Supporting Information

Dual-channel regulation of a single white-light-emitting compound and its application in time-dependent information encryption

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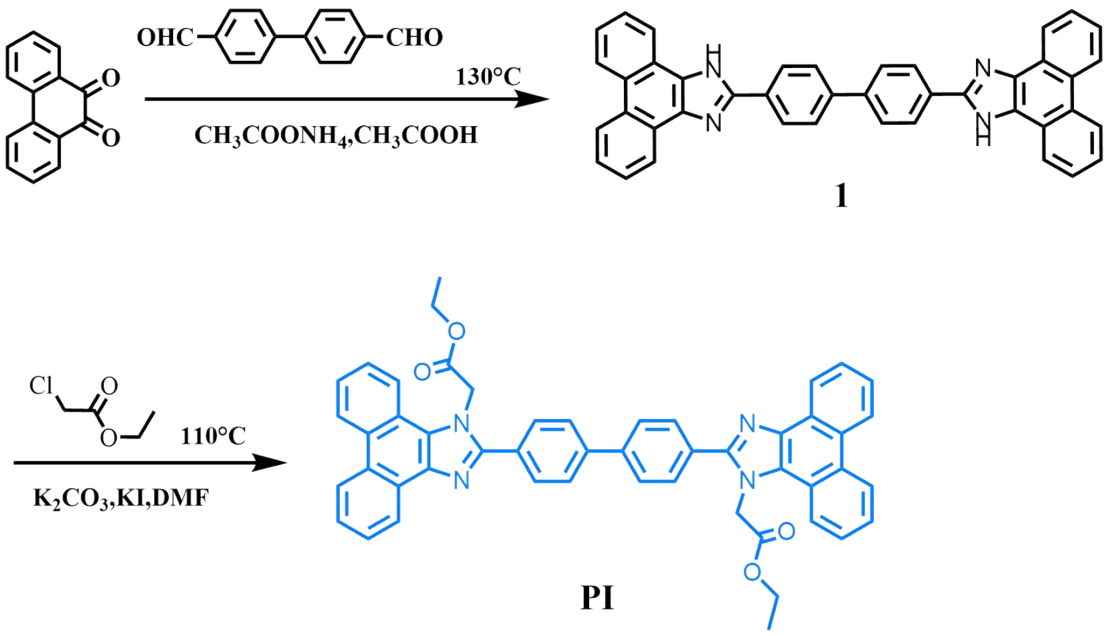

Scheme S1. Synthesis of PI.

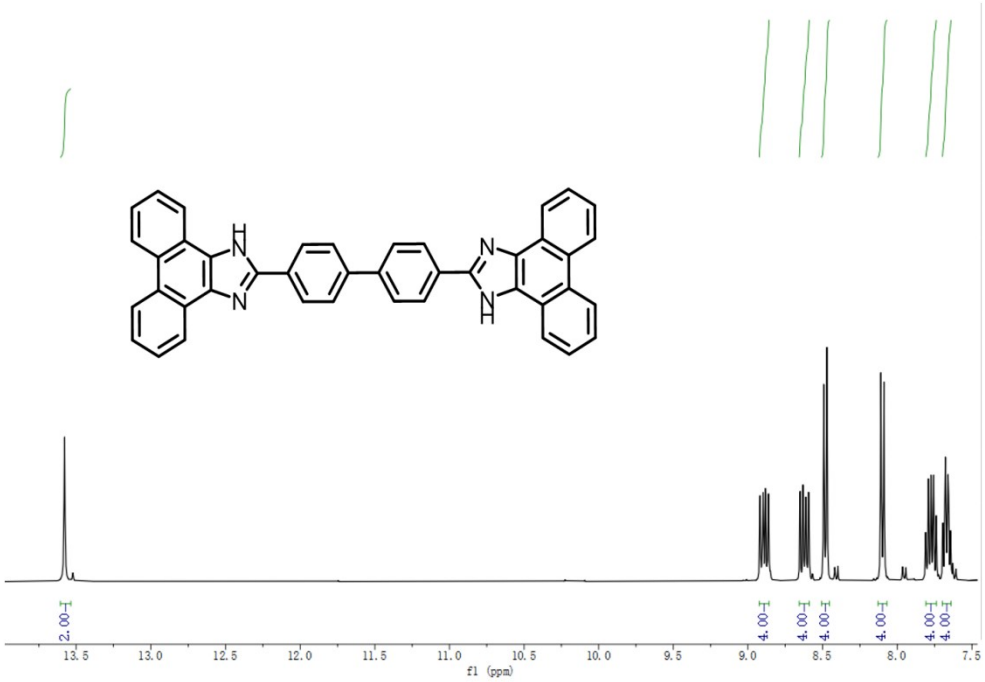

Fig S1. ^{1}H NMR spectrum (400 MHz, DMSO-d_6) of compound 1.

