

A ratiometric fluorescent probe for imaging the fluctuation of H₂O₂ during endoplasmic reticulum stress

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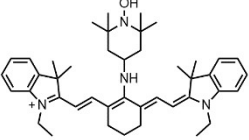
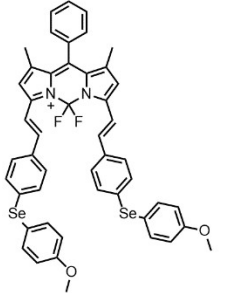
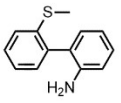
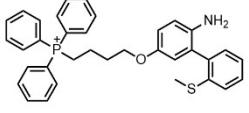
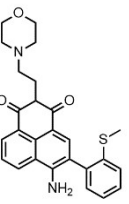
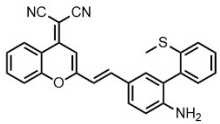
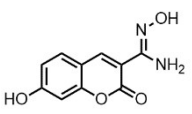
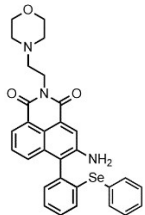
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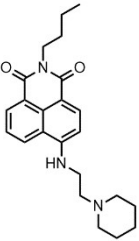
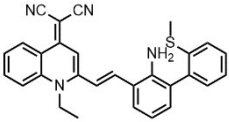
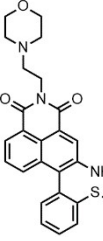
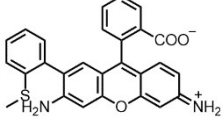
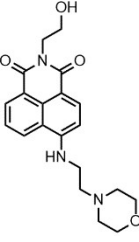
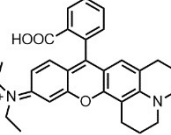
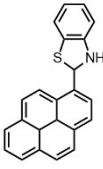
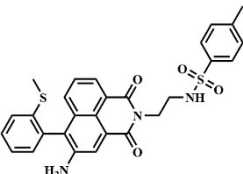
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1 · Comparison of fluorescent probes for HOBr detection

Table S1. Comparison of fluorescent probes for HOBr detection.

Probe	Detection Limit	Response mode	λ_{em} (nm)	Organelle-targeting	Reference
	/	Turn-off	755	/	Chem. Commun, 2012, 48, 7735
	0.97 μ M	Turn-on	635	/	Chem. Commun, 2013, 49, 5790
	17 pM	Turn-on	525	/	Angew. Chem. Int. Ed, 2016, 55, 12751
	1.8 nM	Ratio	528/437	mitochondria	Chem. Commun, 2018,54, 12198
	33.5 nM	Turn-off	540	lysosome	Spectrochim. Acta Part A Mol. Biomol. Spectrosc, 2019, 212, 48
	660 nM	Turn-off	655	/	Spectrochim. Acta Part A Mol. Biomol. Spectrosc, 2019, 222, 117240
	30.6 nM	Turn-on	460	/	Sensors and Actuators B, 2020, 315, 128125
	296 nM	Turn-on	560	lysosome	Chem. Commun, 2021, 57, 12679

	200 nM	Turn-on	505	/	Sensors and Actuators B, 2020, 305, 127460
	256 nM	Turn-off	600	/	Chem. Commun, 2023, 59, 1018
	99 nM	Ratio	610/555	lysosome	Sensors and Actuators B, 2019, 297, 126826
	20 pM	Turn-on	663	mitochondria	Anal. Chem, 2017, 89, 1787
	15 nM	Turn-on	505	lysosome	Anal. Chem, 2022, 94, 11783
	1.37 nM	Turn-off	590	/	Dyes Pigments, 2023, 217, 111381
	119 nM	Turn-on	470	/	Talanta, 2024, 266, 124969
	138 nM	Ratio	610/560	endoplasmic reticulum	This work

