

Supplementary information

Development of piperazinyl-NBD-based fluorescent probe and its dual-channel detection for hydrogen sulfide

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1. The ^1H NMR, ^{13}C NMR , HR-MS spectra of TPA-Pz-NBD

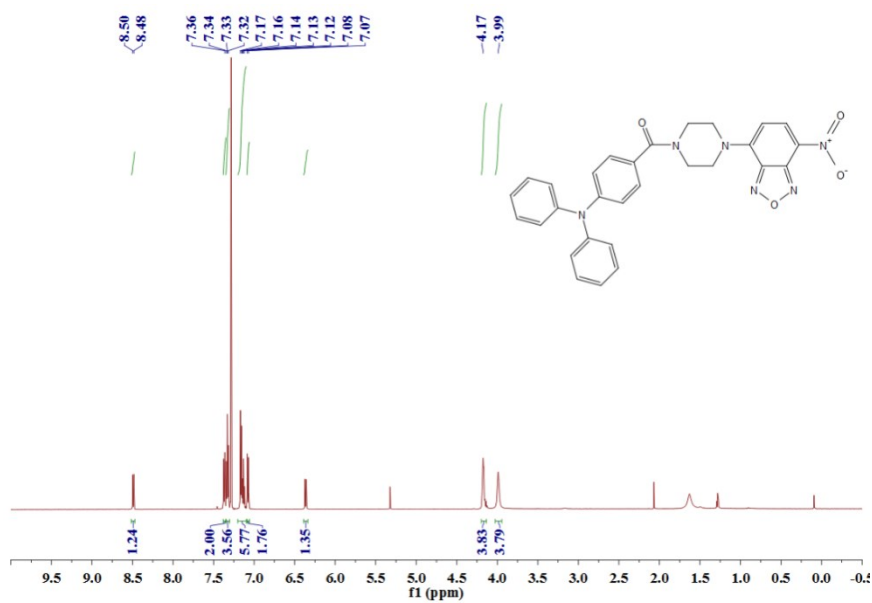


Fig. S1 ^1H NMR spectrum of probe TPA-Pz-NBD

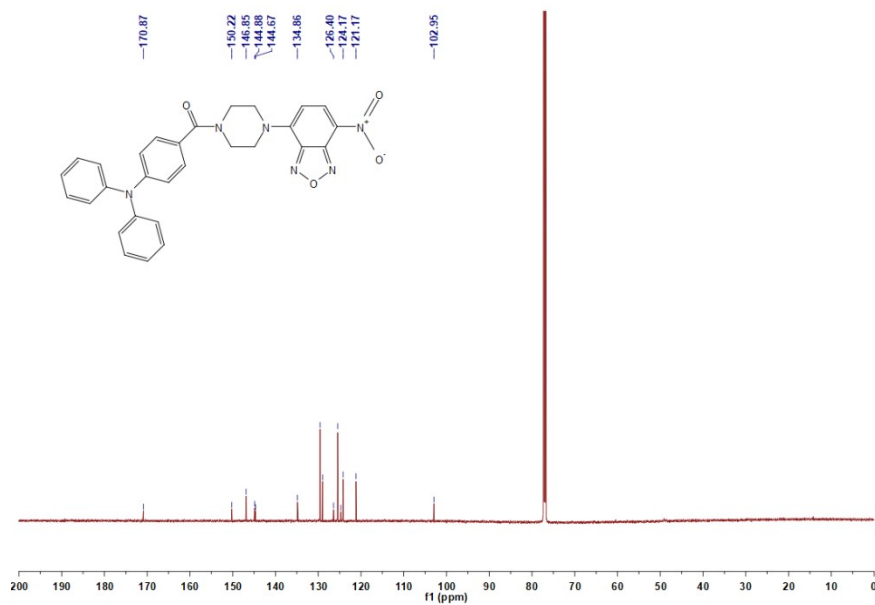


Fig. S2 ^{13}C NMR spectrum of probe TPA-Pz-NBD

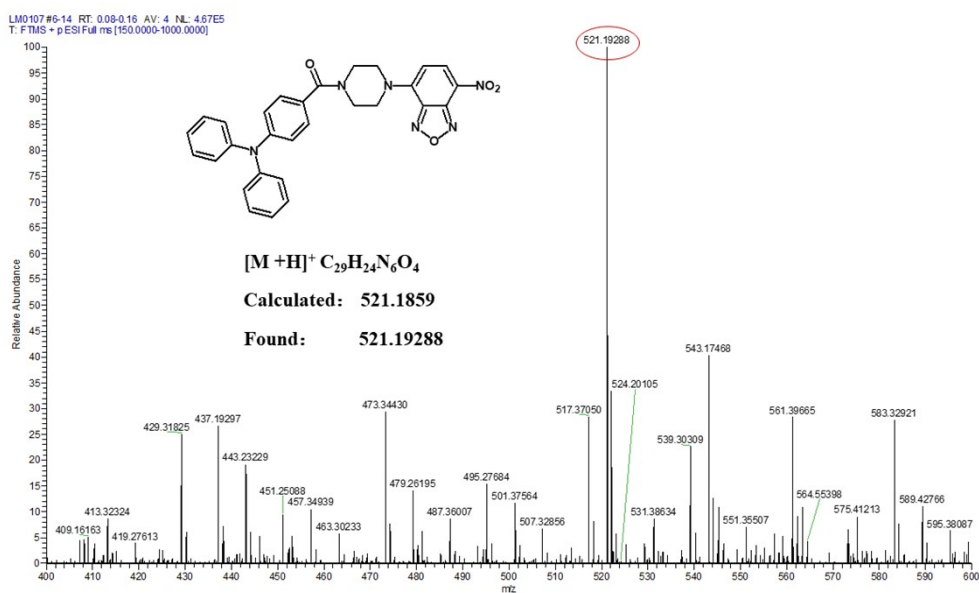


Fig. S3 Mass spectrum of probe TPA-Pz-NBD

