Electronic supplementary information

Fluorescence sensing of mercury (II) and melamine in aqueous solutions through microwave-assisted synthesis of egg-white-protected gold nanoclusters

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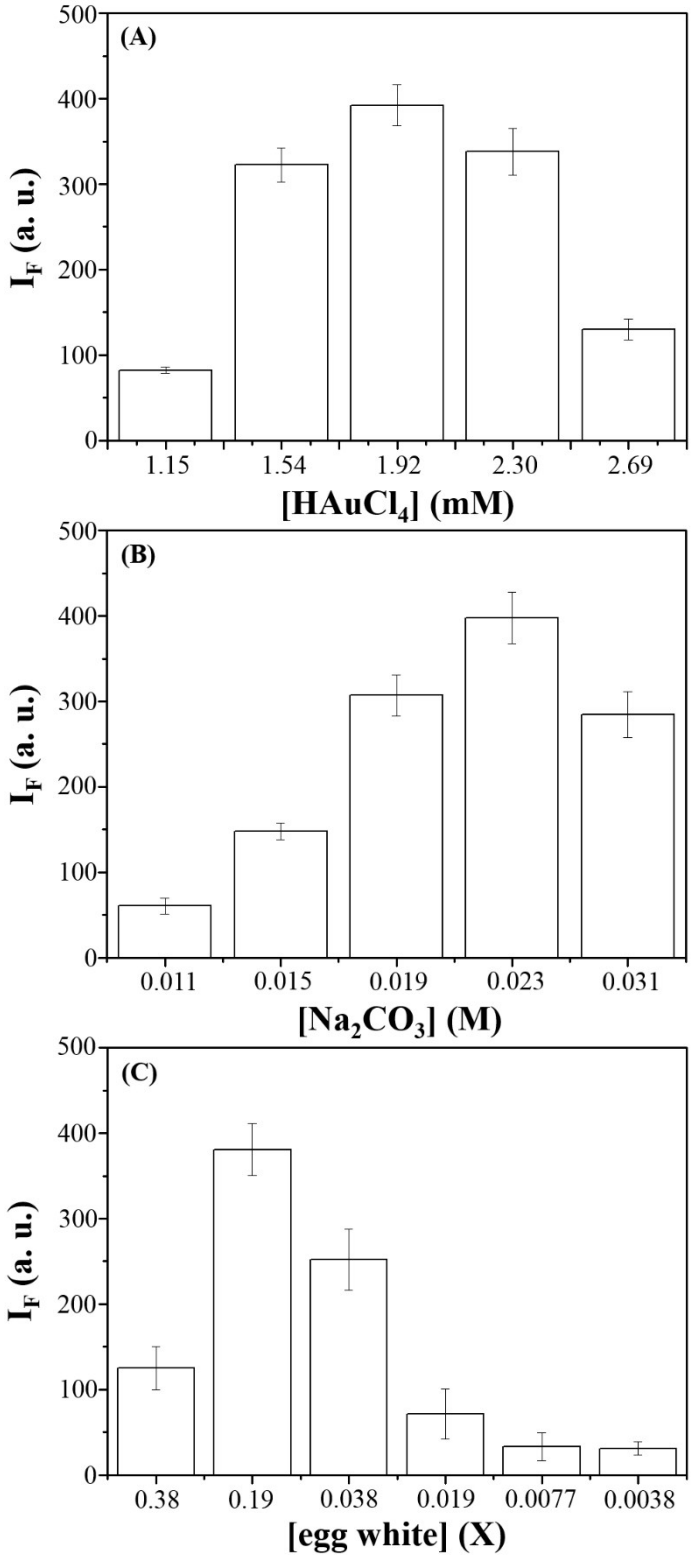

Figure S1. Fluorescence intensities of ew–AuNCs prepared with different concentrations of (A) $HAuCl_4$, (B) Na_2CO_3, and (C) egg white. Error bars in the inset represent standard deviations from ten repeated experiments.