2. The mass spectrum of the reaction mixture of ER-NABr with HOBr

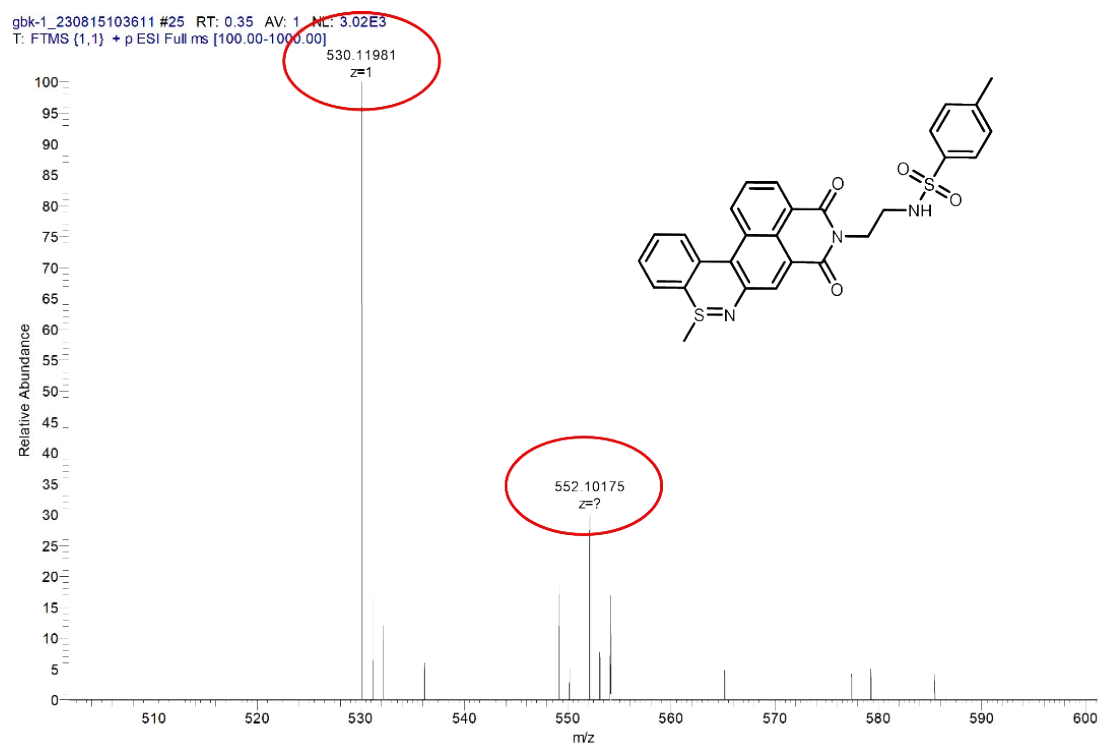


Fig. S1. The mass spectrum of the reaction mixture of **ER-NABr** with HOBr.

3. The response time of ER-NABr for HOBr

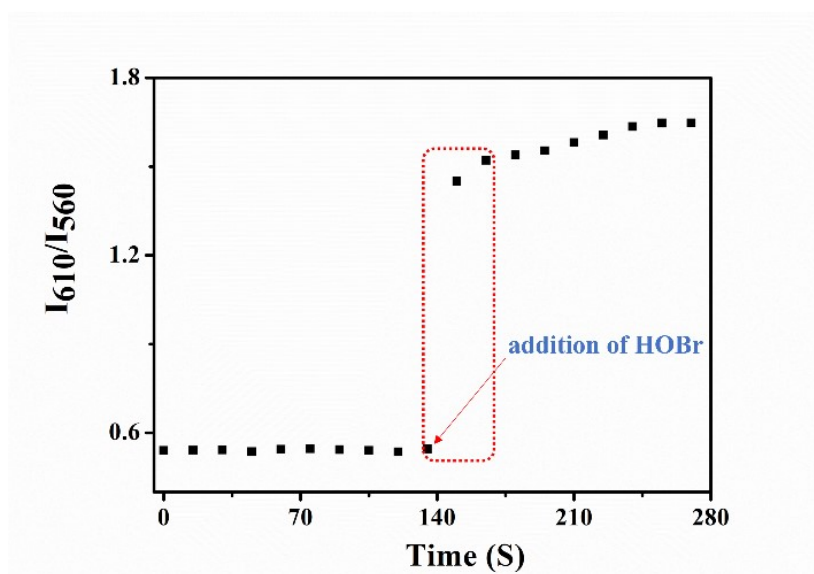


Fig. S2. The ratio I_{610}/I_{560} of **ER-NABr** (10 μM) after the addition of HOBr (50 μM).

