

Electronic Supplementary Information (ESI)

Selective detection of Hg²⁺ using fluorescent rhodamine-functionalized Fe₃O₄ nanoparticles

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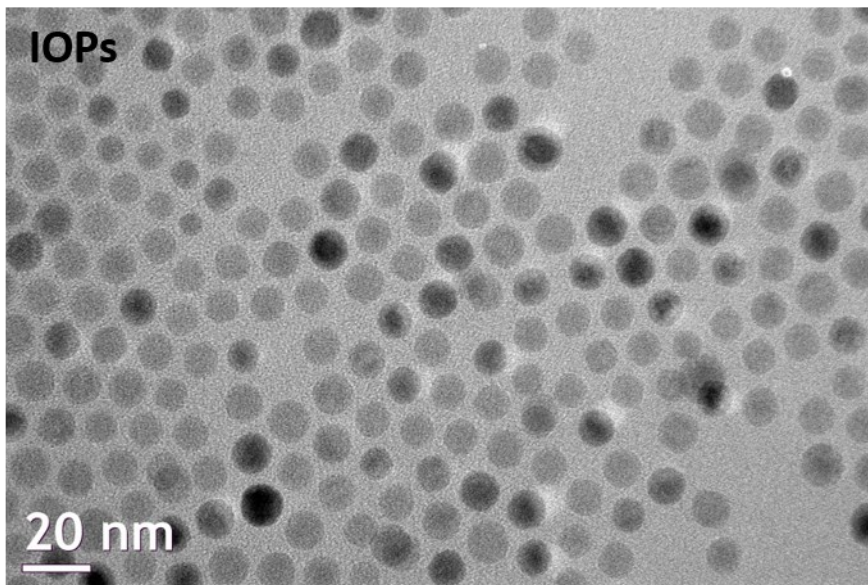


Fig. S1 TEM image of IOPs.

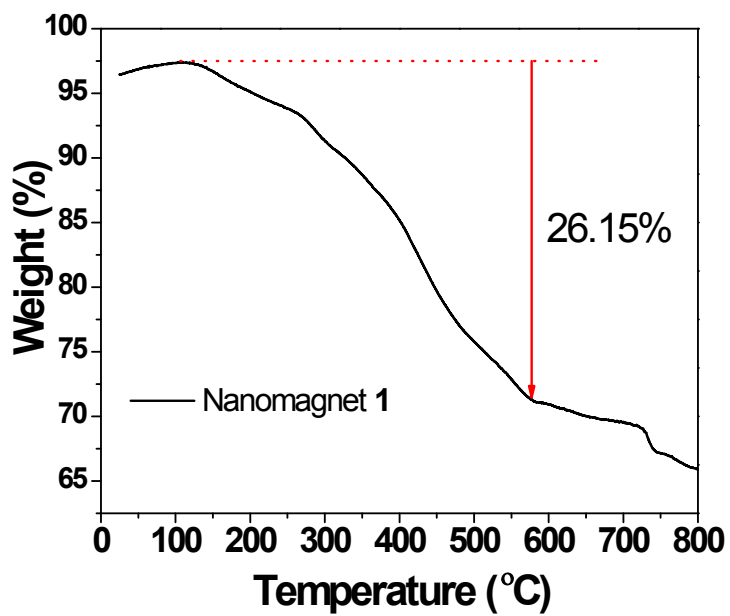


Fig. S2 TGA curve of 1.

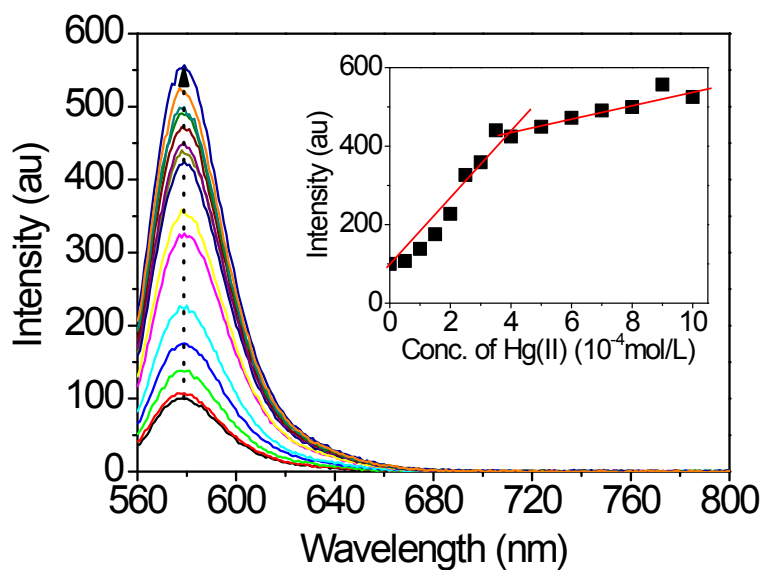


Fig. S3 The fluorescence titration spectra of **2** (10 μ M) in the presence of increasing amounts of Hg^{2+} ions (0 to 400 equiv) in aqueous solution (HEPES:EtOH = 1:1, v/v; 0.01 M) at pH 7.4. Inset: fluorescence intensity at 579 nm as a function of equiv of Hg^{2+} ions.

