Supporting information for

The photochromism, Light Harvesting and self-assembly activity of a multi-function Schiff-base compound based on AIE effect

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Scheme S1. Synthetic routes of compounds 1–4.
Fig. S1. $^1$H NMR spectra of 1 in d$_6$-DMSO

Fig. S2. IR spectrum of 1 in KBr disk.
Fig. S3. Time-resolved spectroscopic monitoring of 1 in crystals without UV lamp irradiation.

Fig. S4. Fatigue resistance of 1 with the irradiation of UV lamp and standing in the dark alternatively.
Fig. S5. Images of 1 before and after certain irradiation by a UV lamp (365 nm) (a and b) and corresponding fluorescent images under UV lamp (c and d).

Fig. S6. Fluorescence spectra of 2 (50 μM) in EtOH/water mixtures with different water fractions. Inset: effect of water volume on the FI at 560 nm, λ<sub>ex</sub> = 350 nm.
Fig. S7. Fluorescence spectra of 3 (50 μM) in EtOH/water mixtures with different water fractions. Inset: effect of water volume on the FI at 500 nm, $\lambda_{ex} = 350$ nm.

Fig. S8. Fluorescence spectra of 4 (50 μM) in EtOH/water mixtures with different water fractions. Inset: effect of water volume on the FI at 525 nm, $\lambda_{ex} = 350$ nm.
**Fig. S9.** UV-vis spectra of 1 in different content of water. Inset, absorbance changes at 340 and 280 nm.

**Fig. S10.** Fluorescence spectra of 2 (50 μM) in aqueous solution at different pH. Inset: FI change with the pH values.
**Fig. S11.** Fluorescence spectra of 3 (50 μM) in aqueous solution at different pH. Inset: F/I change with the pH values.

**Fig. S12.** Fluorescence spectra of 4 (50 μM) in aqueous solution at different pH. Inset: F/I change with the pH values.
Fig. S13. Fluorescence spectra of 1 (0.1 μM) in water with different concentrations of RhB (0-0.1 μM).

Fig. S14. IR spectra of 1 and in the presence of Al$^{3+}$ or Cu$^{2+}$ as KBr pelts.

Fig. S15. ESI-MS of compound 1 in DMSO.
Fig. S16. ESI-MS of compound 1 with 0.5 equiv. Al$^{3+}$ in DMSO.

Fig. S17. ESI-MS of compound 1 with 1.0 equiv. Al$^{3+}$ in DMSO.

Fig. S18. ESI-MS of compound 1 with 0.5 equiv. Cu$^{2+}$ in DMSO and H$_2$O mixture.
**Fig. S19.** ESI-MS of compound 1 with 1.0 equiv. Cu$^{2+}$ in DMSO and H$_2$O mixture.