

Supporting information

An imidazo[1,2-*a*]pyridine functionalized xanthene fluorescent probe for naked-eye detection of Hg²⁺ and its application in cell imaging and test strips

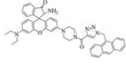
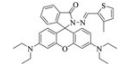
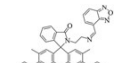
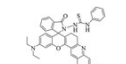
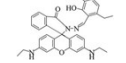
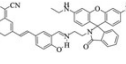
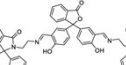
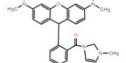
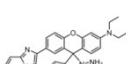
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Table S1 Comparison of reported xanthene-based Hg²⁺ fluorescent probe with **Rh-1p-Hy**.

Probe	Fluorescence Intensity change	LOD (mol/L)	Solvent medium	pH range	Application	Ref.
	Enhancement	8.1×10 ⁻⁷	H ₂ O/CH ₃ CN (v: v = 1:1)	5-9	Cell imaging	1
	55-fold enhancement	2.6×10 ⁻⁶	H ₂ O/CH ₃ OH (v: v = 1:1)	7-8 (when pH <6, the opening of the rhodamine ring occurs independently of the action of Hg ²⁺)	Cell imaging	2
	Enhancement	1.6×10 ⁻⁸	H ₂ O/C ₂ H ₅ OH (v: v = 1:9)	6-9 (when pH <6, the opening of the rhodamine ring occurs independently of the action of Hg ²⁺)	Water analysis	3
	354-fold enhancement	2.3×10 ⁻⁸	PBS/DMSO (v: v = 1:1)	5-8	Cell imaging; water analysis	4
	146-fold enhancement	2.0×10 ⁻⁶	H ₂ O/CH ₃ CN (v: v = 2:8)	--	Paper strip test	5
	Enhancement	1.2×10 ⁻⁷	PBS/C ₂ H ₅ OH (v: v = 3:7)	6-7.5 (when pH <6, the opening of the rhodamine ring occurs independently of the action of Hg ²⁺)	Cell imaging	6
	30-fold enhancement	3.3×10 ⁻⁷	H ₂ O/C ₂ H ₅ OH (v: v = 1:1)	5-7 (when pH <5, the opening of the rhodamine ring occurs independently of the action of Hg ²⁺)	--	7
	decrease	2.5×10 ⁻⁷	H ₂ O	2-12	Water analysis	8
	65-fold enhancement	5.7×10 ⁻⁸	H ₂ O/C ₂ H ₅ OH (v: v = 4:1)	5-11	Cell imaging;	This work

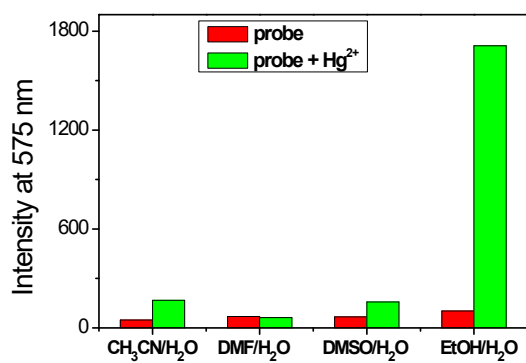


Fig. S1 The fluorescent responses of **Rh-Ip-Hy** (5 μ M) with Hg^{2+} (50 μ M) in different solvent systems.

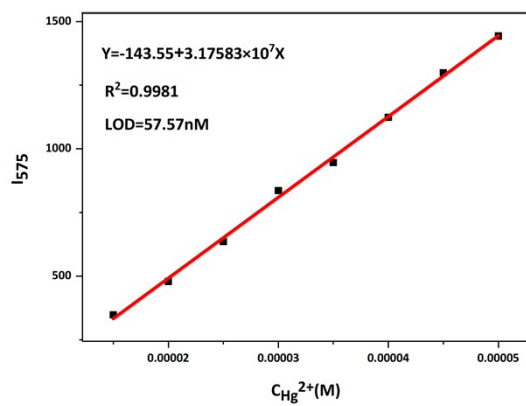


Fig. S2 The limit of detection (LOD) of probe **Rh-Ip-Hy** towards Hg^{2+} by fluorescence measured at 575 nm.