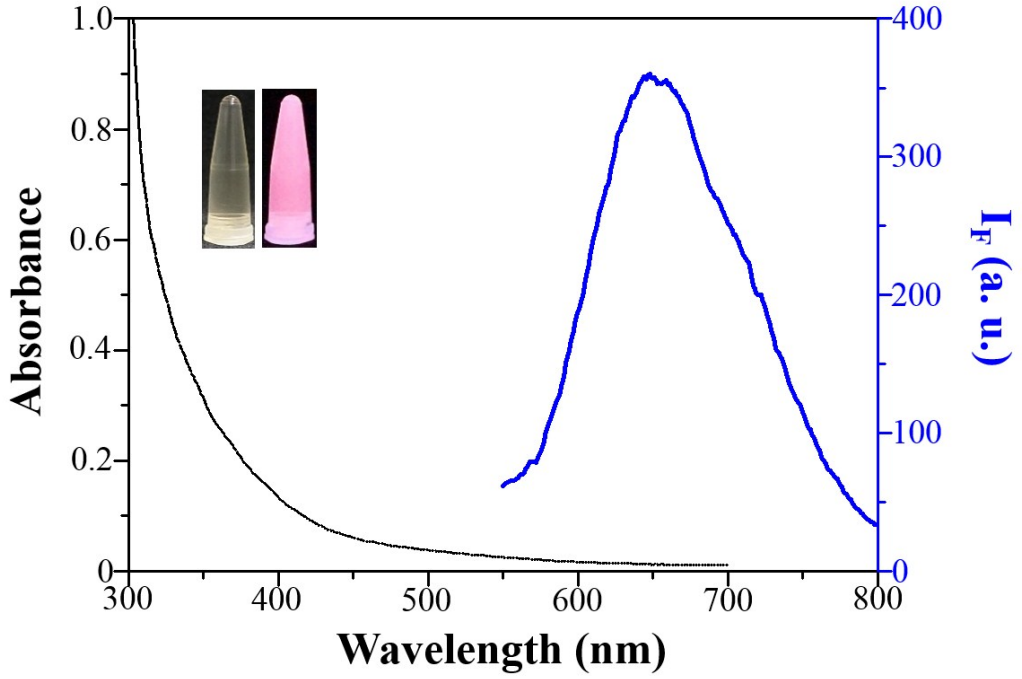

Figure S2. UV–Vis absorption and fluorescence spectra of ew–AuNCs synthesized under MW irradiation at 120 W for 5 min. The inset displays photographs of ew–AuNCs under daylight and UV light (λ_{ex}: 365 nm).

