Electronic Supplementary Material (ESI) for Analytical Methods

Through-bond energy transfer cassette based on spirobifluorene-tetrrhodamine for the colorimetric and ratiometric investigation towards trace Hg^{2+}

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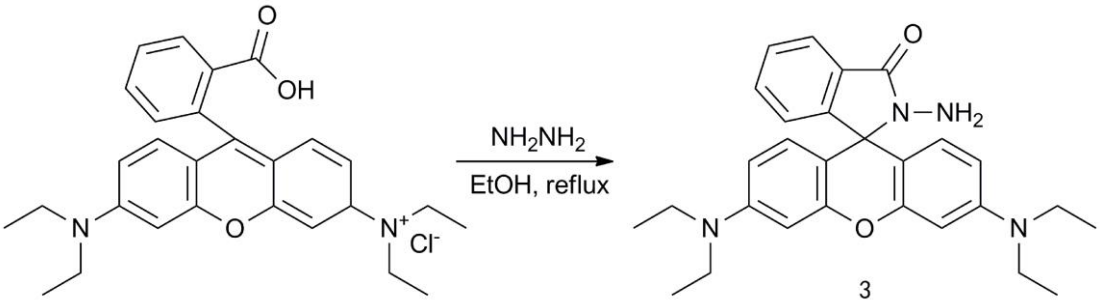

Scheme S1 The Synthesis route of compound 3

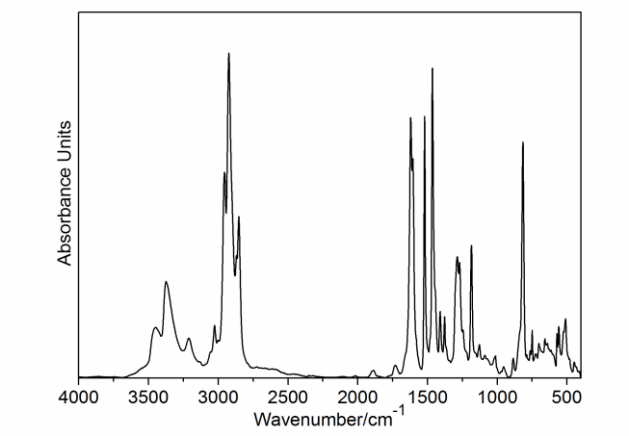

Fig.S1 FT-IR spectrum of compound 1.

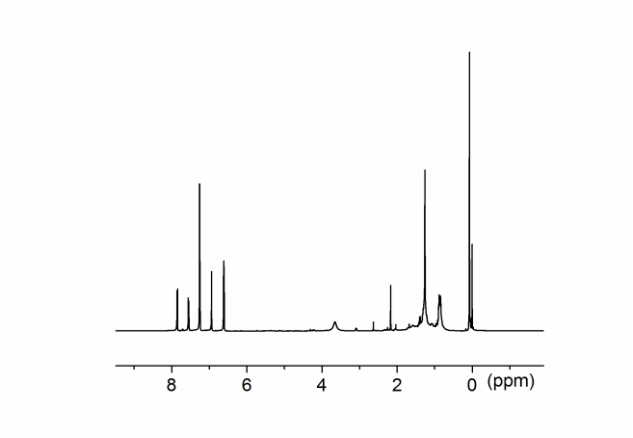

Fig. S2 **^{1}H NMR spectrum of compound 1.**

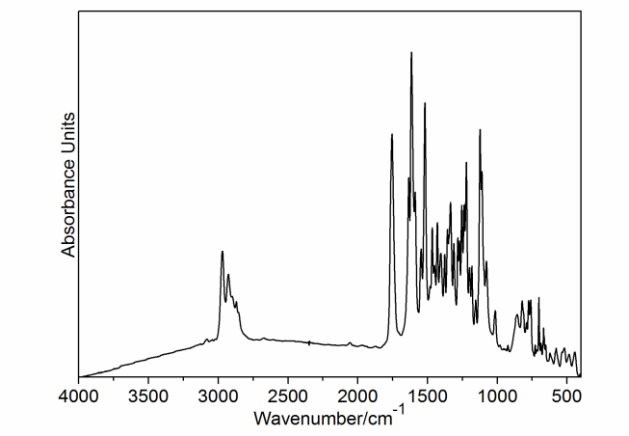

Fig. S3 FT-IR spectrum of compound 2.

