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Construction of a ratiometric fluorescent probe with an extremely large emission shift for imaging hypochlorite in living cells

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Abstract:

Hypochlorite is one of the important reactive oxygen species (ROS) and plays critical roles in many biologically vital processes. Herein, we present a unique ratiometric fluorescent probe (**CBP**) with an extremely large emission shift for detecting hypochlorite in living cells. Utilizing positively charged α,β -unsaturated carbonyl group as the reaction site, the probe **CBP** itself exhibited near-infrared (NIR) fluorescence at 662 nm, and can display strong blue fluorescence at 456 nm when responded to hypochlorite. Notably, the extremely large emission shift of 206 nm could enable the precise measurement of the fluorescence peak intensities and ratios. **CBP** showed high sensitivity, excellent selectivity, desirable performance at physiological pH, and low cytotoxicity. The bioimaging experiments demonstrate the biological application of **CBP** for the ratiometric imaging of hypochlorite in living cells.

Key words: Fluorescent probe; Hypochlorite; Ratiometric fluorescence imaging

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