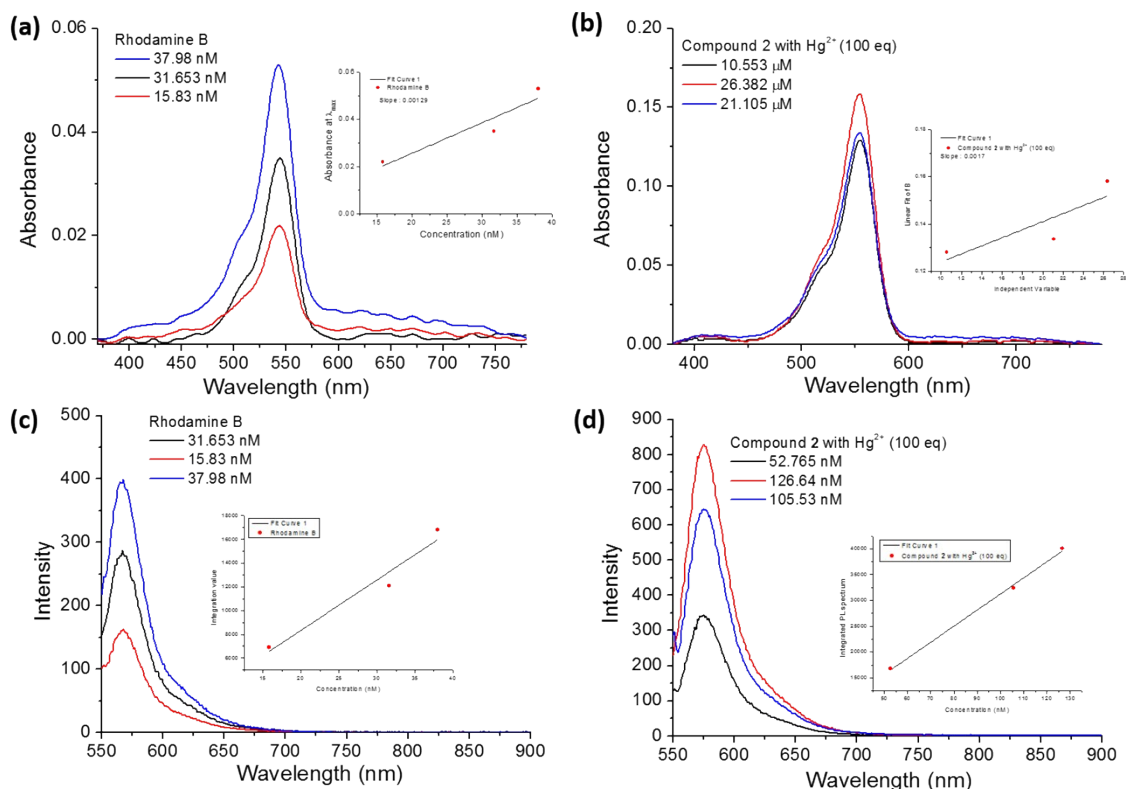


Fig. S4 UV-Vis spectra of (a) rhodamine B and (b) compound **2** with Hg^{2+} (100 eq) in ethanol. Fluorescence spectra of (c) rhodamine B, (d) compound **2** with Hg^{2+} (100 eq) in ethanol.

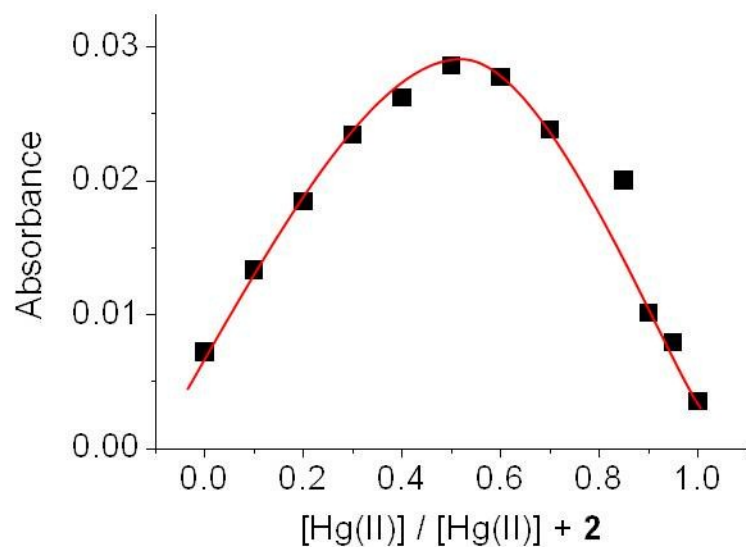


Fig. S5 Job's plot for the complexation of **2** with Hg^{2+} ions in aqueous solution (HEPES:EtOH = 1:1, v/v; 0.01 M) at pH 7.4.

