

Electronic Supporting Information (ESI)

Fluorescent Au(I) @ Ag₂/Ag₃ giant cluster for selective sensing of mercury(II) ion

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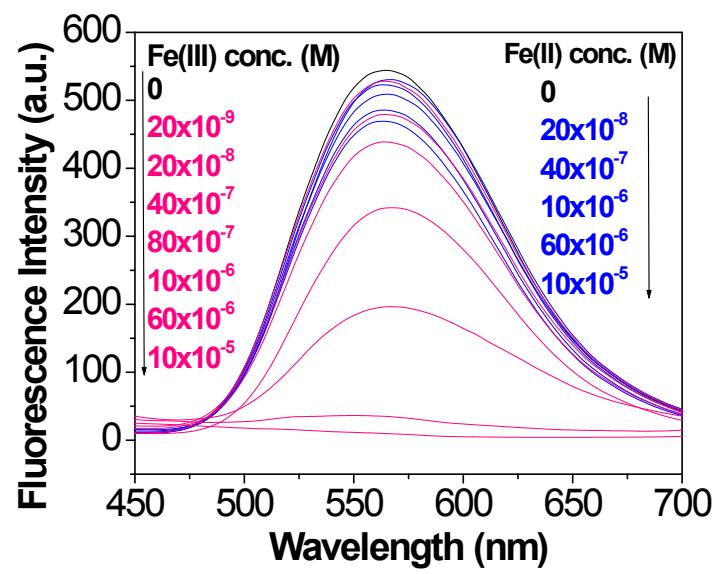


Figure S1: Effect of [Fe(II)] and [Fe(III)] on the fluorescing AuAgF solution.
Condition: AuAgF solution = 3 mL; $\lambda_{\text{ex}} = 400$ nm.

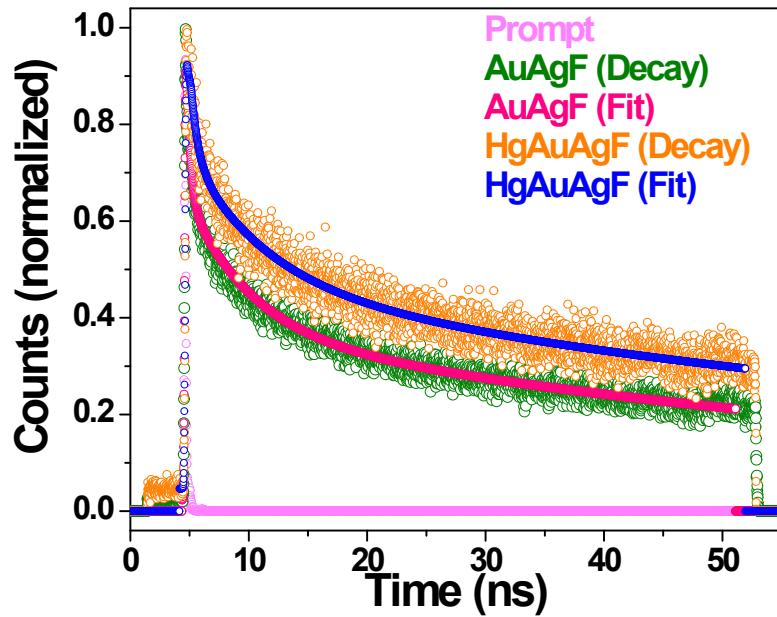


Figure S2: Fluorescence decay profile of AuAgF and HgAuAgF.
Condition: AuAgF solution = 3 mL, [Hg(II)] = 10×10^{-6} M.

