

Supplementary Information

A facile Al(III)-specific fluorescence probe and its application in biological systems

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1. The UV-vis absorption spectra of receptor 1 with the introduction of Al³⁺ *Fig. S1*
2. The fluorescence spectra of receptor 1 with the addition of Al³⁺ *Fig. S2*
3. The fluorescence spectra of receptor 1 in different pH solutions *Fig. S3*
4. The intensity changes of three receptors with Al³⁺ *Fig. S4*
5. ¹H NMR spectrograms of receptor 1 and receptor+Al³⁺ *Fig. S5*
6. Job plot of receptor 1 and Al³⁺ in DMSO/H₂O mixture media *Fig. S6*
7. Fluorescence imaging of receptor 1 and Al³⁺ for HepG-2 cells *Fig. S7*

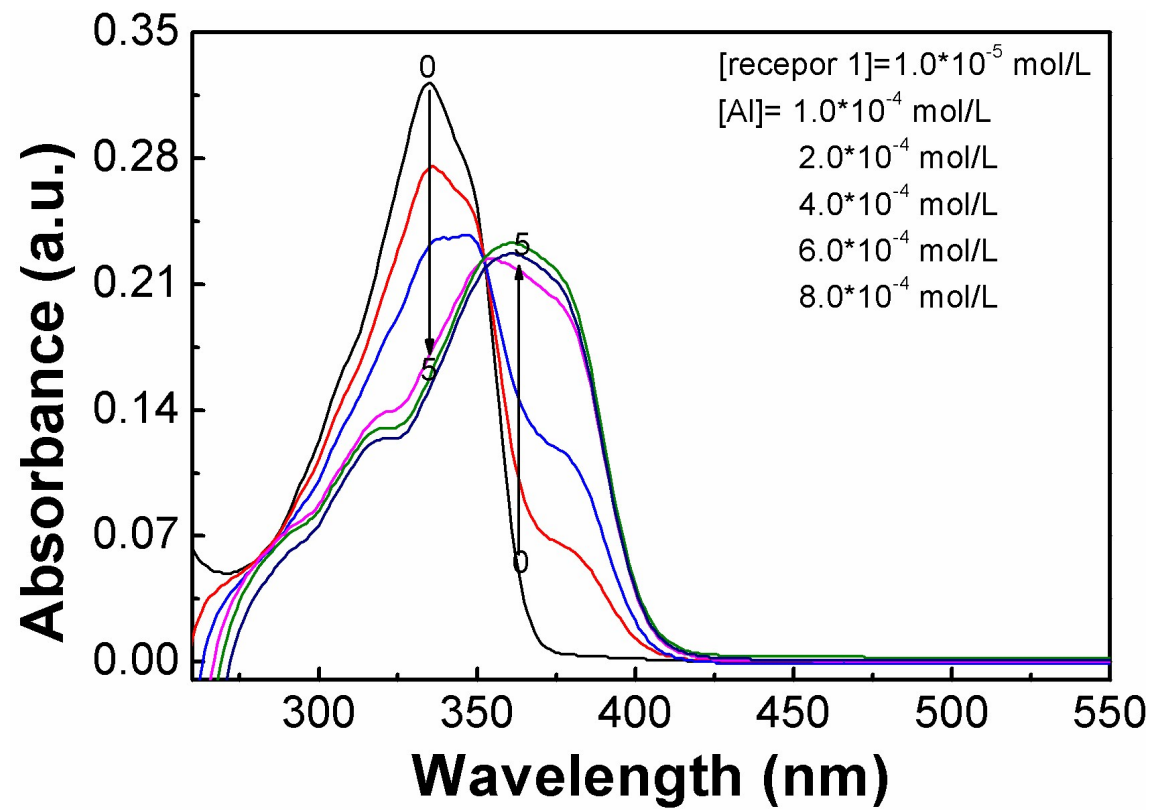


Fig. S1 The UV-vis absorption spectra of receptor 1 with the introduction of Al³⁺.

