

Electronic Supplementary Material (ESI) for New Journal of Chemistry

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**A specific and rapid “on-off” acenaphthequinone-based probe for HOCl
detection and imaging in living cells**

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Supplementary information

Measurements Absorption and emission spectra were collected by using a Shimadzu 1750 UV-visible spectrometer and a RF-5301 fluorescence spectrometer (Japan), respectively. Cell images were performed on Olympus FV10-ASW 3.1 Viewer confocal microscope (Japan). NMR spectra were collected on a Bruker 500 AVANCE III spectrometer. Chemical shifts (δ) were reported as ppm with TMS as the internal standard. Mass spectrometric (MS) data were obtained with Thermo Fisher LCQ Fleet. All experiments were performed in compliance with the relevant laws and institutional guidelines, and were approved by Northwest A&F University.

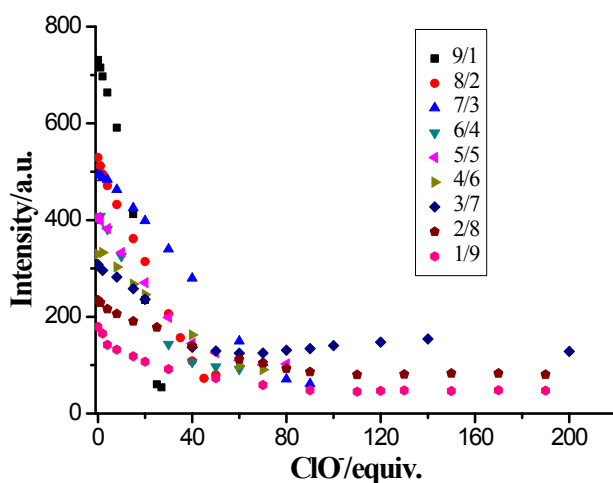


Fig. S1 The effect of different ratios of THF to PBS on the response of **1** to ClO⁻.

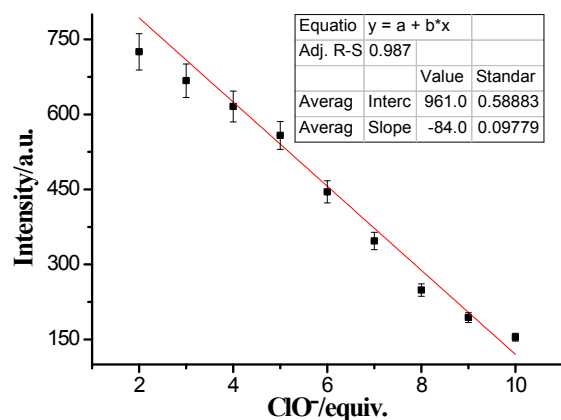


Fig. S2 The linear relationship between fluorescence change and NaOCl amount.

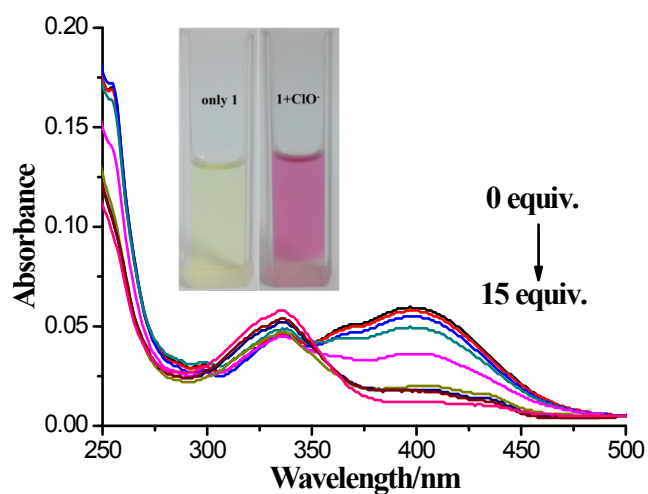


Fig. S3 The absorbance of **1** (5 μM) in PBS/THF (1/9, V/V) with the addition of ClO^- .