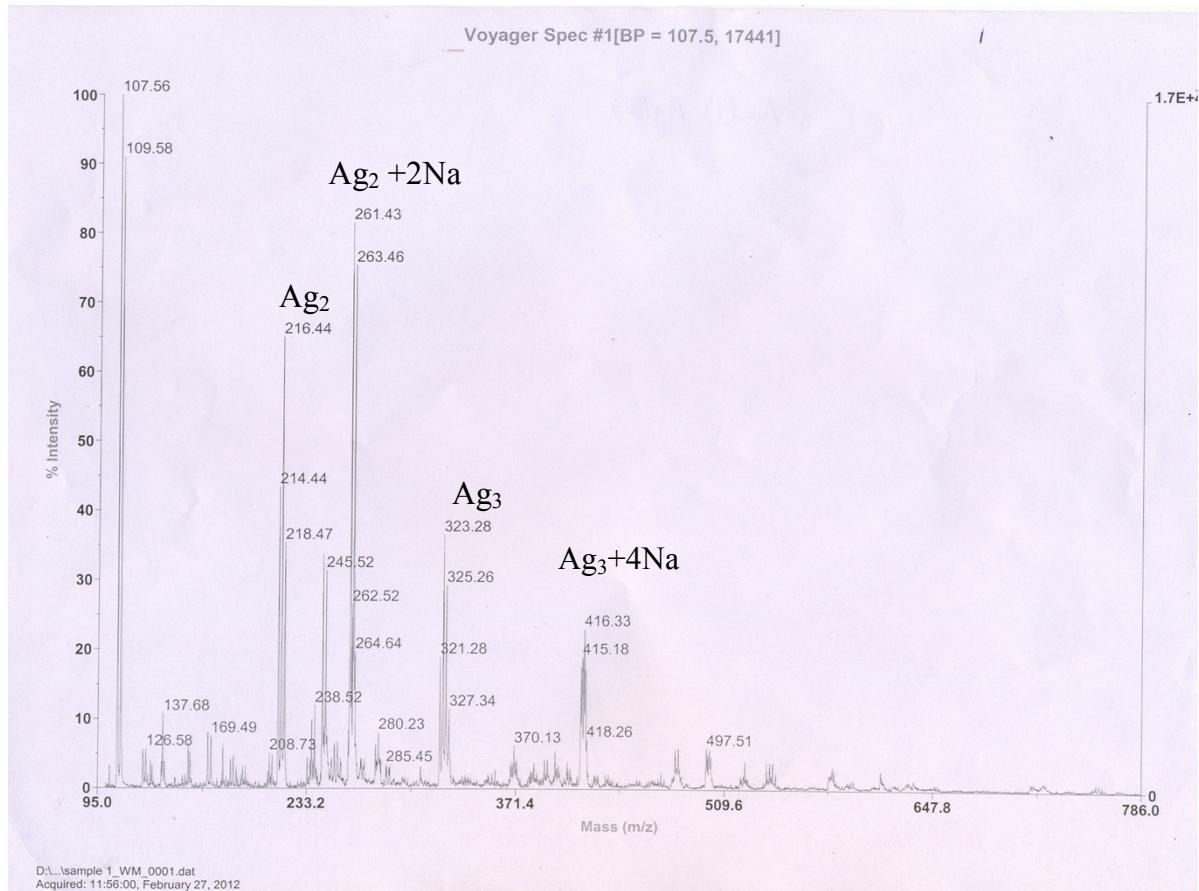


Figure S3: MALDI-TOF mass analysis of the drop-cast AuAgF solution (matrix free condition).

