

Supplementary Information

A bifunctional mitochondrial-targeting AIE-active fluorescent probe with high sensitivity to hydrogen peroxide and viscosity for fatty liver diagnosis

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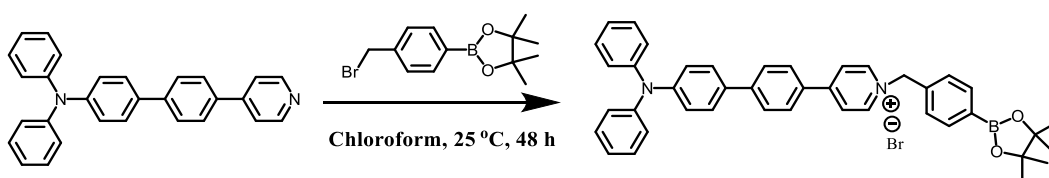
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Scheme S1. Synthesis of TPP-Tba.

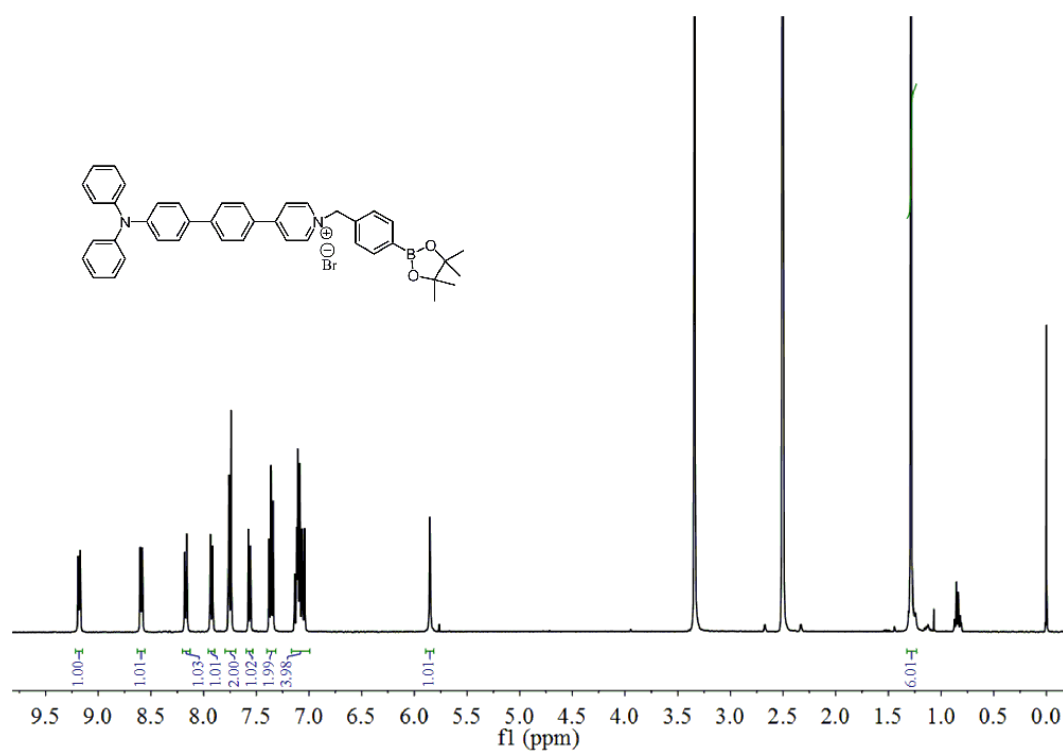


Figure S1. ^1H NMR spectrum of compound **TPP-Tba** in $\text{DMSO-}d_6$.