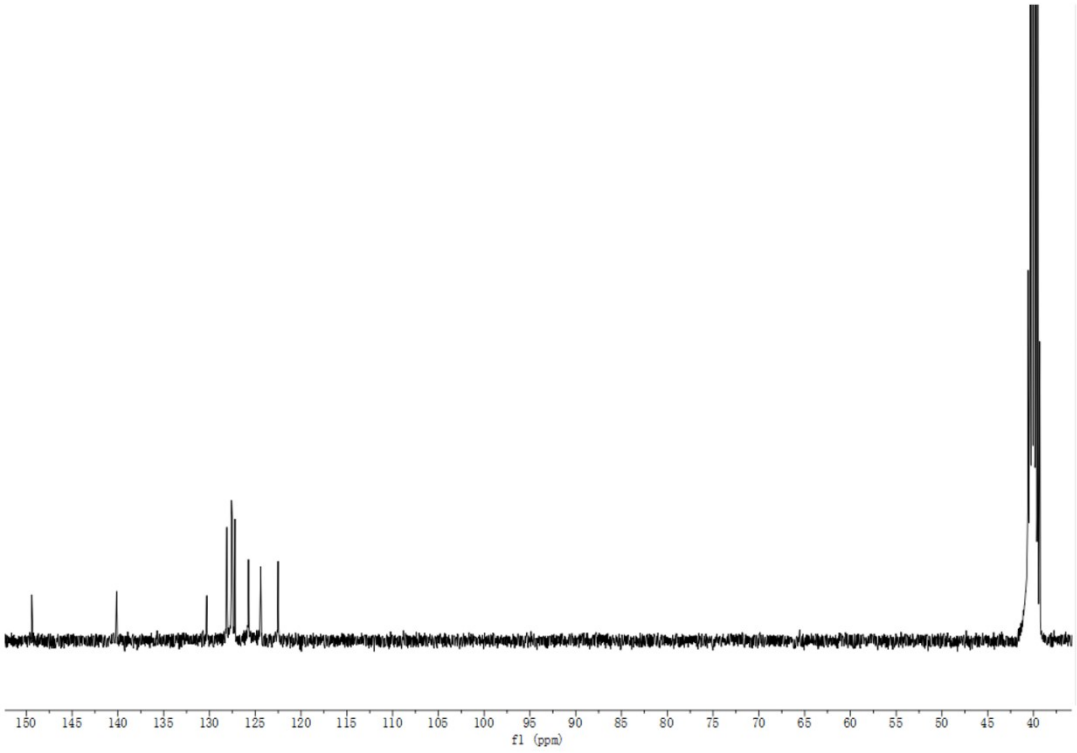

Fig S2. ^{13}C NMR spectrum (101 MHz, DMSO-d_6) of compound 1.

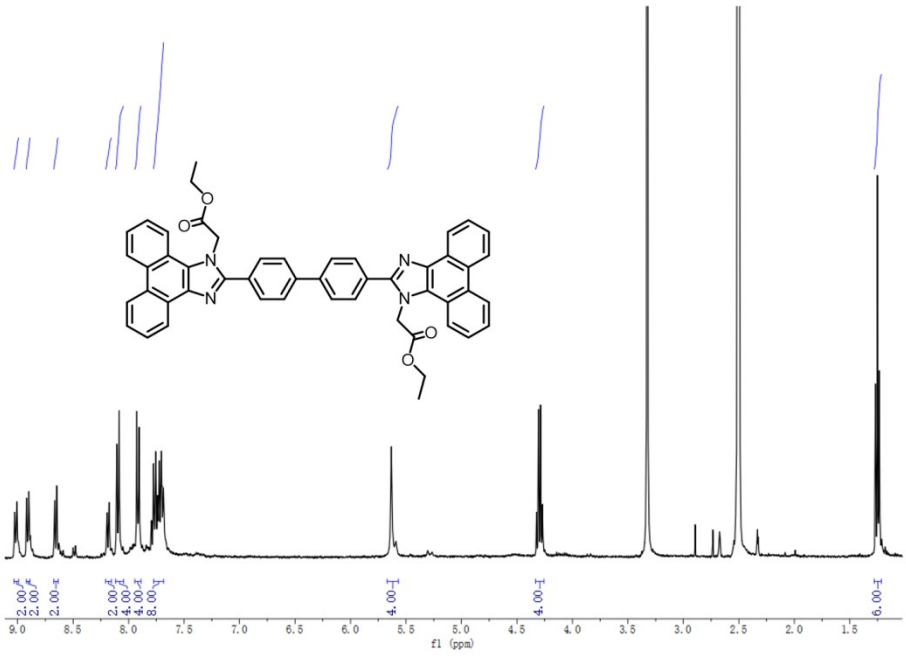

Fig S3. ^{1}H NMR spectrum (400 MHz, DMSO-d_6) of compound PI.