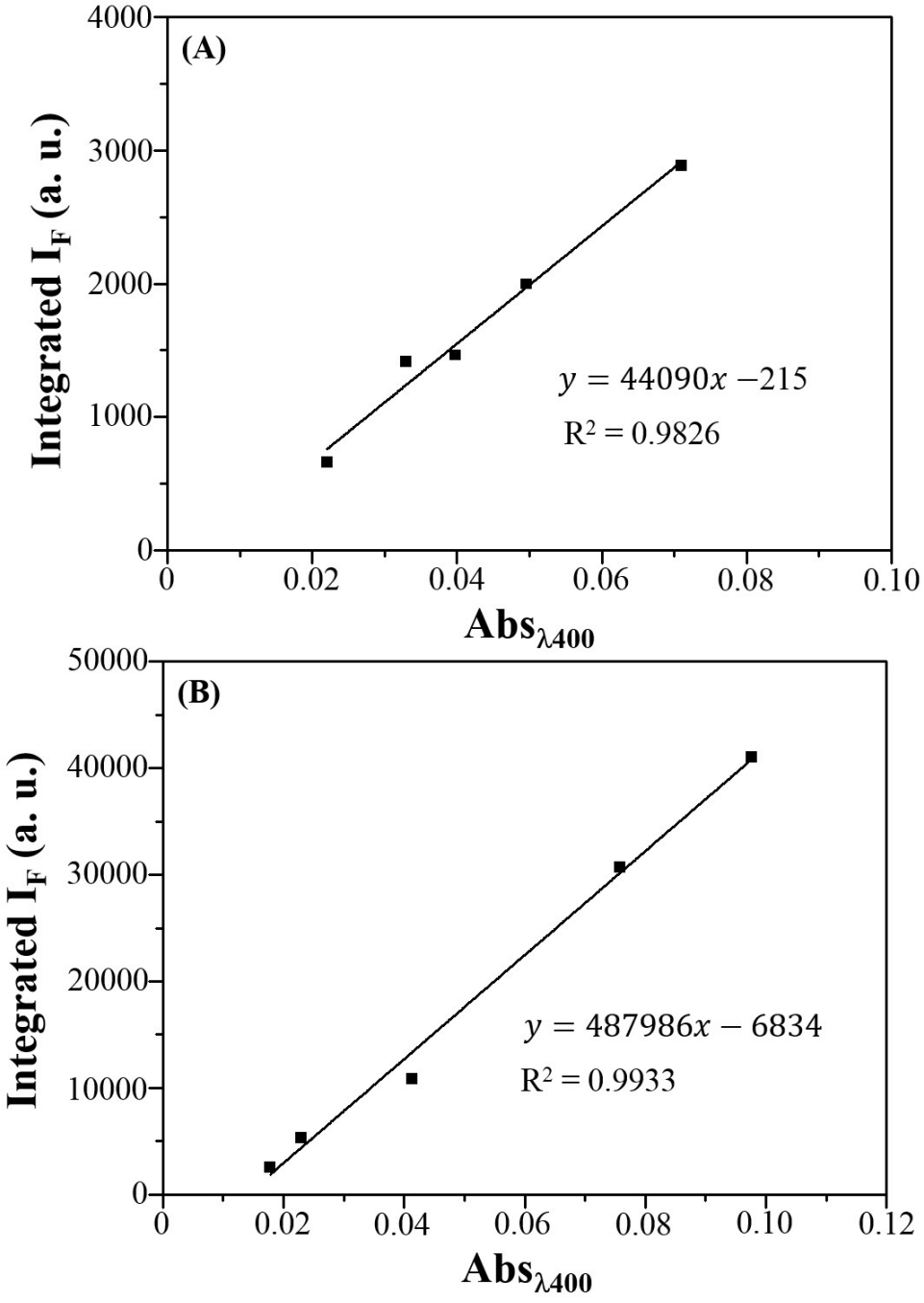

Figure S3. (A) QY measurement of ew–AuNCs, with (B) riboflavin-50 phosphate used as the reference (QY = 26%).

