Supporting Information

## Turn-on fluorescence in a pyridine-decorated tetraphenylethylene: the cooperative effect of coordination-driven rigidification and silver ions induced aggregation

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Scheme S1. Synthetic route of ligand 1.



Fig. S1. Variation of the fluorescence intensity at 537 nm of 1 with the water fractions ( $f_w$ ) from 0 to 90%.



Fig. S2. Variation of the fluorescence intensity at 520 nm of 1 in glycol/THF mixtures with glycol fractions ( $f_w$ ) from 0 to 90%.



Fig. S3. Fluorescence images of 1 in glycol/THF mixtures under a UV excitation,  $\lambda_{ex}$ =365 nm.



Fig. S4. Emission maxima of compound 1 during the grinding and fuming. "0" represent "as prepared" and  $\lambda_{ex}$ =380 nm.



Fig. S5. The XRD patterns of the ground and fumed compound 1 in solid state.



Fig. S6. Photographs of filter paper coated with compound 1 under UV light by grinding and fuming by DCM.  $\lambda_{ex}$ =365 nm.



Fig. S7. Variation of the fluorescence intensity at 537nm of 1 in response to  $AgCF_3SO_3$  from 0 to 1000 equivalents in THF solution (2.0×10<sup>-5</sup> M).



Fig. S8 The fluorescence intensity of 1 ( $2.0 \times 10^{-5}$  M,  $e_x$ =380 nm) with 100 equivalent AgCF<sub>3</sub>SO<sub>3</sub> and 100 equivalent AgC<sub>7</sub>H<sub>7</sub>SO<sub>3</sub>.



**Fig. S9** a) Variation of fluorescence intensity at 537nm of 1 ( $2.0 \times 10^{-5}$  M,  $e_x$ =380 nm) in response to AgCF<sub>3</sub>SO<sub>3</sub> from 0 to 100 equivalents in THF solution; b) Variation of fluorescence intensity at 537nm of 1 with 100 equivalent AgCF<sub>3</sub>SO<sub>3</sub>( $2.0 \times 10^{-5}$  M,  $e_x$ =380 nm) in response to (C<sub>4</sub>H<sub>9</sub>)<sub>4</sub>NBr from 0 to 100 equivalent in THF solution.



Fig. S10 Variation of fluorescence intensity at 537nm of 1 with 1000 equivalent AgCF<sub>3</sub>SO<sub>3</sub> in THF solution  $(2.0 \times 10^{-5} \text{ M})$  within 3 hours.



Fig. S11. Selected TEM images of the solution of 1 in THF  $(2.0 \times 10^{-5} \text{ M})$  with the addition of 100 equivalents AgCF<sub>3</sub>SO<sub>3</sub>.



Fig. S12. Selected SEM images of the solution of 1 in THF  $(2.0 \times 10^{-5} \text{ M})$  with the addition of 100 equivalents AgCF<sub>3</sub>SO<sub>3</sub>.



Fig. S13. Selected CLSM images of the solution of 1 in THF ( $2.0 \times 10^{-5}$  M,  $\lambda_{ex}$ =380 nm) with the addition of 100 equivalents AgCF<sub>3</sub>SO<sub>3</sub>.



Fig. S14. HR-ESI-MS spectra of compound 1 · Ag<sub>2</sub>.



Fig. S15. <sup>1</sup>H NMR spectra of compound 1(400 MHz, CDCl<sub>3</sub>).



Fig. S16. <sup>13</sup>C NMR spectra of compound 1(100 MHz, CDCl<sub>3</sub>).



Fig. S17. HR-ESI-MS spectra of compound 1.