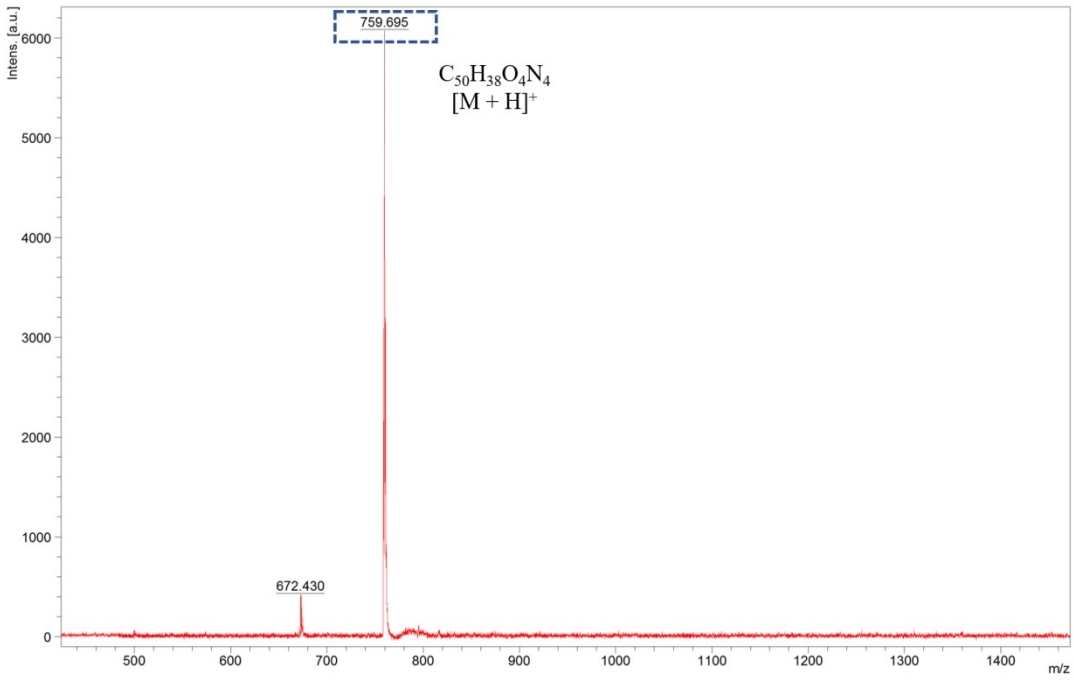

Fig S4. EI-MS spectrum of compound PI.

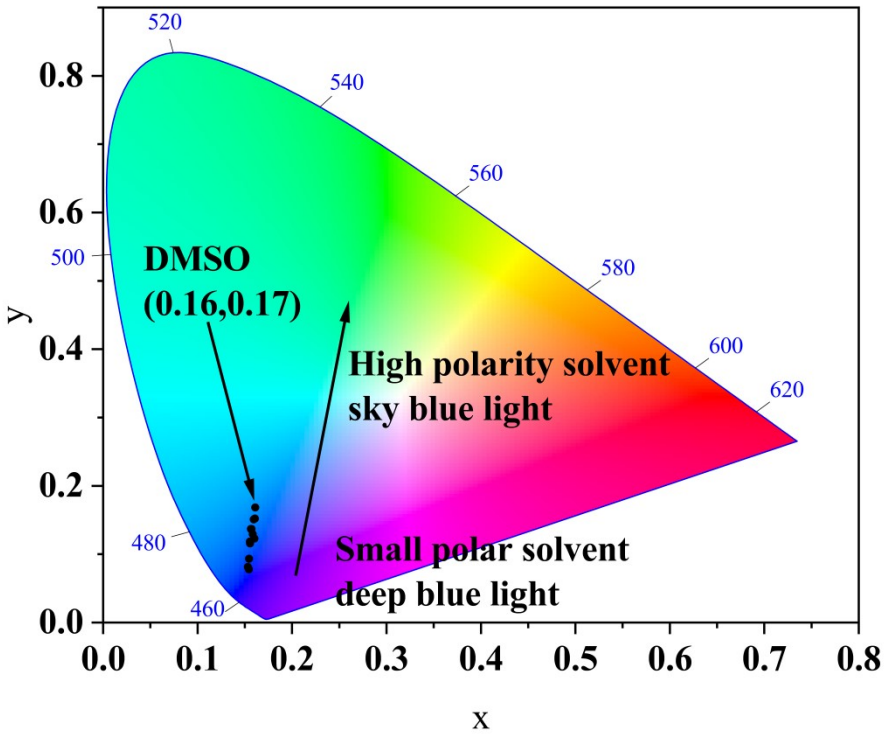

Fig S5. CIE color gamut diagram of fluorescence emitted by compound PI in different solvents.