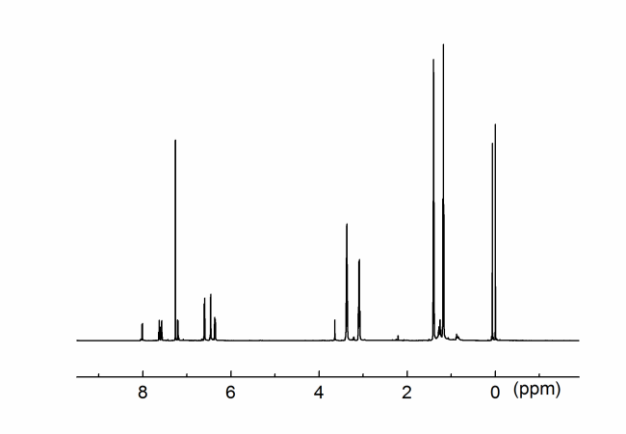

Fig. S4 **^{1}H NMR spectrum of compound 2.**

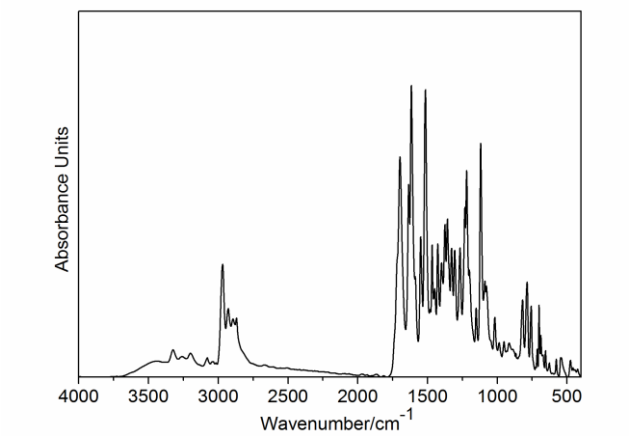

Fig. S5 FT-IR spectrum of compound 3.

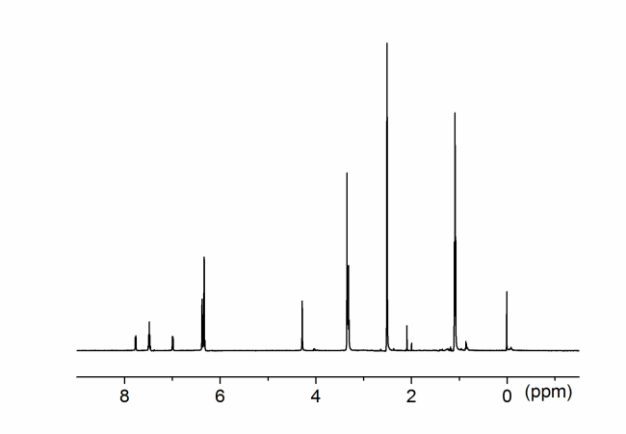

Fig. S6 **^{1}H NMR spectrum of compound 3.**

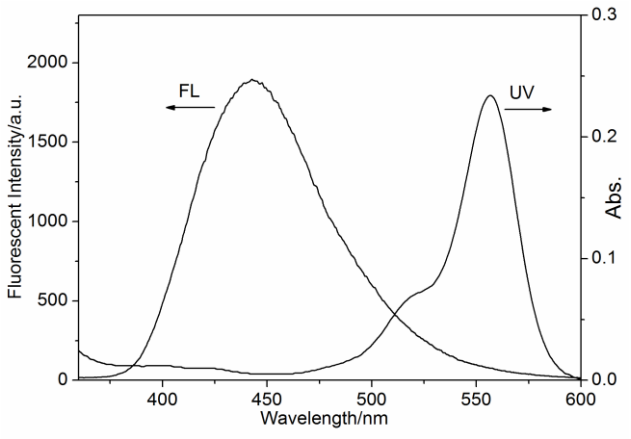

Fig. S7 Absorption of rhodamine moiety in compound 2 (right) and emission spectrum of compound 1 (left). Shaded area indicates the spectral overlap between the emission of compound 1 and the rhodamine moiety characteristic absorption.