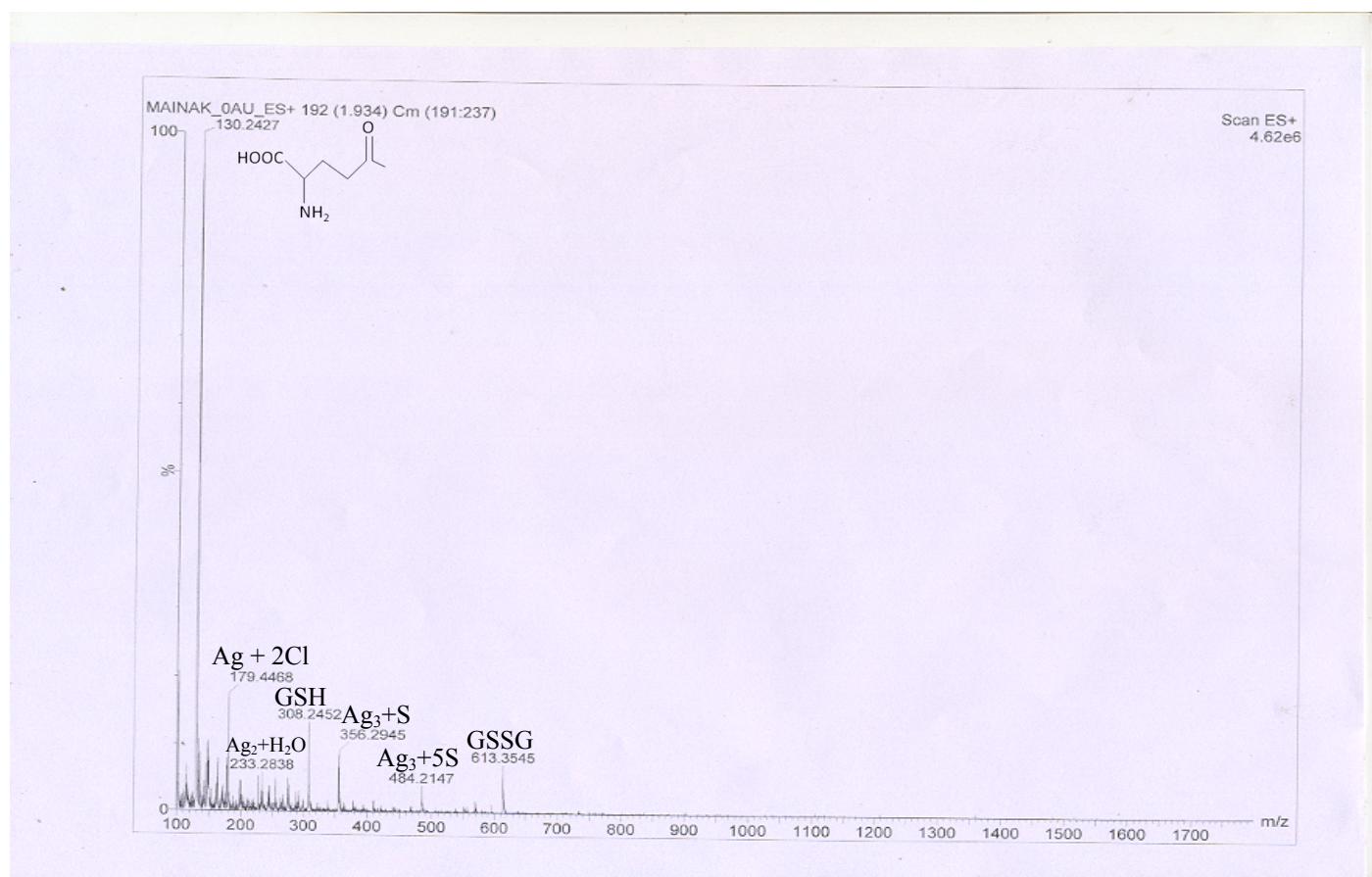


Figure S4: (a) LCMS mass spectrum (ES+ mode) of the AuAgF solution.

