

Supplementary Information

Selective and colorimetric detection of Ba²⁺ ions in aqueous solutions using 11-mercaptoundecylphosphonic acid functionalized gold nanoparticles

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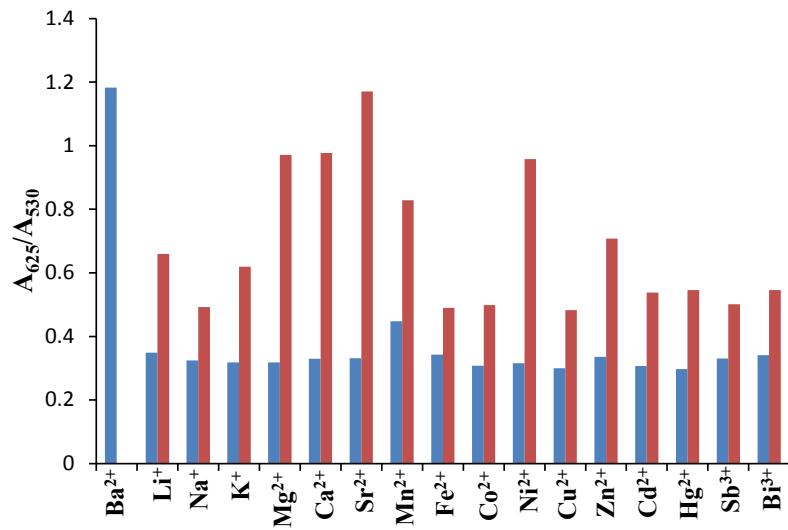


Fig. S1. Absorbance ratio (A_{625}/A_{530}) of AuNPs-MPA in the presence of metal ions. Blue bars represent the addition of single metal ion (100 μM); red bars represent the mixture of Ba^{2+} (100 μM) with another metal ion (100 μM).

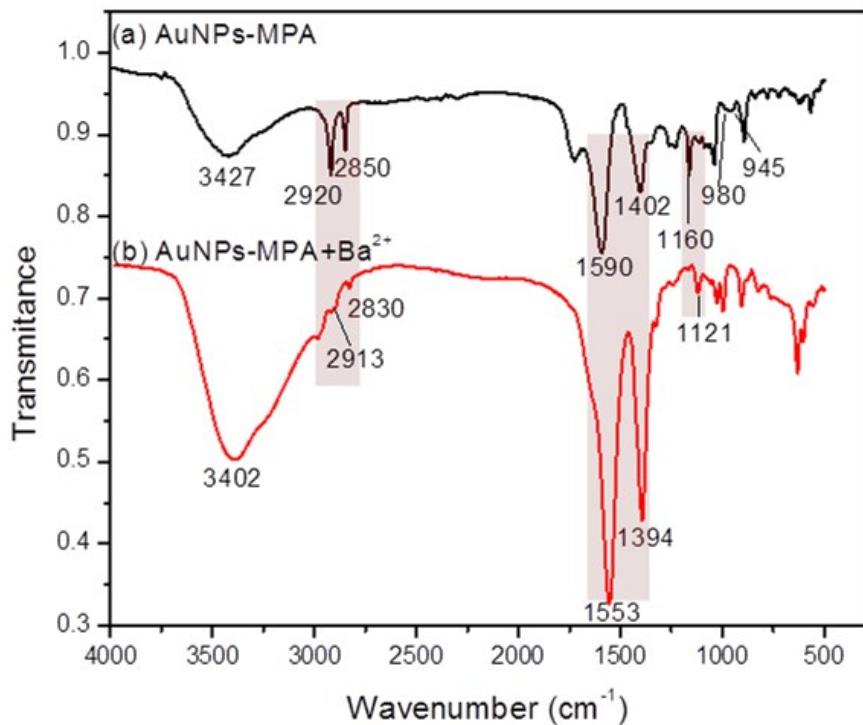


Fig. S2. IR spectra (a) Functionalized AuNPs-MPA and (b) AuNPs-MPA detecting Ba^{2+} ions.

