

Electronic Supplementary Information

Dendrimer-stabilized silver nanoparticles enable efficient colorimetric sensing of mercury ions in aqueous solution

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Table S1. The detection of Hg²⁺ in different water samples by Ag DSNPs. Found I and Found II are results obtained via SPR peak intensity- and blue shift-based correlation, respectively.

Sample	Detection (ppb)	Add (ppb)	Found I (ppb)	Recovery (%)	Found II (ppb)	Recovery (%)
Tap water	Not Found	300.0	253.2	84.4	317.7	105.9
Mineral water	Not Found	300.0	285.6	95.2	282.3	94.1
Lake water	Not Found	500.0	240.4	80	287.2	95.7

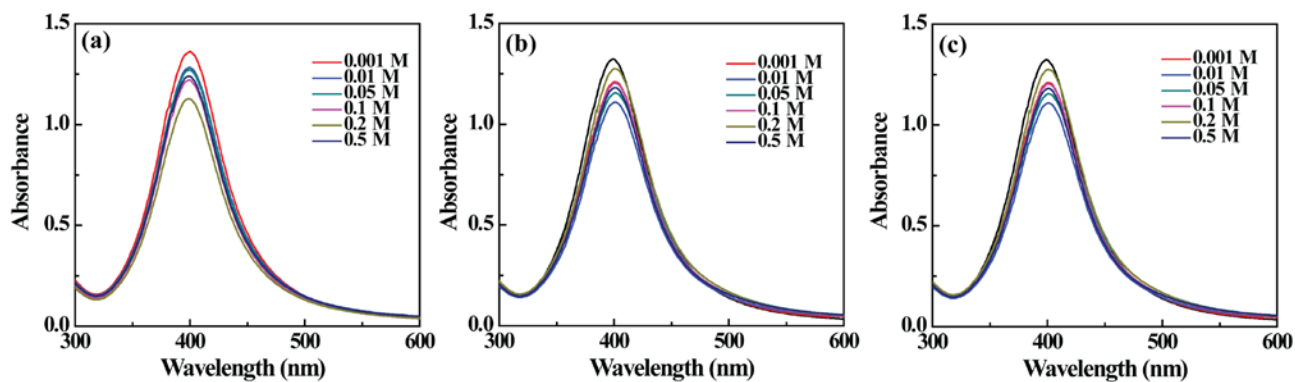


Figure S1. UV-Vis spectra of Ag DSNPs (50 µg/mL) under different NaCl (a), KBr (b), and KI concentrations (0.001 M, 0.01 M, 0.05 M, 0.1 M, 0.2 M, and 0.5 M).