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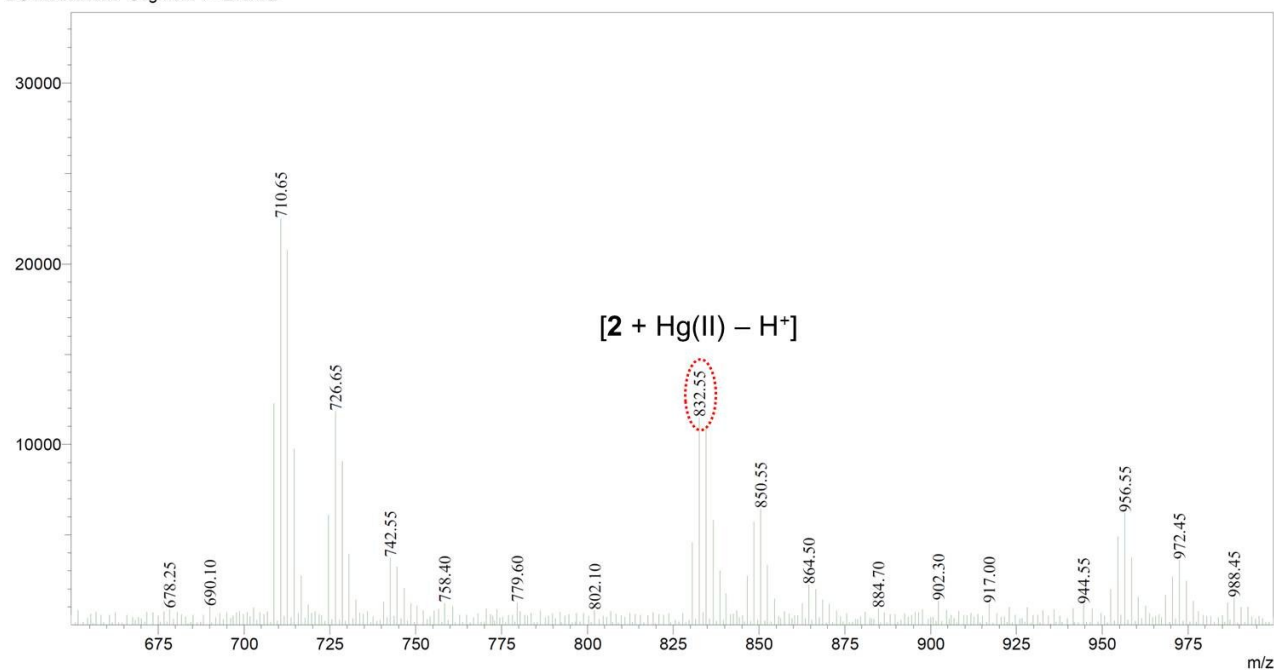


Fig. S6 ESI-MS spectrum of **2**- Hg^{2+} .

