Electronic Supplementary Information

Aggregation-Induced Emission Encoding Supramolecular Polymer Based on Controllable Sulfonatocalixarene Recognition in Aqueous Solution

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**Fig. S1** UV-vis spectrum of TPPE in solution of H$_2$O: THF=1:1 at different pH.
**Fig. S2** DLS result of supramolecular polymer SP1 constructed with TPPE and BSC4 in pH=2 phosphate buffer.

**Fig. S3** DLS result of supramolecular polymer SP2 constructed with TMPPE and BSC4 in pH=2 phosphate buffer.
Fig. S4 Left: SEM picture of TPPE aggregation (droplets of TPPE solution on a glass plate, 1.5×10^{-5}M); Right: photo of TPPE in H2O irradiated by 365nm UV light and taken in darkness, 1.5×10^{-5}M).

Fig. S5 The representation of the reversibility and repeatability between state A and B modulated by pH of supramolecular polymer SP1 constructed with TPPE and BSC4. Excited at 350 nm.
**Fig. S6** The representation of the reversibility and repeatability between state ON and OFF modulated by pH of supramolecular polymer SP1 formed with TPPE and BSC4. Excited at 350 nm.

**Fig. S7** Fluorescence emission spectrum of TPPE and protonated TPPE in solution of H₂O and H₂O:THF=1:1.
Fig. S8 $^1$H NMR spectra of TPPE (a) and TPPE with BSC4 (b) in D$_2$O: THF-d$_8$ (400 MHZ).

Fig. S9 $^1$H NMR spectrum of BSC4 in D$_2$O (400 MHZ).
**Fig. S10** Synthetic route to TPPE (3) and TMPPE (4). 4I⁻ of TMPPE (4) are omitted here for clarity.

**Fig. S11** $^1$H NMR spectrum of TPPE in CDCl$_3$ (400 MHz).
Fig. S12 ESI-MS spectrum of TPPE ([M+H]+=641.2682).

Fig. S13 1H NMR spectrum of TMPPE in DMSO-\textit{d}_6 (400 MHz).
Fig. S14 $^{13}$C NMR spectrum of TMPPE in DMSO-$d_6$ (100 MHZ).

Fig. S15 ESI-MS spectrum of TMPPE ([M-I]$^+$=1081.0701).