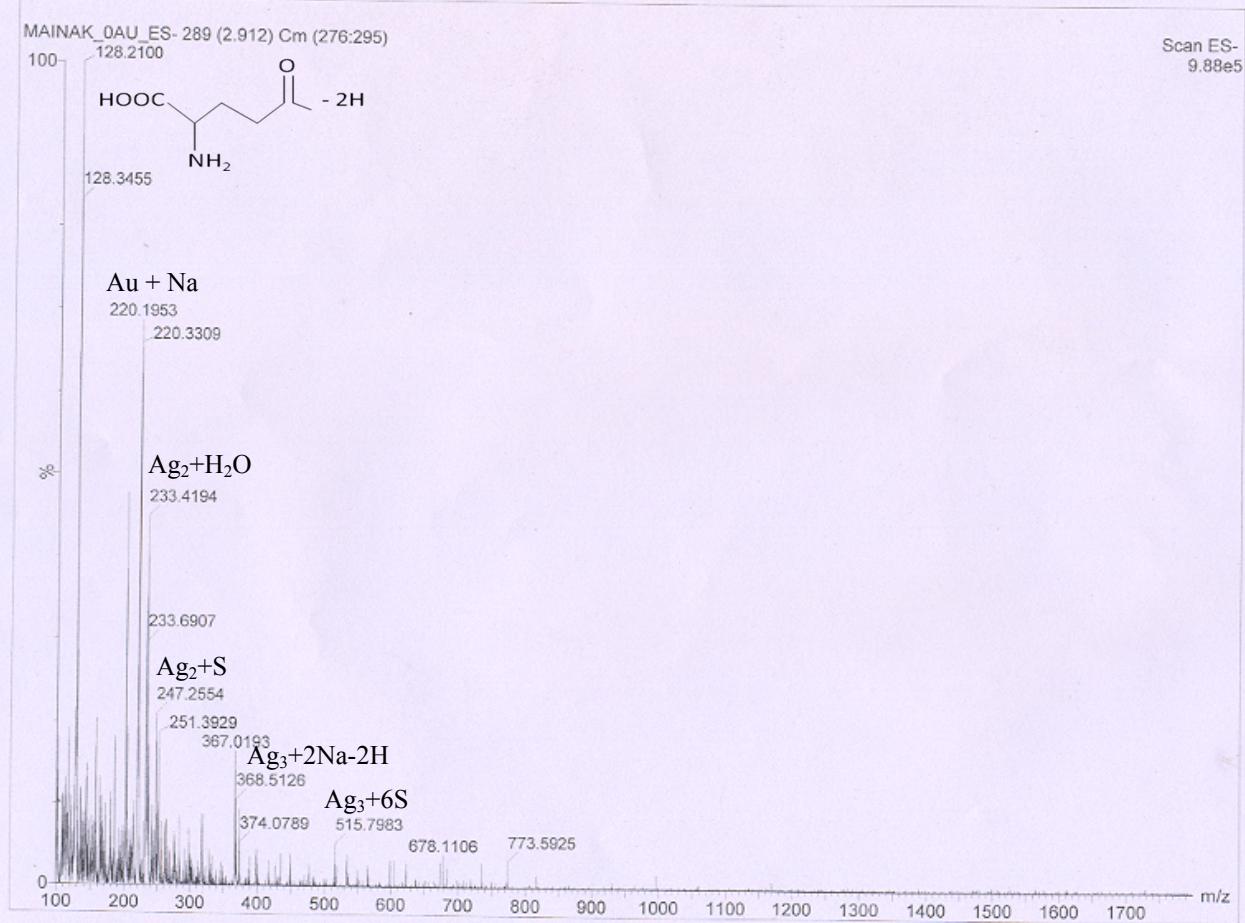


Figure S4: (b) LCMS mass spectrum (ES+ mode) of the AuAgF solution

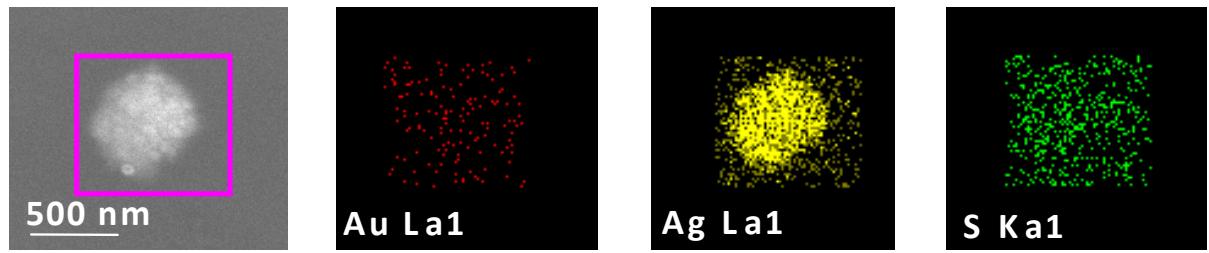


Figure S5: Elemental mapping for a single $\text{Au(I)}_{\text{core}}-(\text{Ag}_2/\text{Ag}_3)_{\text{shell}}$ particle for the element gold, silver and sulfur.