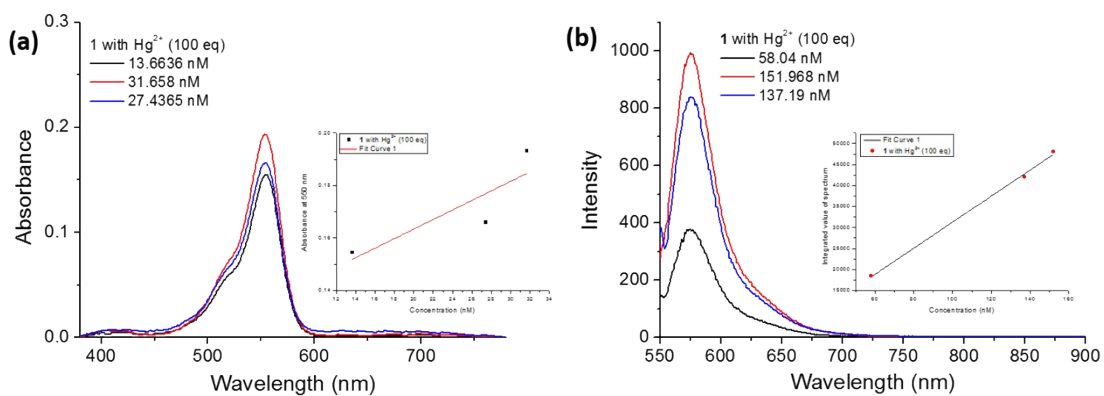
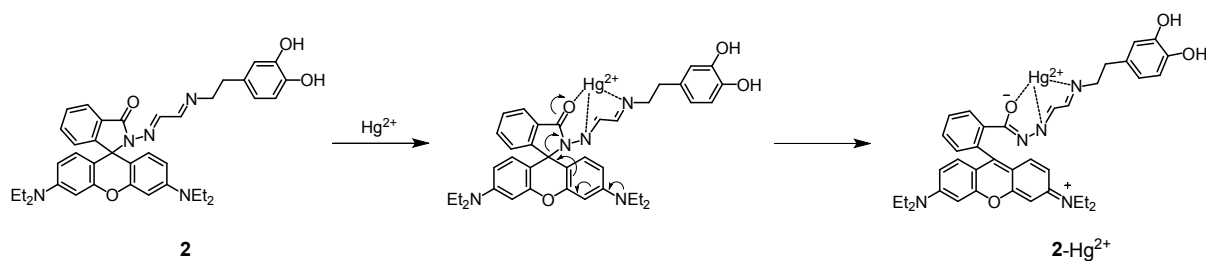


Fig. S7 UV-vis spectra of (a) **1** with Hg^{2+} (100 eq) and (b) fluorescence spectra of **1** with Hg^{2+} (100 eq) in ethanol.



Scheme S1 Proposed binding mechanism of **2** with Hg^{2+} .

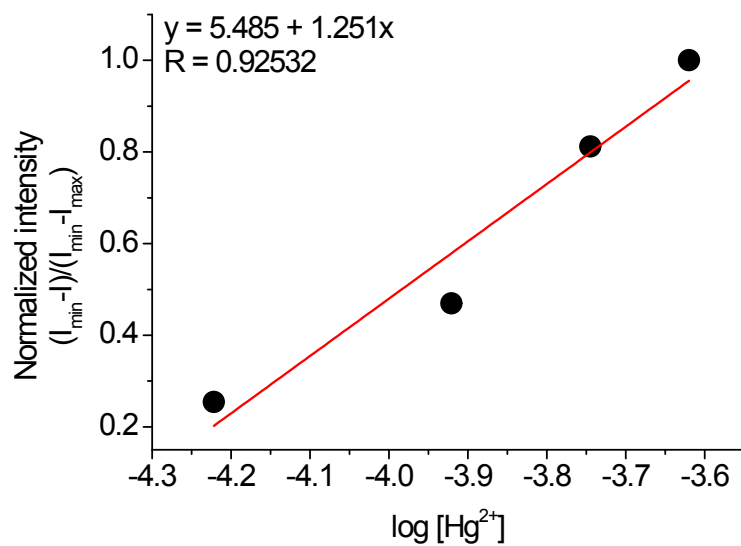


Fig. S8 Fluorescence intensity of **1** plotted as a function of Hg^{2+} concentration (0 μM – 240 μM). The detection limit was determined to be 4.13×10^{-5} M.

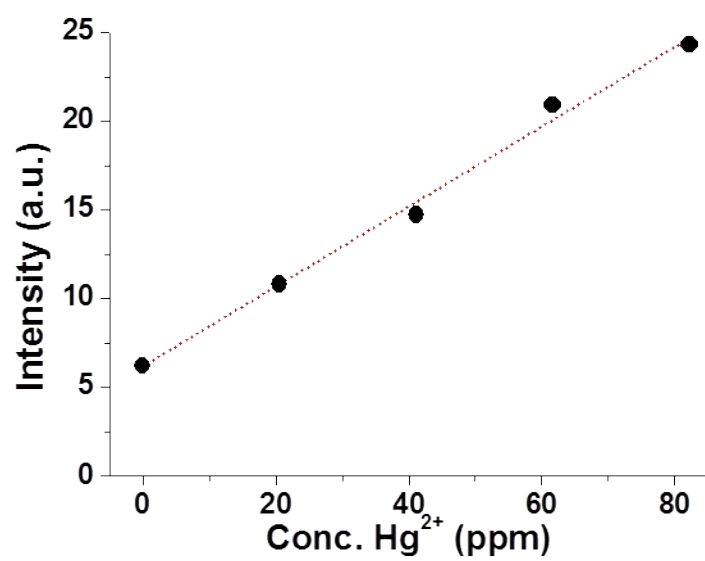


Fig. S9 Fluorescence intensity of **1** plotted as a function of Hg²⁺ concentration in urine samples.