4. The pH effect of ER-NABr for HOBr

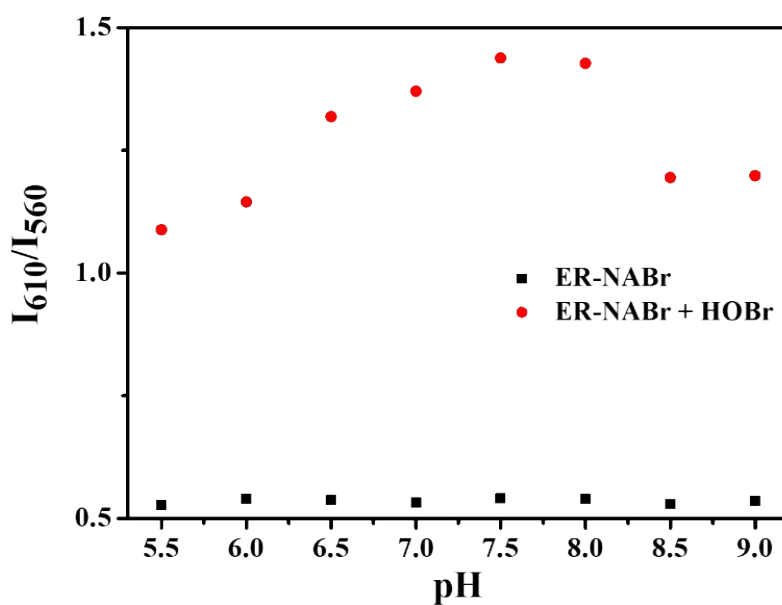


Fig. S3. pH effect on the ratio I_{610}/I_{560} of ER-NABr (10 μM) in the absence and presence of HOBr (50 μM).

5. The absorption titration spectra of ER-NABr with HOBr

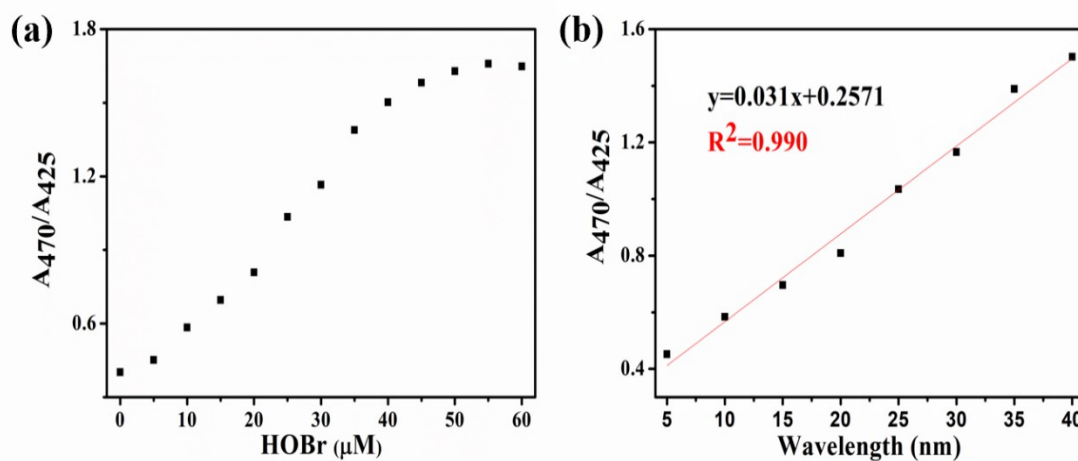
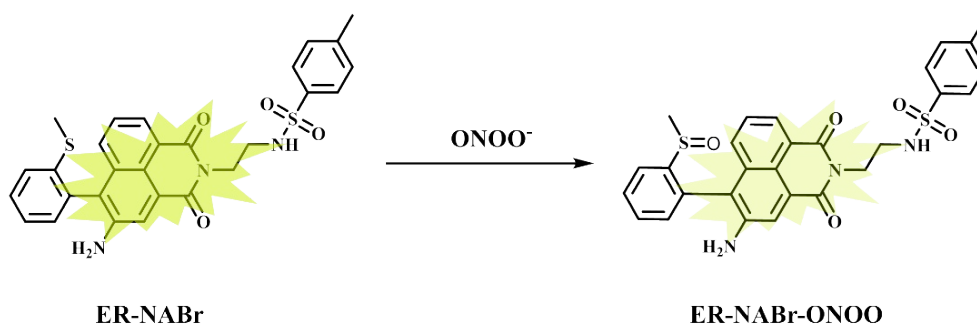