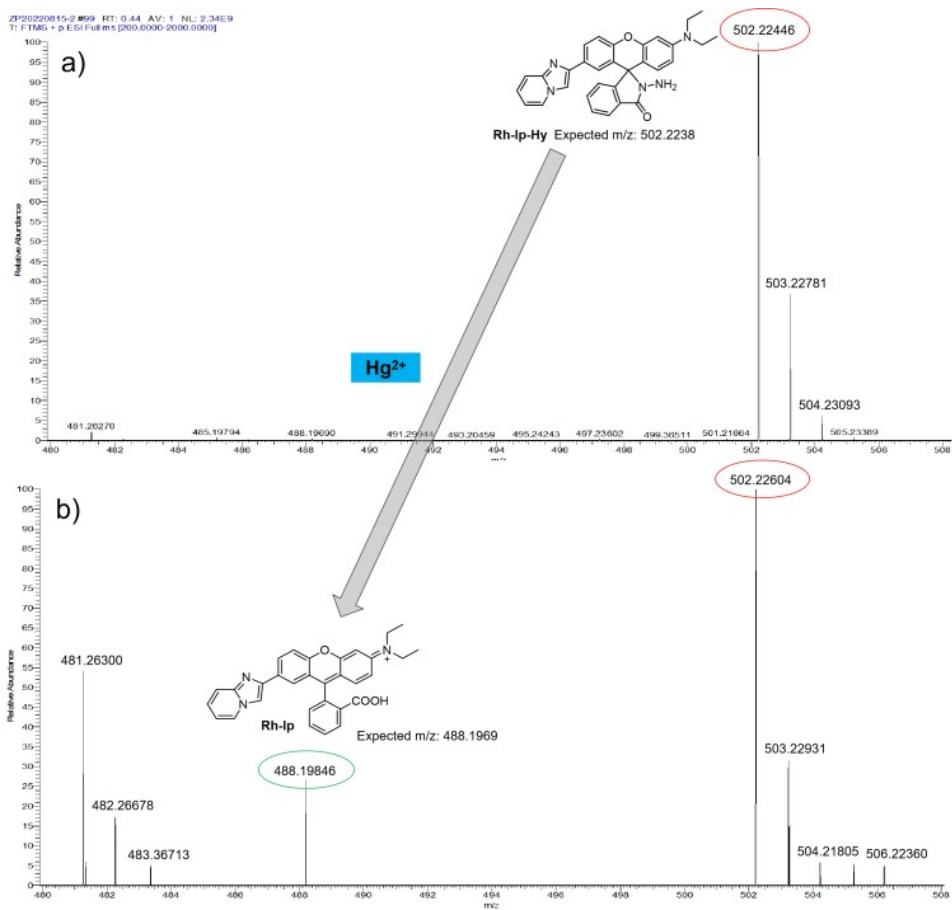


Fig. S3 HRMS spectra of **Rh-Ip-Hy** a) before and b) after the addition of Hg^{2+} (3.0 equiv.).

