Electronic Supplementary Material (ESI) for Analyst.

Support Information

1. Materials

Unless specifically stated, all the chemicals were purchased form commercial suppliers and were used as received without further purification. Deionized water was used throughout all experiments. All test analytes in this experiment was papered by mixture solid in distilled water or DMSO solution.

2. Instruments

A pH meter (Mettler Toledo, Switzerland) was used to determine the pH. Reaction processes were monitored on thin layer chromatography (TLC). Ultraviolet-visible (UV-vis) spectra were measured on a Hitachi U-3900 UV-vis spectrophotometer. Fluorescence spectra were performed on Hitachi F-7000 fluorescence spectrophotometer. A PO-120 quartz cuvette (10 mm) was purchased from Shanghai Huamei Experiment Instrument Plants, China. Synthetic intermediates and probes were characterized by ^{1}H NMR and ^{13}C NMR using a Bruker AVANCE-600 MHz spectrometer and 150 MHz NMR spectrometer. The final bioimaging application were measured the Zeiss LSM880 Airyscan confocal laser scanning microscope.

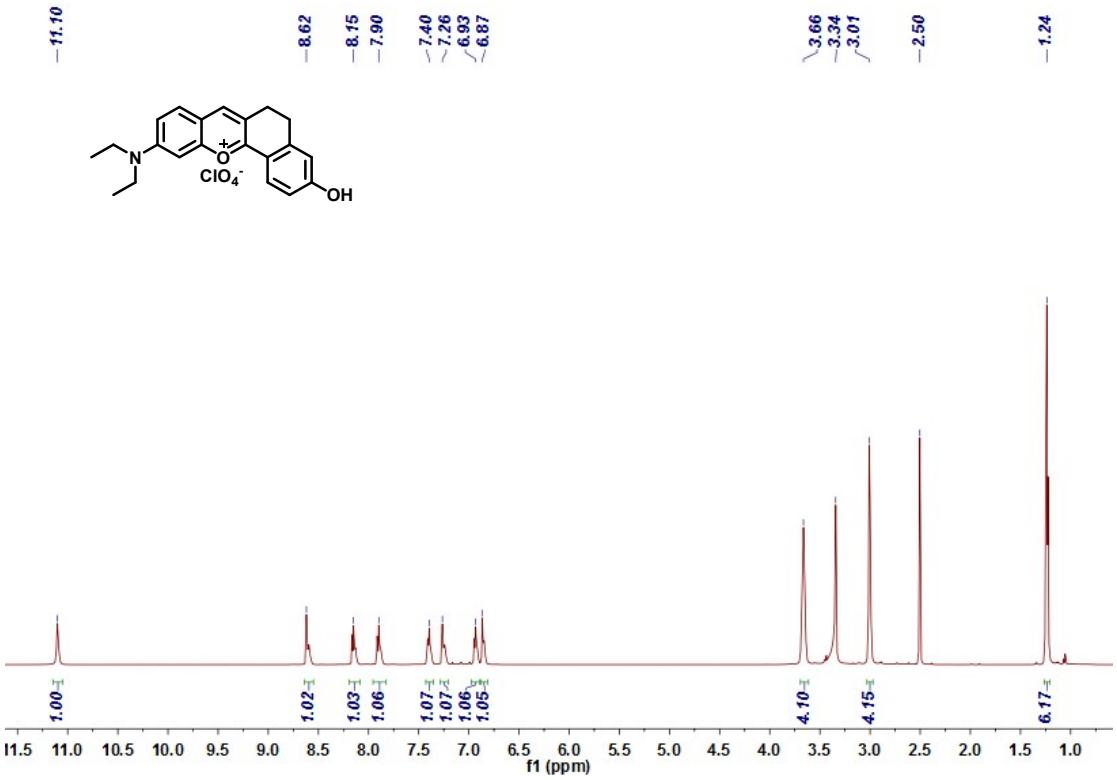


Fig. S1. [1]H NMR (600 MHz) of ***BB*** in DMSO-d_6.