Fig. S4. (a) The ratio of A_{470}/A_{425} of ER-NABr (10 μM) upon different amounts of HOBr (0-60 μM). (b) The plot of absorbance intensity ratio (A_{470}/A_{425}) of ER-NABr (10 μM) vs different amounts of HOBr (5-40 μM).

6. The reaction mechanism of the ER-NABr with ONOO \cdot .



Scheme S1. The reaction mechanism of the **ER-NABr** with ONOO^- .

7. The cytotoxicity of ER-NABr

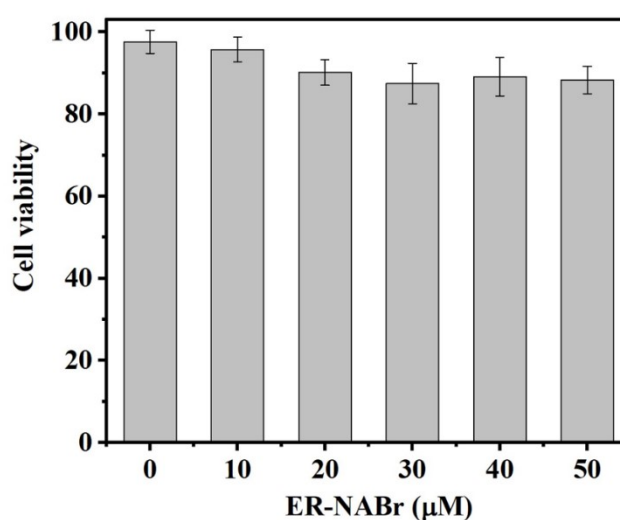
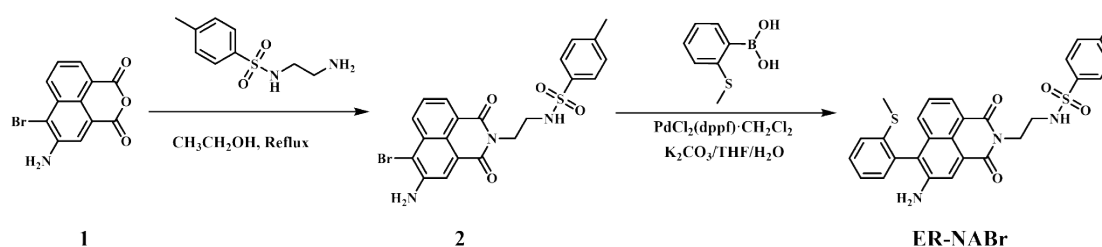


Fig. S5. Cytotoxicity assays of **ER-NABr** at different concentrations for HeLa cells. The data shown with the average value ($n = 5$).

8. The synthesis route of the ER-NABr



Scheme S2. Synthesis route of the **ER-NABr**.