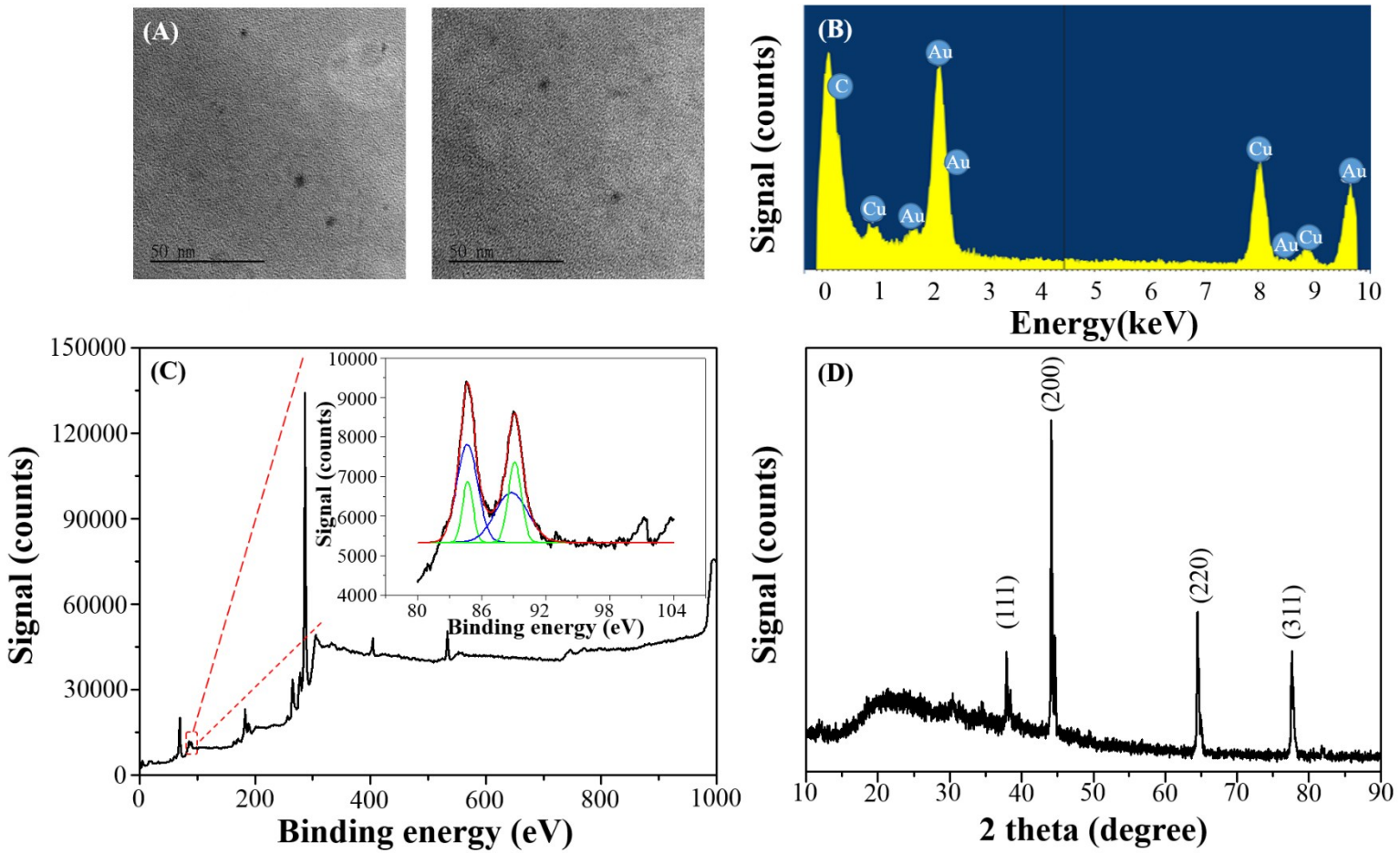

Figure S4. (A) TEM images and (B) EDS, (C) XPS, and (D) XRD spectra of ew–AuNCs prepared under optimal conditions.