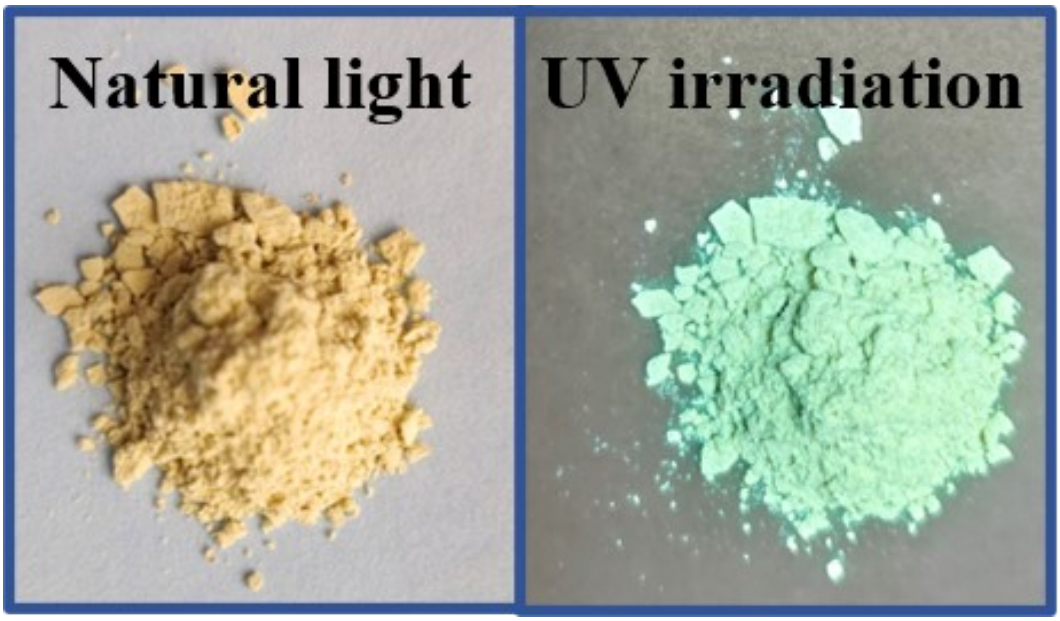

Fig S6. Comparison of PI solid powder under natural light and ultraviolet light irradiation.

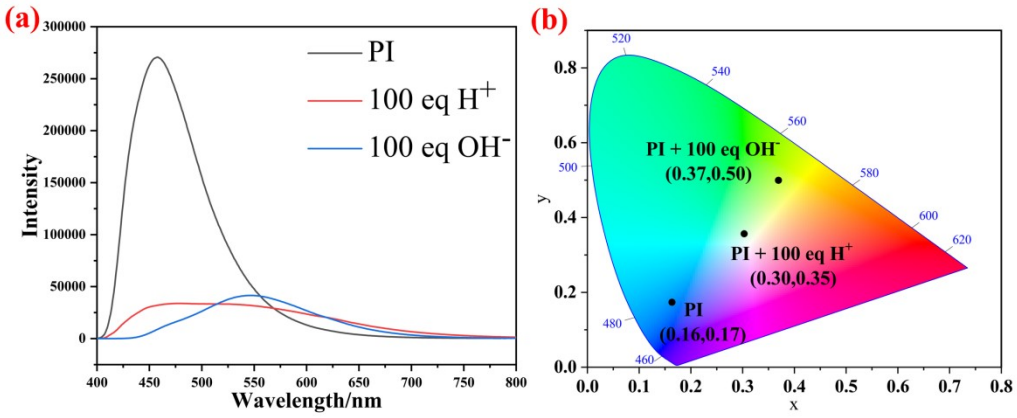

Fig S7. (a) Fluorescence emission spectrum changes caused by adding 100eq of H^+ and OH^- to the DMSO solution of PI. (b) CIE gamut diagram corresponding to (a).

