Supplementary Materials

Colorimetric Detection of Cd^{2+} Using Gold Nanoparticles Cofunctionalized with 6-Mercaptonicotinic Acid and L-Cysteine

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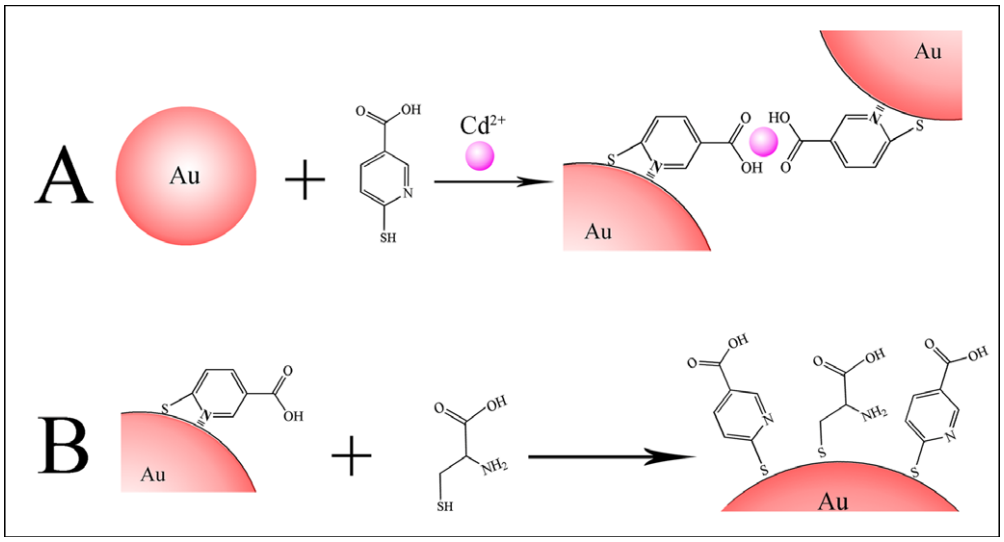

Fig. S1 The illustration of the binding modes of MNA and L-Cys with AuNPs in the case of MNA exited only (A) and MNA and L-Cys coexited (B).