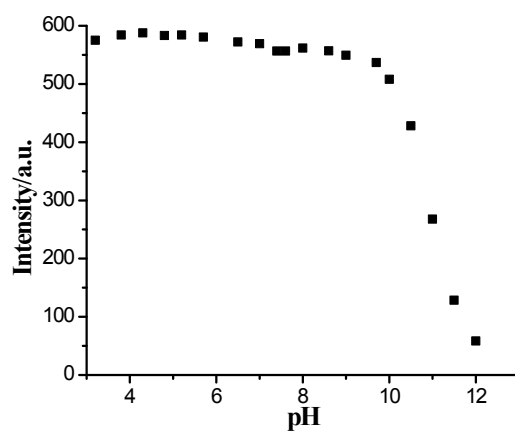


Fig. S4 The effect of pH value on the fluorescence intensity of **1** (10 μM).

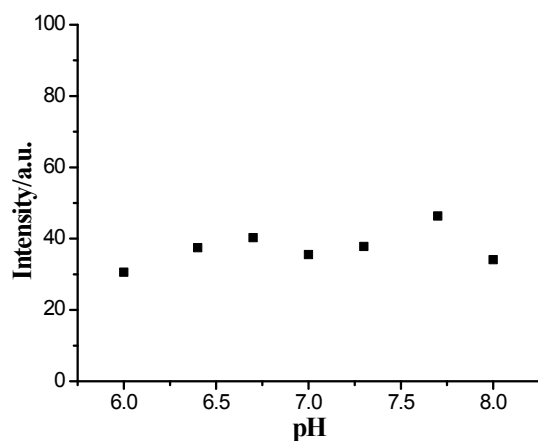


Fig. S5 The effect of pH value on the fluorescence intensity of **1** with the addition of NaOCl (8 equiv.).

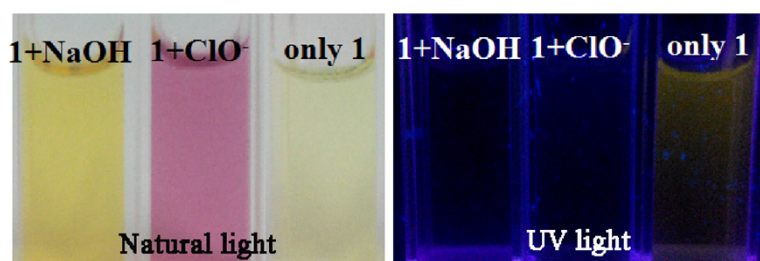


Fig. S6 The difference of **1** in NaOH and NaOCl.

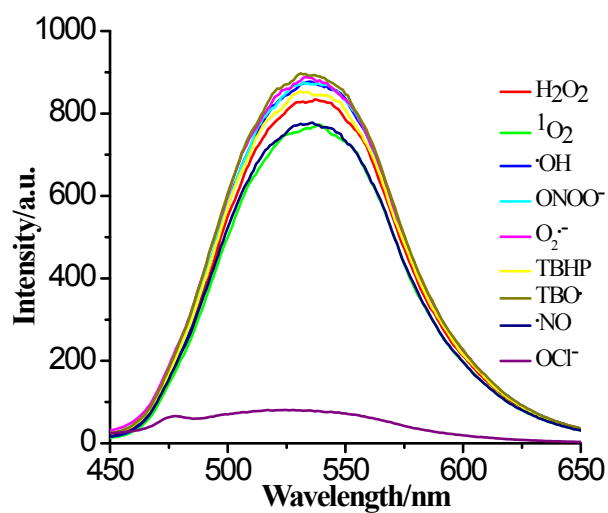


Fig. S7 The fluorescence in the presence of **1**. 1. H_2O_2 , 2. $^1\text{O}_2$, 3. $\cdot\text{OH}$, 4. ONOO^- , 5. $\text{O}_2^{\cdot-}$, 6. TBHP, 7. TBO^\cdot , 8. $\cdot\text{NO}$. The probe was $5 \mu\text{M}$ in PBS/THF (1/9, V/V).