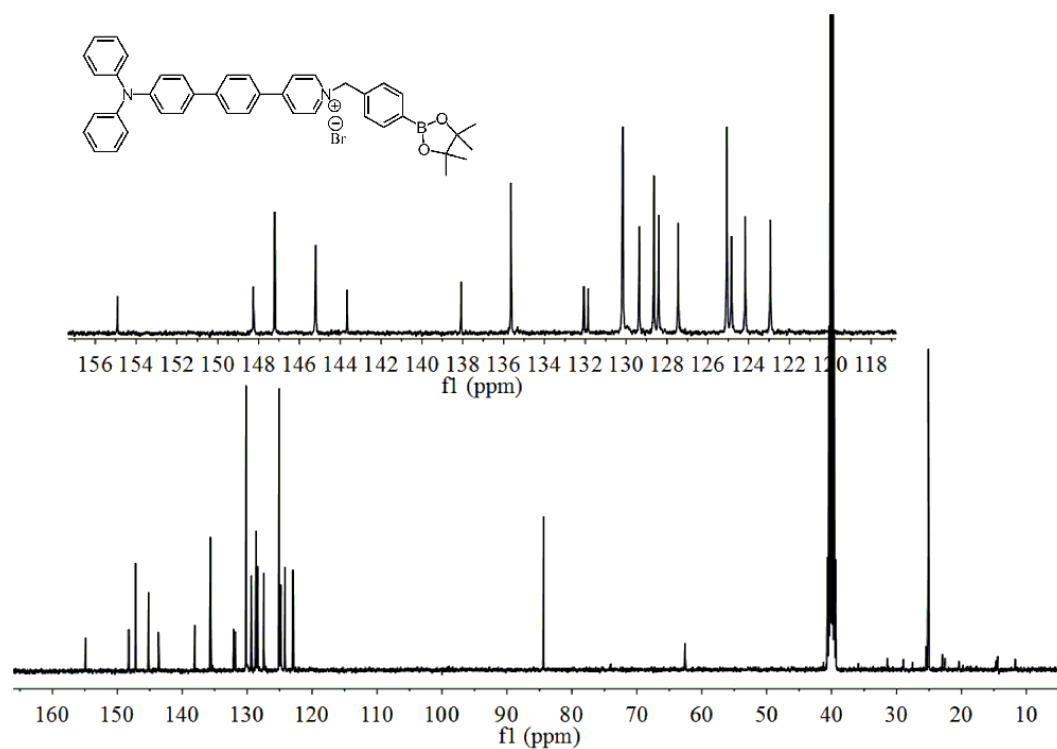


Figure S2. ^{13}C NMR spectrum of **TPP-Tba** in $\text{DMSO}-d_6$.

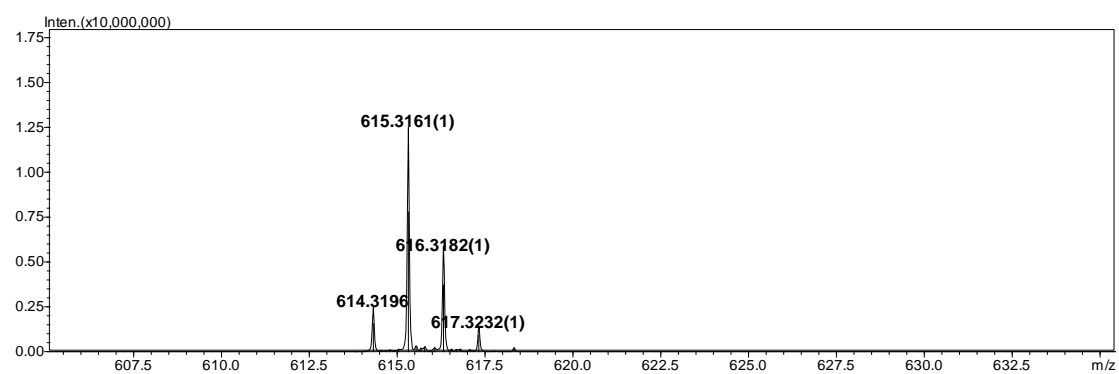


Figure S3. HRMS of TPP-Tba.