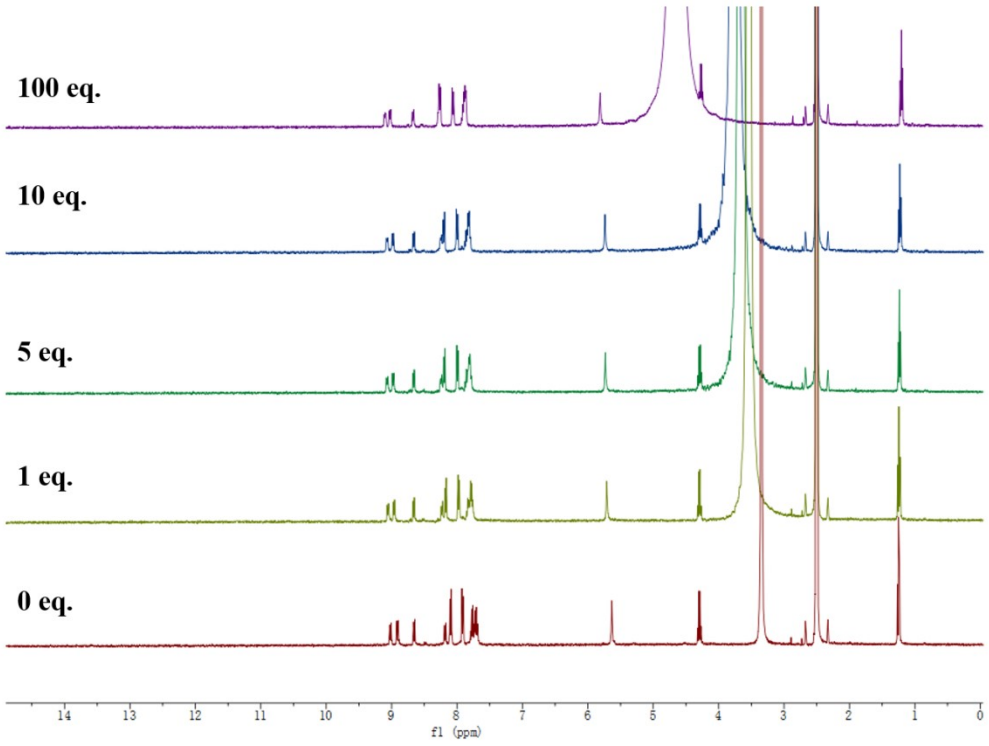

Fig S8. A complete ^{1}H NMR prototyping study on PI with graded addition of H^{+}.

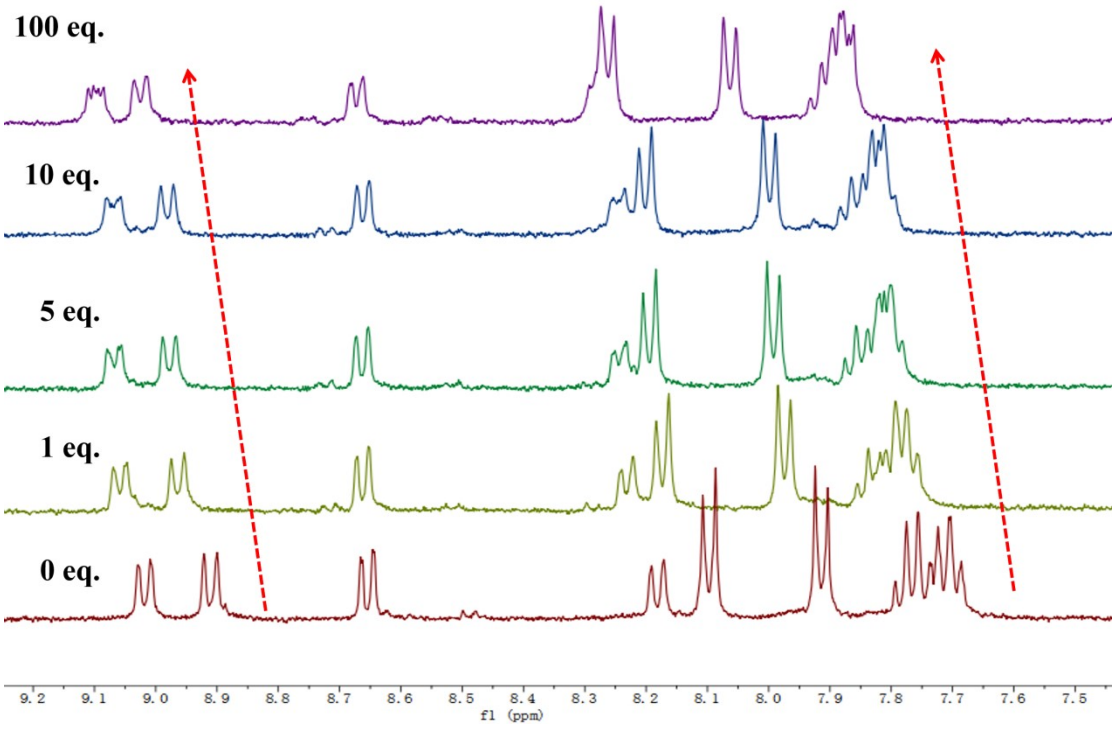

Fig S9. Partial magnified image of Fig S8 ^{1}H NMR.