9. Spectral data of ER-NABr

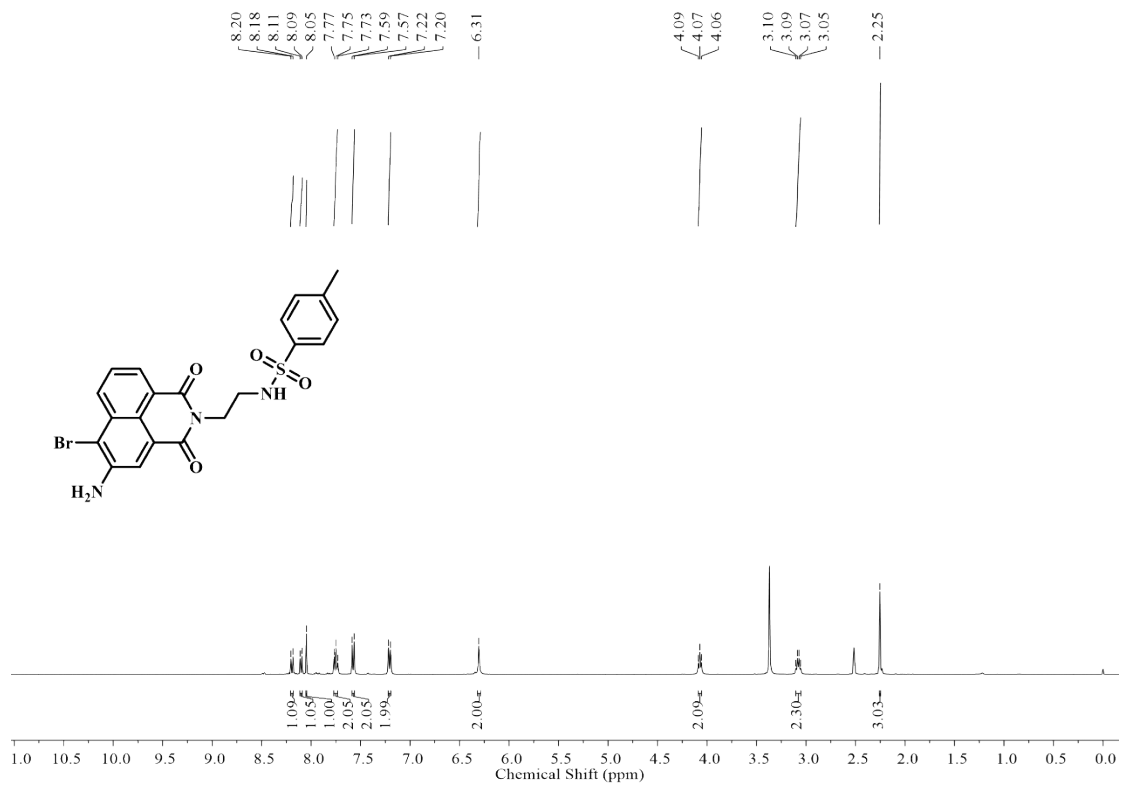


Fig. S6. ¹H-NMR of compound 2

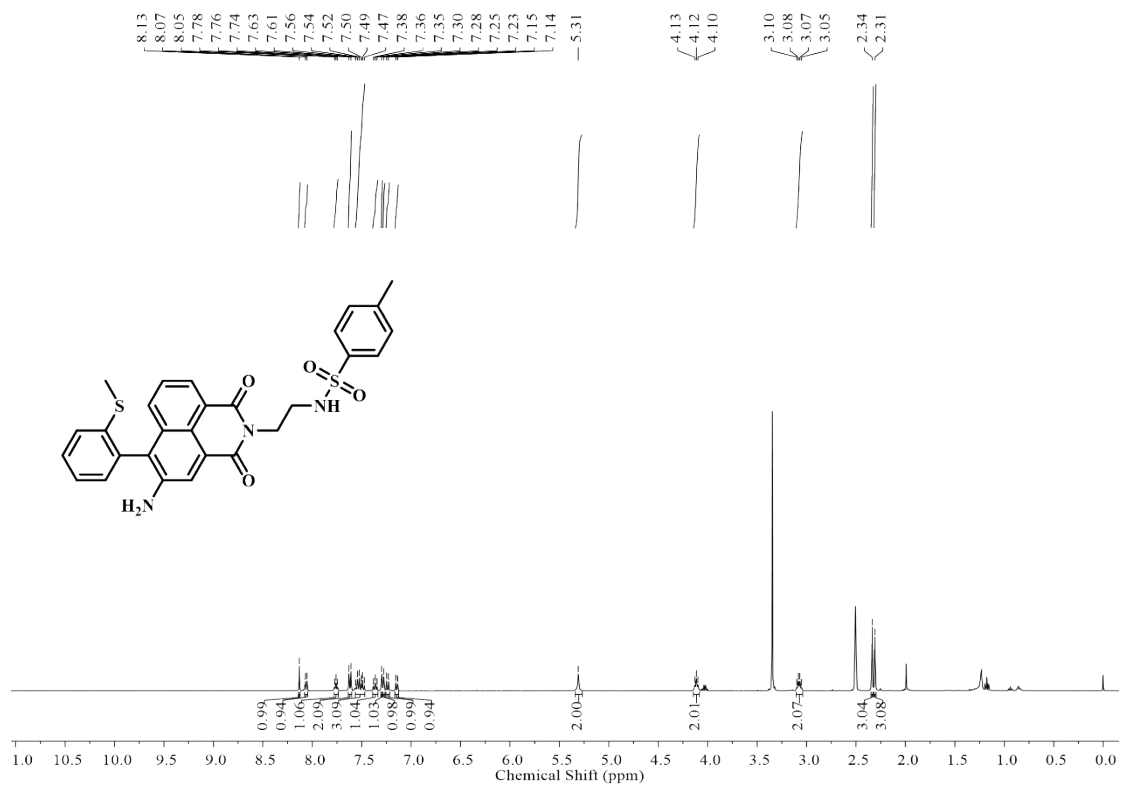