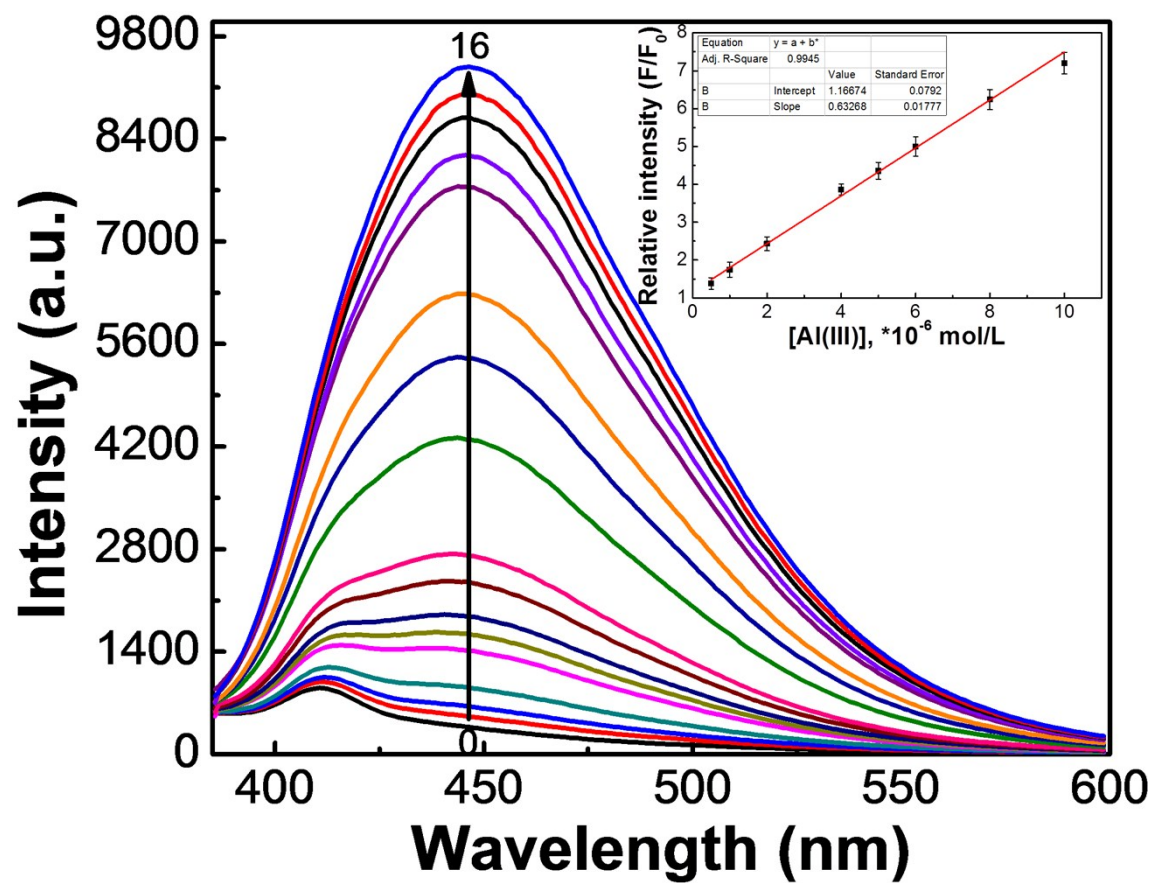


Fig. S2 The fluorescence spectra of receptor 1 (5.0×10^{-6} mol/L) with the introduction of Al^{3+} from 10^{-7} mol/L to 10^{-4} mol/L in $\text{H}_2\text{O}/\text{DMSO}$ mixture media.