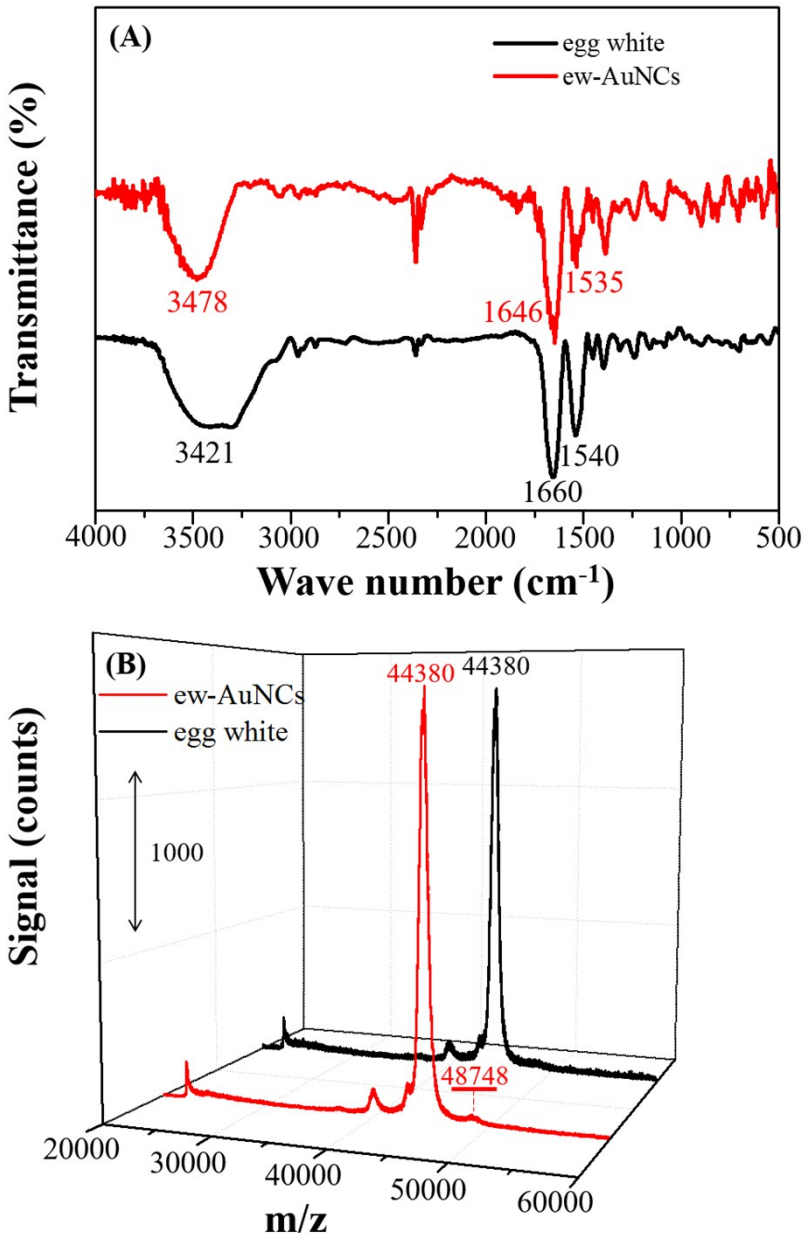

Figure S5. (A) FT-IR and (B) MALDI-TOF MS spectra of egg white and ew–AuNCs prepared under optimal conditions.