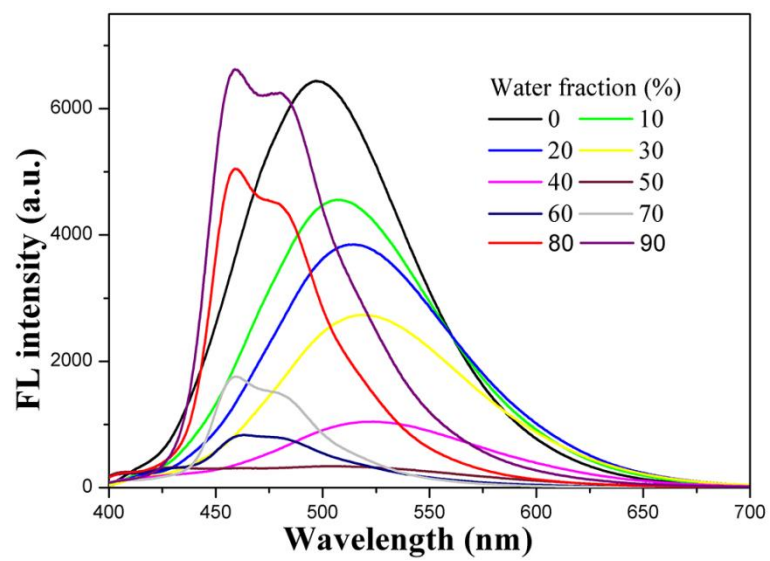


Figure S4. PL spectra of compound **1** (5 μM) in DMSO/water mixtures with different water fractions. $\lambda_{\text{ex}} = 375 \text{ nm}$.

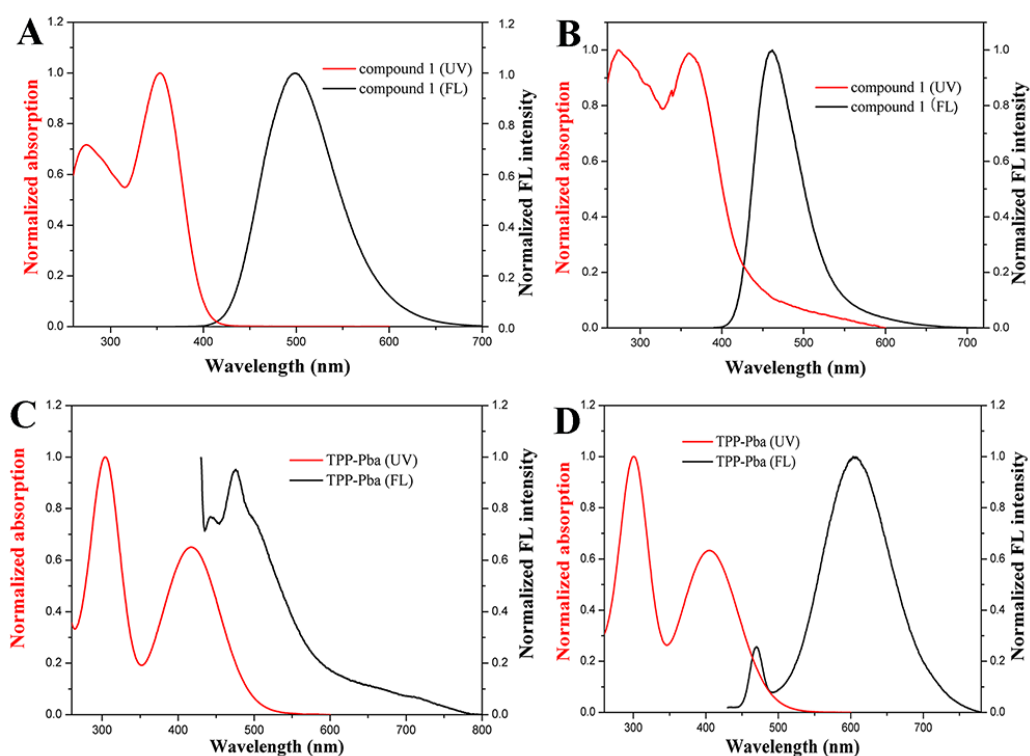


Figure S5. Normalized UV-Vis spectra and emission spectra of compound **1** in DMSO (A) and DMSO/PBS mixture (1 : 9, v/v, pH 7.4) (B), $\lambda_{\text{ex}} = 375$ nm. Normalized UV-Vis spectra and emission spectra of **TPP-Tba** in DMSO (C) and DMSO/PBS mixture (1 : 9, v/v, pH 7.4) (D), $\lambda_{\text{ex}} = 405$ nm.

