

An indolizine-rhodamine based FRET fluorescent sensor for high sensitive and selective detection of Hg²⁺ in living cells

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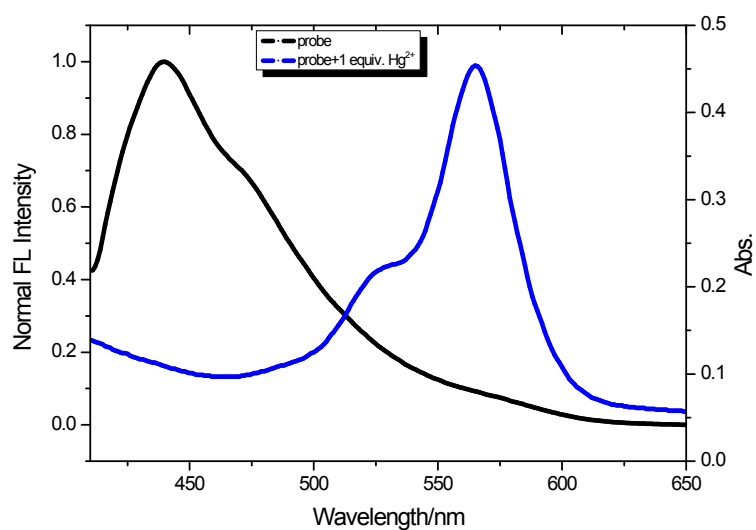


Fig. S1 Normalized emission spectra of donor **1** (black line) and normalized absorption spectra of **TMUHg-2** (blue line) after the addition of Hg^{2+} (1 eq.). Condition: donor **1**, 1 μM ; **TMUHg-2**, 1 μM ; $\text{C}_2\text{H}_5\text{OH}/\text{H}_2\text{O}$ (2/8, v/v); $\lambda_{\text{ex}} = 380 \text{ nm}$; slit = 15 nm/10 nm).

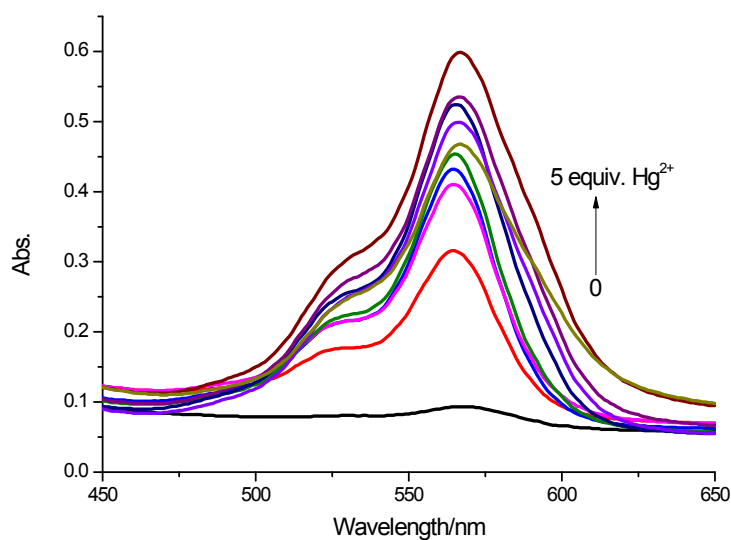


Fig. S2 Changes in absorption spectra of **TMUHg-2** (10 μM) in $\text{C}_2\text{H}_5\text{OH}/\text{H}_2\text{O}$ (2/8, v/v, 0.01 M HEPES buffer, pH = 7.20) solution with various amounts of Hg^{2+} ions.