2. Mass spectrum of probe TPA-Pz-NBD upon addition of H₂S(Proof of reaction mechanism)

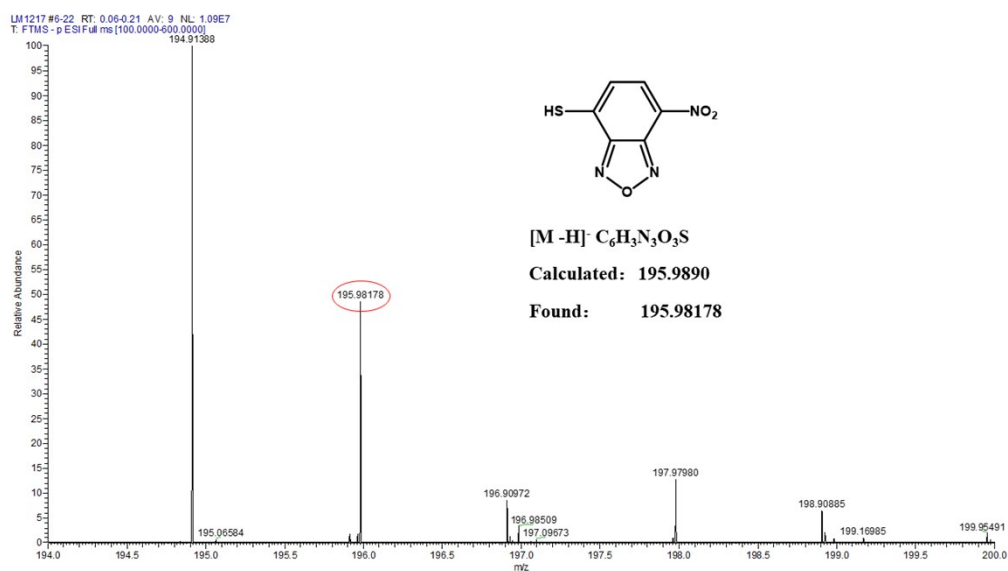


Fig. S4 Mass spectrum of probe TPA-Pz-NBD upon addition of H₂S

3. The time-dependent UV absorption spectrum at 480 nm change of TPA-Pz-NBD (5 μ M) to H₂S

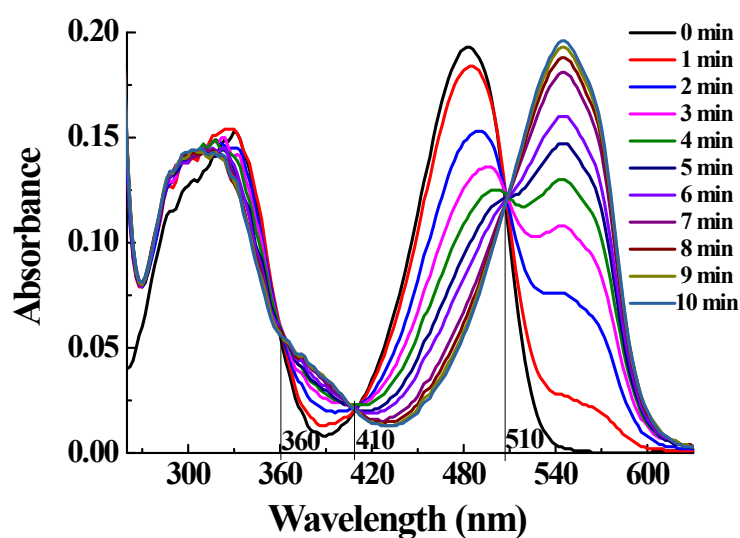


Fig. S5 Time-dependent UV absorbance of TPA-NBD ($5\ \mu\text{M}$) with Na_2S ($700\ \mu\text{M}$) in PBS buffer ($50\ \text{mM}$, $\text{pH}\ 7.4$) containing 50% EtOH.