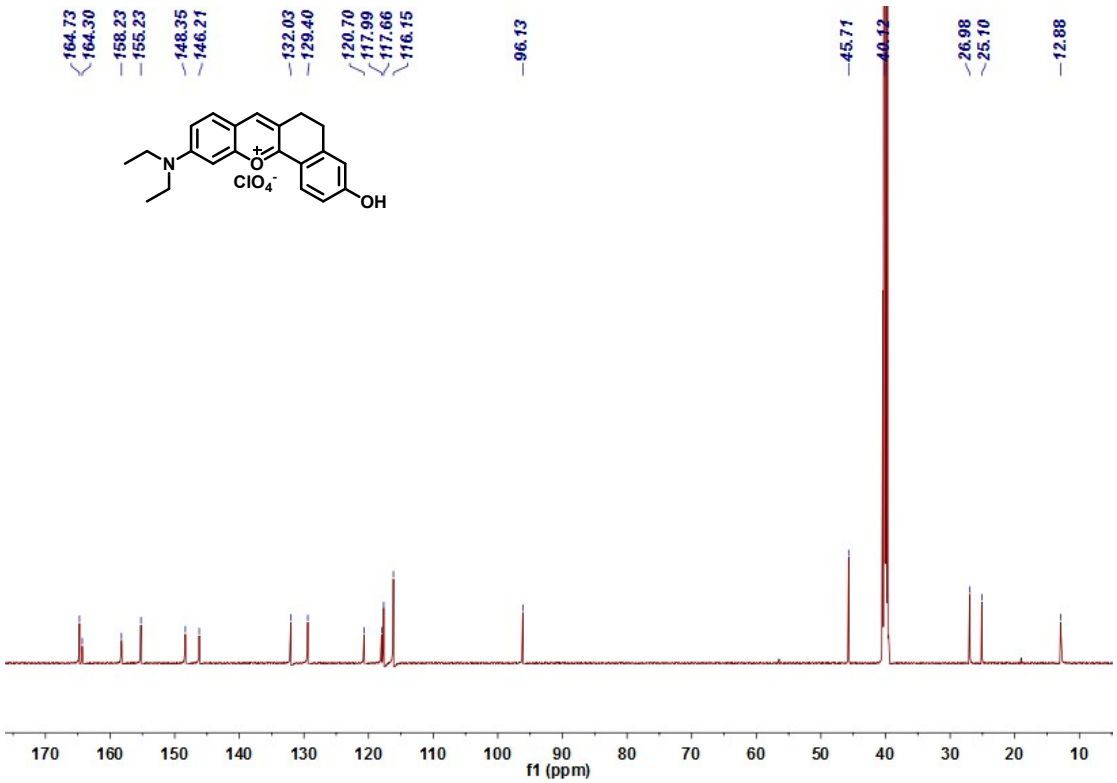


Fig. S2. [13]C NMR (151 MHz) of ***BB*** in DMSO-d_6.

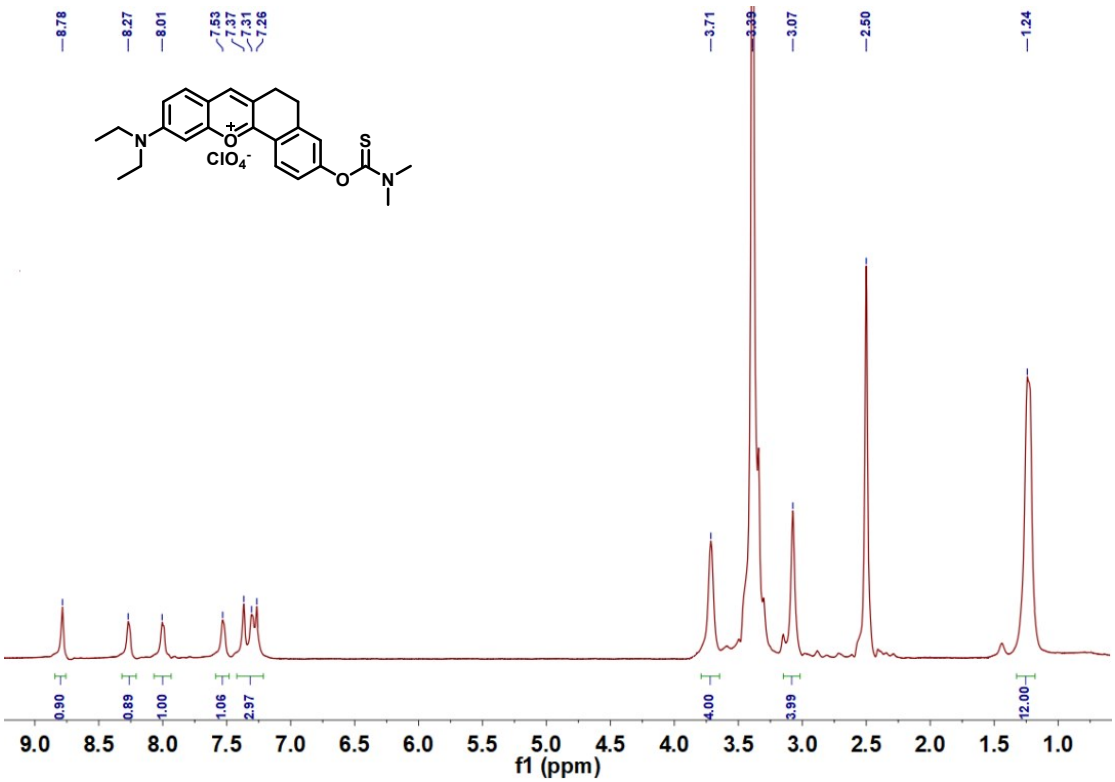


Fig. S3. ^{1}H NMR (600 MHz) of ***BBD*** in DMSO-d_6.