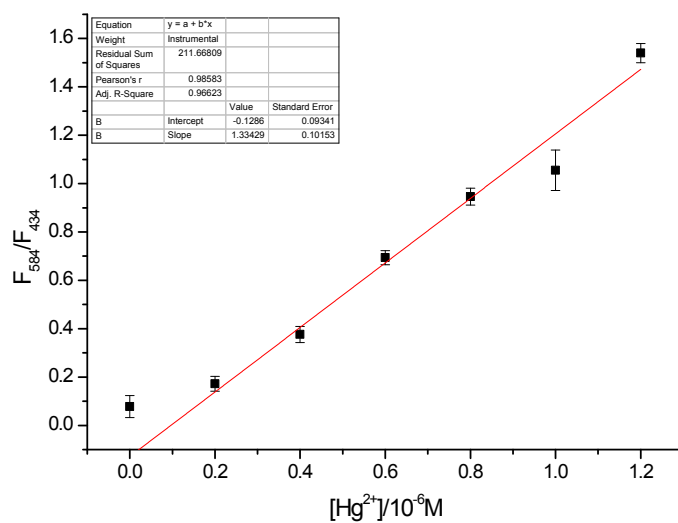


Fig. S3 Fluorescence intensity ratio changes (F_{584}/F_{434}) of **TMUHg-2** (1 μM) upon gradual addition of Hg^{2+} in $\text{C}_2\text{H}_5\text{OH}/\text{H}_2\text{O}$ (2/8, v/v, 0.01 M HEPES buffer, $\text{pH} = 7.20$) solution ($\lambda_{\text{ex}} = 380 \text{ nm}$, slit = 15 nm/10 nm).

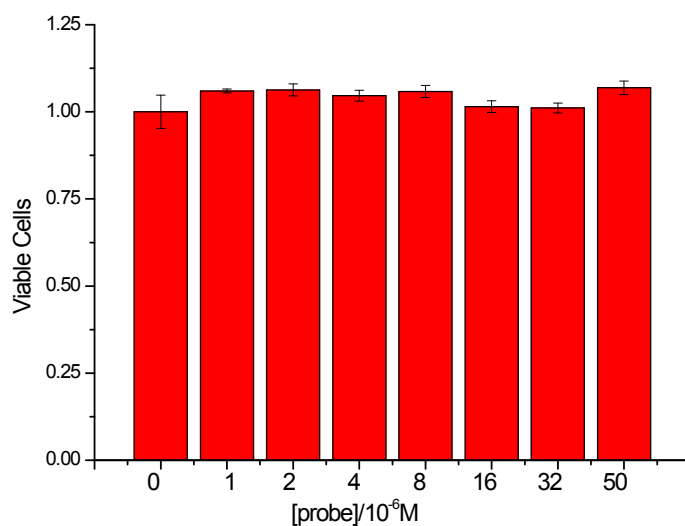


Fig. S4 Cytotoxicity assays of probe **TMUHg-2** at different concentrations for Glioma cells.