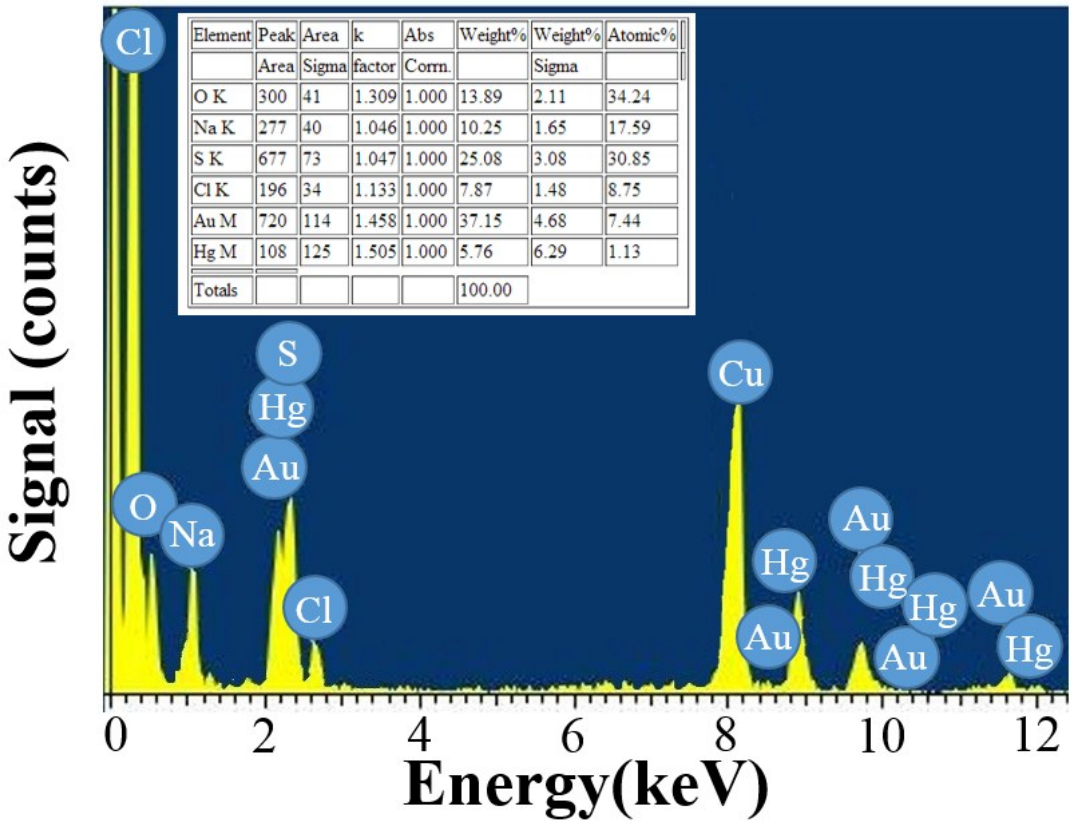

Figure S6. EDS spectrum of ew–AuNCs in the presence of Hg^{2+}ions.