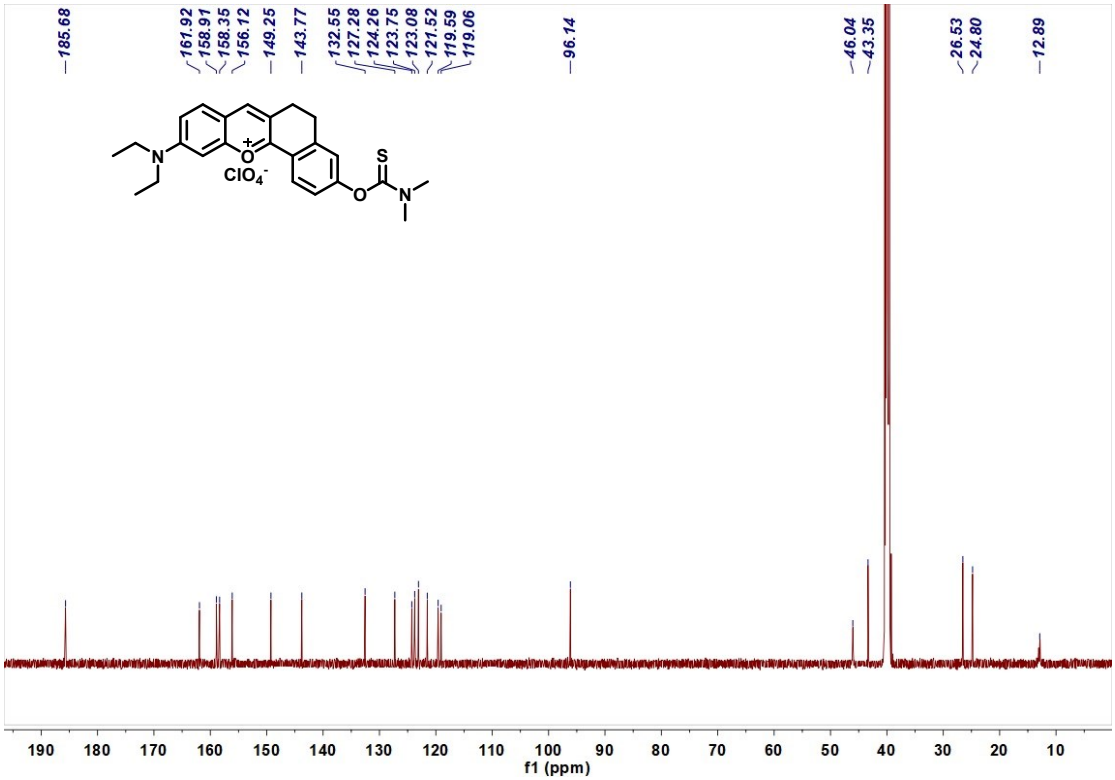


Fig. S4. ^{13}C NMR (151 MHz) of ***BBD*** in DMSO-d_6.

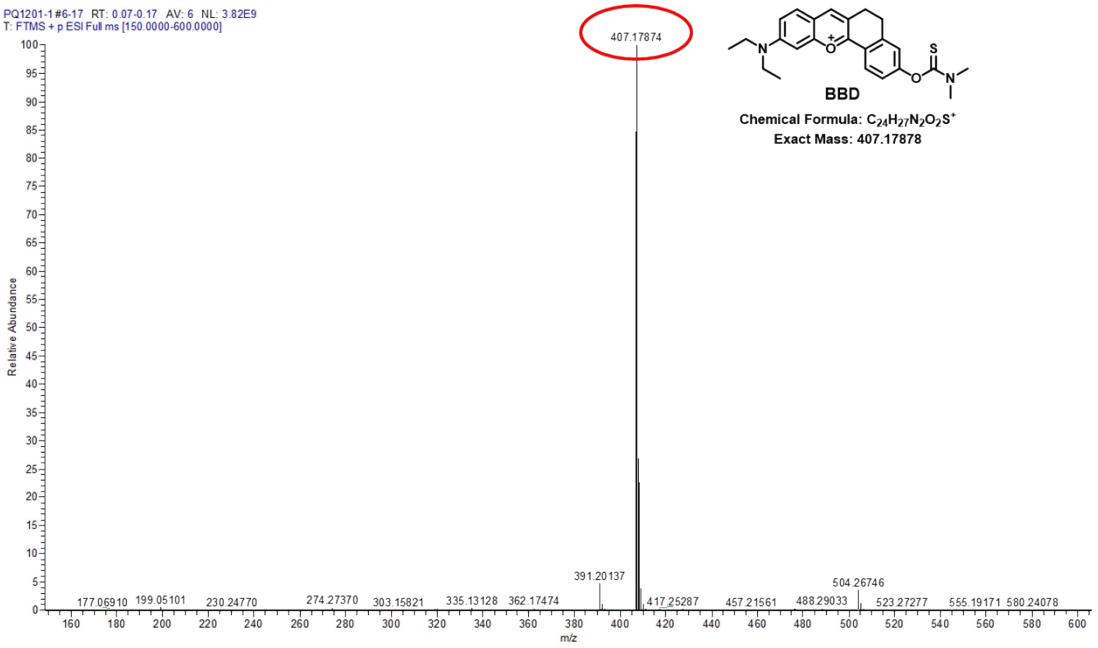
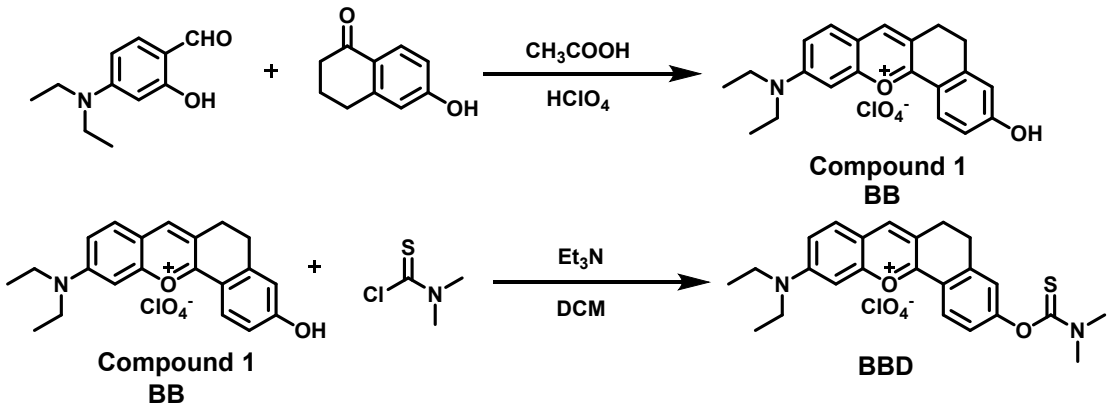