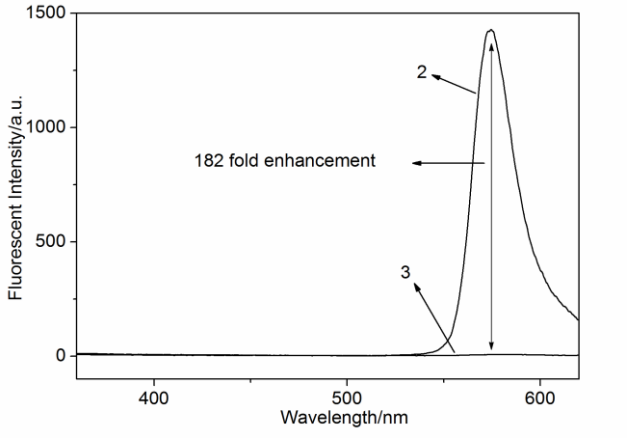

Fig. S8 Fluorescence emission spectra of compound 2 (10 μM) in the presence of Hg^{2+} (100 μM) and compound 3 (40 μM) in the presence of Hg^{2+} (100 μM) in methanol/H_2O (4:1, v/v). λ_{ex}=314 nm. Equation used ($I-I_0/I_0$), I_0=fluorescence intensity of compound 3 at 570 nm after the addition of Hg^{2+}; I=fluorescence intensity at 570 nm of compound 2 after the addition of Hg^{2+}.

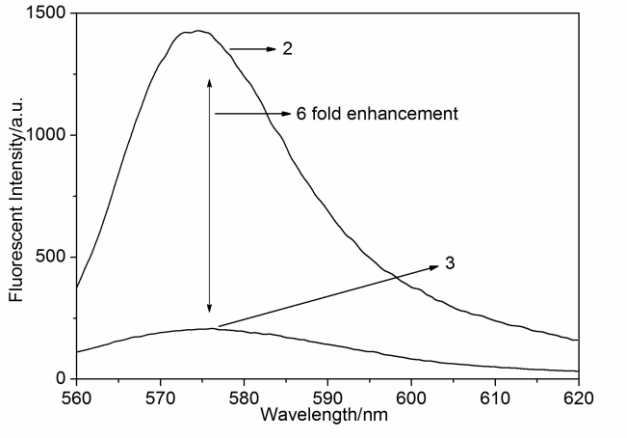

Fig. S9 Fluorescence emission spectra of compound 2 (10 μM) in the presence of Hg^{2+} (100 μM) with an excitation at 314 nm in methanol/H_2O (4:1, v/v) and compound 3 (40 μM) in the presence of Hg^{2+} (100 μM) with an excitation at 550 nm in methanol/H_2O (4:1, v/v). Equation used ($I-I_0/I_0$), I_0=fluorescence intensity of compound 3 at 570 nm after the addition of Hg^{2+}; I=fluorescence intensity at 570 nm of compound 2 after the addition of Hg^{2+}.

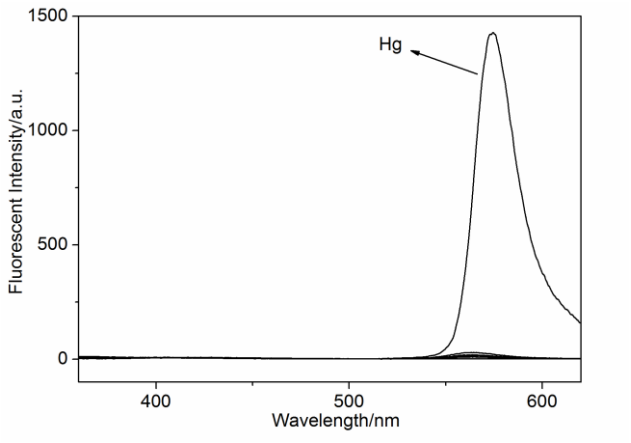

Fig. S10 Fluorescence emission spectra recorded of compound 2 (10 μM) in the presence of different metal ions (100 μM) in methanol/H_2O (4:1, v/v). λ_{ex}=314 nm.