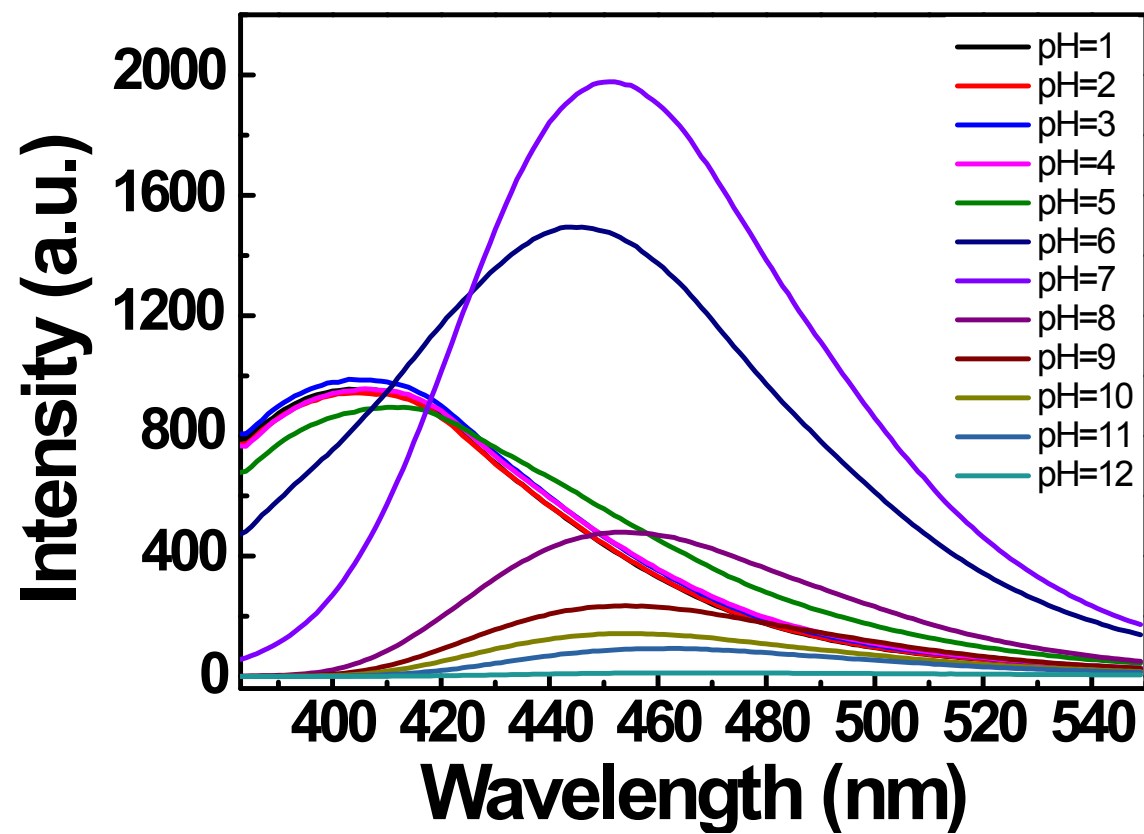


Fig. S3 The fluorescence spectra of receptor 1 (5.0×10^{-6} mol/L) in different pH solutions.