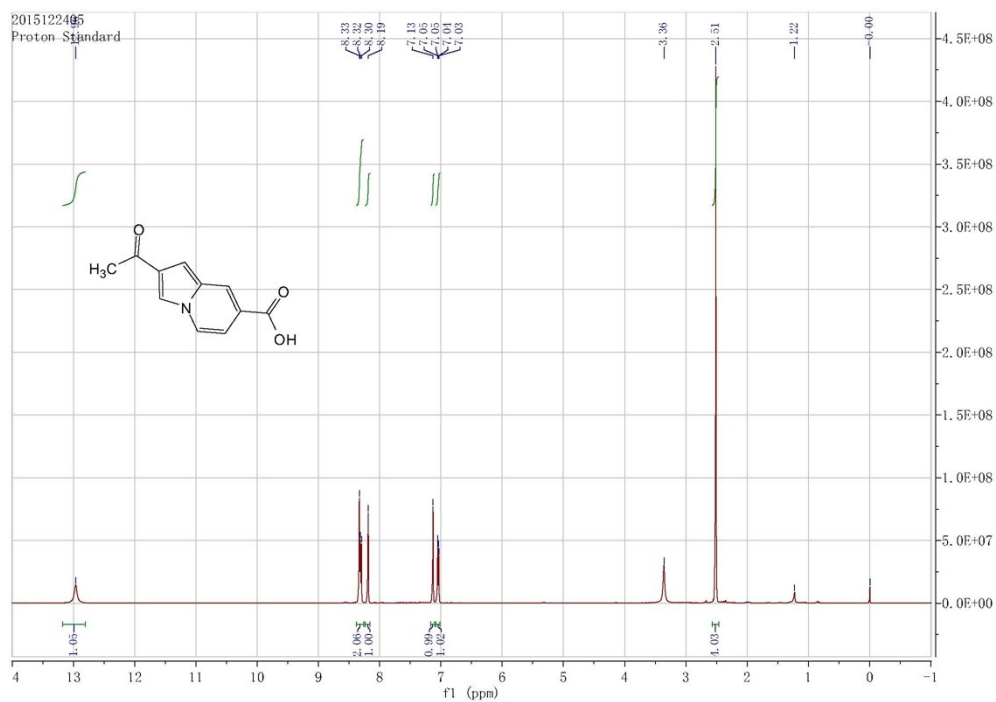


Fig. S5 ^1H NMR spectrum of compound 1.

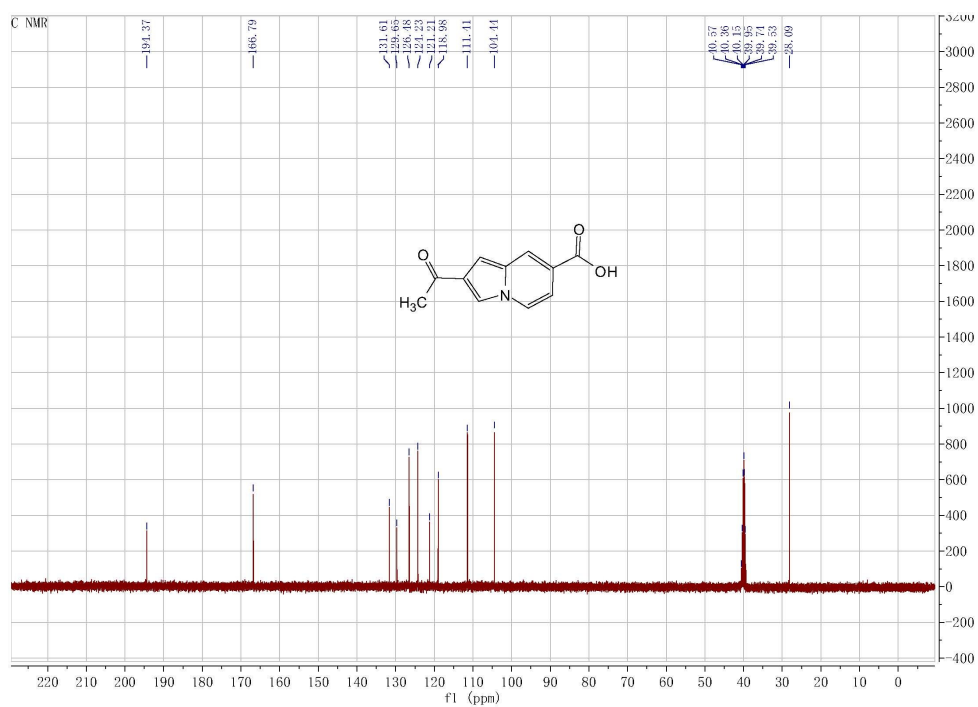


Fig. S6 ^{13}C NMR spectrum of compound 1.