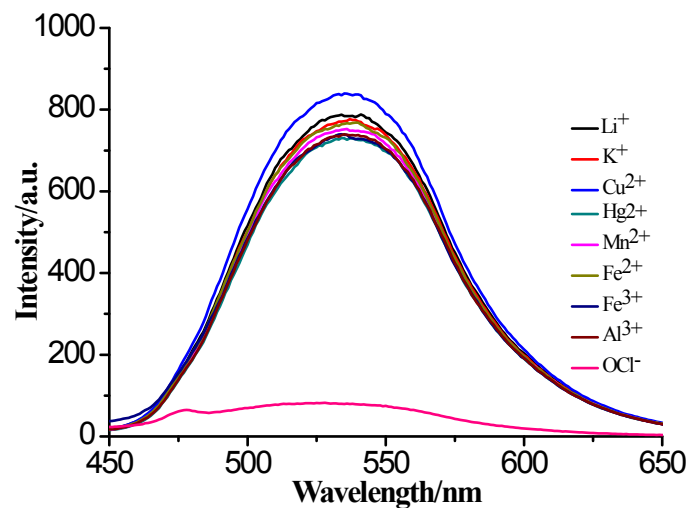


Fig. S8 The fluorescence in the presence of 1. Li^+ , 2. K^+ , 3. Cu^{2+} , 4. Hg^{2+} , 5. Mn^{2+} , 6. Fe^{2+} , 7. Fe^{3+} , 8. Al^{3+} . The probe was $5 \mu\text{M}$ in PBS/THF (1/9, V/V).

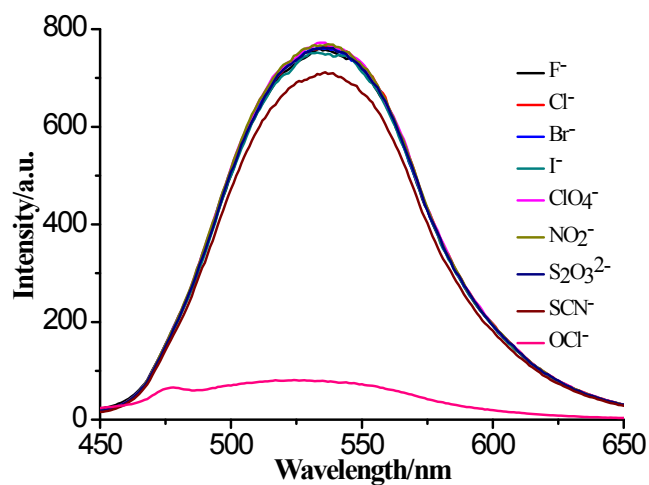


Fig. S9 The fluorescence in the presence of 1. F^- , 2. Cl^- , 3. Br^- , 4. I^- , 5. ClO_4^- , 6. NO_2^- , 7. $\text{S}_2\text{O}_3^{2-}$, 8. SCN^- . The probe was $5 \mu\text{M}$ in PBS/THF (1/9, V/V).