Fig. S5. The HR-MS spectrum of ***BBD***.



Scheme S1 Synthesis route of ***BBD***.

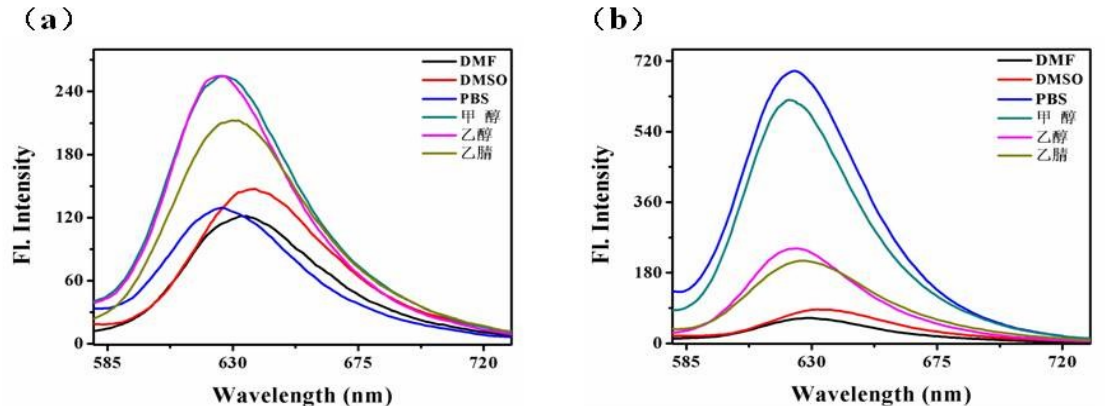


Fig. S6. (a) The fluorescence intensity of ***BBD*** (10 μM) in different solvents; (b) The fluorescence intensity of ***BBD*** (10 μM) toward HClO (310 μM) in different solvents.