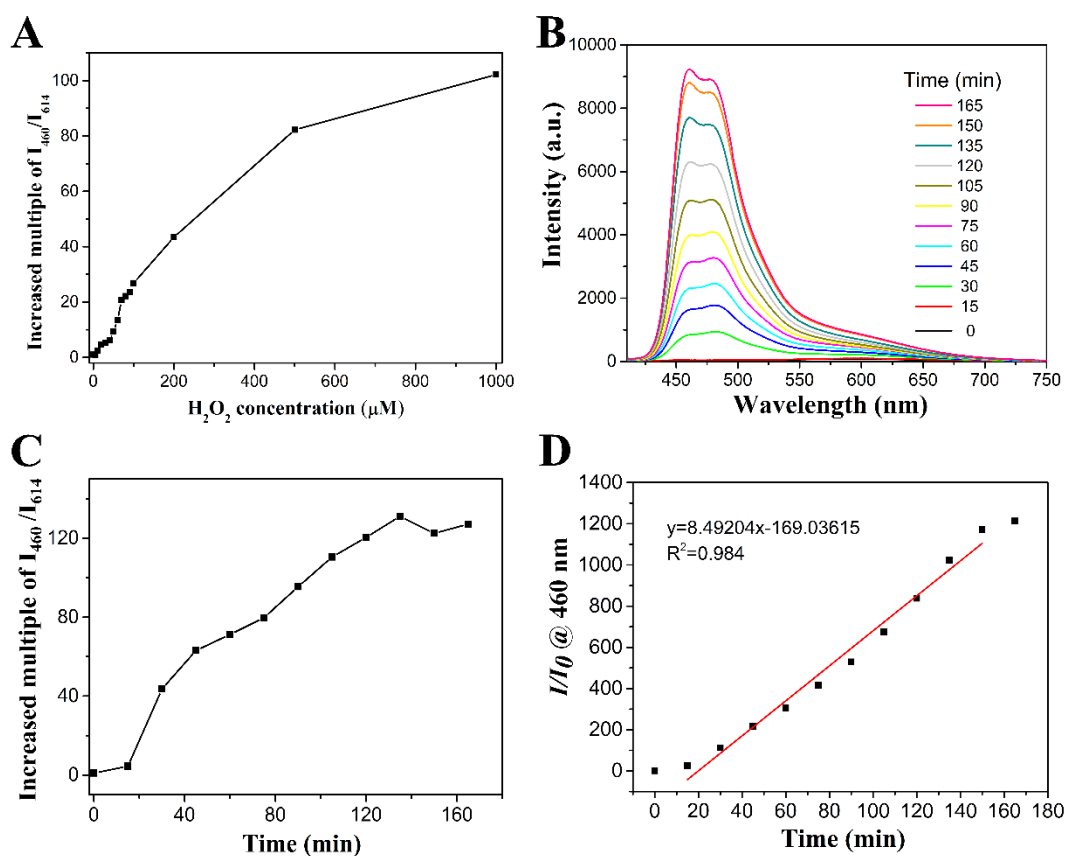


Figure S6. Increased multiple of the ratio the emission intensities at 460 nm and 614 nm with different H_2O_2 concentrations (A). Time-dependent fluorescence spectra in the reaction of **TPP-Tba** (5 μM) with H_2O_2 (1 mM) in DMSO/PBS mixture (1 : 9, v/v, pH 7.4) at 37 $^{\circ}C$ (B). The fluorescence intensity ratio at 460nm and 614nm (C) and the fluorescence enhancement multiples at 460nm (D) after the reaction of **TPP-Tba** and H_2O_2 for different time. λ_{ex} = 405 nm.