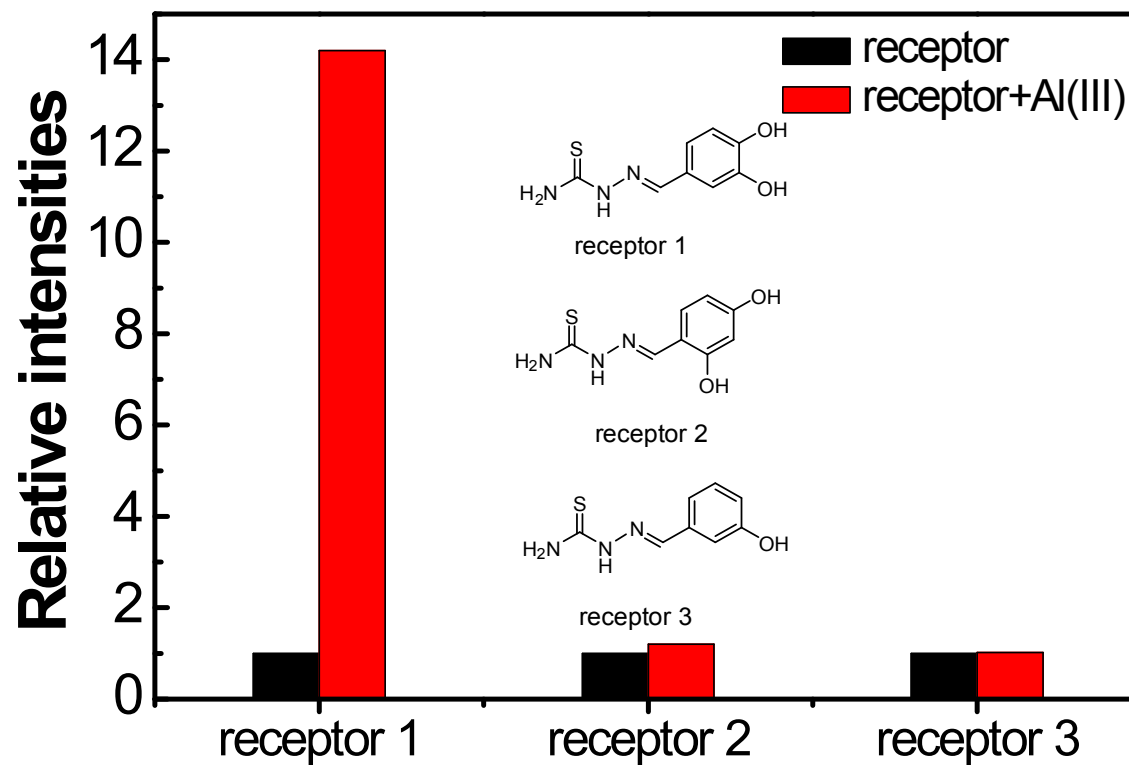


Fig. S4 The relative intensities changes of three receptors (5.0×10^{-6} mol/L) in the present of Al^{3+} (3.0×10^{-5} mol/L) in $\text{H}_2\text{O}/\text{DMSO}$ (2/3, v/v) mixed media.