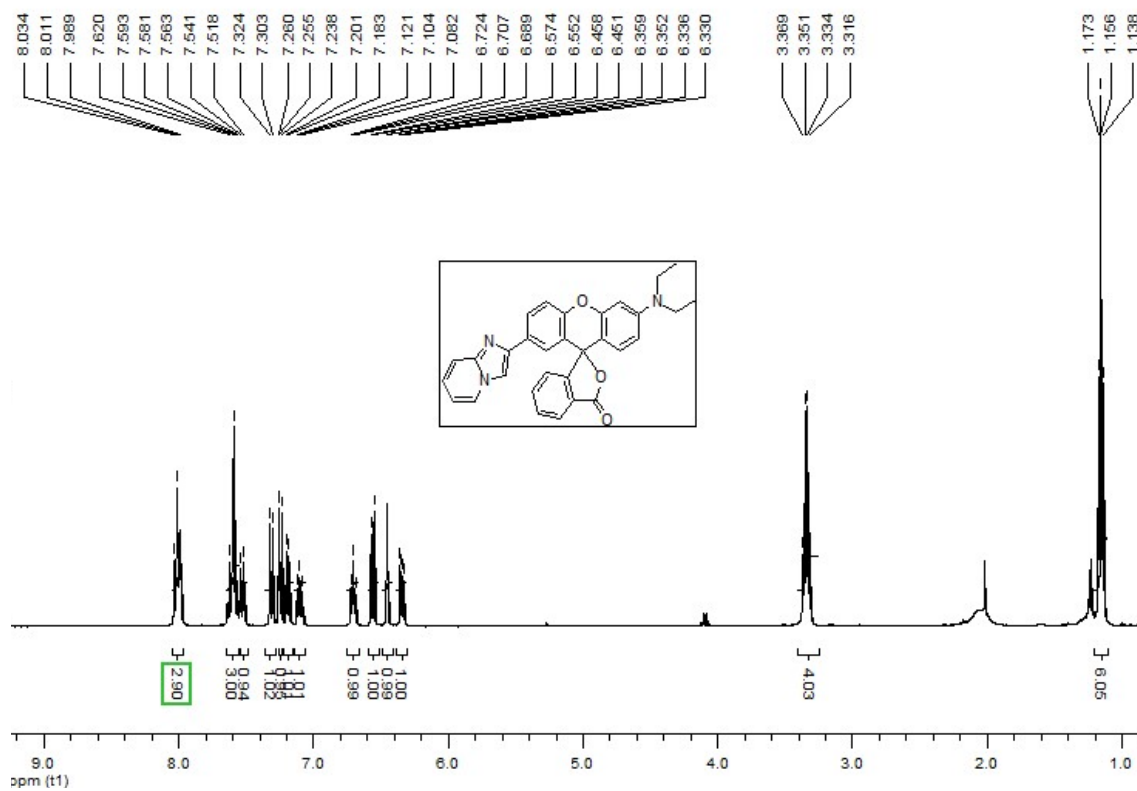


Fig. S4 ^1H NMR spectra of compound Rh-Ip in CDCl_3 .

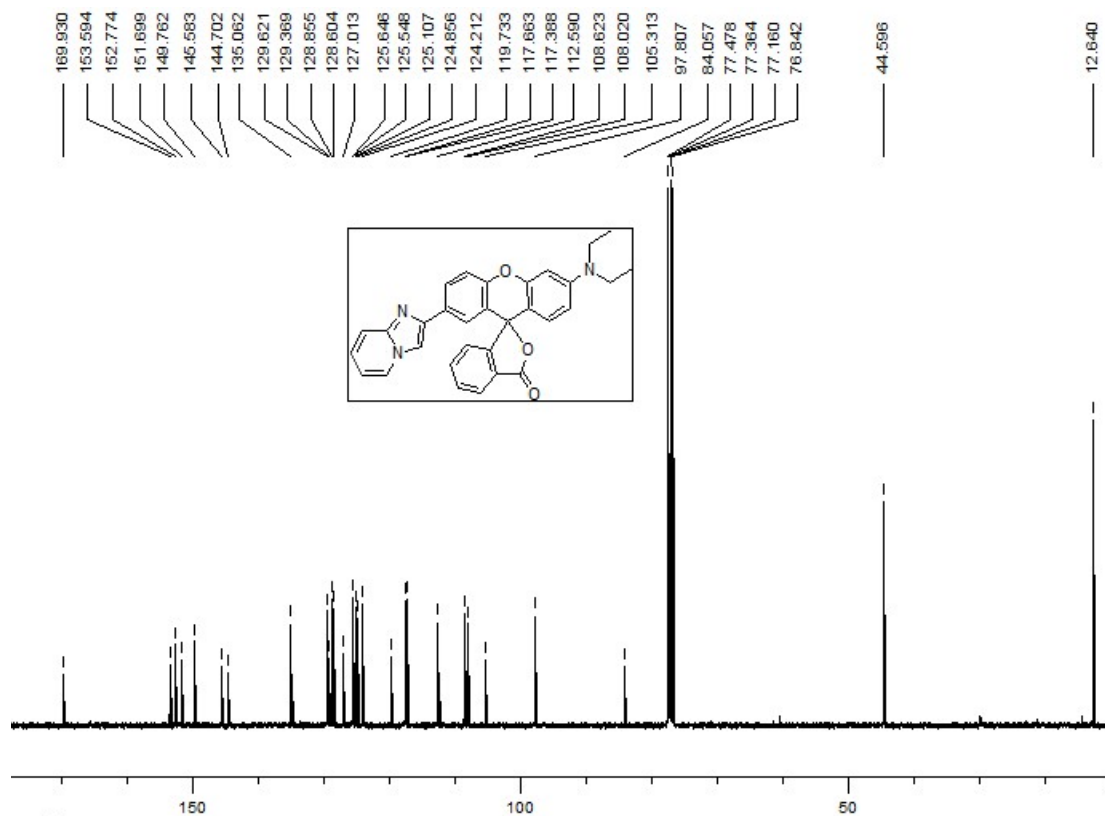


Fig. S5 ^{13}C NMR spectra of compound Rh-Ip in CDCl_3 .

