

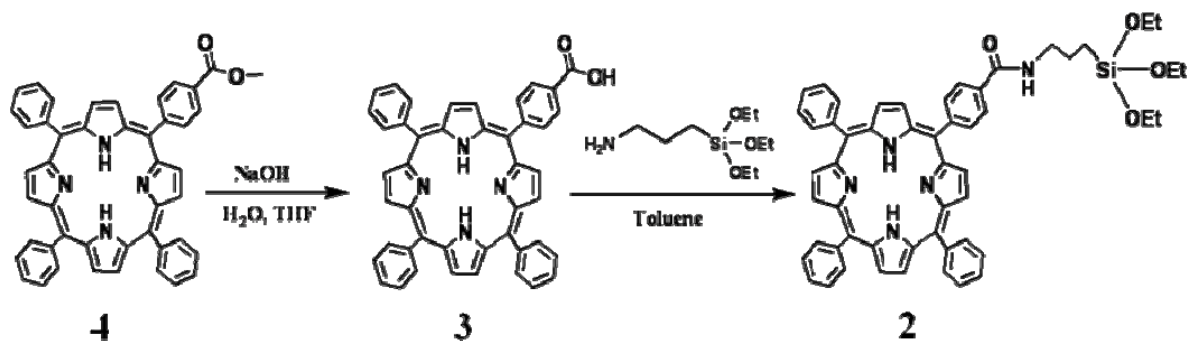
【Electronic Supplementary Information】

Recyclable fluorimetric and colorimetric mercury-
specific sensor by using porphyrin-functionalized
 $\text{Au}@\text{SiO}_2$ core/shell nanoparticles

*Youngje Cho, Shim Sung Lee and Jong Hwa Jung**

Department of Chemistry and Research Institute of Natural Sciences and Environmental
Biotechnology National Core Research Center, Gyeongsang National University, Jinju 660-
701, Korea

* To whom correspondence should be addressed. E-mail: jonghwa@gnu.ac.kr



Scheme S1. Synthetic route of the receptor 2.