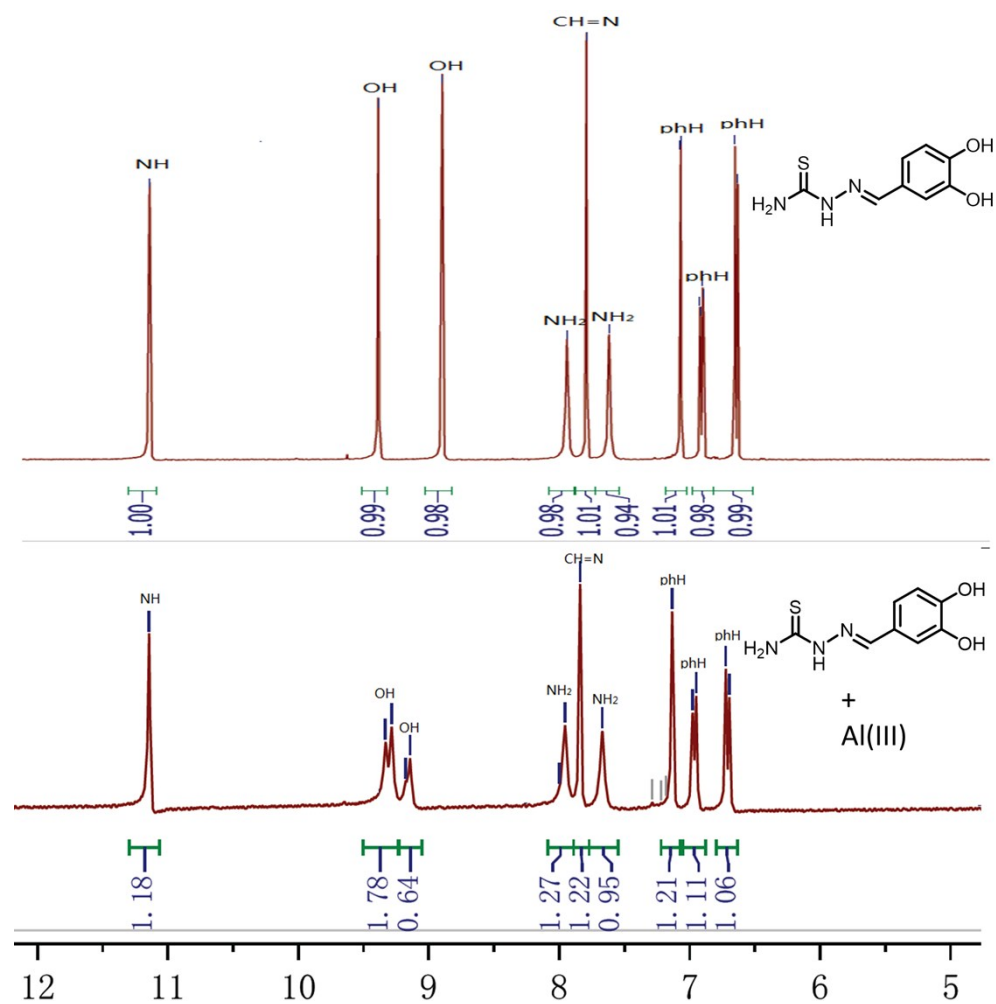


Fig. S5 ^1H NMR spectrograms of receptor 1 and receptor+Al(III) in d -DMSO solvents.

