

Supporting Information

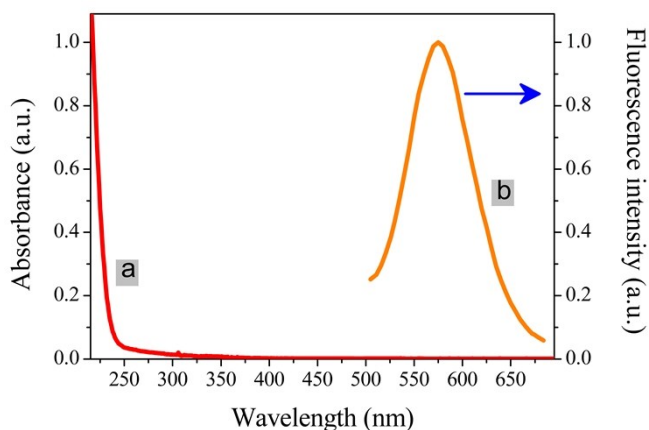


Fig. S1 The absorption spectrum of Fe³⁺ (10 μM) (a) and the emission spectrum of aqueous BSA/MPA-AuNCs solution (b).

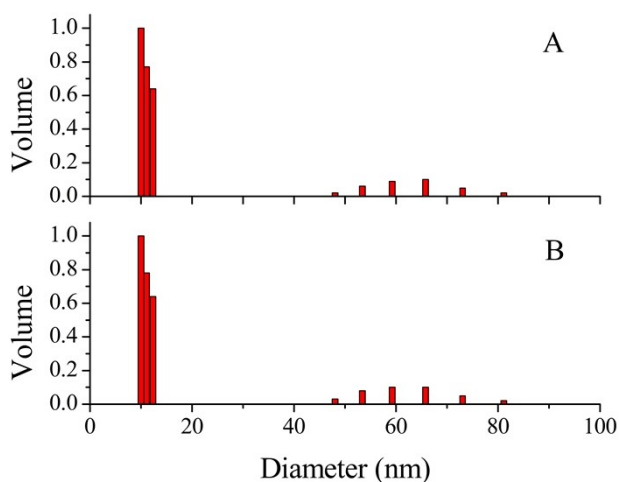


Fig. S2 Hydrodynamic diameter distributions of BSA/MPA-AuNCs in the absence (A) and presence (B) of 10 μM Fe³⁺.

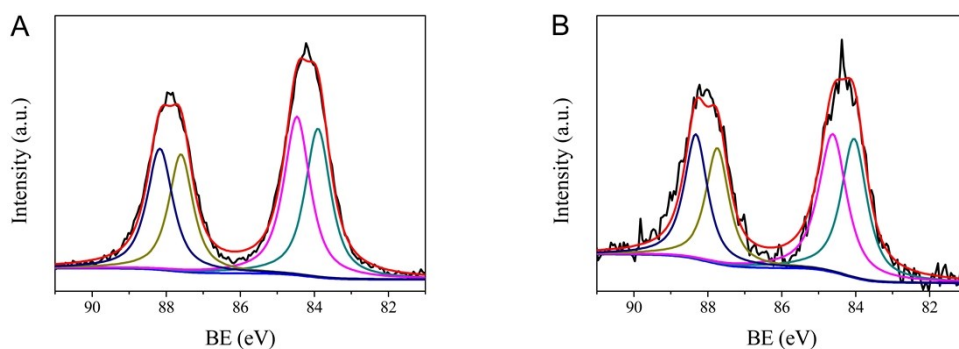


Fig. S3 XPS spectra of Au(4f) of BSA/MPA-AuNCs in the absence (A) and presence (B) of 10 μM Fe^{3+} .

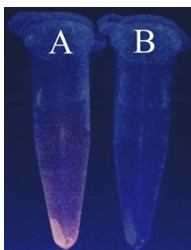


Fig. S4 Photographs of MPA-AuNCs in the absence (A) and presence (B) of 10 μM Fe^{3+} under UV light.

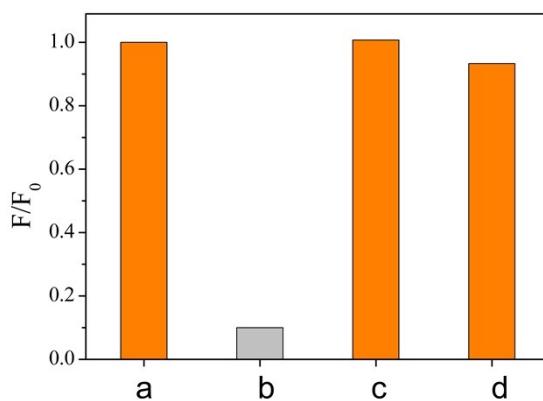


Fig. S5 Fluorescence regeneration results for quenching by Fe^{3+} upon the addition of PPI. (a) BSA/MPA-AuNCs, (b) BSA/MPA-AuNCs in presence of 10 μM Fe^{3+} , (c) and BSA/MPA-AuNCs in presence of 100 μM PPI, and (d) BSA/MPA-AuNCs containing 10 μM Fe^{3+} after the addition of 100 μM PPI. F_0 and F represent the PL intensity of BSA/MPA-AuNCs solution without and with chemicals, respectively.