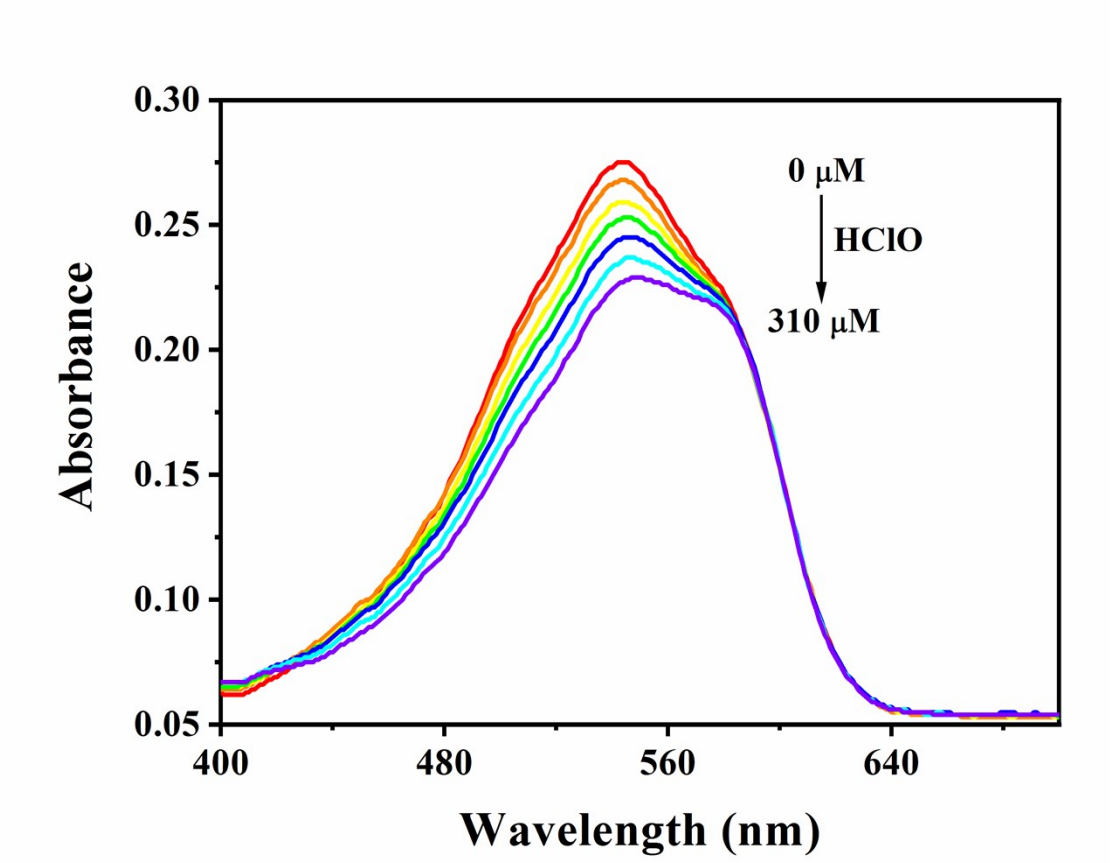


Fig. S7. The absorption spectra of ***BBD*** (10 μM) toward HClO (0-310 μM).

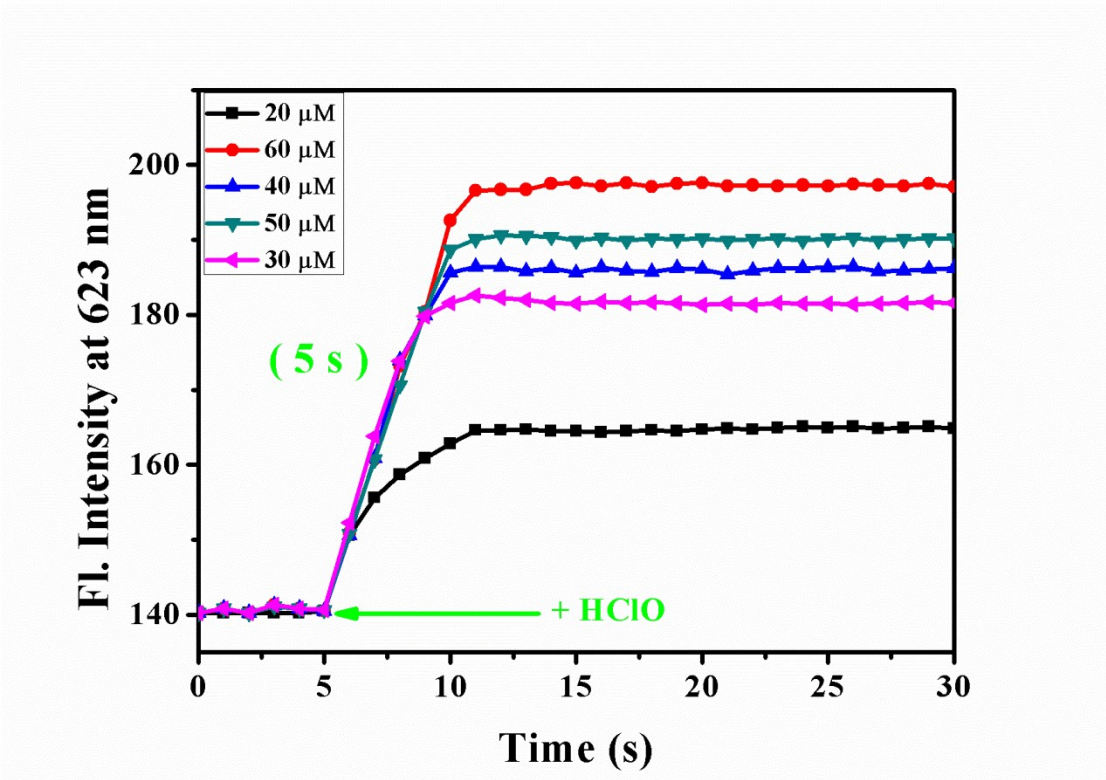


Fig. S8. Response time of ***BBD*** in HClO at different concentrations (20-60 μM).