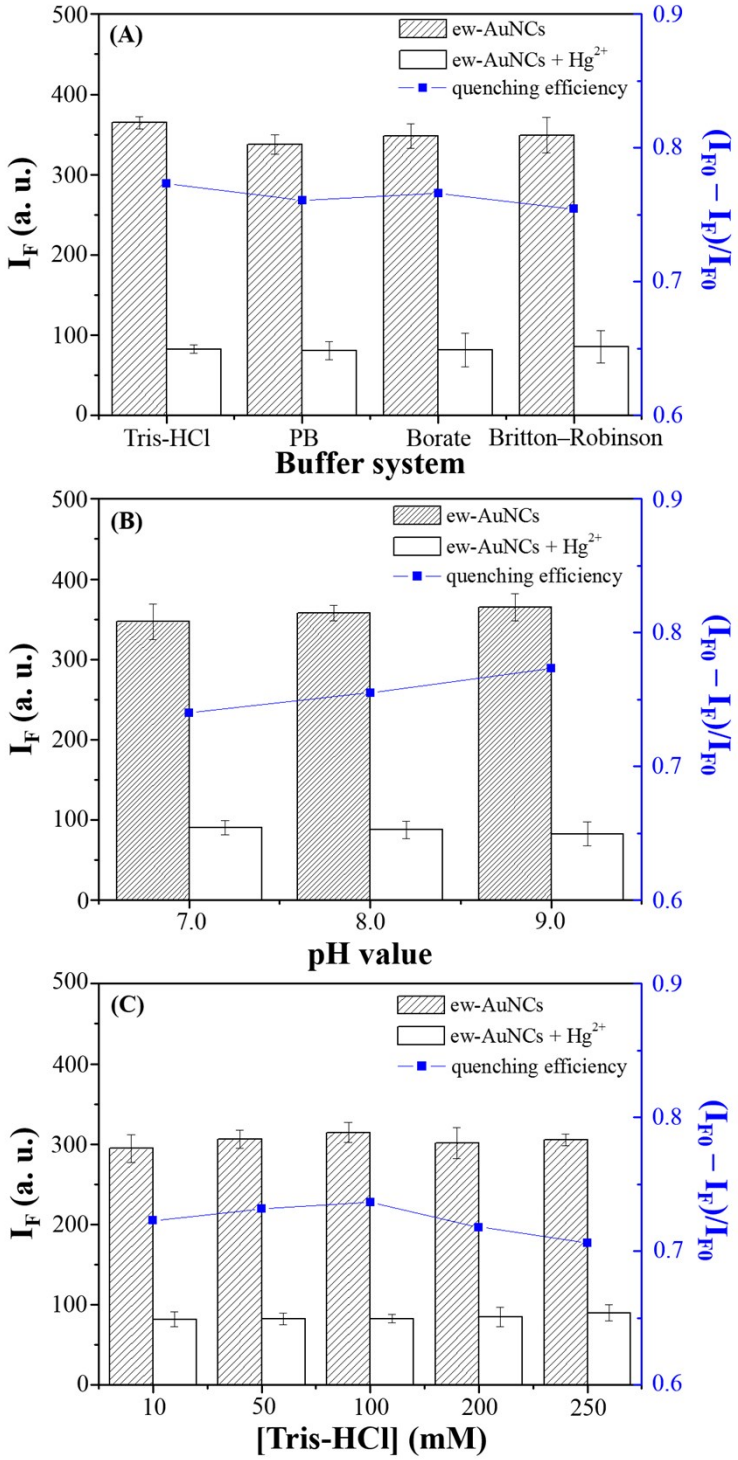

Figure S7. Values of fluorescence intensity and $(I_{F0} - I_F)/I_{F0}$ for the responses of the ew–AuNC probes with different (A) buffer systems, (B) pH values, and (C) concentrations of the Tris-HCl buffer solution in Hg^{2+} ion sensing. Error bars in the inset represent standard deviations from three repeated experiments.

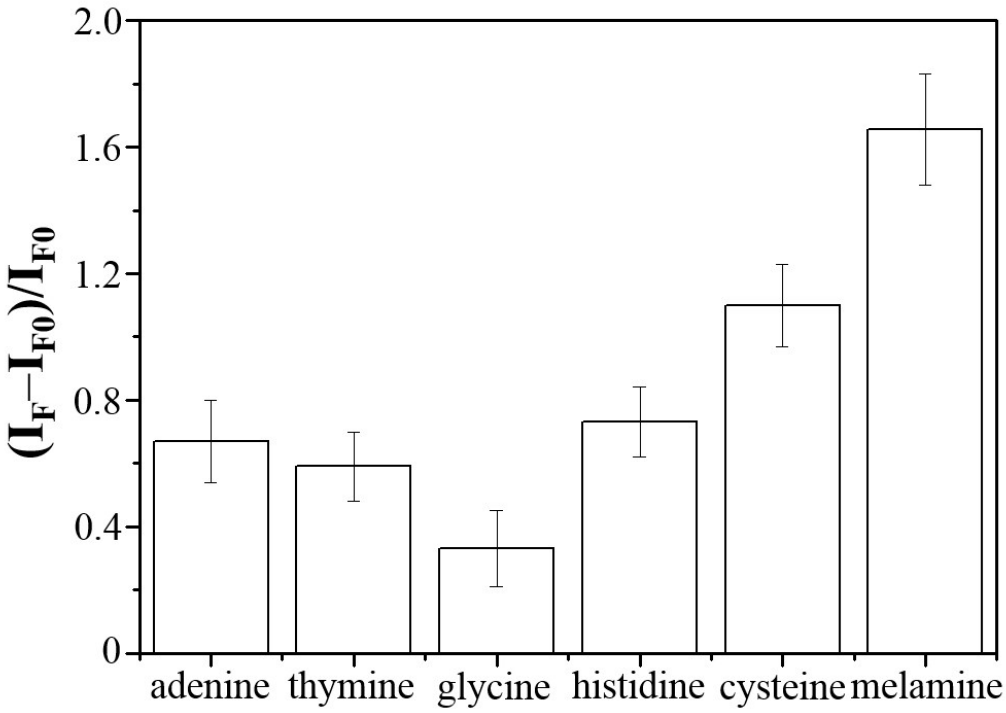

Figure S8. The selectivity of the ew–AuNCs -Hg^{2+} toward melamine. The concentration of melamine and other interferences were 200 μM. The error bars represent the standard deviations from three repeated experiments.