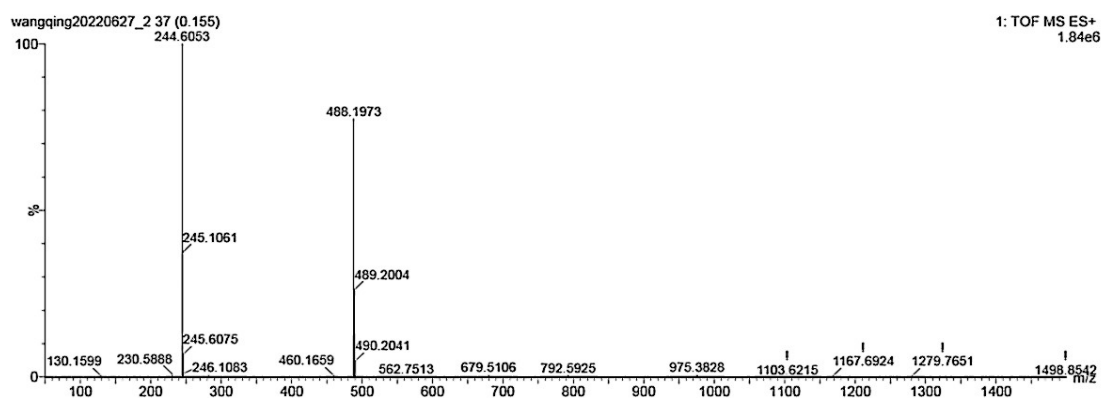


Fig. S6 HRMS spectra of compound **Rh-Ip**.

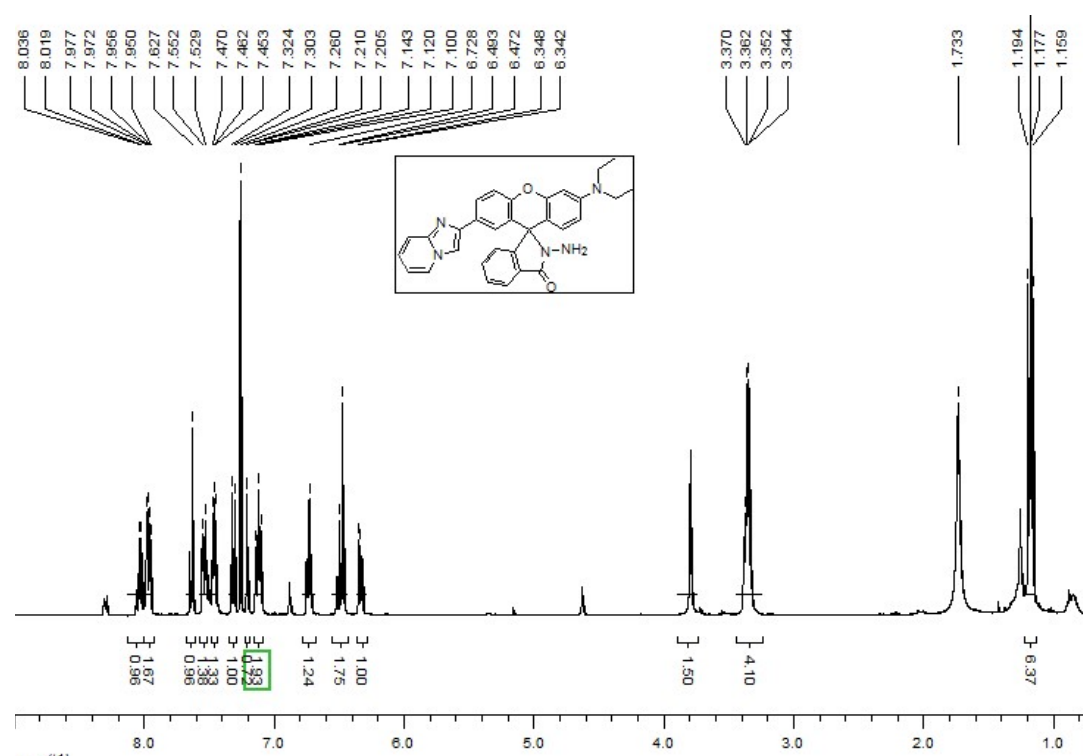


Fig. S7 ^1H NMR spectra of probe **Rh-Ip-Hy** in CDCl_3 .