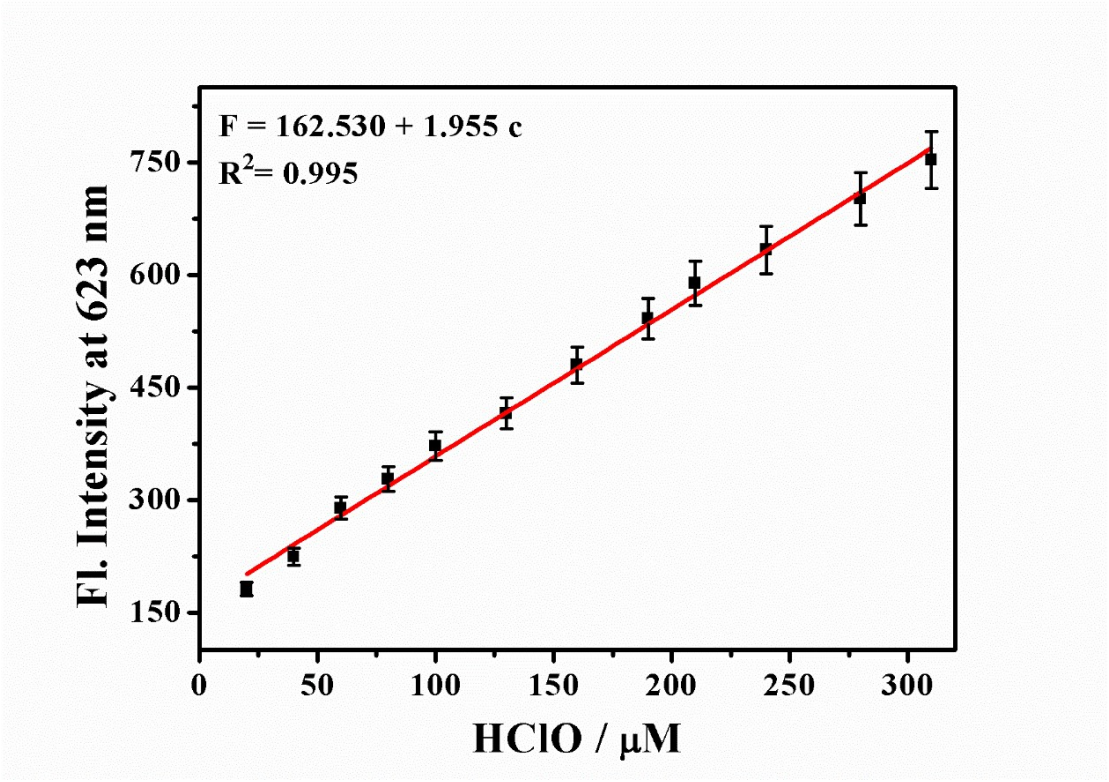


Fig. S9. The detection limit of ***BBD*** for HClO.

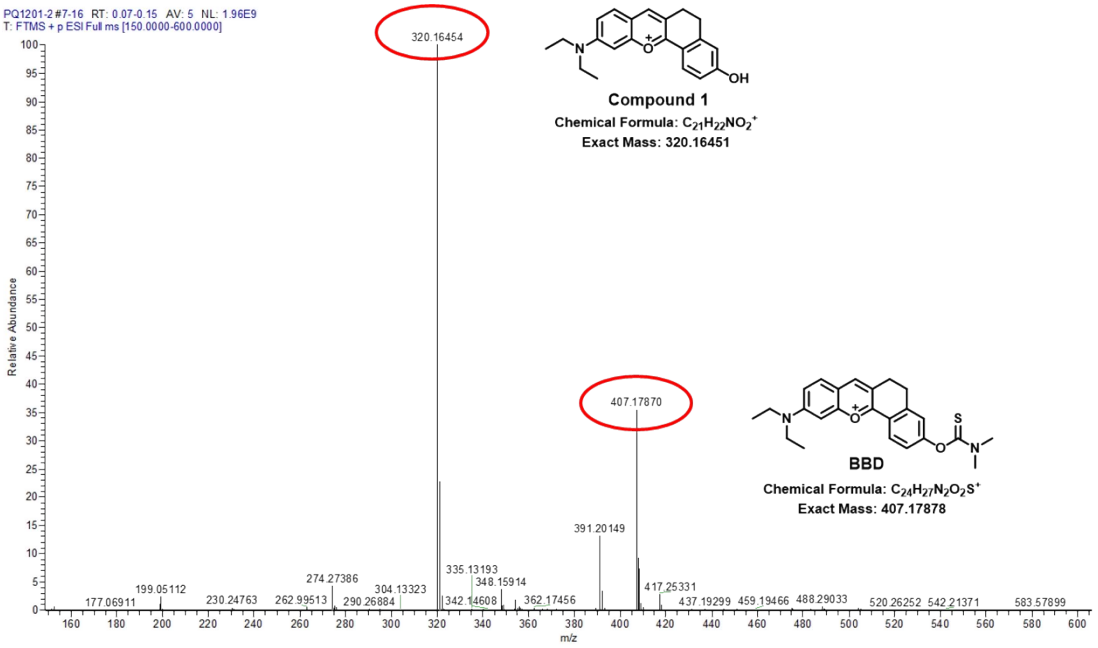


Fig. S10. The HR-MS spectrum of [***BBD***+HClO].