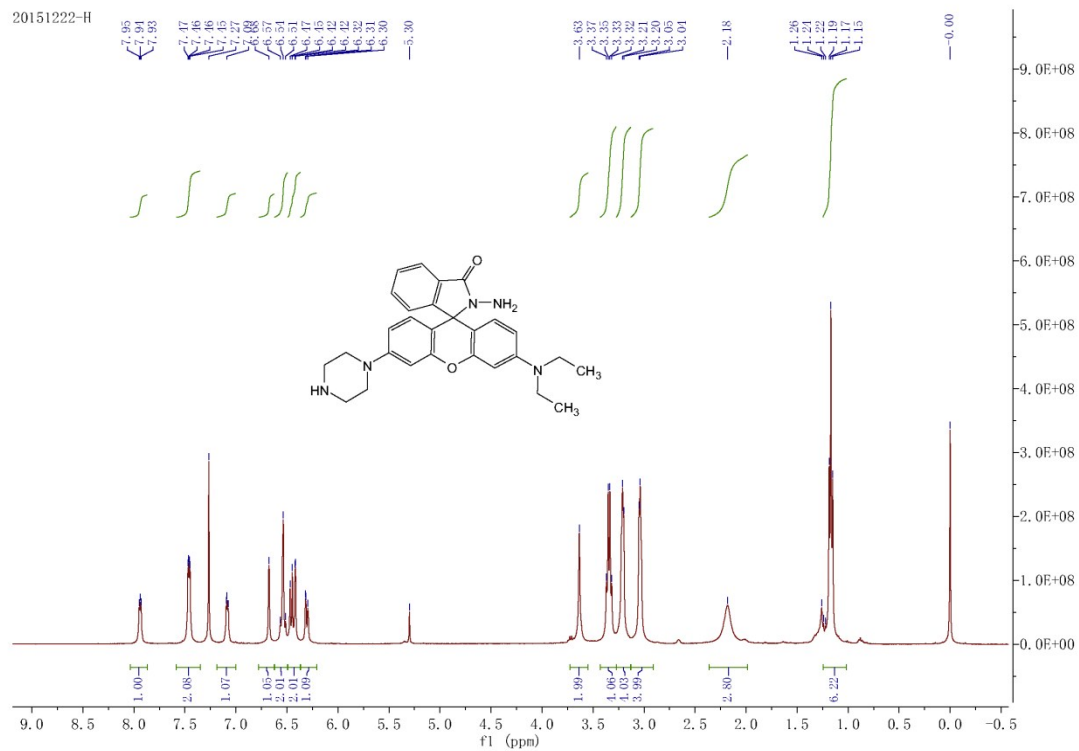


Fig. S7 ^1H NMR spectrum of compound 2.

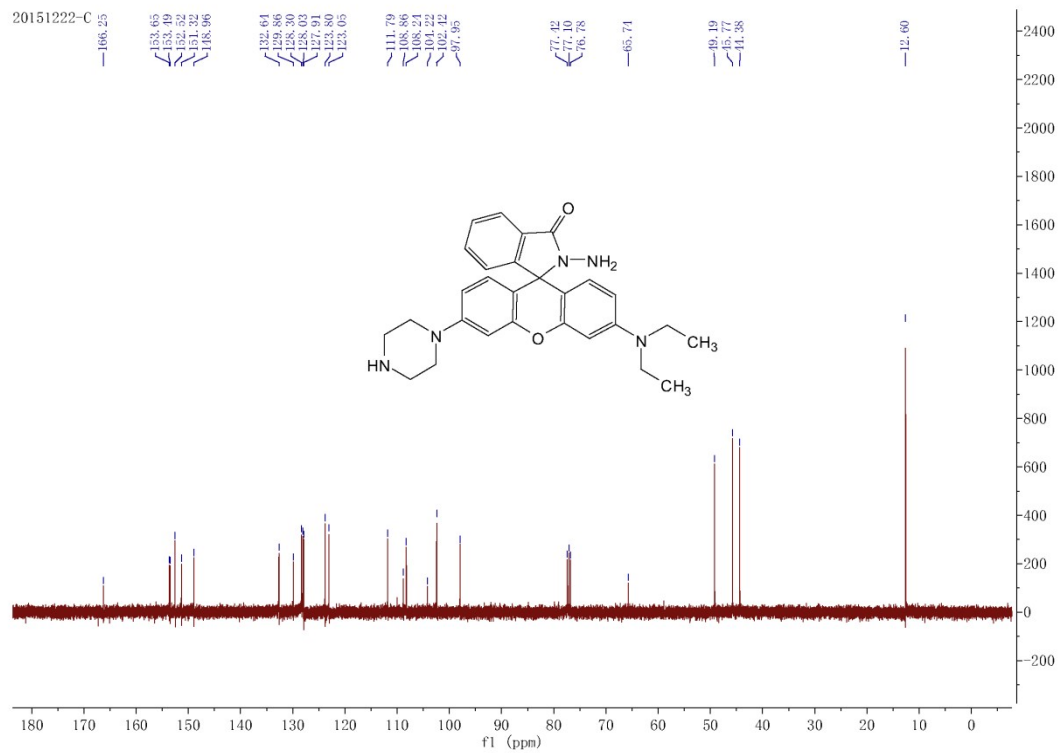


Fig. S8 ^{13}C NMR spectrum of compound 2.