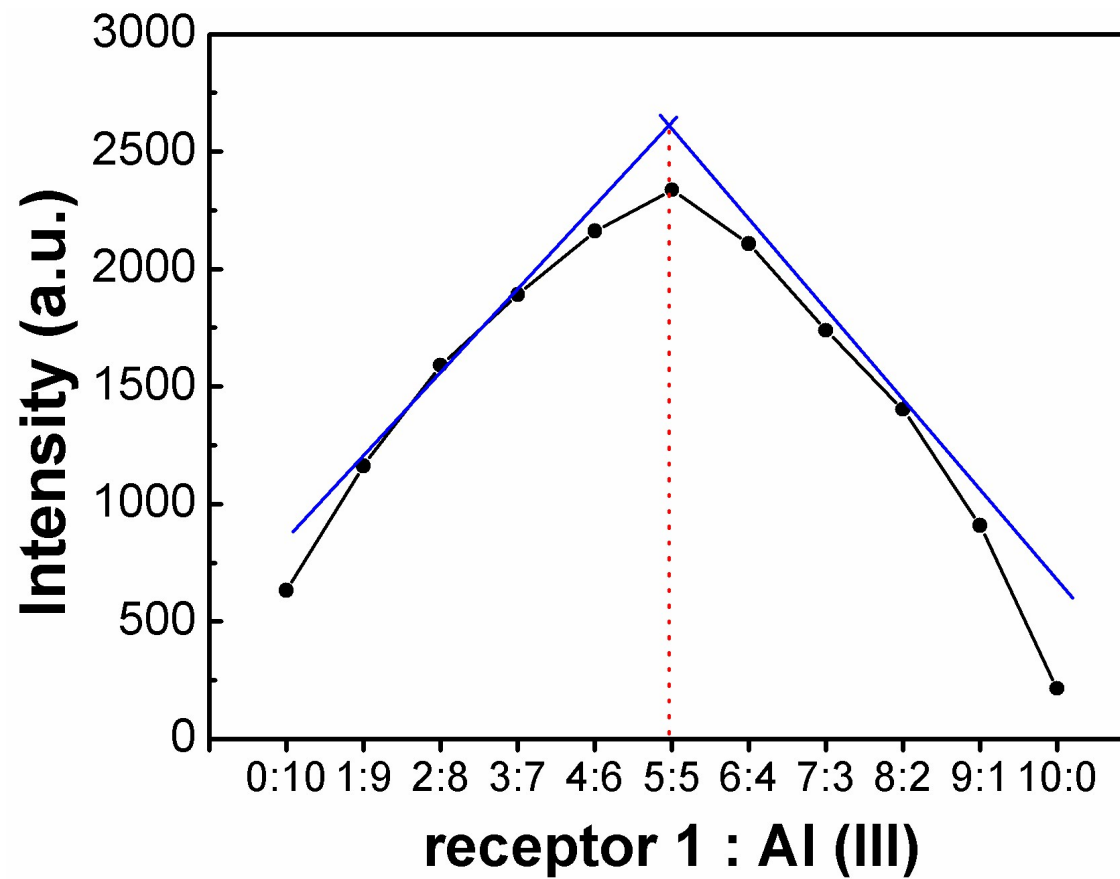


Fig. S6 Job plot of receptor 1 and Al(III) in DMSO/H₂O (2/3, v/v) mixed media. The total concentration of receptor 1 and Al(III) is 1.0×10^{-5} mol/L.

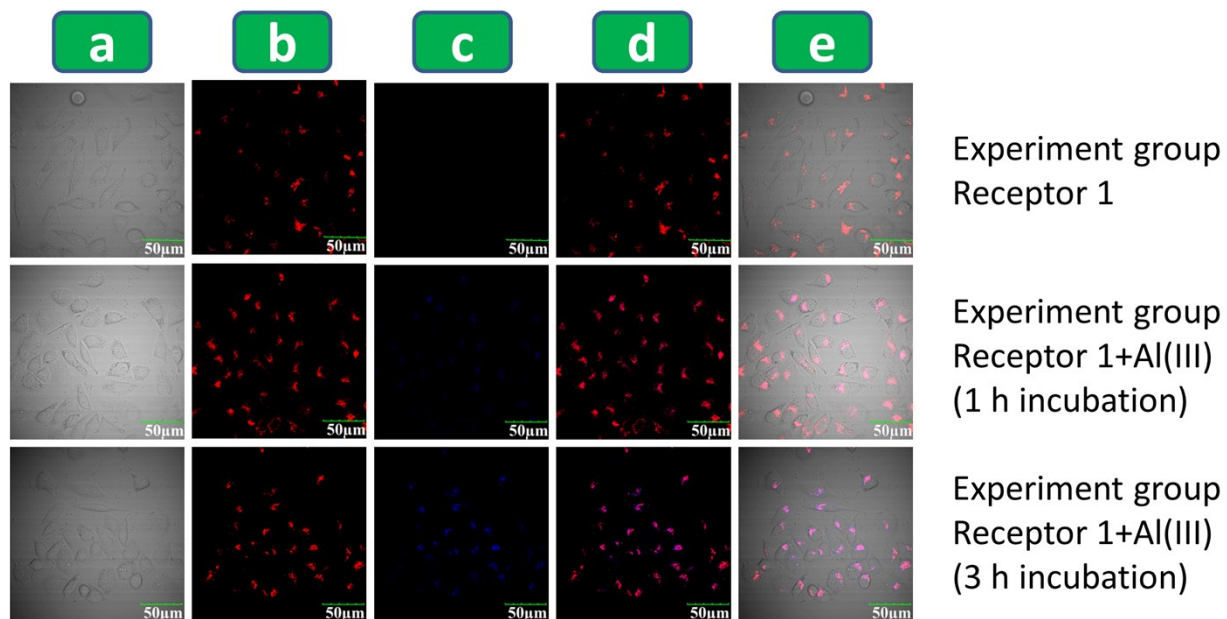


Fig. S7 Fluorescence imaging of HepG-2 cells with receptor 1 and Al³⁺ in different cultured time. a) is bright image, b) is fluorescence image of cytoplasm located dye (Lyso tracker red), c) is fluorescence image of receptor 1 or receptor 1/Al³⁺, d) is merged image of located dye and receptors or receptor 1/Al³⁺, e) is merged bright image and fluorescence image of located dye and receptor 1 or receptor 1/Al³⁺.