Supporting Information

for

An Isophorone-based Far-red Emitting Ratiometric Fluorescent Probe for Selective Sensing and Imaging of Polysulfide

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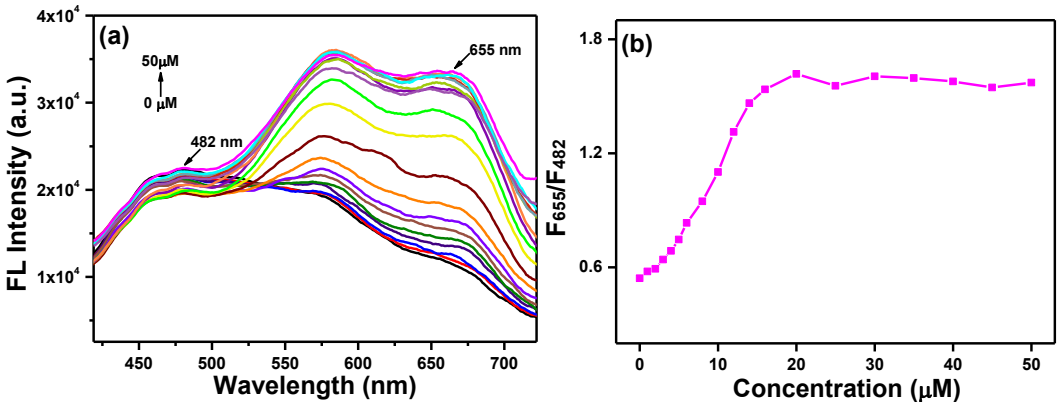

Fig. S1. (a) Emission spectra changes and (b) emission intensity ratio (F_{655}/F_{482}) changes of **RPHS1** (5 μM) in the presence of increasing concentrations of Na_2S_2 (λ_{ex} = 395 nm, slit width = d_{ex} = d_{em} = 2 nm, PMT voltage = 950 V) in DMSO/ phosphate buffer (3:97, v/v, 10 mM, pH 7.4, 0.4% Tween 80) at room temperature.

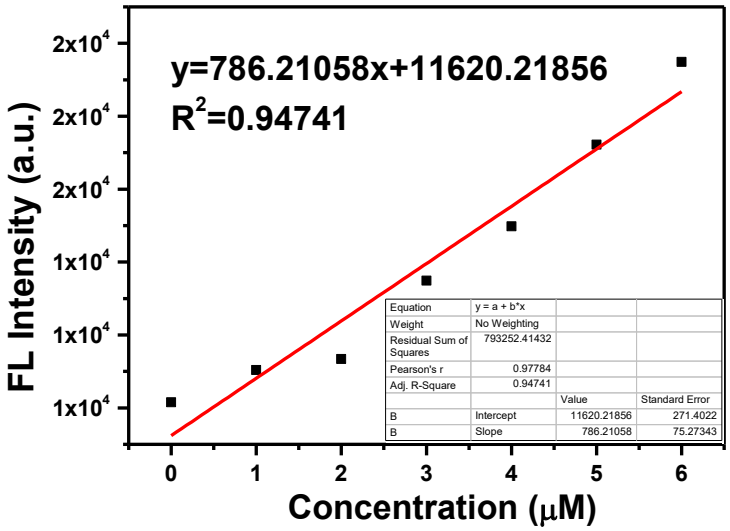

Fig. S2. Calibration curve of emission intensity at 655 nm of **RPHS1**.

Table S1. The data for standard deviation (σ) of blank measurement from **Fig. S2**.