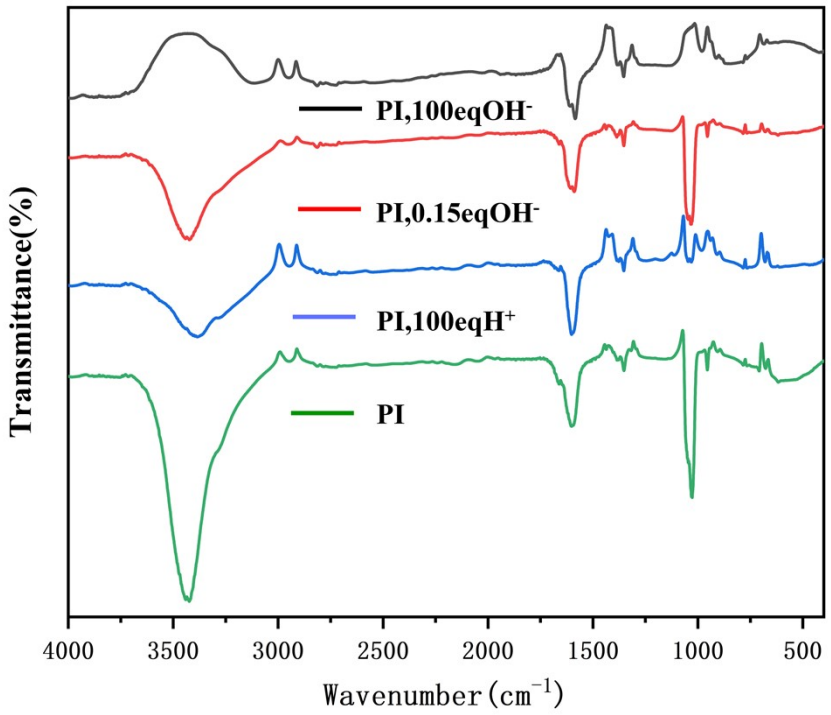

Fig S10. Complete FT-IR spectra of PI, PI + 100 eq of H^+, PI + 0.15 eq of OH^-, and PI + 100 eq of OH^-.

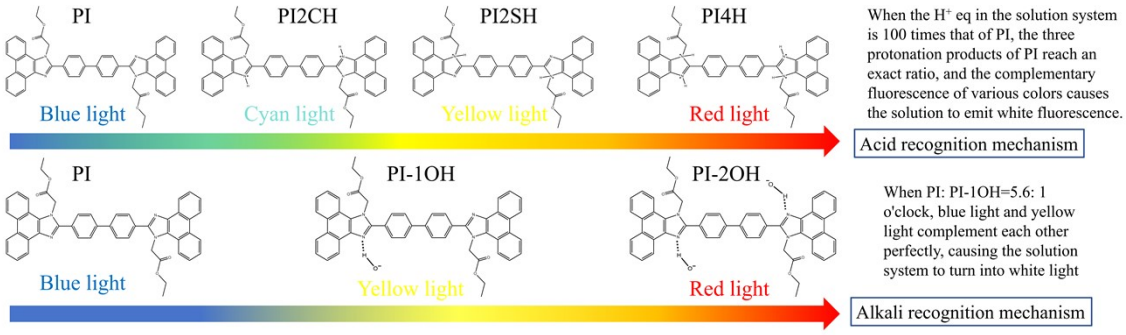

Fig S11. Mechanism of white light emission caused by PI and acid-base reaction.

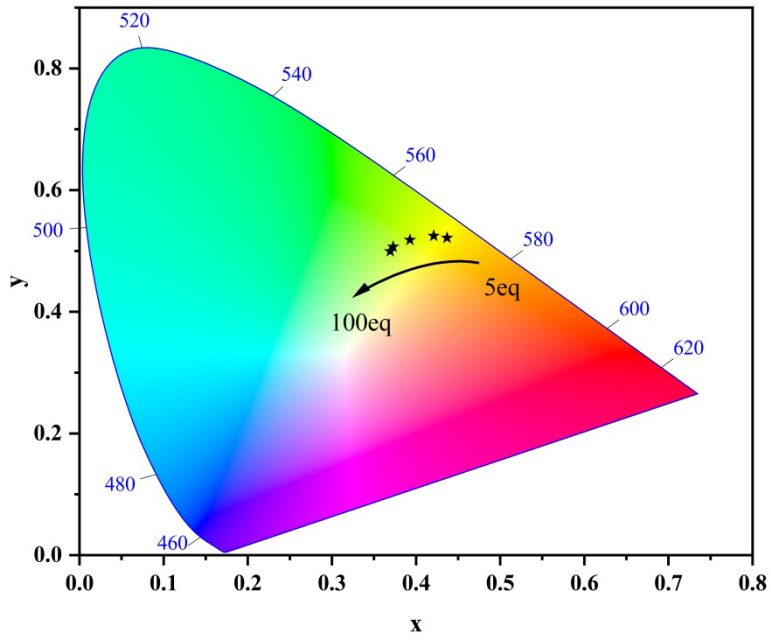

Fig S12. CIE colors gamut map of PI in DMSO solution under increasing OH^- concentration (5–100 eq) ([PI] = 1 × 10^{-3} mol/L).