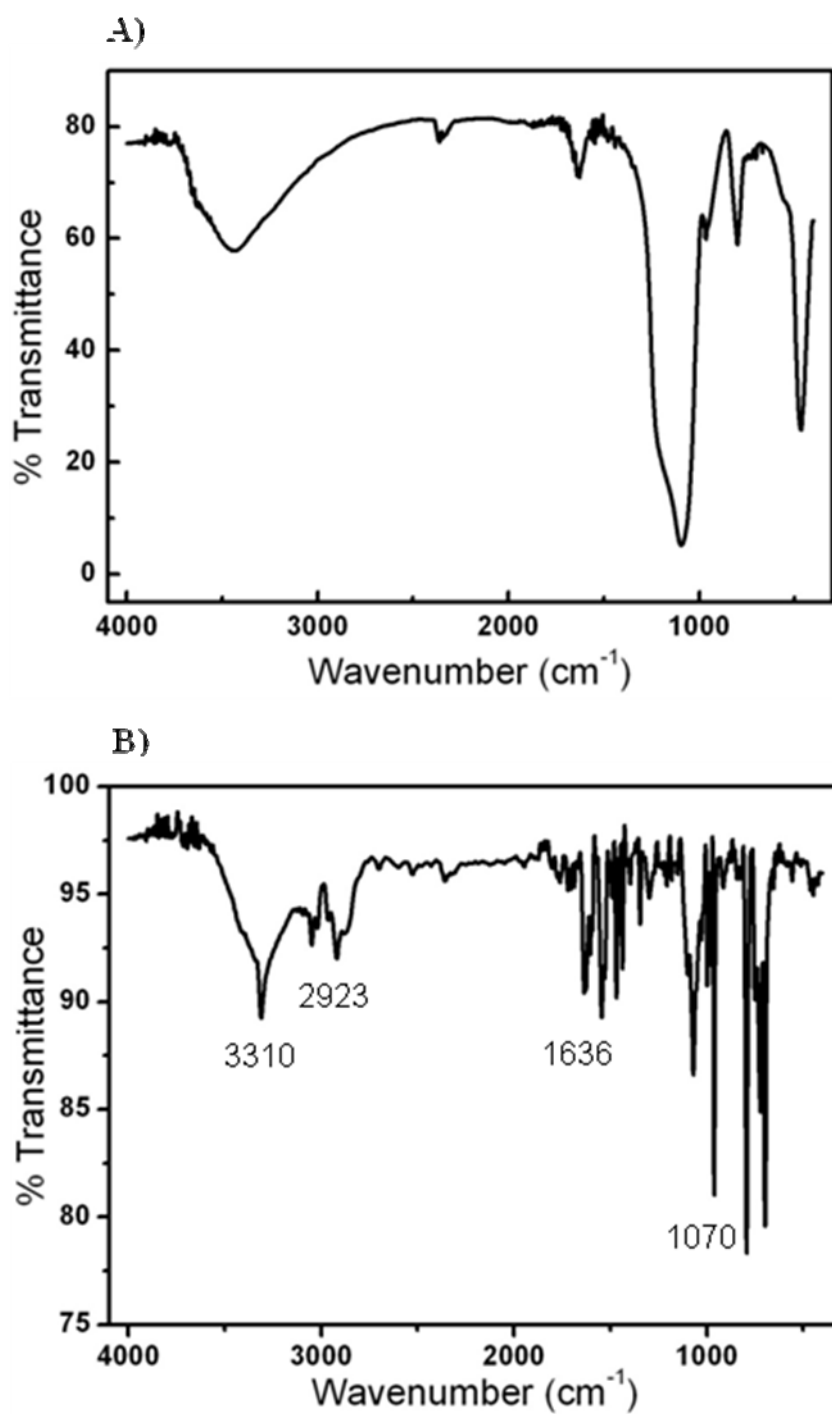


Fig. S1 Infrared spectra of (A) Au@SiO₂ and (B) 1.