$F_{655\ nm}$					σ (F)
21.98836	12.4944	-6.42142	23.08372	-10.1732	11.2692
26.36454	4.64577	0.04712	-1.93796	-10.7151	
15.62783	1.5738	-2.54438	6.47045	-5.73408	
5.13837	-1.12713	14.5458	-8.48954	4.29032	

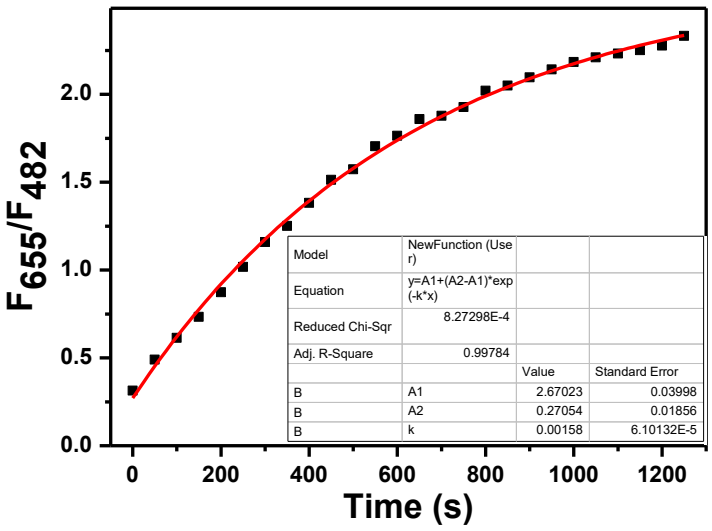

Fig. S3. Fluorescence kinetic of **RPHS1** (5 μM) upon addition of 50 μM Na_2S_2 in DMSO/ phosphate buffer (3:97, v/v, 10 mM, pH 7.4, 0.4% Tween 80) at room temperature. The data curve is fitted (red line) by a first order reaction scheme (see equation inserted, where A1 and A2 are the final and initial intensity, respectively. The observed pseudo-first-order rate constant k_{obs} was determined to be about 0.0016 s^{-1}).

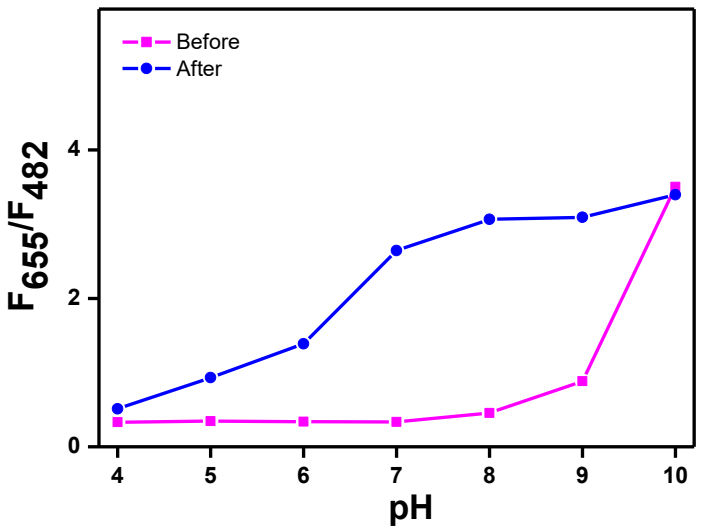

Fig. S4. Effects of pH on the fluorescence of **RPHS1** (5 μM) reacting with Na_2S_2 (50 μM) (λ_{ex} = 395 nm, slit width = d_{ex} = d_{em} = 2 nm, PMT voltage = 950 V) in DMSO/ Water (3:97, v/v, 0.4% Tween 80).

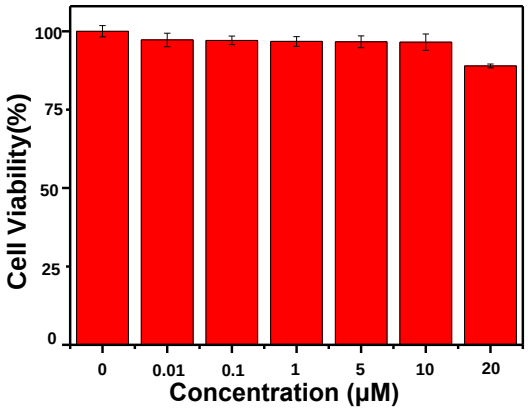

Fig. S5. Cell viability of Hela cells incubated with **RPHS1** at different concentrations.