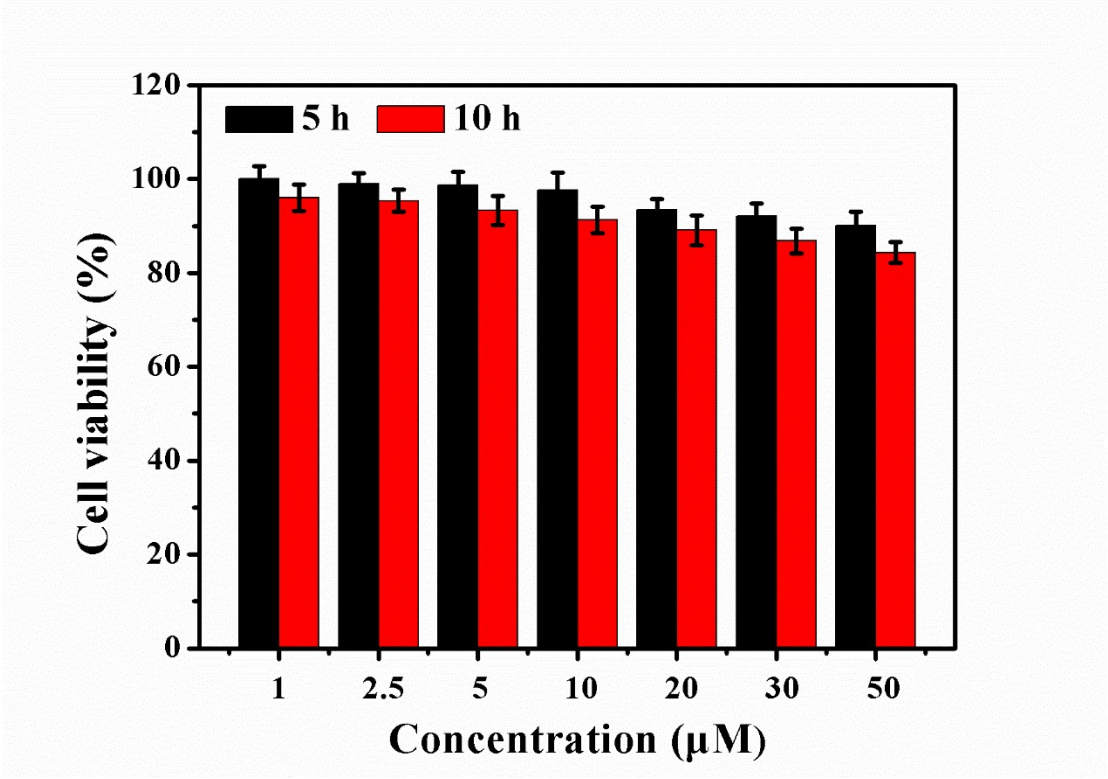


Fig. S11. The cytotoxicity tests of ***BBD***.

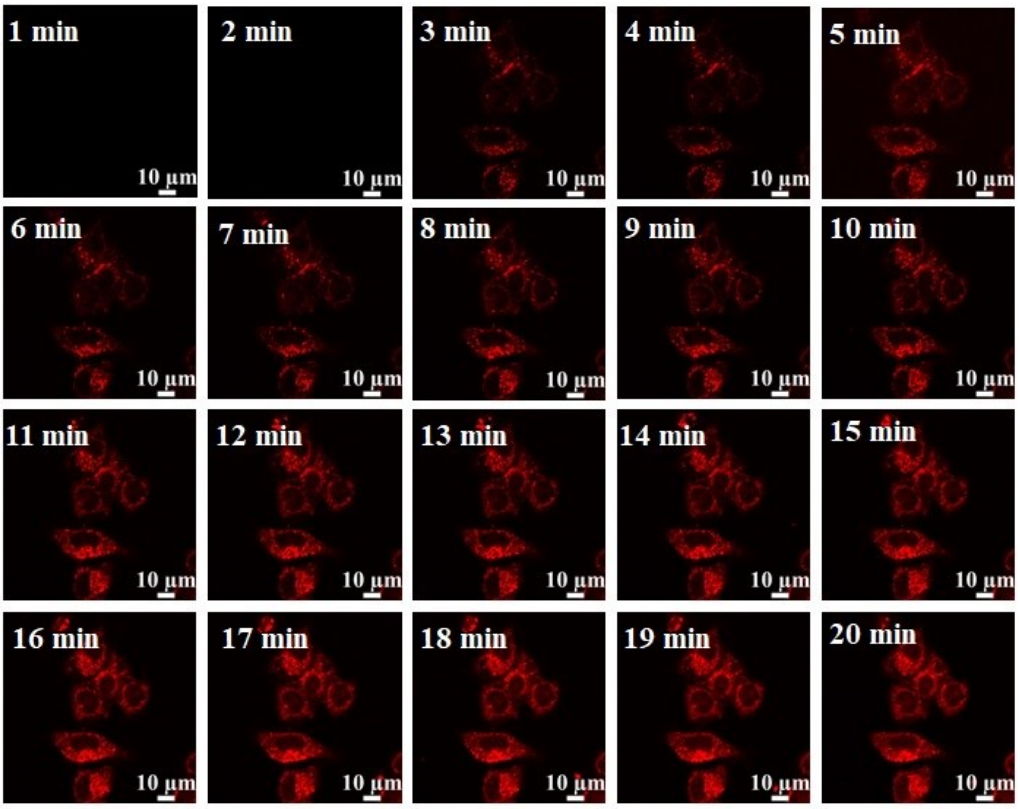


Fig. S12. The time-dependent images of ***BBD*** (10 μM) incubated Hela cells every 1 min (from 0 to 20 min). (λ_{ex} = 561 nm, λ_{em} = 600-650 nm).

