

Supporting information for

A rhodamine-based chemosensor with diphenylselenium for highly selective fluorescent turn-on detection of Hg²⁺ *in vitro* and *in vivo*

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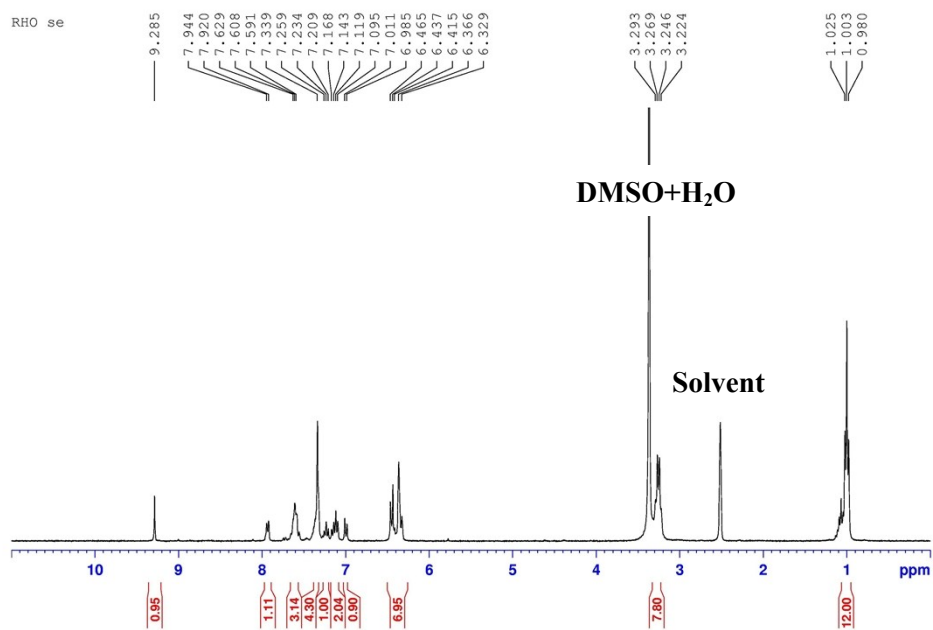