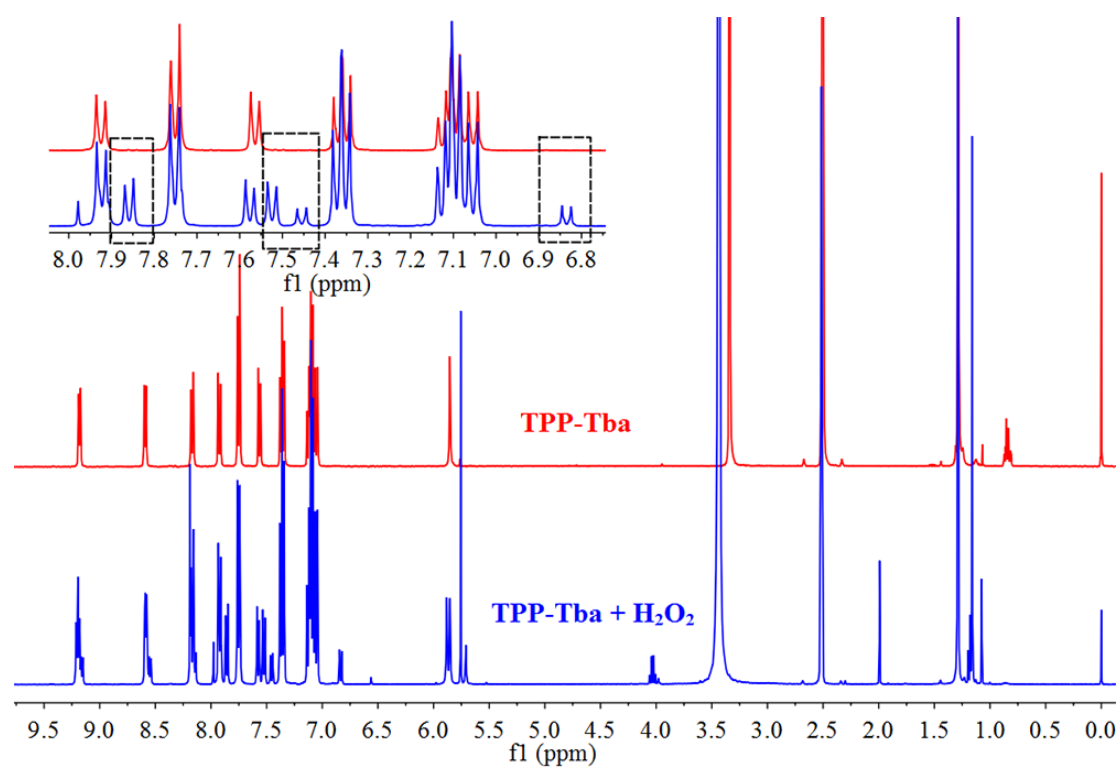
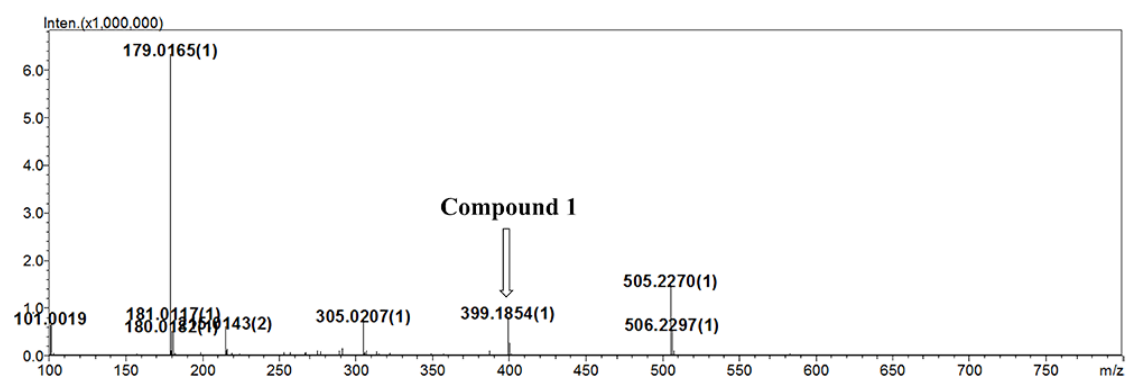


Figure S7. ^1H NMR spectra of **TPP-Tba** and **TPP-Tba** with 1 mM H_2O_2 in $\text{DMSO-}d_6$.