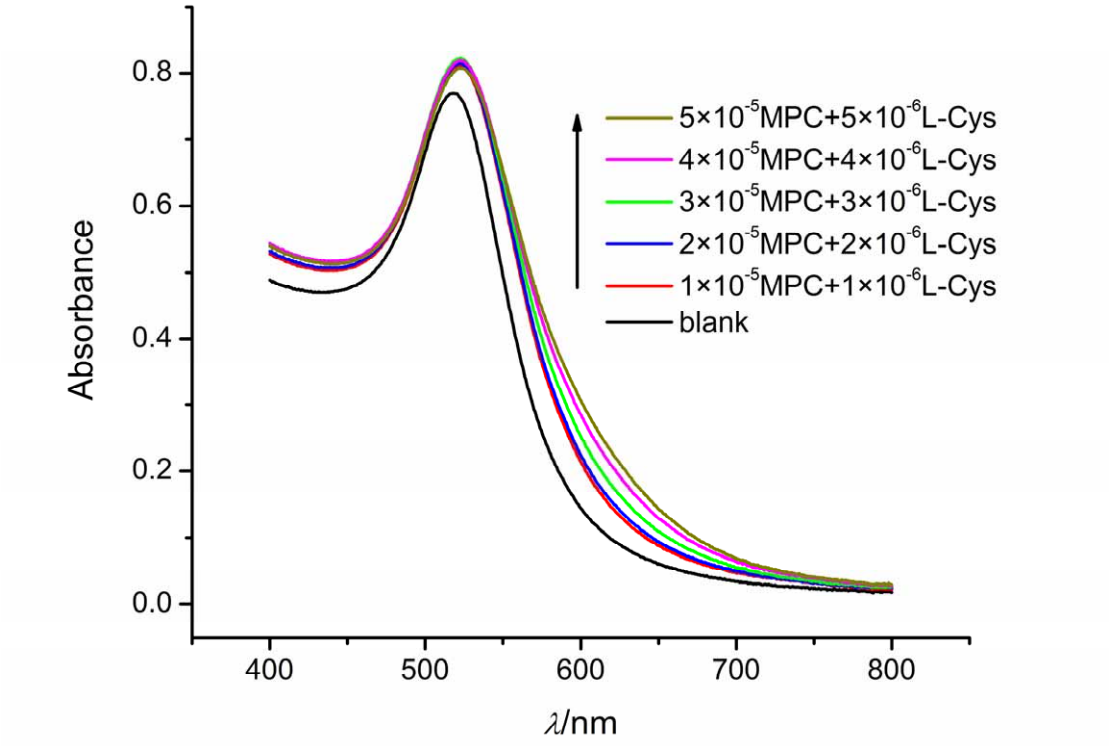

Fig. S2 UV-vis spectra of AuNPs functionalized with different concentrations of MNA and Cys.

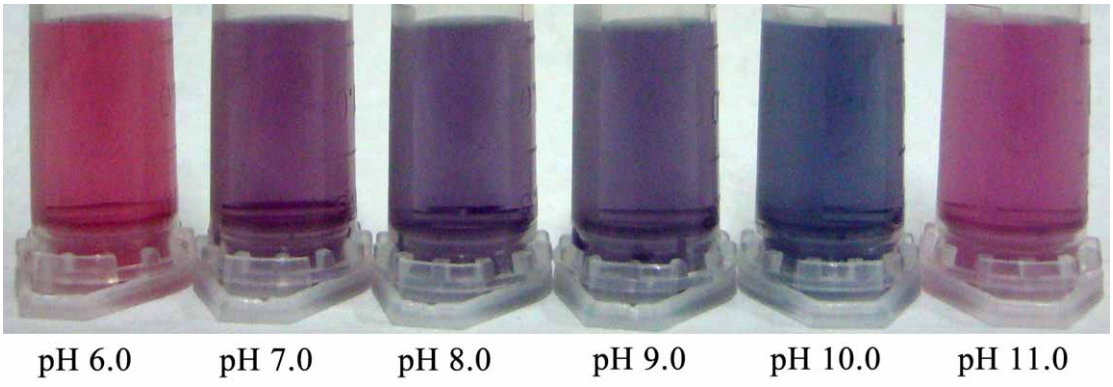

Fig. S3 The responses of MNA-L-Cys-AuNPs for 1×10^{-5} M Cd^{2+} in different pH values. The incubation time is 5 min.