Figure S1. ¹H NMR (300 MHz, DMSO) spectrum of **RhoSe**

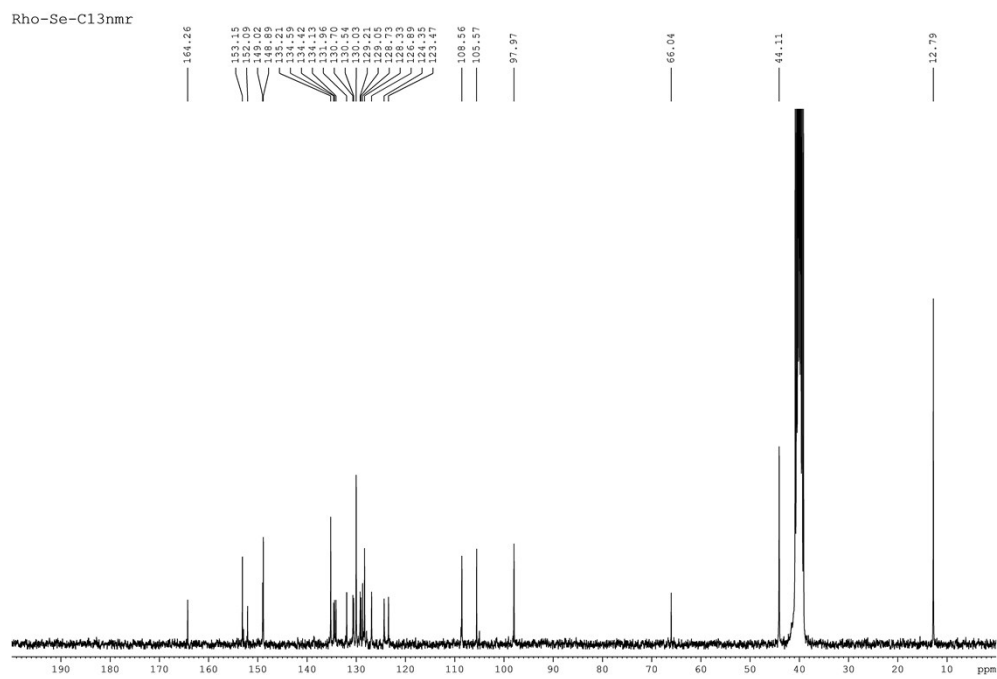


Figure S2. ¹³C NMR (300 MHz, DMSO) spectrum of **RhoSe**

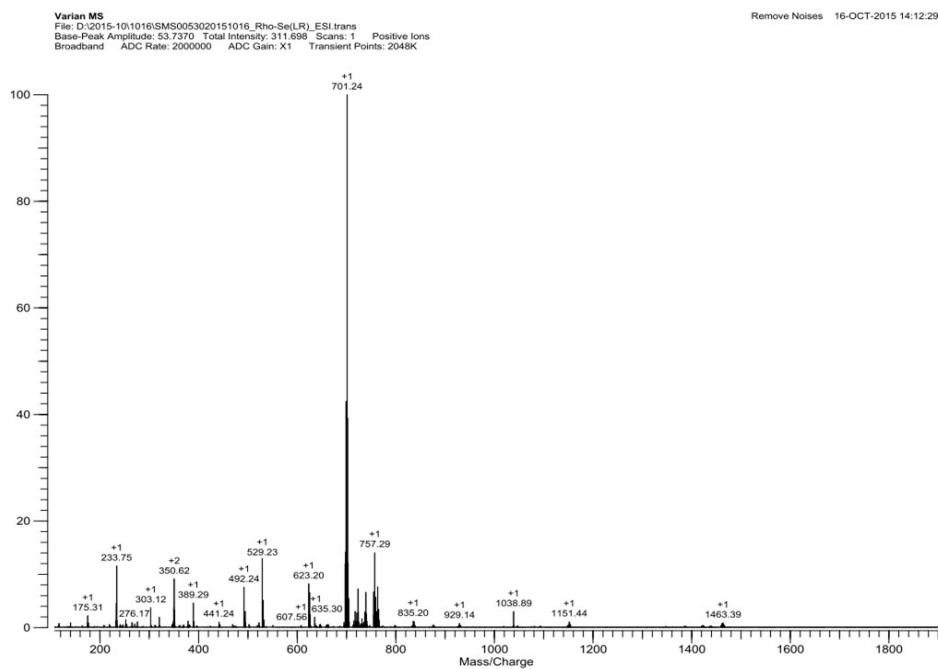


Figure S3. LR ESI⁺ Mass spectrum of RhoSe

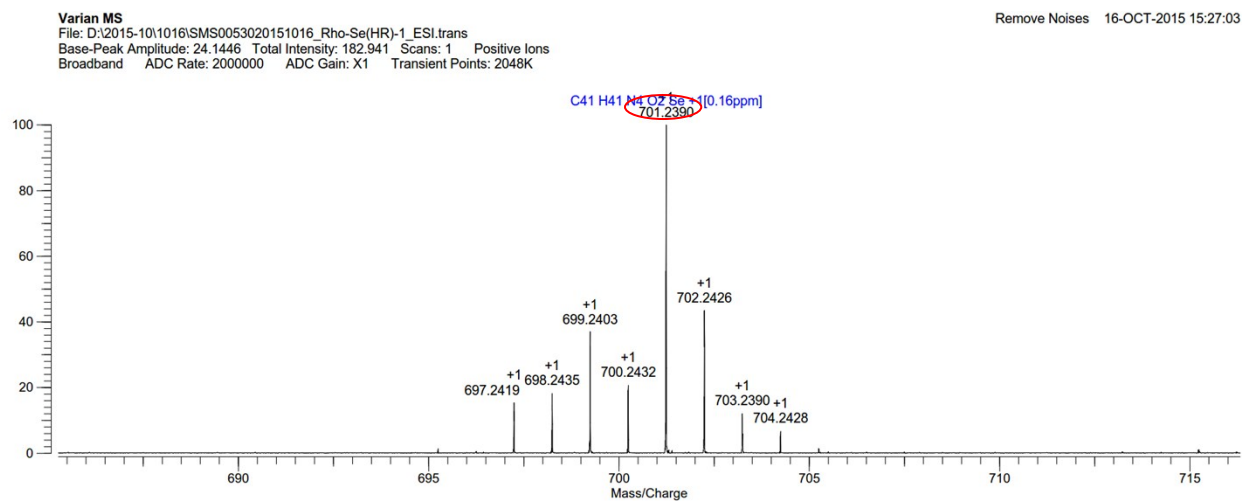


Figure S4. HR ESI⁺ Mass spectrum of RhoSe

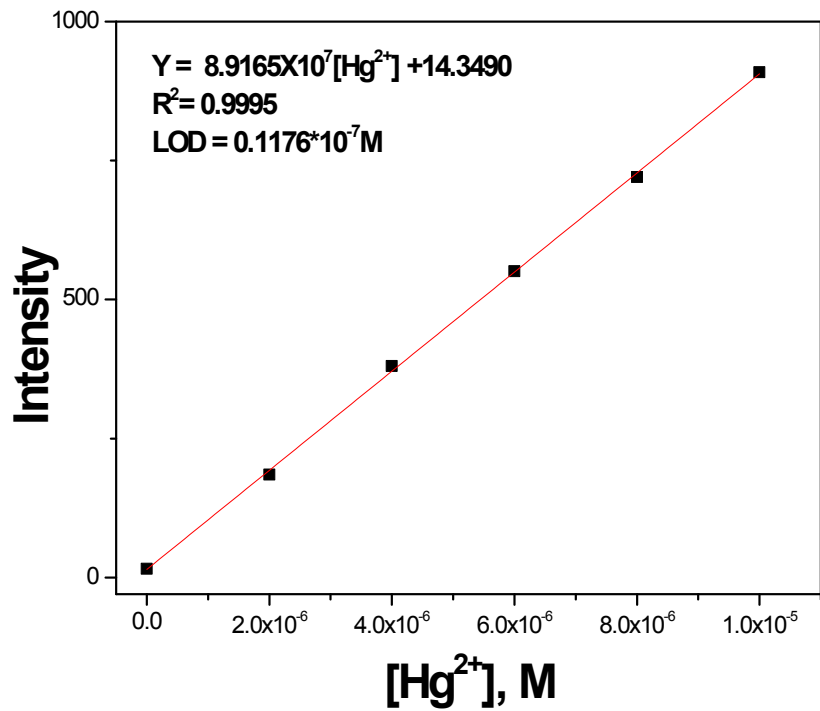