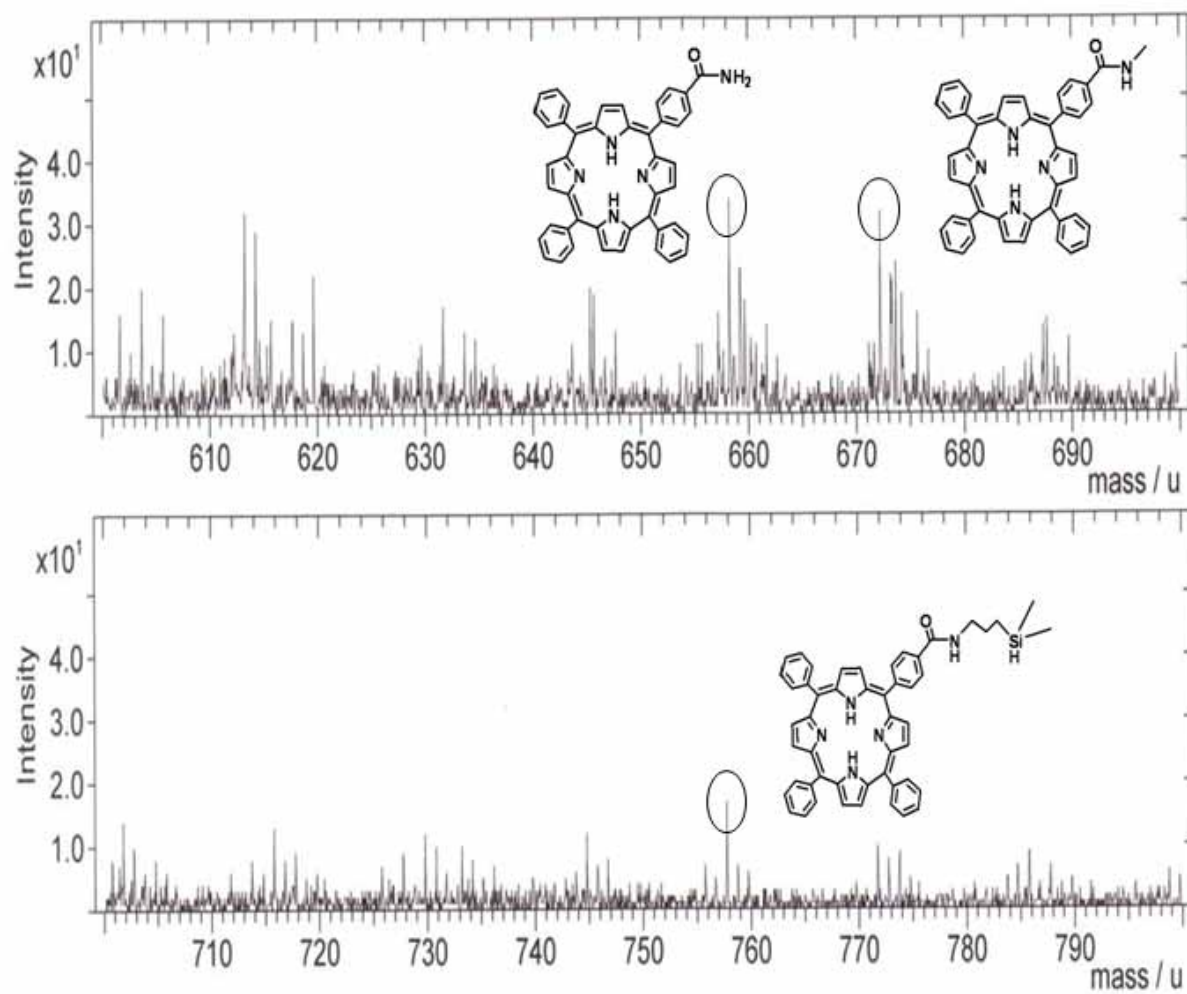


Fig. S2 TOF-SIMS spectra of **1**.

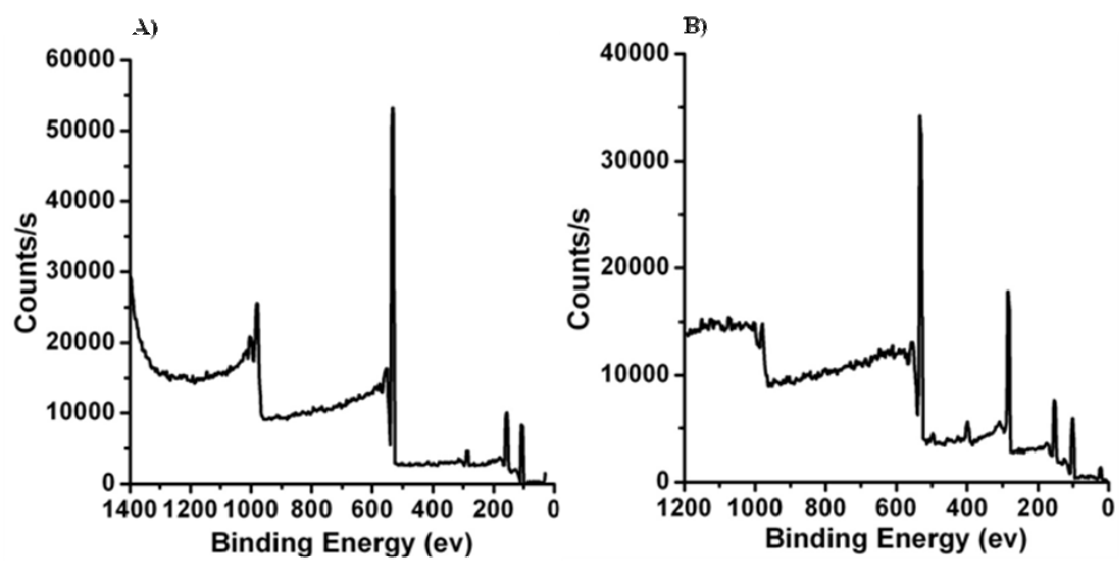


Fig. S3 XPS spectra of (A) Au@SiO₂ and (B) 1.