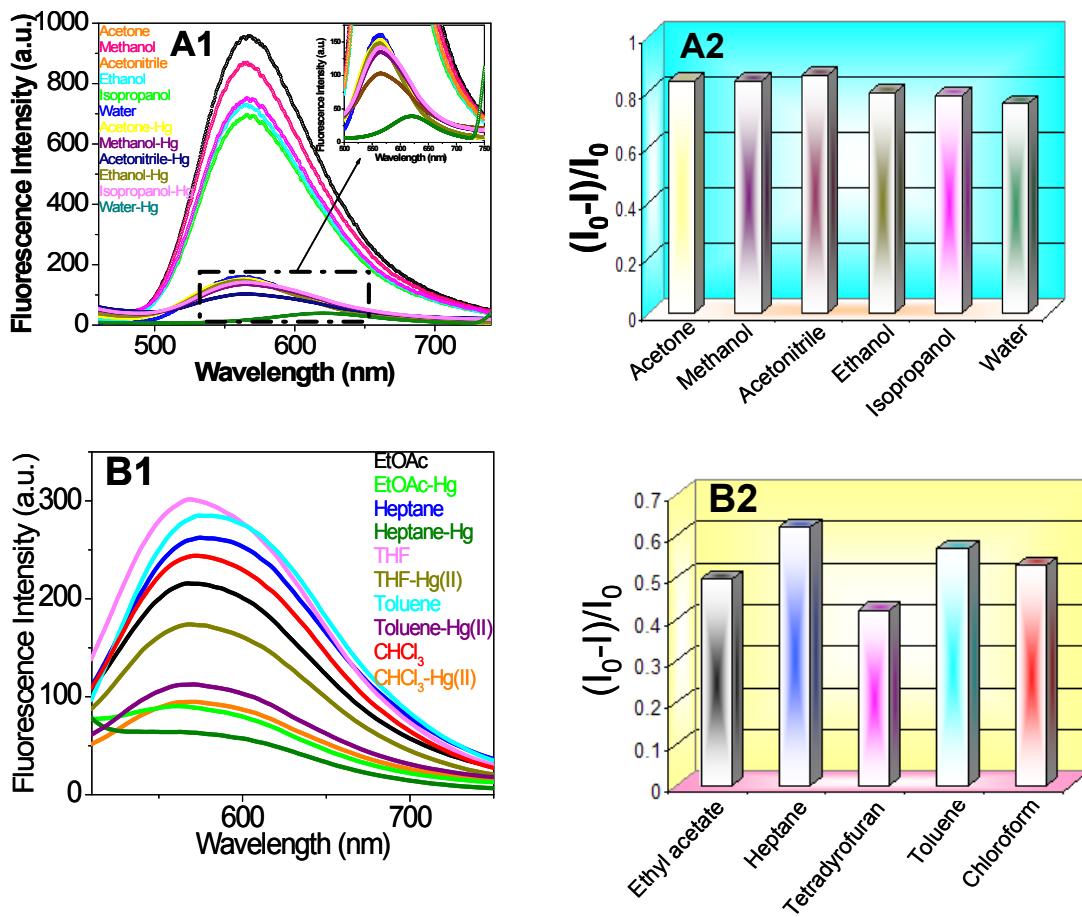


Figure S6: (A1) Fluorescence spectral profile and (A2) bar diagram showing different degree of fluorescence quenching by Hg(II) in different water miscible solvents.
 (B1) Fluorescence spectral profile and (B2) bar diagram showing different degree of fluorescence quenching by Hg(II) in different water immiscible solvents.
 Condition: AuAgF solution = 3 mL, $[\text{Hg(II)}] = 10 \times 10^{-6} \text{ M}$, $\lambda_{\text{ex}} = 400 \text{ nm}$.

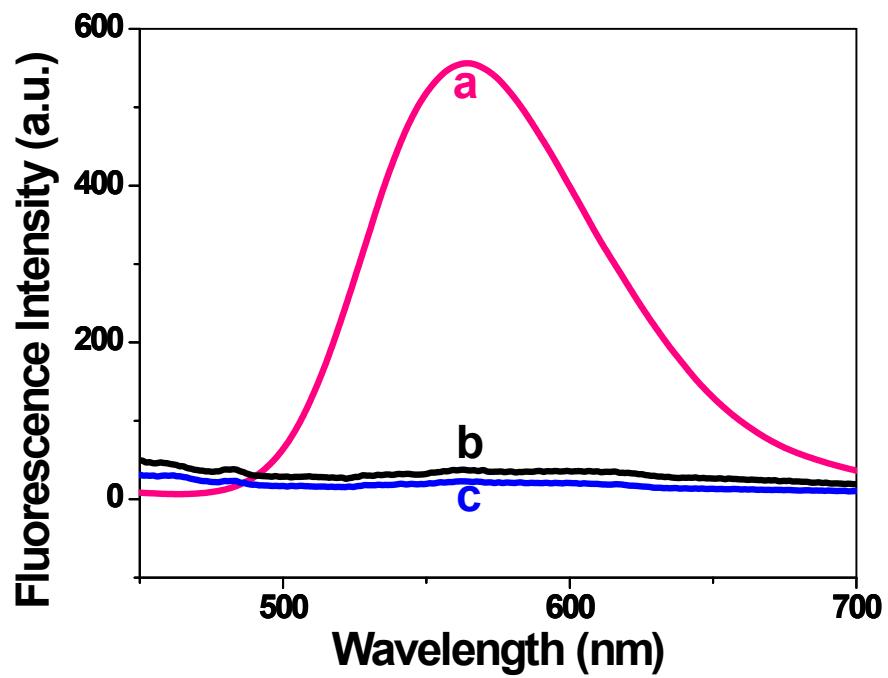


Figure S7: Fluorescence spectra of (a) AuAgF solution, (b) mixture of Ag(I), GSH followed by 9 hr solar irradiation and (c) mixture of Au(III), GSH followed by 9 hr solar irradiation.