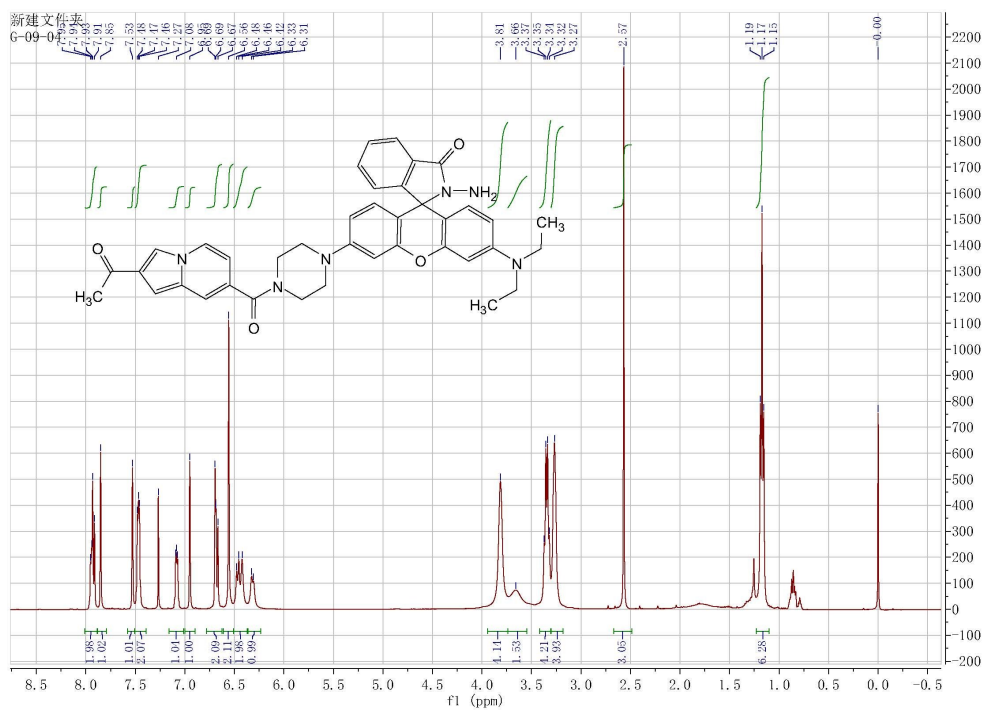


Fig. S9 ^1H NMR spectrum of compound 3.