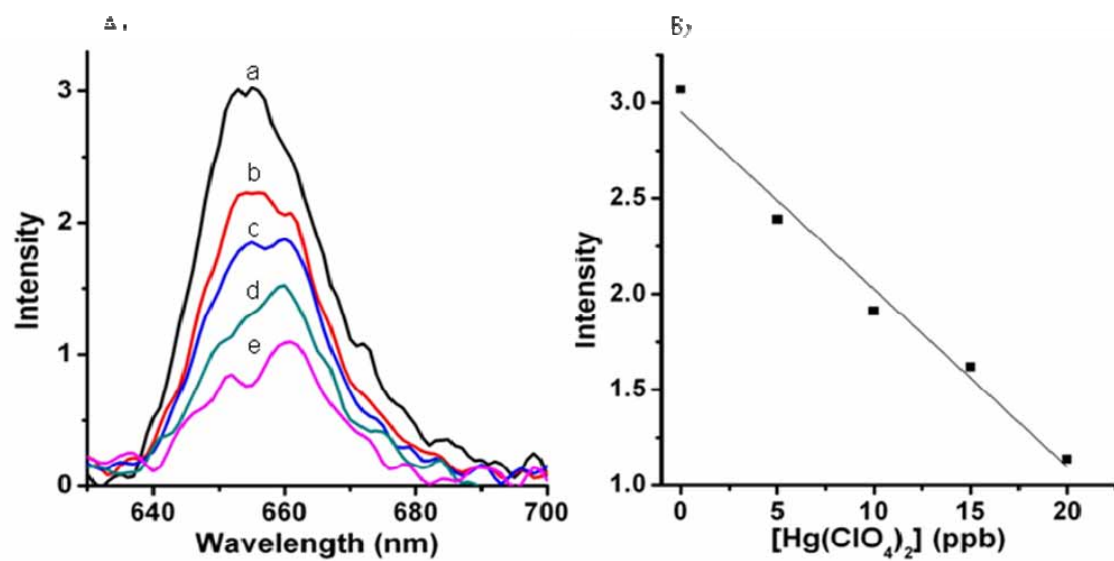


Fig. S4 (A) Fluorescence spectra of **1** ($0.1 \mu\text{M}$) upon addition of increasing Hg^{2+} concentrations (a: 0 ppb, b: 5.0ppb, c: 10 ppb, d) 15 ppb and e: 20 ppb) in aqueous solution. (B) Calibration curve of concentration of Hg^{2+} ion against fluorescence intensity of **1**.