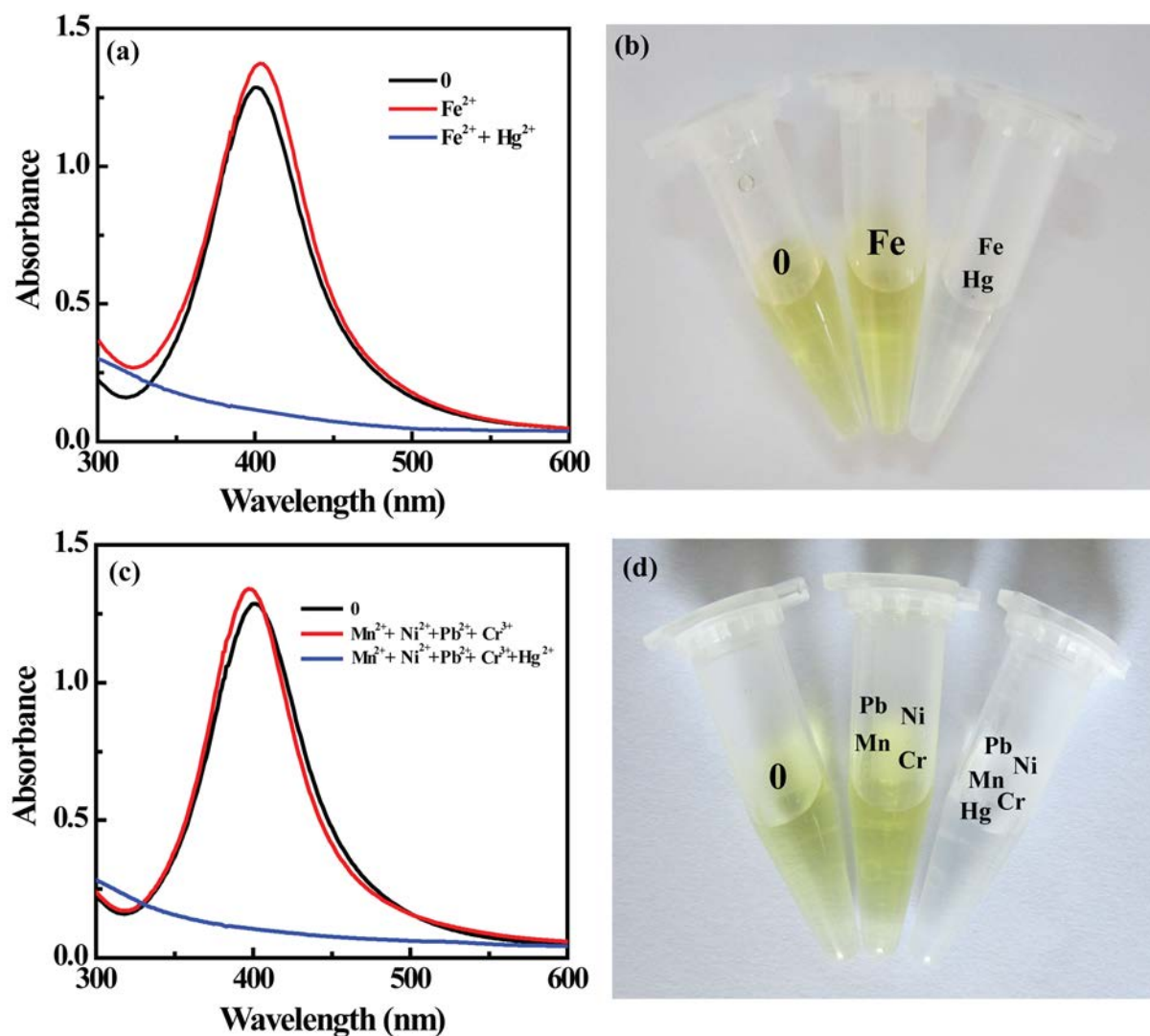


Figure S2. (a) UV-Vis spectra and the photographs (b) of Ag DSNP solutions (50 $\mu\text{g/mL}$) mixed with Fe^{2+} in the absence and presence of Hg^{2+} . (c) UV-Vis spectra and the photographs (d) of Ag DSNP solutions (50 $\mu\text{g/mL}$) mixed with Cr^{3+} , Mn^{2+} , Ni^{2+} , and Pb^{2+} in the absence and presence of Hg^{2+} . The final concentration of each metal ion is 30 ppm. The Hg^{2+} concentration in both cases is 10 ppm. “0” represents the Ag DSNP solution before mixing with other components.

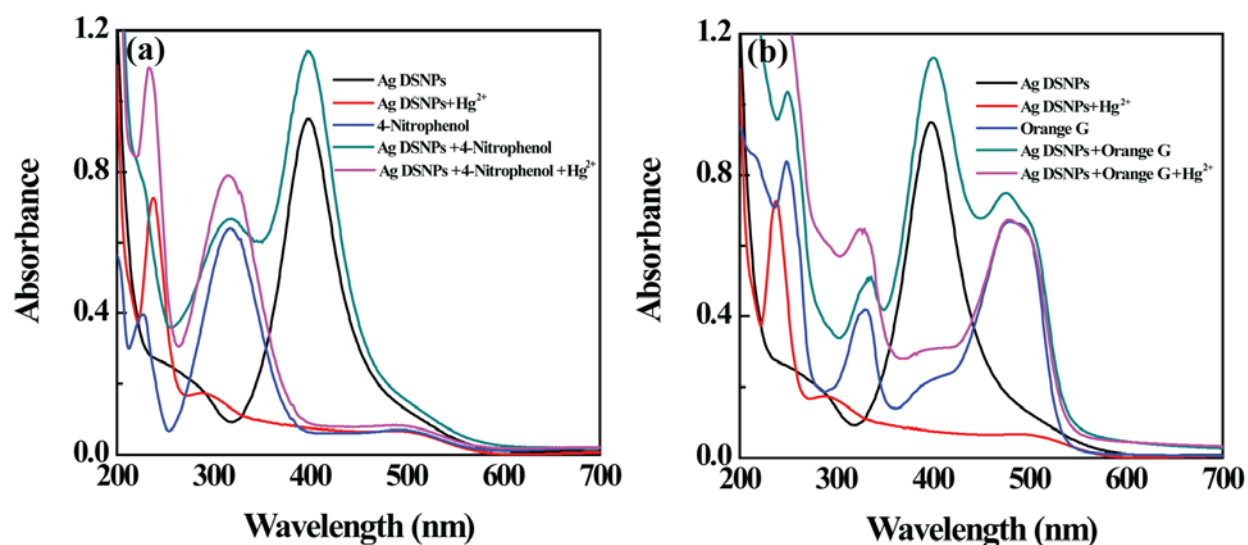


Figure S3. (a) UV-Vis spectrum of Ag DSNPs (35 $\mu\text{g/mL}$), Ag DSNPs (35 $\mu\text{g/mL}$) mixed Hg^{2+} (10 ppm), 4-nitrophenol (10 $\mu\text{g/mL}$), Ag DSNPs (35 $\mu\text{g/mL}$) mixed with 4-nitrophenol (10 $\mu\text{g/mL}$), and mixture of Ag DSNPs (35 $\mu\text{g/mL}$) and 4-nitrophenol (10 $\mu\text{g/mL}$) in the presence of Hg^{2+} (10 ppm). (b) UV-Vis spectrum of Ag DSNPs (35 $\mu\text{g/mL}$), Ag DSNPs (35 $\mu\text{g/mL}$) mixed Hg^{2+} (10 ppm), Orange G (20 $\mu\text{g/mL}$), Ag DSNPs (35 $\mu\text{g/mL}$) mixed with Orange G (20 $\mu\text{g/mL}$), and mixture of Ag DSNPs (35 $\mu\text{g/mL}$) and Orange G (20 $\mu\text{g/mL}$) in the presence of Hg^{2+} (10 ppm).