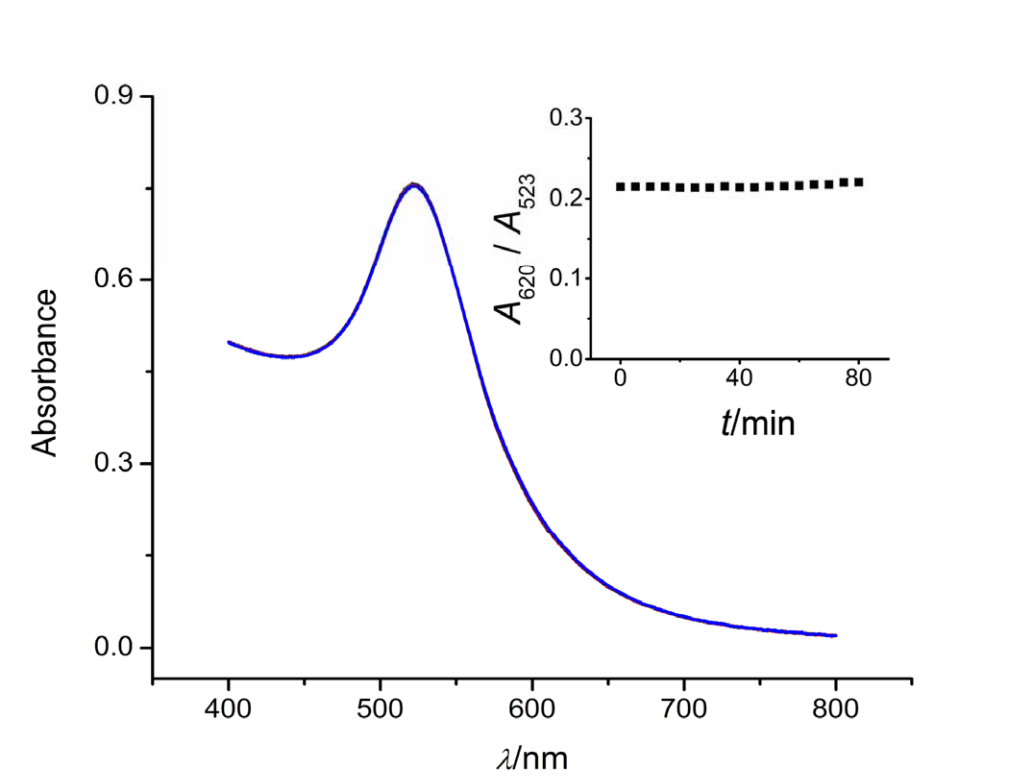

Fig. S4 The UV-vis spectra of MNA-L-Cys-AuNPs in presence 0.020 M NaCl during 80 min. The right inset shows time-dependent absorption ratio of A_{620}/A_{523}.

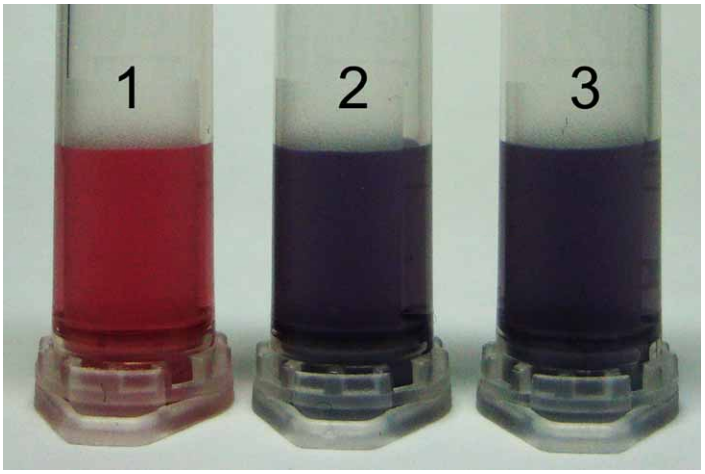

Fig. S5 The interaction of Hg^{2+} and MNA-L-Cys-AuNPs.

1: MNA-L-Cys-AuNPs containing 0.020 M NaCl; 2: MNA-L-Cys-AuNPs containing 0.020 M NaCl and 1×10^{-6} M Cd^{2+}; 3: MNA-L-Cys-AuNPs containing 0.020 M NaCl and 1×10^{-6} M Hg^{2+} and Cd^{2+}.

Table S1 The comparison of dynamic range and detection limit in our work with the results previously reported.

Technique	Dynamic range ($\mu g\ L^{-1}$)	Detection limit ($\mu g\ L^{-1}$)	Reference
Solid-phase extraction–FAAS	10–4000	0.015	1
Cloud point extraction–FAAS	3–300	1	2
On-line pre-concentration–FAAS	5–40	0.02	3
Nafion-graphene/mercury film electrode–SWASV	1–7	0.08	4
Carbon nanotube tower electrode–SWASV	1–4	0.025	5
Immunochromatography	2.5–25	—	6
Near-infrared spectroscopy	5.9–48.8 ($\times 10^3$)	—	7
α,β,γ,δ-Tetrakis(1-methylpyridinium-4-yl)porphine/silica membrane–Colorimetry	—	1	8
Triazole-ester modified AgNPs–Colorimetry	2.8–56.2 ($\times 10^3$)	2.2×10^3	9
MNA and L-Cys cofunctionalized AuNPs–Colorimetry	22.5–191.1	11.2	This work

Reference

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