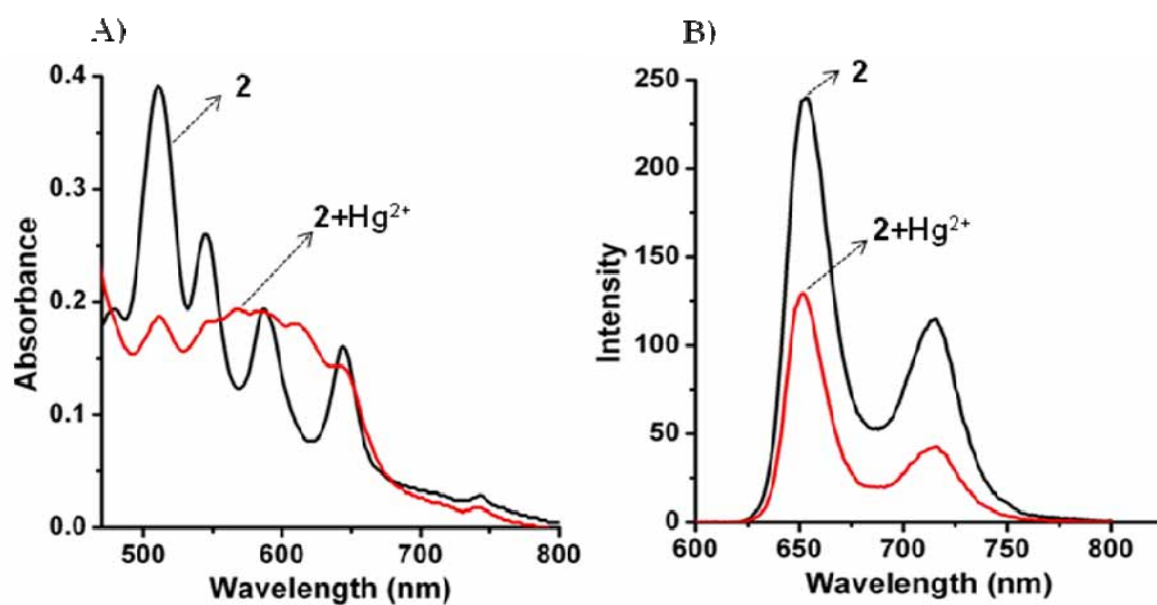


Fig. S5 (A) UV-vis and (B) fluorescence spectra of **2** (10 μM) with and without Hg^{2+} ion (10 equiv) in acetonitrile.

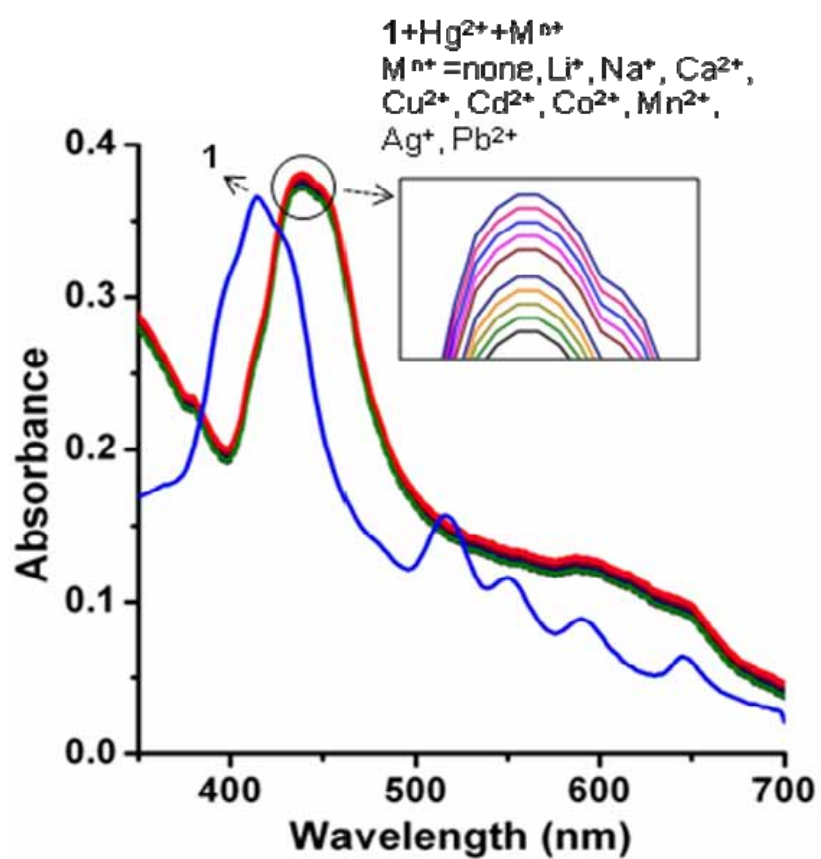


Fig. S6 UV-vis spectra of **1** (10 μM) upon the addition of Hg^{2+} ion (10 equiv) in the presence of metal ions (10 equiv: Li^+ , Na^+ , Ca^{2+} , Cu^{2+} , Cd^{2+} , Co^{2+} , Mn^{2+} , Ag^+ or Pb^{2+}) in aqueous solution at pH=7.4.