Figure S5. Detection limit for titration of Hg²⁺ (0~1 equiv. respectively) against ratio of fluorescence response for **RhoSe** (10 μ M) in CH₃OH/H₂O (v/v = 9:1) solution. The excitation wavelength was 510 nm.

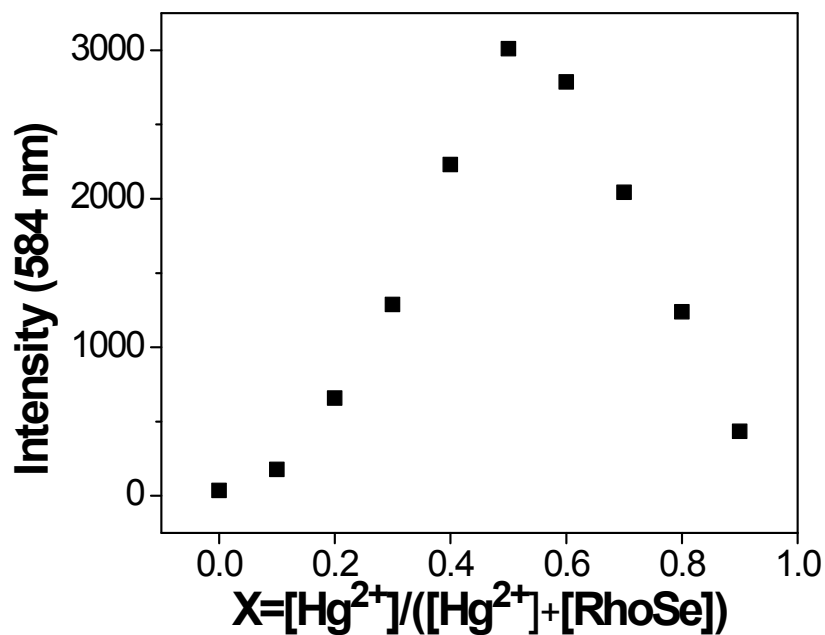


Figure S6. Job plot of the **RhoSe-Hg²⁺** complex in CH₃OH/H₂O (v/v = 9:1) solution. The total concentration of **RhoSe** and Hg²⁺ was 50 μM. The excitation wavelength was 510 nm.