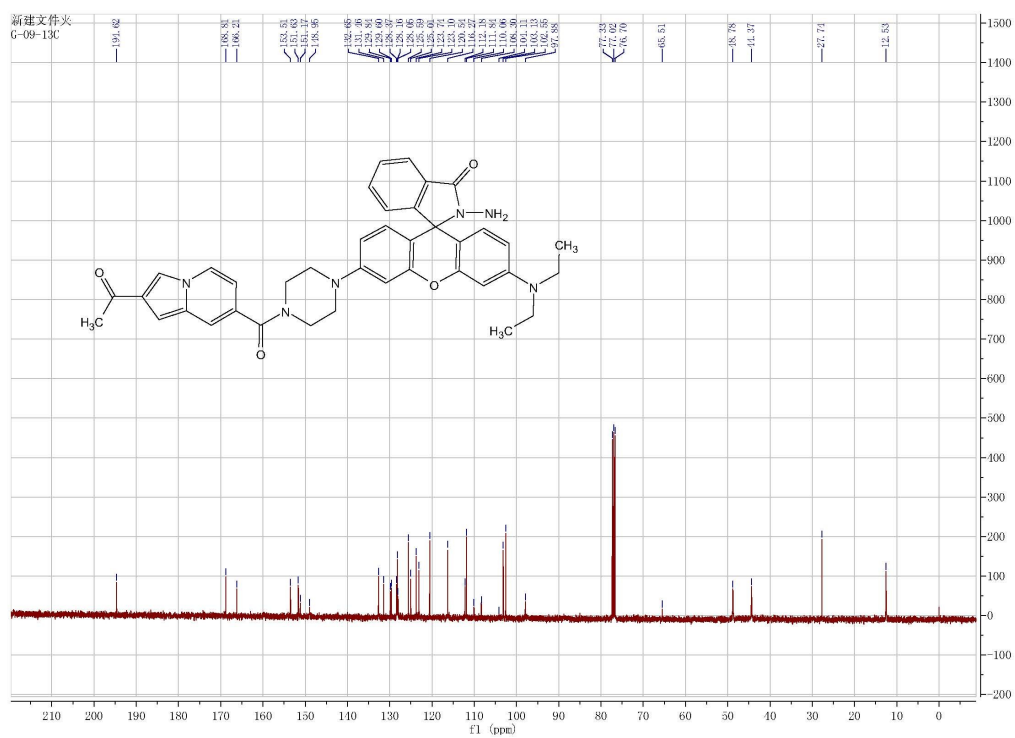


Fig. S10 ^{13}C NMR spectrum of compound 3.