4. The time-dependent dual-channel fluorescence changes of TPA-Pz-NBD ($5\ \mu\text{M}$) to H_2S

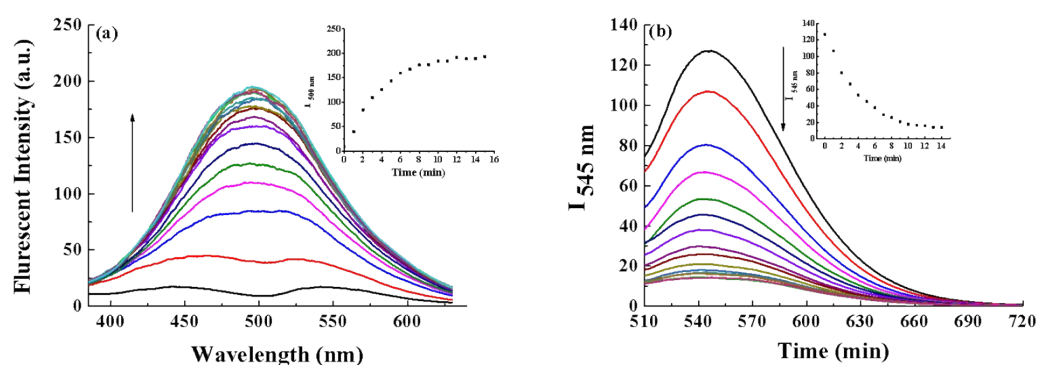


Fig. S6 Time-dependent fluorescence spectra of TPA-Pz-NBD ($5\ \mu\text{M}$) in PBS buffer ($50\ \text{mM}$, $\text{pH}\ 7.4$) containing 50% EtOH. (a) $\lambda_{\text{ex}}=325\ \text{nm}$, (b) $\lambda_{\text{ex}}=485\ \text{nm}$.

5. The pH effects on dual-channel fluorescence signals of TPA-Pz-NBD

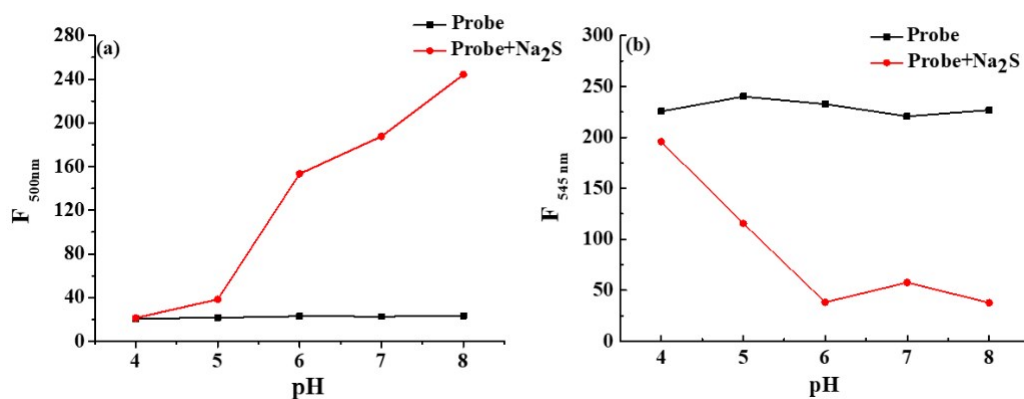


Fig. S7 pH-dependent of TPA-Pz-NBD with and without Na₂S (700 μM), (a) $\lambda_{ex}=325$ nm, (b) $\lambda_{ex}=485$ nm.

6. The cytotoxicity of TPA-Pz-NBD by the MTT assay

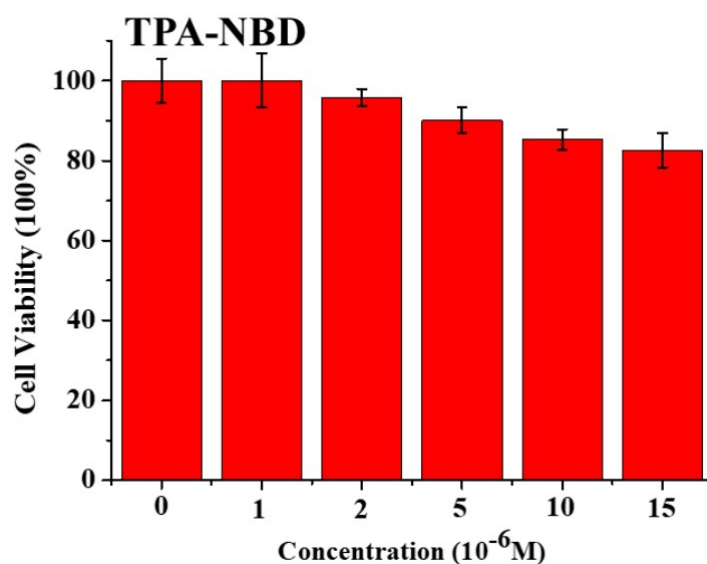


Fig. S8 Viability of HeLa cells after incubation with difference concentration of TPA-NBD (0, 1, 2, 5, 10, 15 μM)