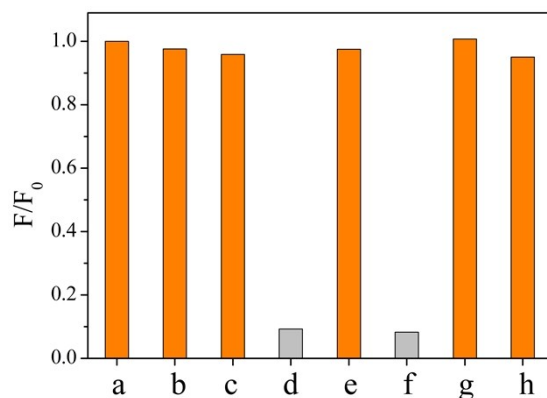


Fig. S6 Fluorescence quenching effect F/F_0 of the BSA/MPA-AuNCs (pH=3.0) incubated with (a) BSA/MPA-AuNCs, (b) BSA/MPA-AuNCs + 50 μM Fe^{2+} , (c) BSA/MPA-AuNCs + 20 μM H_2O_2 , (d) BSA/MPA-AuNCs + 50 μM Fe^{2+} + 20 μM H_2O_2 , (e) BSA/MPA-AuNCs + 500 μM thiourea, (f) BSA/MPA-AuNCs + 50 μM Fe^{2+} + 20 μM H_2O_2 + 500 μM thiourea, (g) BSA/MPA-AuNCs + 100 μM PPI, and (h) BSA/MPA-AuNCs + 50 μM Fe^{2+} + 20 μM H_2O_2 + 100 μM PPI. F_0 and F represent the PL intensity of BSA/MPA-AuNCs solution without and with chemicals, respectively.

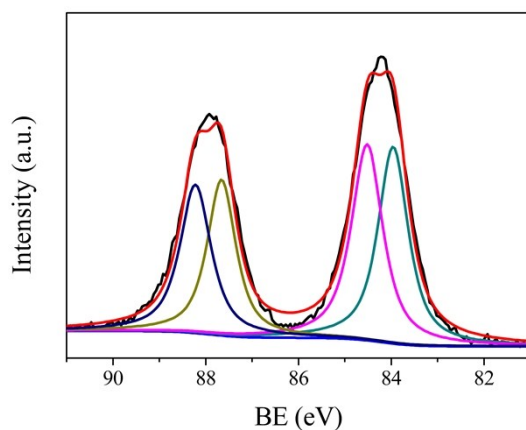


Fig. S7 XPS spectra of Au(4f) of BSA/MPA-AuNCs in the presence of 50 μM Fe^{2+} and 20 μM H_2O_2 (pH = 3.0).

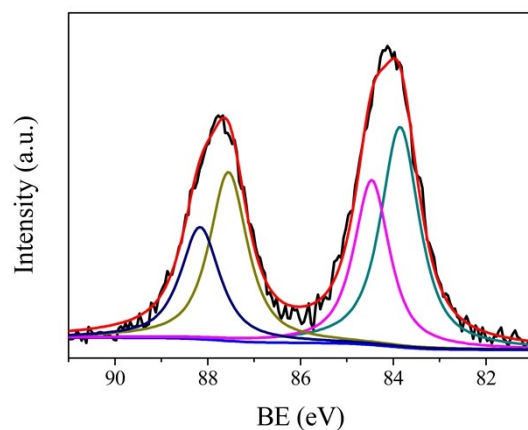


Fig. S8 XPS spectra of Au(4f) of BSA/MPA-AuNCs in the presence of 50 μM Fe^{2+} (pH = 4.6).

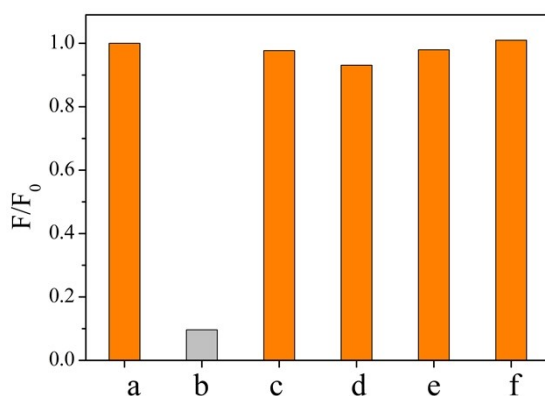


Fig. S9 Fluorescence quenching effect F/F_0 of the BSA/MPA-AuNCs (pH=4.6) incubated with (a) BSA/MPA-AuNCs, (b) BSA/MPA-AuNCs + 50 μM Fe^{2+} , (c) BSA/MPA-AuNCs + 100 μM PPI, (d) BSA/MPA-AuNCs + 50 μM Fe^{2+} + 100 μM PPI, (e) BSA/MPA-AuNCs + 200 μM ascorbic acid, (f) BSA/MPA-AuNCs + 50 μM Fe^{2+} + 200 μM ascorbic acid. F_0 and F represent the PL intensity of BSA/MPA-AuNCs solution without and with chemicals, respectively.

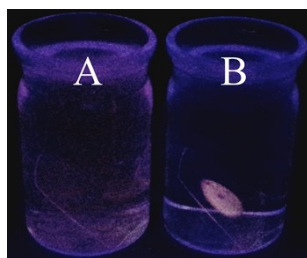


Fig. S10 The photographs of the glass slides modified with the BSA/MPA-AuNCs after immersing in water for 10 min (A) and modified with the BSA/MPA-AuNCs-polyelectrolyte complexes after immersing in water for 48 h (B) under UV light.