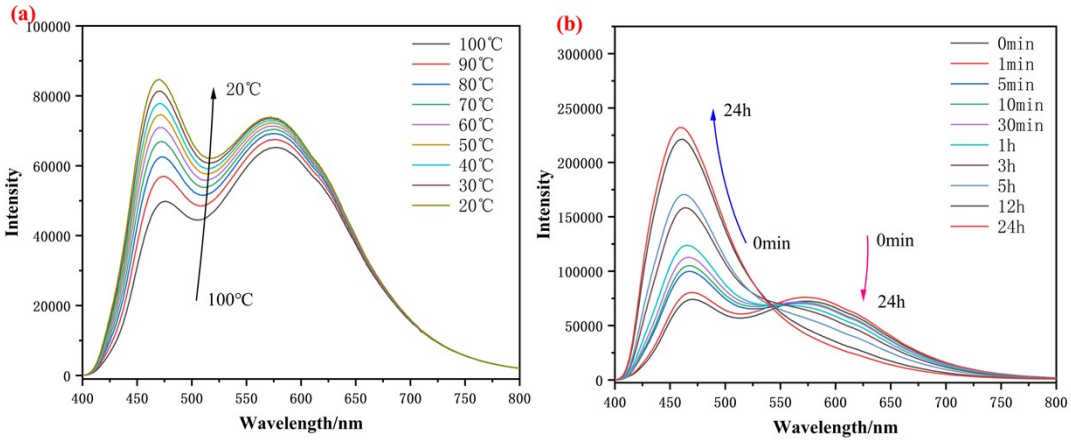

Fig S13. (a) The fluorescence change of PI+0.15 eq OH- solution when heated to 100 degrees and gradually cooled to 20 degrees. (b) Fluorescence emission spectrum changes of PI+0.15 eq OH- solution at room temperature for 24 hours.