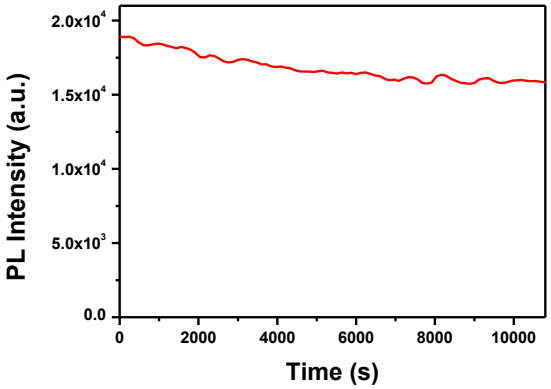

Fig. S6. The fluorescence intensity changes of **RPHS1** at 482 nm(5 μM, 3% DMSO ,0.4% Tween 80 in PBS，λ_{ex}=395 nm, slit= 2 nm).

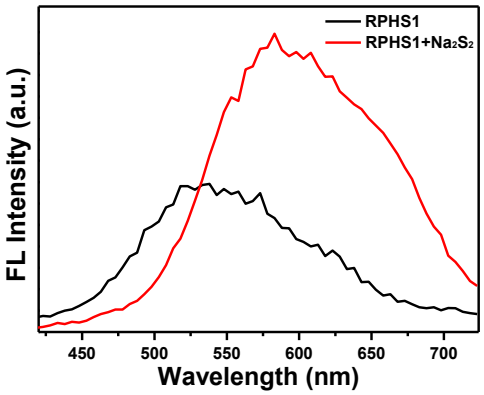

Fig. S7. Fluorescence spectra of **RPHS1** (20 μM) before (black line) and after (red line) addition of Na_2S_2 (200 μM) in living HeLa cells.

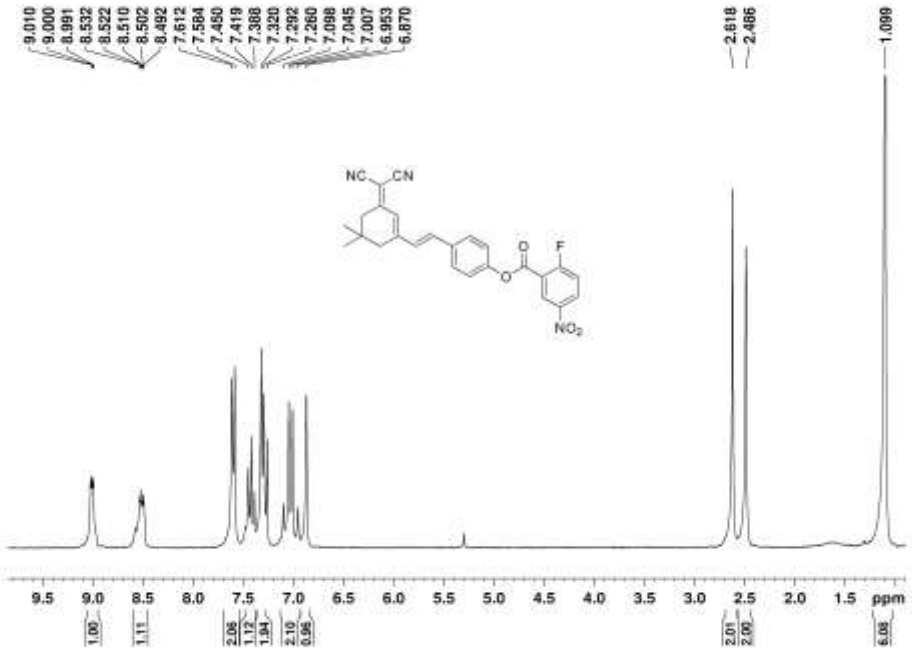

Fig. S8. ^{1}H NMR spectrum of **RPHS1** in $CDCl_3$.