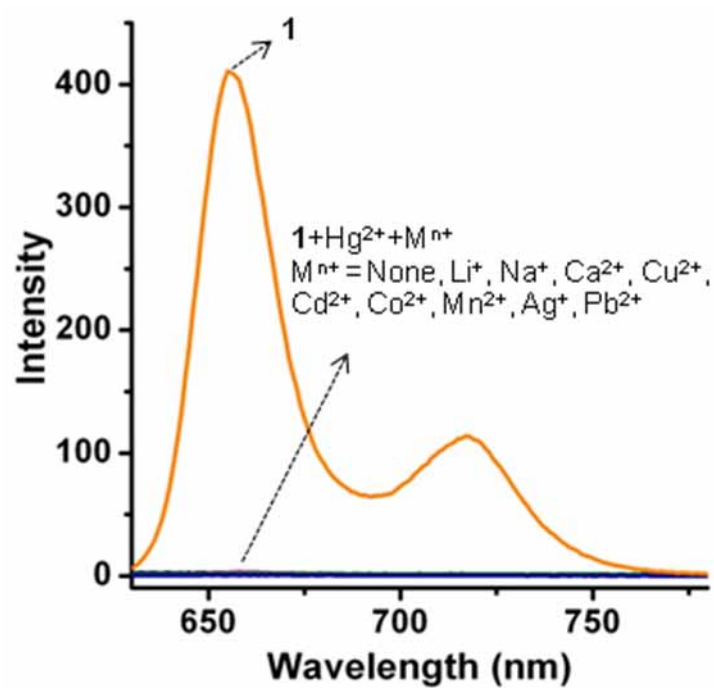


Fig. S7 Fluorescence spectra of **1** (10 μ M) upon the addition of Hg²⁺ ion (10 equiv) in the presence of metal ions (10 equiv: Li⁺, Na⁺, Ca²⁺, Cu²⁺, Cd²⁺, Co²⁺, Mn²⁺, Ag⁺ or Pb²⁺) in aqueous solution at pH=7.4.

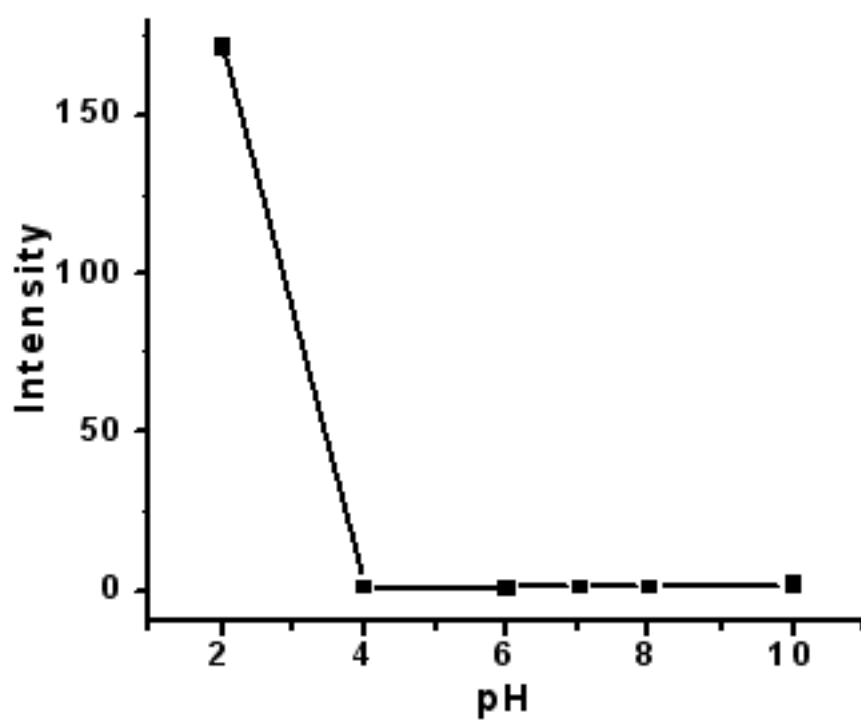


Fig. S8 Plot of pH values against fluorescence intensity of **1** ($10 \mu\text{M}$) with Hg^{2+} (10 equiv) in aqueous solution.