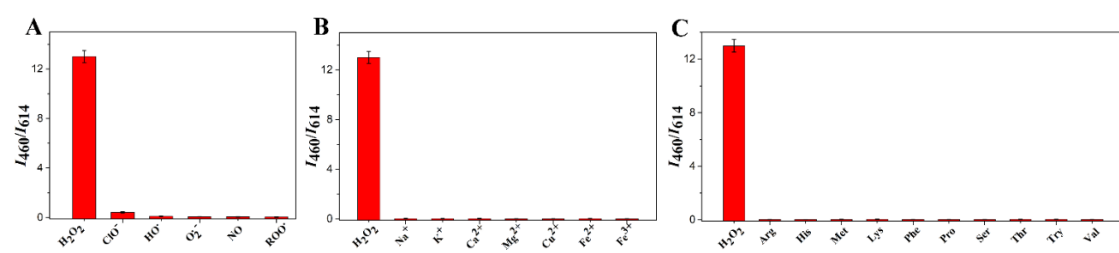


Figure S9. Fluorescence responses of **TPP-Tba** (5 μ M) to various (A) reactive oxygen species (1 mM), (B) cations (1 mM) and (C) amino acids (1 mM). λ_{ex} = 405 nm.

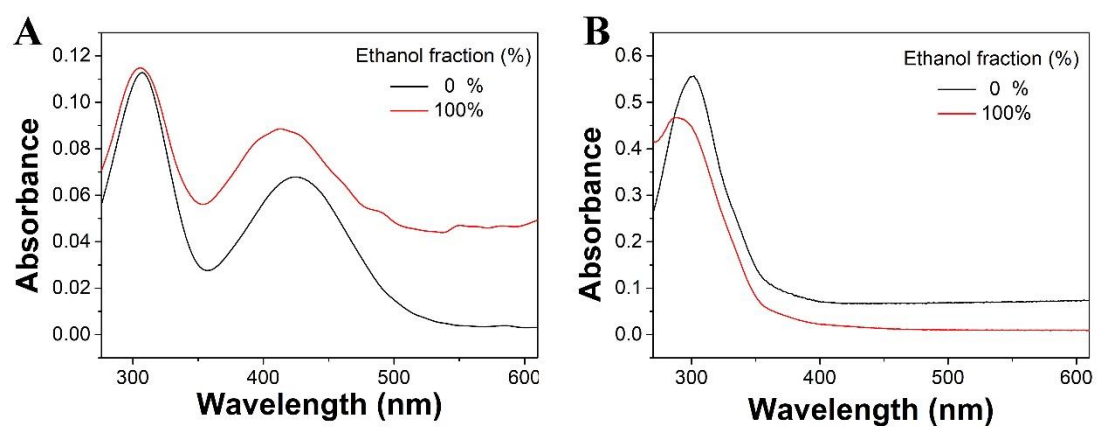


Figure S10. The UV/vis spectra of **TPP-Tba** (A) and compound **1** (B) in different viscosity environments.