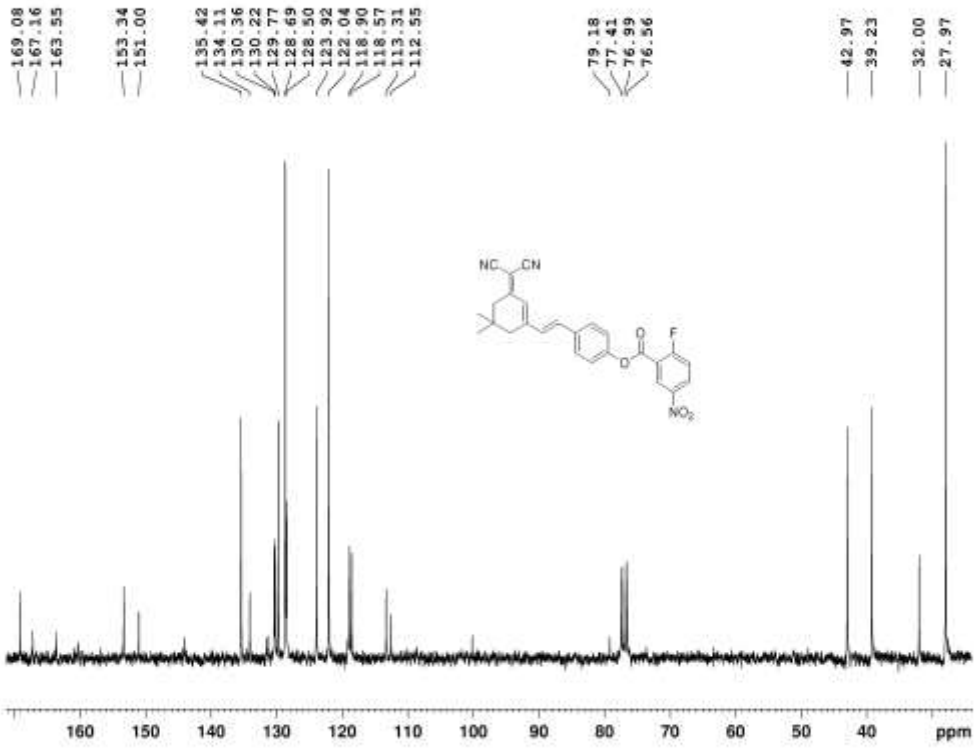

Fig. S9. ^{13}C NMR spectrum of **RPHS1** in $CDCl_3$.

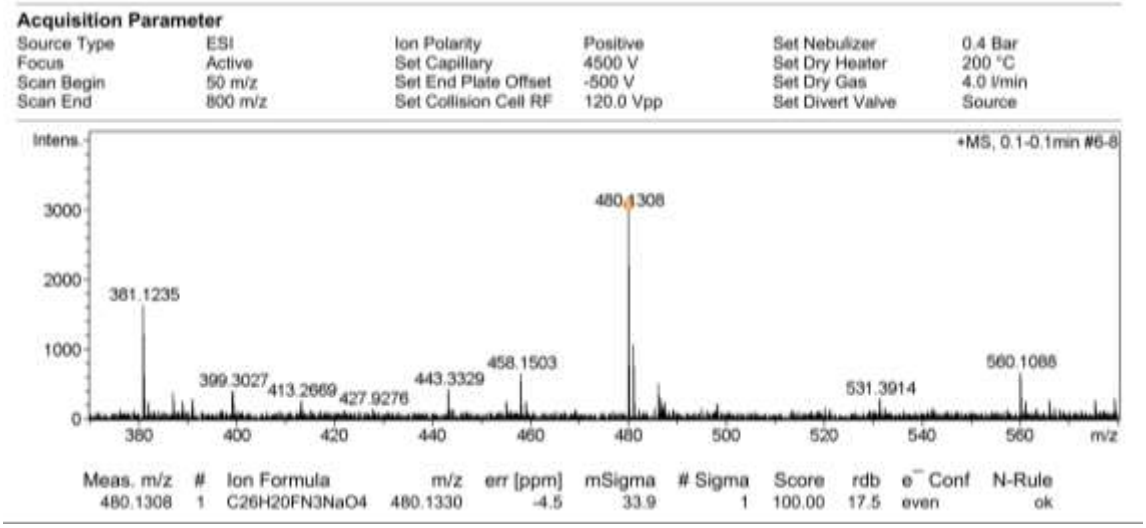

Fig. S10. HRMS spectrum of **RPHS1**.