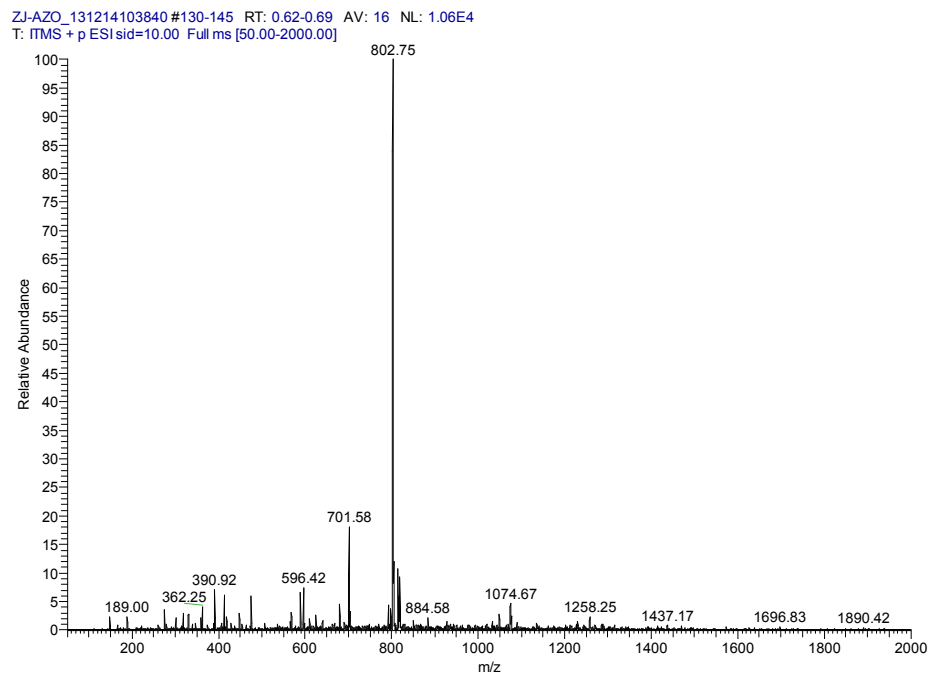


Fig. S10 ESI-MS of **1** upon addition of NaOCl.

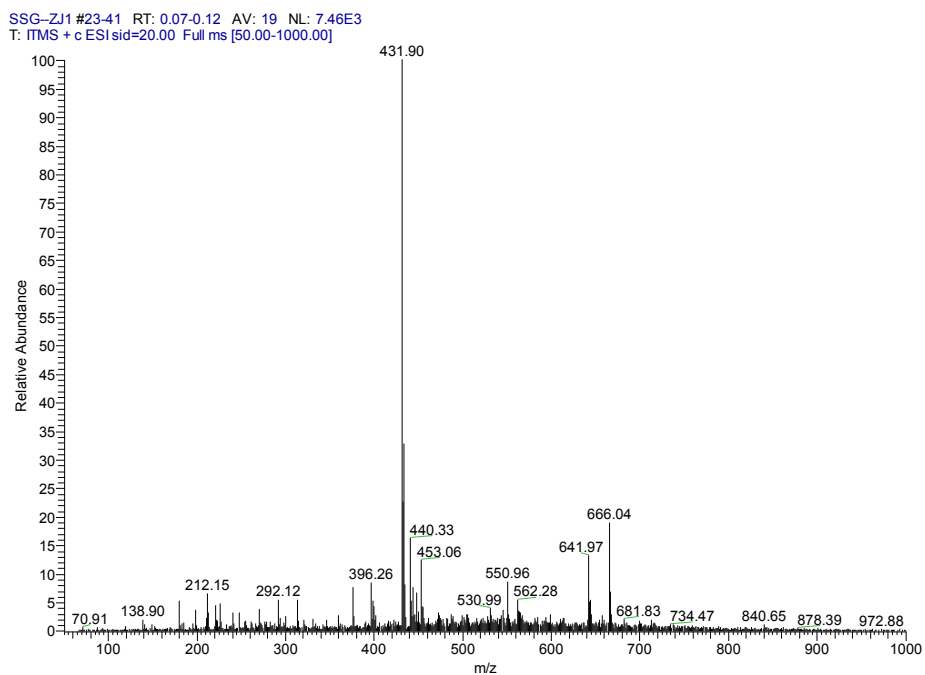


Fig. S11 ESI-MS of **1** upon addition of MCPBA.

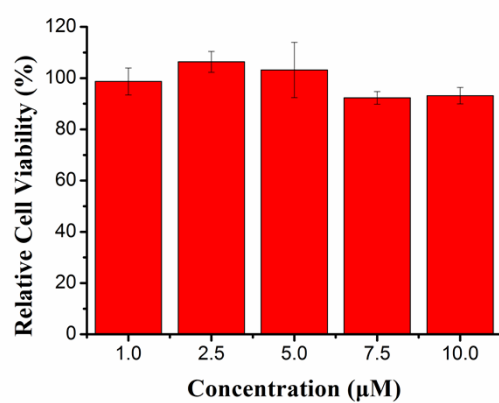


Fig. S12 Relative cell viability of BEL-7402 cells in the presence of different concentrations of **1** after 24 h of incubation determined using the MTT assay by monitoring formazan absorbance at 490 nm; Mean values and standard deviations are obtained from five independent experimental determinations.