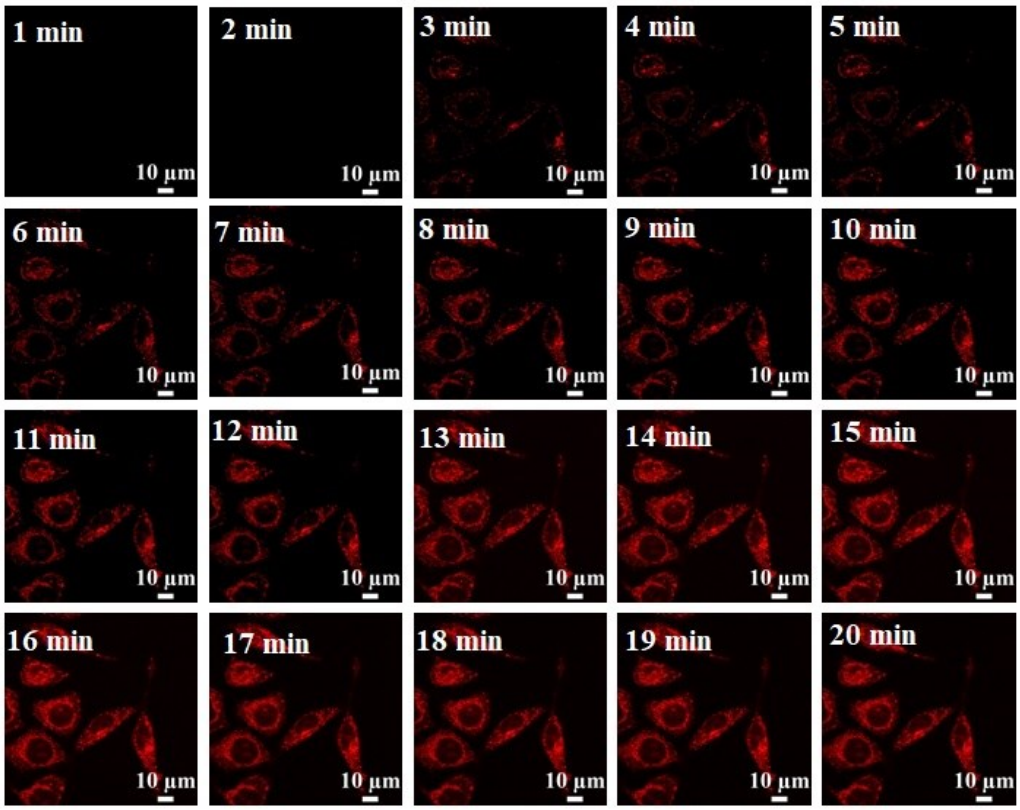
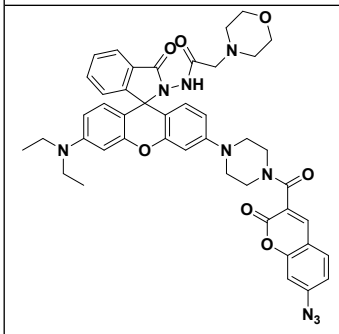
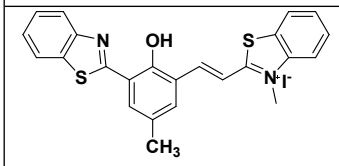
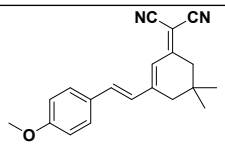
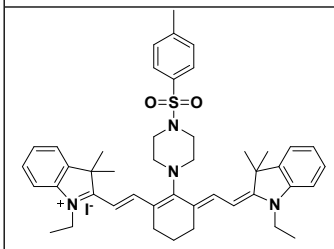
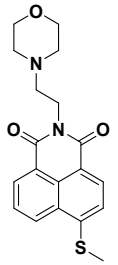
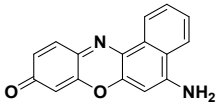


Fig. S13. The time-dependent images of ***BBD*** (10 μM) incubated HL-7702 cells every 1 min (from 0 to 20 min). (λ_{ex} = 561 nm, λ_{em} = 600-650 nm).

Probe	$\lambda_{ex}/\lambda_{em}$ nm	Detection time	Targeted organelles	Test system	Detection limit	Ref.
	550/ 580	3 s	Lysosome	PBS	73 pM	26
	450/ 670	5 min	Mitochondria	PBS :CH_3CN =1:1	0.13 μM	27
	370/ 570	2 min	No	DMSO:PBS =1:1	0.84 μM	28
	760/ 735	20 s	No	H_2O:CH_3OH =1:1	1.165 μM	29
	405/ 505	2.5 min	Lysosome	PBS	0.674 μM	30
	580/ 626	10 min	No	PBS	72 nM	31

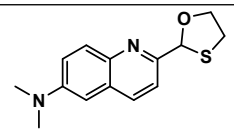
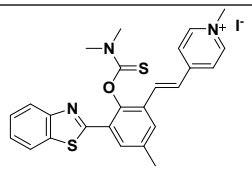
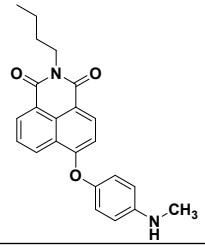
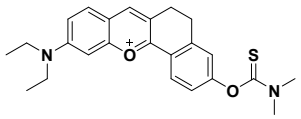
	426/ 562	<1 min	No	PBS:DMF =19:1	89 nM	32
	400/ 630	4 s	Mitochondria	MeOH : water = 1 : 4	0.47 μM	33
	460/ 550	within 1 min	No	PBS:ethanol =9:1	6.56 nM	34
	567/ 623	5 s	Mitochondria	PBS	5.8 μM	This work

Table S1 A comparison of fluorescent probes for HOCl detection.