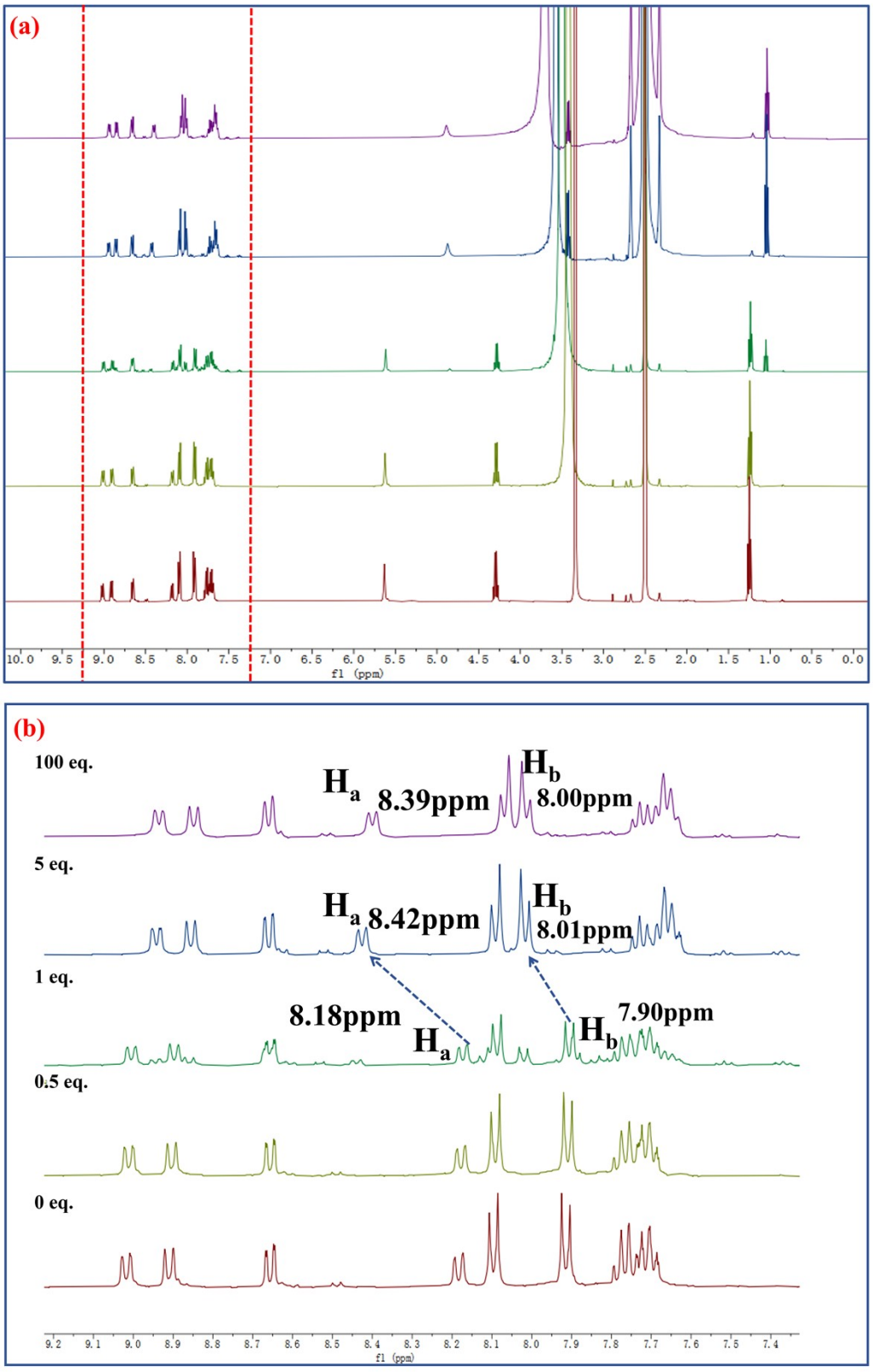

Fig S14. (a) A complete ^{1}H NMR prototyping study on PI with graded addition of OH^{-}. (b) Enlarged image of chemical shift at 7.2ppm to 9.4ppm in Fig (a), and schematic diagram of chemical shift movement of H_a and H_b hydrogen.

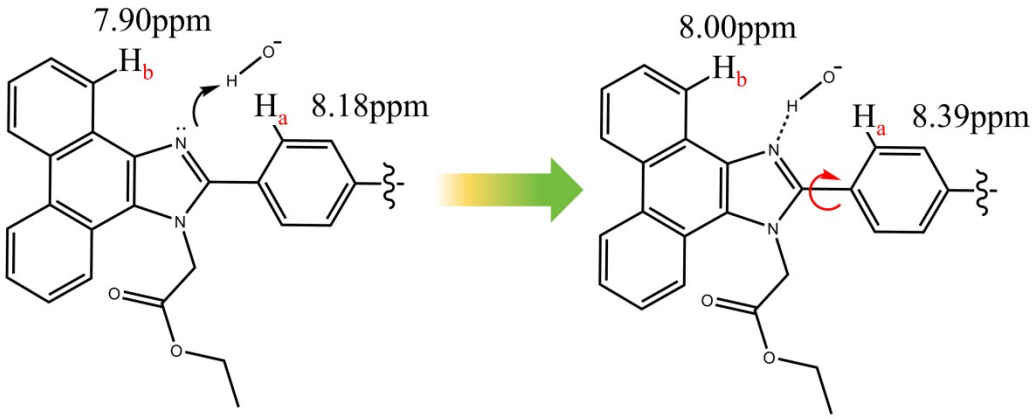

Fig S15. Schematic diagram of chemical shift between H_a and H_b caused by the interaction between PI and OH^-.

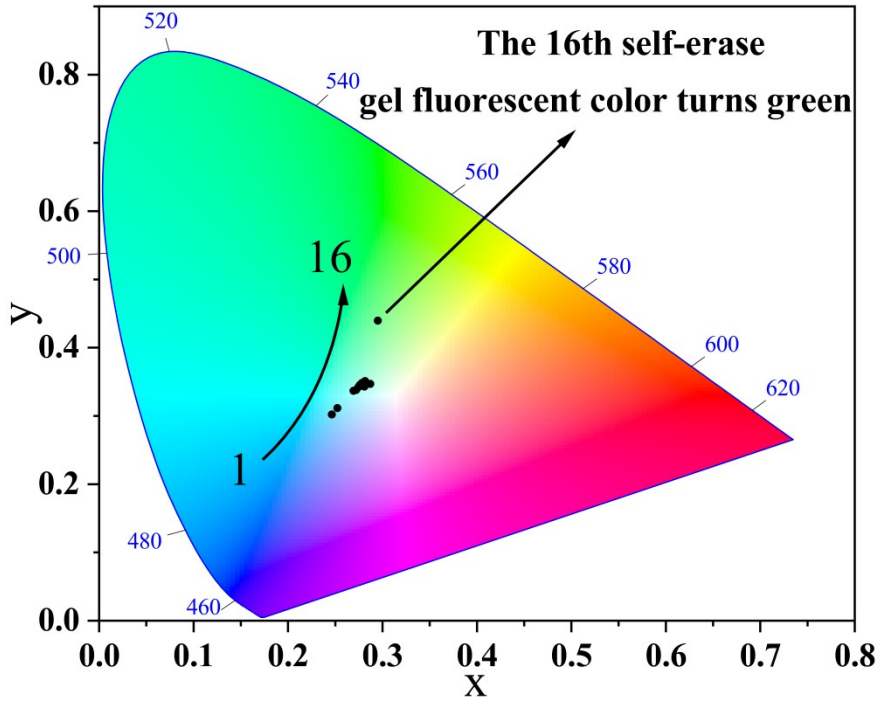

Fig S16. CIE color gamut changes during 16 self-erase processes of PVA/(PI+100 eq H+) gel.