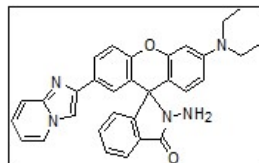
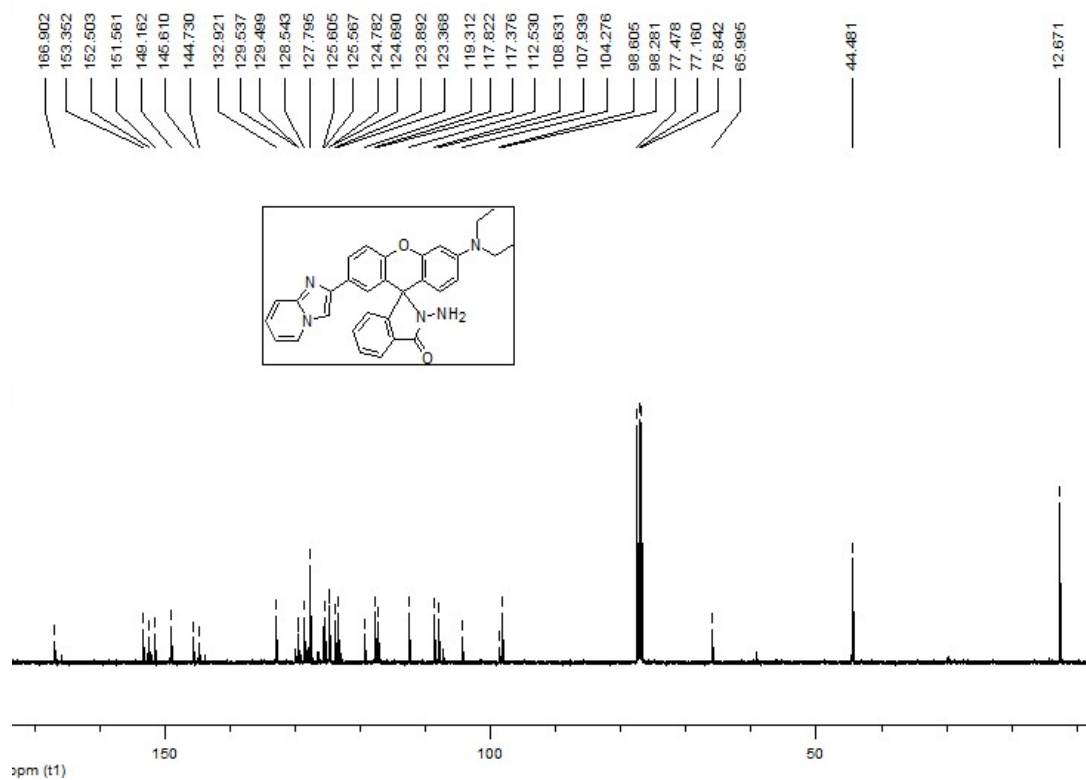


Fig. S8 ^{13}C NMR spectra of probe **Rh-Ip-Hy** in CDCl_3 .

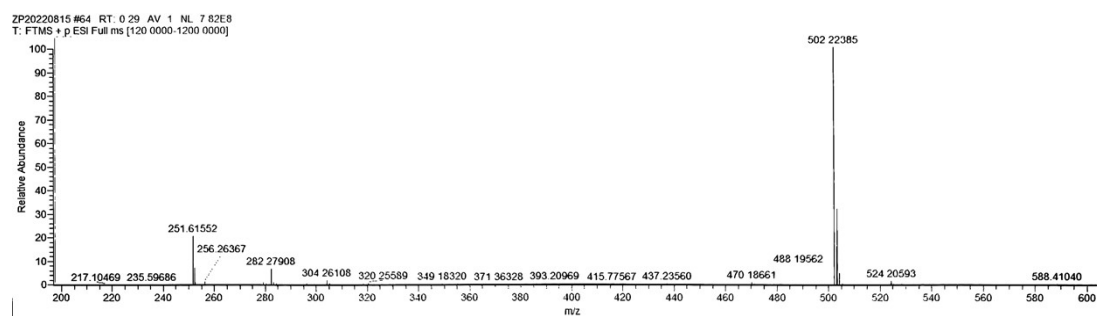


Fig. S9 HRMS spectra of probe **Rh-Ip-Hy**.

References

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