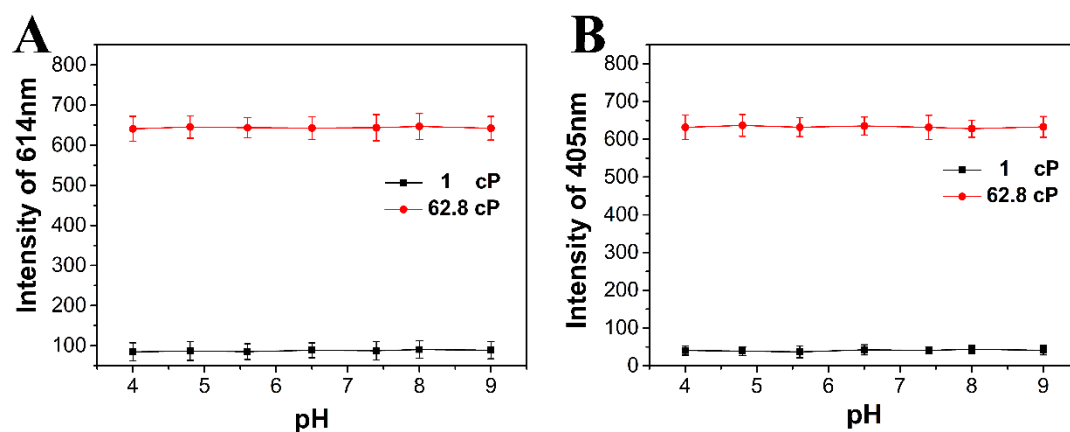


Figure S11. The emission intensity changes (at 614 nm and 405 nm) of **TPP-Tba** and compound **1** respectively at different pH and viscosity PBS buffer. The excitation wavelengths for **TPP-Tba** and compound **1** were 405 nm and 358 nm, severally.

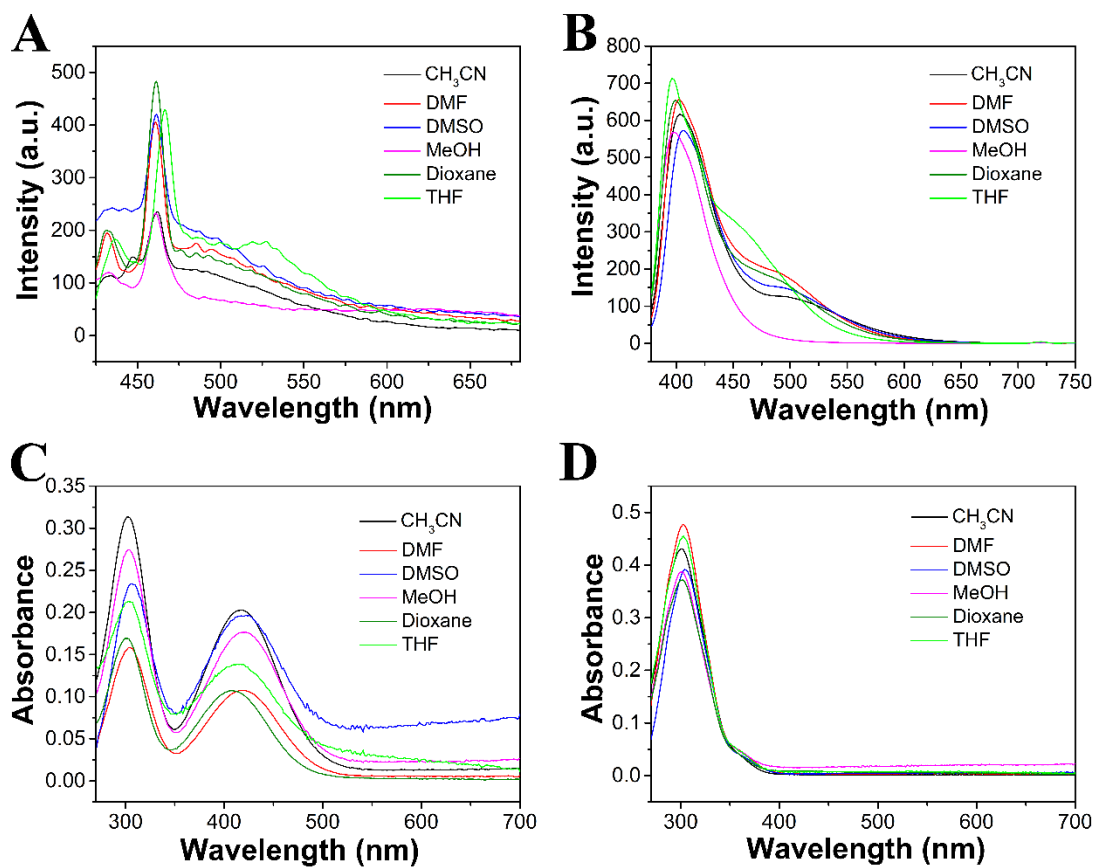


Figure S12. Fluorescence spectra of **TPP-Tba** (A) and compound **1** (B), and UV/vis spectra of **TPP-Tba** (C) and compound **1** (D) in different solvents. The excitation wavelengths for **TPP-Tba** and compound **1** were 405 nm and 358 nm, respectively.