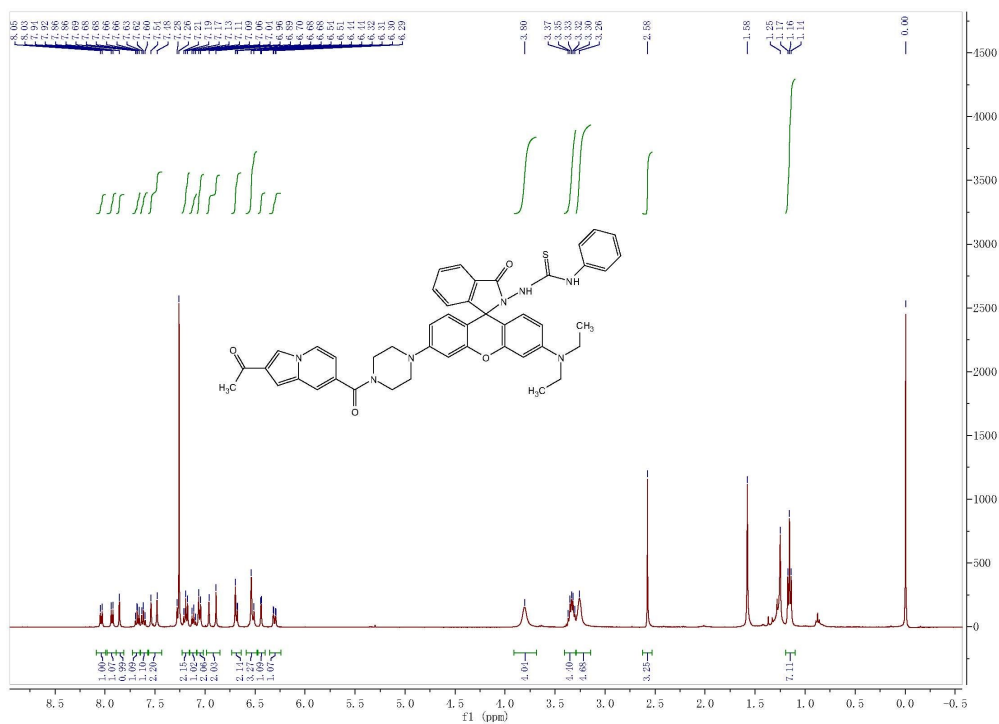


Fig. S11 ^1H NMR spectrum of probe **TMUHg-2**

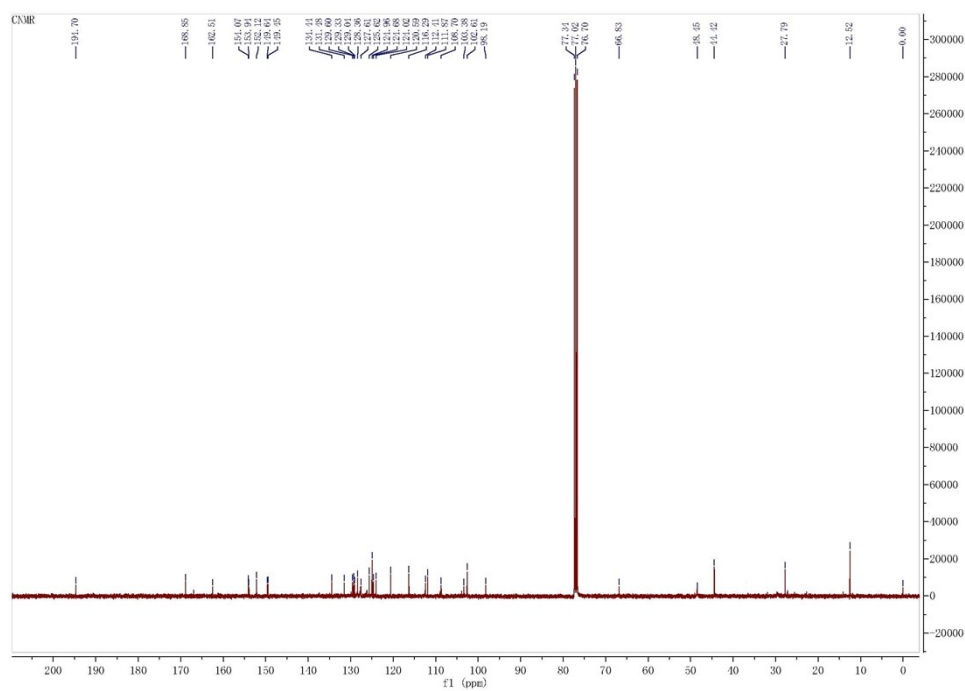


Fig. S12 ^{13}C NMR spectrum of probe **TMUHg-2**

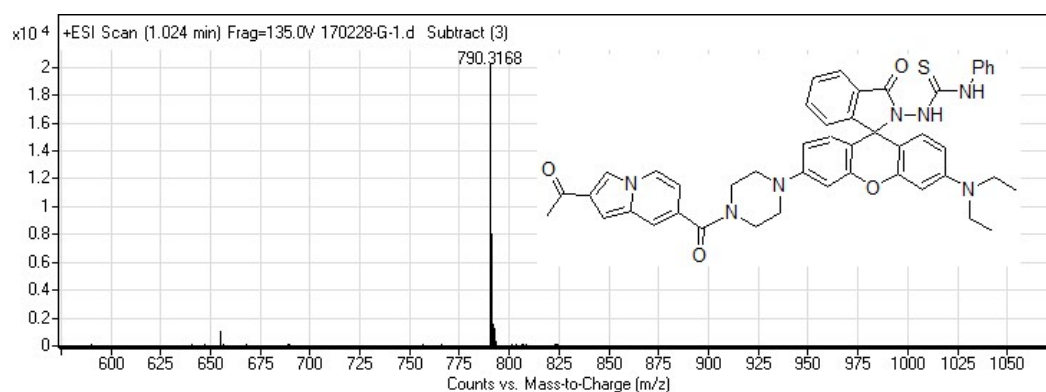


Fig. S13 HRMS spectrum of probe **TMUHg-2**

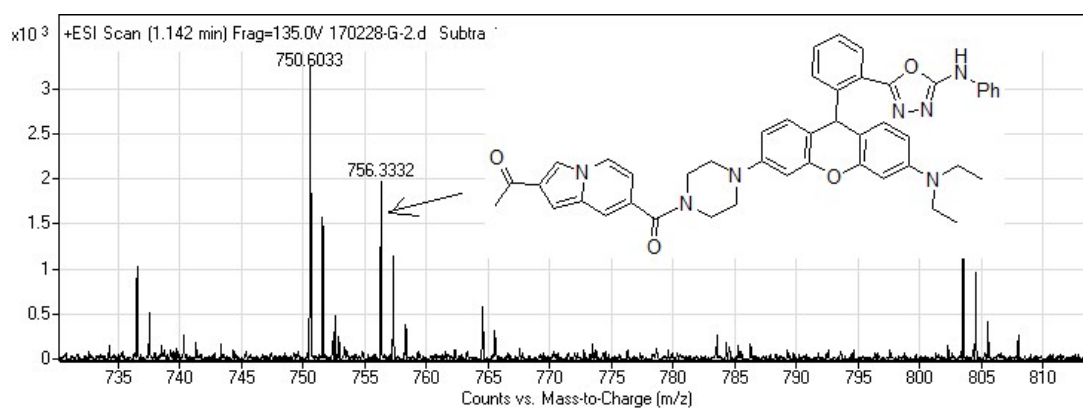


Fig. S14 HRMS spectrum of probe **TMUHg-2**

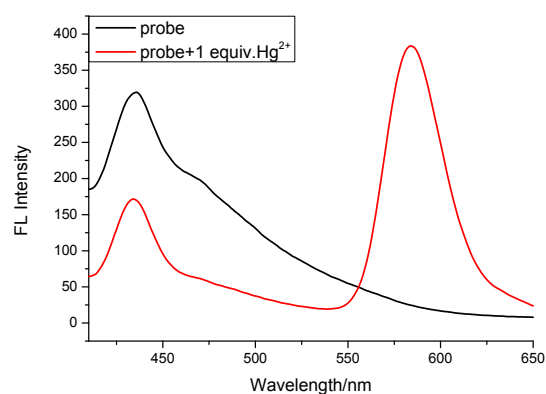


