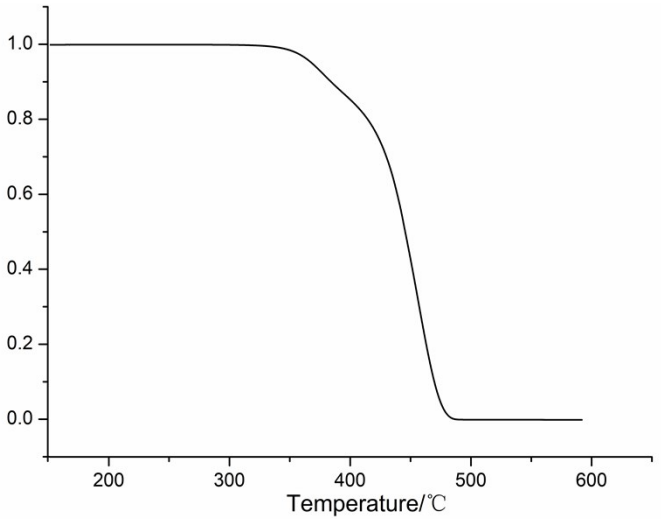

Figure S6 TGA spectrum of hydroxy-terminated PB

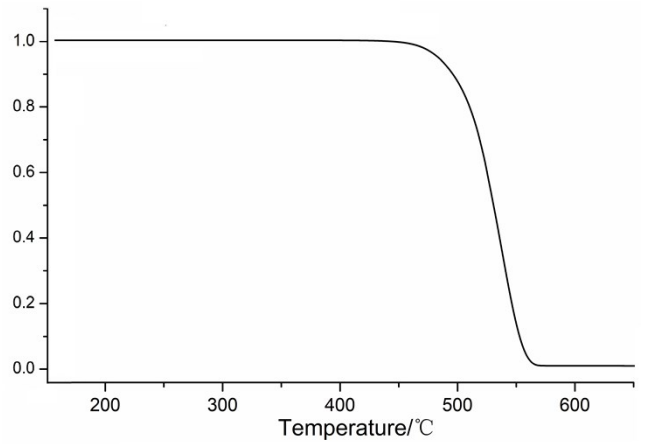

Figure S7 TGA spectrum of hydroxy-terminated P3HT

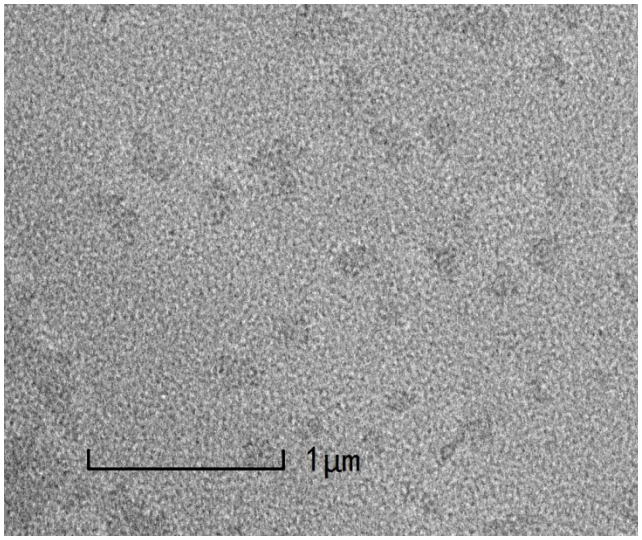

Figure S8 TEM of PB-b-P3HT block copolymer