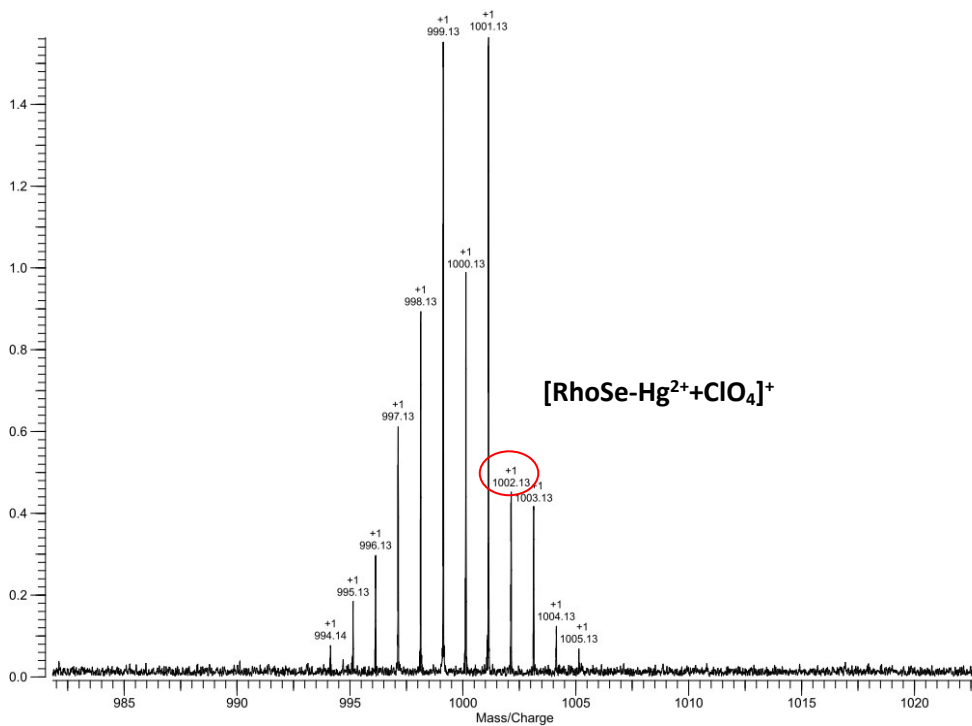


Figure S7. Mass spectrum of **RhoSe-Hg²⁺** complex

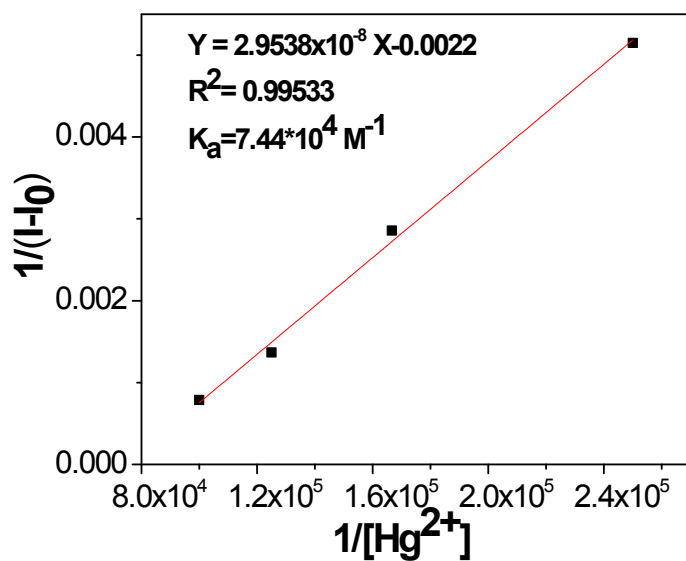


Figure S8. Binding constant for titration of Hg^{2+} (0 to 3.0 eq) against ratio of fluorescence response for **RhoSe** (10 μM) in $\text{CH}_3\text{OH}/\text{H}_2\text{O}$ (v/v = 9:1) solution. The excitation wavelength was 510 nm.