Fig. S7. ¹H-NMR of ER-NABr.

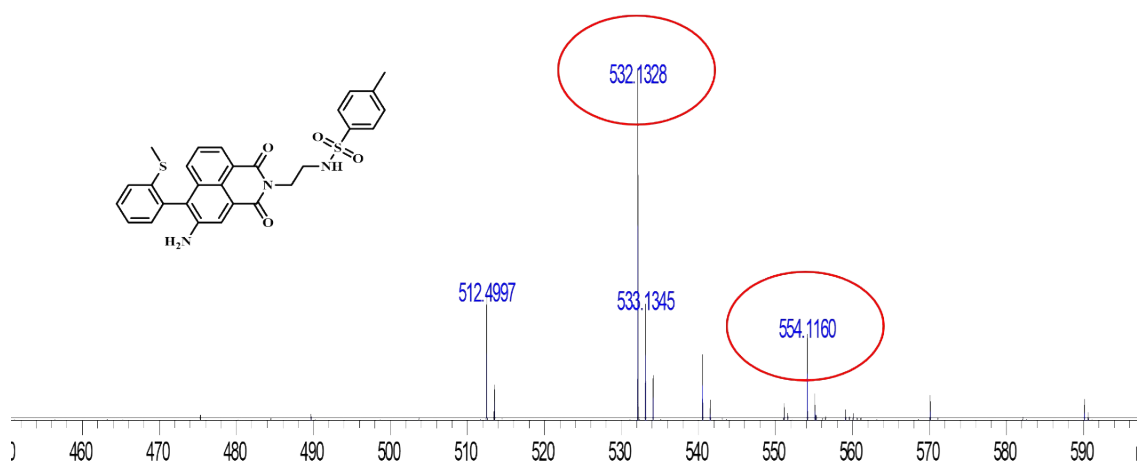


Fig. S8. The mass spectrum of ER-NABr.