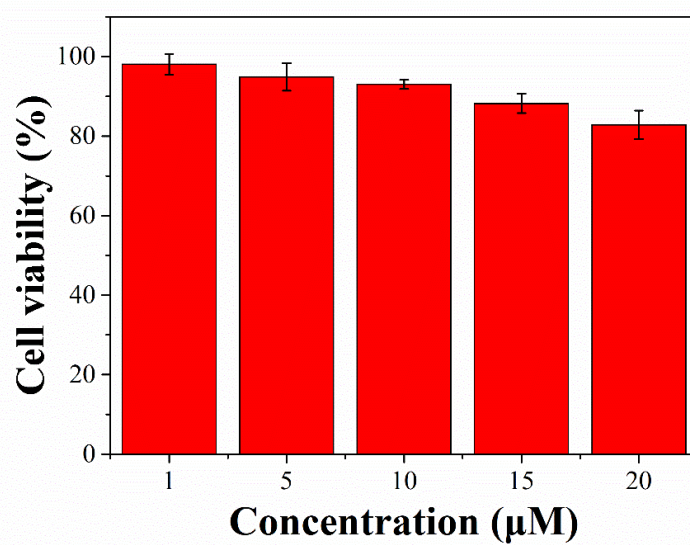


Figure S13. Relative HL-7702 cell viability incubated with different concentrations of TPP-Tba.

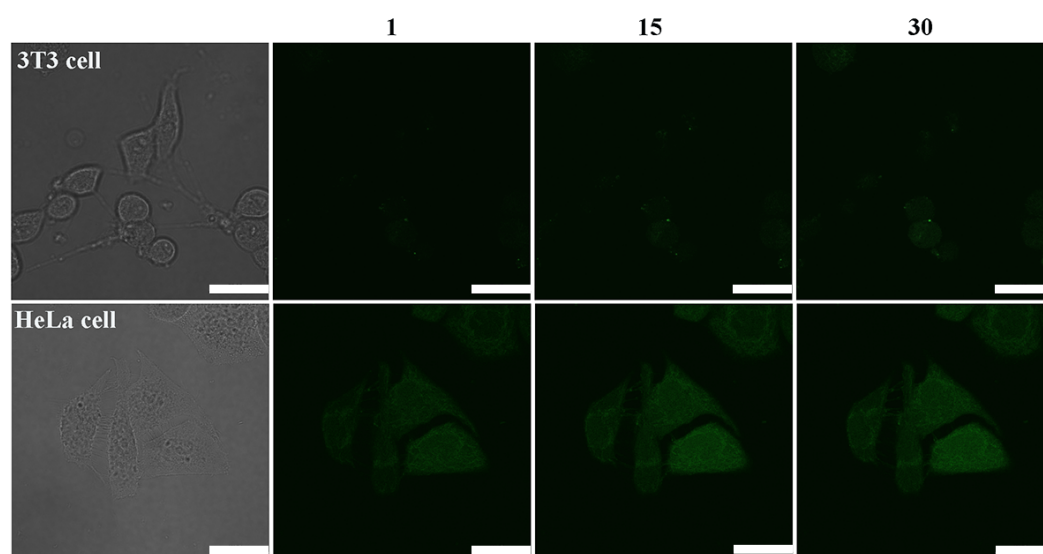


Figure S14. Confocal laser fluorescence images of 3T3 cell and HeLa cells staining with DCFH-DA kit to evaluate the ROS level of 3T3 cell and HeLa cell. $\lambda_{\text{ex}} = 488 \text{ nm}$, $\lambda_{\text{em}} = 500\text{-}550 \text{ nm}$. The number of scans shown in the top of the picture, laser intensity of both two cells was kept the same. Scale bars = $25 \mu\text{m}$.