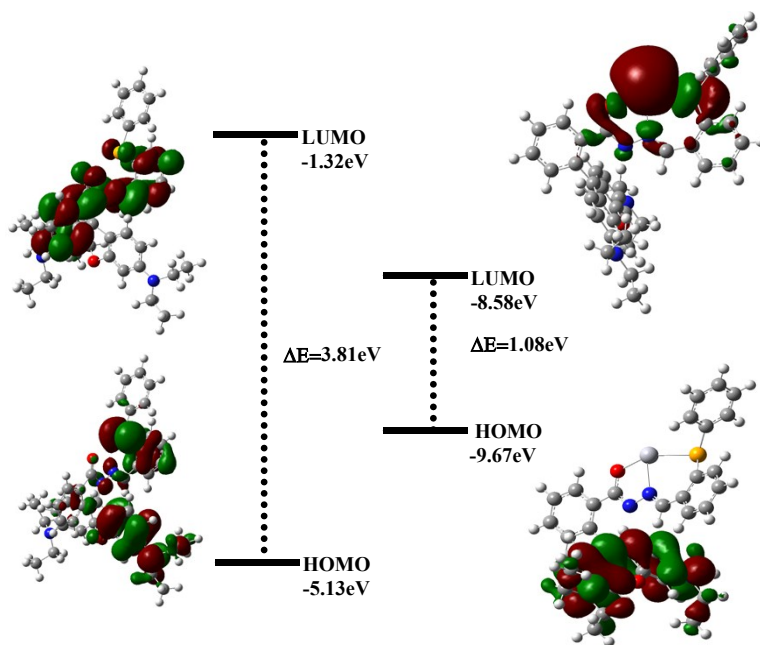


Figure S9. HOMO and LUMO levels of **RhoSe** and **RhoSe- Hg^{2+}** .

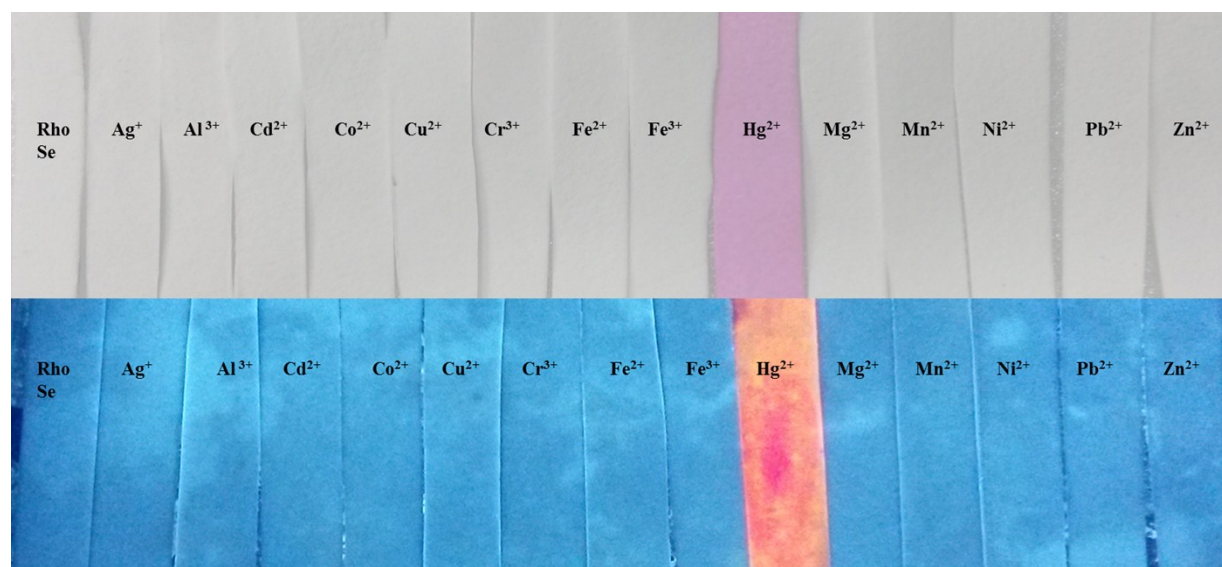


Figure S10. Strip methods of (a) color change and (b) fluorescence changes of **RhoSe** (1mM) after addition of various metal ions

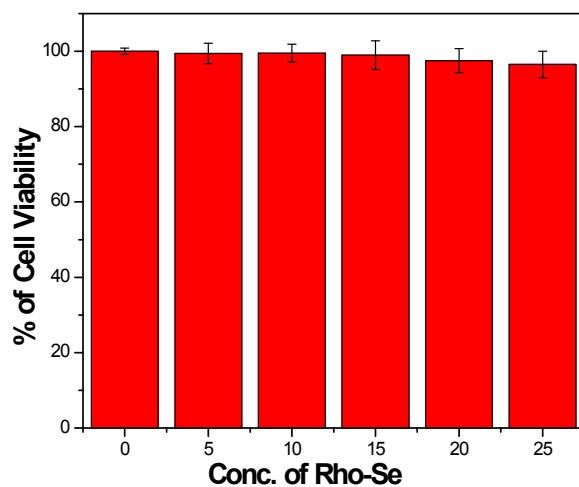


Figure S11. Cell viability values (%) estimated by an MTT assay versus incubation concentrations of **RhoSe**. HeLa cells were cultured in the presence of **RhoSe** (0–25 μ M) at 37 $^{\circ}$ C for 24 h.