Poly(3-hexylthiophene)-block-Poly(5,8-di-p-tolylquinoxaline-2,3-diyl) Conjugated Rod-Rod Copolymers: One Pot Synthesis, Self-Assembly and Highly Selective Sensing for Cobalt

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**Fig. S1.** Size exclusion chromatograms of P3HT macroinitiators (1) and their respective P3HT-b-PDQ block copolymers (3). SEC conditions: eluent = THF; temperature = 40 °C.
**Fig. S2.** Size exclusion chromatogram of PDQ homopolymer. SEC conditions: eluent = THF; temperature = 40 °C.
Fig. S3. FT-IR spectra of P3HT (1a), PDQ, and P3HT-\textit{b}-PDQ block copolymer (3a) at 25 °C using KBr pellets.
**Fig. S4.** Photographs of P3HT-b-PDQ block copolymer 3a in THF (0.025 mg/mL) upon addition of aqueous solutions various metals ions (2.0 × 10⁻⁶ M) under room light (top) and irradiation at 365 nm (bottom) at 25 °C.
**Fig. S5.** Color (a) and emission (b) changes of P3HT-\textit{b}-PDQ block copolymer 3a in THF (0.025 mg/mL) upon addition of various amount of Co$^{2+}$ in H$_2$O at 25 °C (concentration of Co$^{2+}$: from 0 to $2.0 \times 10^{-6}$ M, $\lambda_{ex} = 365$ nm).
**Fig. S6.** Absorption changes (450 nm) of P3HT-\(b\)-PDQ block copolymer 3a in THF (0.025 mg/mL) upon addition of various amount of Co\(^{2+}\) in H\(_2\)O at 25 °C (concentration of Co\(^{2+}\): from 0 to \(2.0 \times 10^{-6}\) M).
**Fig. S7.** UV-vis absorption spectra of P3HT-\(b\)-PDQ block copolymer 3a (0.025 mg/mL) in THF upon addition of various metal ions in H\(_2\)O (2.0 \(\times\) 10\(^{-6}\) M) at 25 °C.
Fig. S8. Changes of fluorescent intensity (538 nm) of P3HT-b-PDQ block copolymer 3a in THF (0.025 mg/mL) upon addition of various amount of Co$^{2+}$ in H$_2$O at 25°C (concentration of Co$^{2+}$: from 0 to 2.0 × 10$^{-6}$ M).
**Fig. S9.** Fluorescent spectra of P3HT-b-PDQ block copolymer 3a (0.025 mg/mL) in THF upon addition of various metal ions in H$_2$O (2.0 × 10$^{-6}$ M) at 25 °C.
Fig. S10. Photographs of P3HT-b-PDQ block copolymer 3a (0.025 mg/mL) and 3a (0.025 mg/mL) containing Co²⁺ (1.6 × 10⁻⁶ M) in THF and in presence of aqueous solutions of various metal ions (6.0 × 10⁻⁶ M) under room light (top) and irradiation at 365 nm (bottom) at 25 °C.
Absorption spectra of P3HT-\textit{b}-PDQ block copolymer 3a (0.025 mg/mL) containing Co\textsuperscript{2+} (1.6×10\textsuperscript{-6} M) in THF upon addition of various metal ions in H\textsubscript{2}O (6.0 × 10\textsuperscript{-6} M) at 25 °C.
**Fig. S12.** Fluorescent spectra of P3HT-\(b\)-PDQ block copolymer 3a (0.025 mg/mL) containing Co\(^{2+}\) (1.6 \(\times\) 10\(^{-6}\) M) in THF upon addition of aqueous solutions of various metal ions (6.0 \(\times\) 10\(^{-6}\) M) at 25 °C.
Fig. S13. Normalized absorption spectra of P3HT (1a in THF), Co$^{2+}$ (in H$_2$O), and the mixture of 1a (in THF) and Co$^{2+}$ (in H$_2$O) measured at 25 °C.
**Fig. S14.** Fluorescent spectra of homopolymer P3HT (1a, in THF), Co²⁺ (in H₂O) and the mixture of 1a (in THF) and Co²⁺ (in H₂O) measured in THF at 25 °C.
**Fig. S15.** Normalized absorption spectra of PDQ, Co$^{2+}$ and the mixture of PDQ (in THF) and Co$^{2+}$ (in H$_2$O) measured at 25 °C.
**Fig. S16.** Fluorescent spectra of homopolymer PDQ in THF, Co$^{2+}$ in H$_2$O, and the mixture of PDQ (in THF) with Co$^{2+}$ (in H$_2$O) measured at 25 °C.
**Fig. S17.** IR spectra obtained for P3HT-b-PDQ block copolymer 3a (down) before and (top) after addition of Co$^{2+}$. 
Fig. S18. $^1$H NMR (600 MHz) spectrum of compound 5 measured in CDCl$_3$ at 25 °C.
Fig. S19. $^1$H NMR (600 MHz) spectrum of monomer 2 measured in CDCl$_3$ at 25 °C.
Fig. S20. $^1$H NMR (400 MHz) spectrum of P3HT-$b$-PDQ block copolymer (3a) measured in CDCl$_3$ at 25 °C.
Fig. S21. $^1$H NMR (600 MHz) spectrum of P3HT (3a) measured in CDCl$_3$ at 25 °C.
Fig. S22. $^1$H NMR (400 MHz) spectrum of homopolymer PDQ measured in CDCl$_3$ at 25 °C.