Supporting Information for

Turn-off/on fluorescent sensors for Cu\(^{2+}\) and ATP in aqueous solution based on tetraphenylethylene derivative

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**Fig. S1.** UV/Vis spectra of TPE-COOH in different H$_2$O/EtOH mixtures from 0% to 90%. [TPE-COOH] = 1.0×10$^{-5}$ mol/L.

**Fig. S2.** Linear curve between maximum emission intensity of TPE-COOH and the Cu$^{2+}$ concentration in HEPES buffer.
Fig. S3. Job’s plot for determining the binding ratio of TPE-COOH to Cu$^{2+}$ in HEPES buffer (10 mM, pH 7.4). The total concentration of TPE-COOH and Cu$^{2+}$ ion is 20 µM.

Fig. S4. Photos of TPE-COOH upon addition of various metal ions in HEPES buffer. [TPE-COOH] = 1.0×10$^{-5}$ mol/L; [metal] = 2.0×10$^{-5}$ mol/L; $\lambda_{exc}$ = 365 nm.
Fig. S5. UV/Vis spectra of TPE-COOH upon introduction of different amounts of Cu$^{2+}$ in HEPES buffer (10 mM, pH 7.4). [TPE-COOH] = 1.0×10$^{-5}$ mol/L.

Fig. S6. Scanning electron microscope photographs of aggregates: (a) TPE-COOH; (b) TPE-COOH/Cu$^{2+}$ and (c) TPE-COOH/Cu$^{2+}$-ATP.
Fig. S7. Job’s plot for determining the binding ratio of TPE-COOH/Cu$^{2+}$ to ATP in HEPES buffer (10 mM, pH 7.4). The total concentration of TPE-COOH/Cu$^{2+}$ and ATP is 20 µM.

Fig. S8. UV/Vis spectra of TPE-COOH/Cu$^{2+}$ upon introduction of different amounts of ATP in HEPES buffer (10 mM, pH 7.4). [TPE-COOH] = $1.0 \times 10^{-5}$ mol/L; [Cu$^{2+}$] = $2.0 \times 10^{-5}$ mol/L.
**Fig. S9.** Photos of TPE-COOH/Cu$^{2+}$ upon addition of various ions in HEPES buffer. [TPE-COOH/Cu$^{2+}$] = 1.0×10$^{-5}$ mol/L; [anion] = 2.0×10$^{-5}$ mol/L; $\lambda_{\text{exc}} = 365$ nm.