Electronic Supplementary Information

A novel porphyrin-based near-infrared fluorescent probe for hypochlorite detection and its application in vitro and in vivo

Xiaoyi Wang, Jie Min, Weijie Wang, Yan Wang, Gui Yin, and Ruiyong Wang*

a. State Key Laboratory of Analytical Chemistry for Life Science, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, People’s Republic of China. E-mail: yingui@nju.edu.cn.

b. State Key Laboratory of Pharmaceutical Biotechnology, School of Life Science, Nanjing University, Nanjing, 210093, People’s Republic of China. E-mail: wangry@nju.edu.cn.

c. Jiangsu Key Laboratory of Advanced Organic Materials.

Corresponding author: Gui Yin, State Key Laboratory of Analytical Chemistry for Life Science, Jiangsu Key Laboratory of Advanced Organic Materials, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, People’s Republic of China. E-mail: yingui@nju.edu.cn.
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1. NMR and MS spectra of TPP-TCF (S1)

HR-MS spectrum of TPP-TCF

$^1$H NMR spectrum of TPP-TCF
2. Anti-interfering ability of TPP-TCF

Fig. S2 Fluorescence intensity of TPP-TCF (10 µM) at 660 nm before and after addition of various cations and anions in PBS (pH 7.4, 10 mM, containing 20% DMSO). (1: ClO\(^{-}\), 2: Ag\(^{+}\), 3: Fe\(^{3+}\), 4: Fe\(^{2+}\), 5: Cu\(^{2+}\), 6: Zn\(^{2+}\), 7: Co\(^{2+}\), 8: Mn\(^{2+}\), 9: Ni\(^{2+}\), 10: Mg\(^{2+}\), 11: Ca\(^{2+}\), 12: Al\(^{3+}\), 13: Na\(^{+}\), 14:

[ClO₇⁻]=150 µM, [Ag⁺] = [Fe³⁺] = [Fe²⁺] = [Cu²⁺] = [Zn²⁺] = [Co²⁺] = [Mn²⁺] = [Ni²⁺] = [Mg²⁺] = [Ca²⁺] = [Al³⁺] = [Na⁺] = [K⁺] = [Cl⁻] = [Br⁻] = [I⁻] = [F⁻] = [NO₃⁻] = [NO₂⁻] = [SO₄²⁻] = [SCN⁻] = [S₂O₃⁻] = 1 mM

3. Time-dependent plot of fluorescence intensity

![Time-dependent plot of fluorescence intensity](Fig. S3)

**Fig. S3** Time-dependent plot of fluorescence intensity versus time for TPP-TCF (10 µM) upon addition of 100 µM NaClO in PBS (pH 7.4, 10 mM, containing 20% DMSO). λₑₓ = 488 nm; λₑₘ = 660 nm.
4. The photostability of TPP-TCF

![Graph showing fluorescence intensity over time with and without NaClO]

*Fig. S4* Change in the fluorescence intensity of TPP-TCF (10 µM) in the absence or presence of NaClO with light irradiation time at 488 nm. $\lambda_{\text{ex}} = 488$ nm; $\lambda_{\text{em}} = 660$ nm.

5. Calculation of quantum yield

The quantum yields of **TPP-TCF** was determined according to the equation [S1]:

$$\Phi_{\text{un}} = \Phi_{\text{ref}} \cdot \frac{\eta_{\text{ref}}^2 \cdot A_{\text{ref}} \cdot OD_{\text{un}}}{\eta^2 \cdot A_{\text{un}} \cdot OD_{\text{ref}}}$$

where $A$ is the area under the fluorescence spectra curve and $OD$ is the optical density of the compound at the excitation wavelength, 422 nm, $\eta$ is the refractive index of the solvent used. The standard used for the measurement of the fluorescence quantum yield was TPP (0.11 in toluene).
6. Concentration-dependent plot of fluorescence intensity

**Fig. S6** Concentration-dependent plot of fluorescence intensity versus time for TPP-TCF (10 µM) upon addition of NaClO (0-200 µM) in PBS (pH 7.4, 10 mM, containing 20% DMSO). $\lambda_{\text{ex}} = 488$ nm; $\lambda_{\text{em}} = 660$ nm.

7. The response curve of TPP-TCF towards NaClO
Fig. S7 The linear fitting of fluorescence intensity of TPP-TCF (10 µM) towards concentrations of NaClO (0-160 µM) in PBS (pH 7.4, 10 mM, containing 20% DMSO). $\lambda_{ex} = 488$ nm; $\lambda_{em} = 660$ nm.

8. The cytotoxicity of TPP-TCF

![Graph showing cell viability vs. concentration of TPP-TCF](image)

Fig. S8 Changes of cell viability influenced by TPP-TCF at different concentrations for 12 h and 24 h.

9. HR-MS spectrum of TPP-TCF reacted with NaClO

![HR-MS spectrum](image)

Fig. S9 HR-MS spectrum of the product of TPP-TCF reacted with NaClO.