Fig. S15 The black line is the probe (1 μM) and the red line is probe (1 μM) after addition of Hg^{2+} (1 eq.) in $\text{C}_2\text{H}_5\text{OH}/\text{H}_2\text{O}$ solution (2/8, v/v, 0.01 M HEPES buffer, pH = 7.20, $\lambda_{\text{ex}} = 380$ nm, slit = 15 nm/10 nm).

Energy transfer efficiency (probe 1) = $1 - F_{\text{DA}}/F_{\text{D}} = 53.7\%$

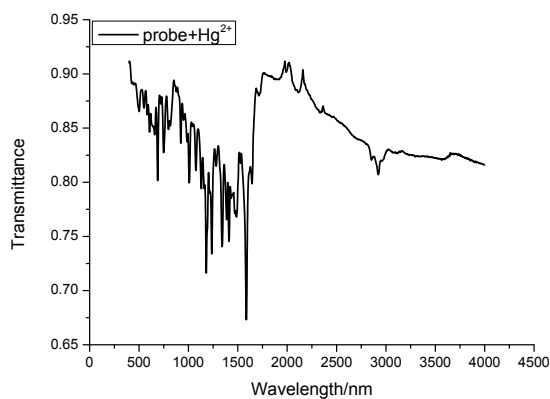
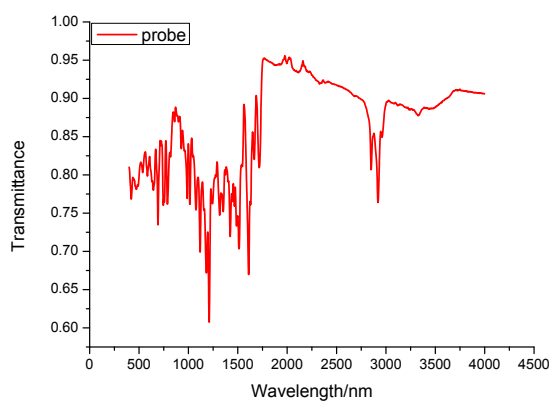


Fig. S16 The IR spectroscopy of **TMUHg-2** and **TMUHg-2-Hg**