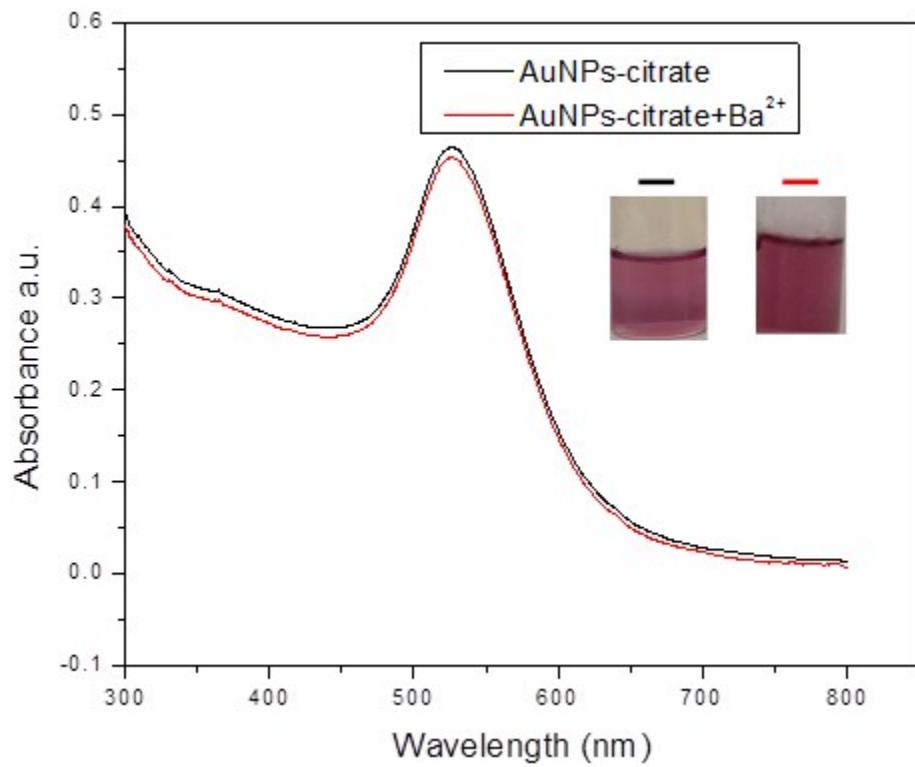


Fig. S3. Uv-vis spectra of (-) AuNPs-citrate and (-) AuNPs-citrate- Ba^{2+} .

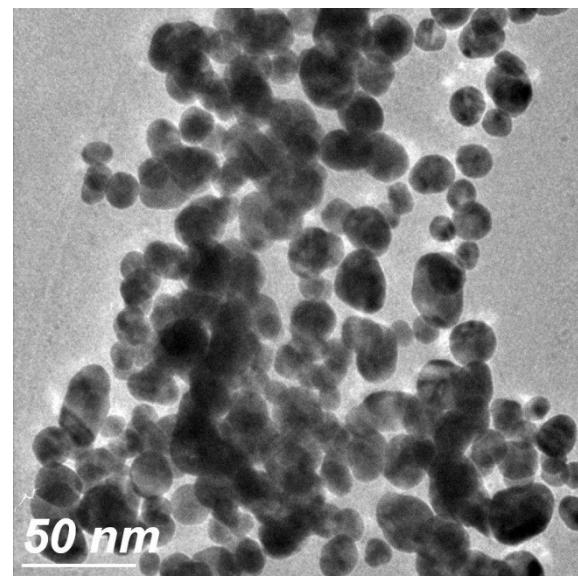


Fig. S4. TEM image of AuNPs-MPA evaluated at pH 3.

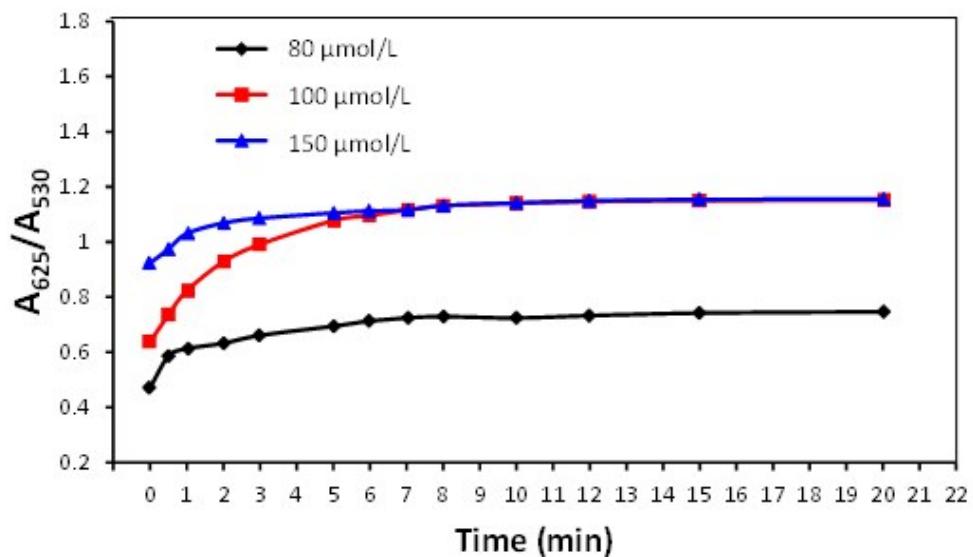


Fig. S5. Effect of reaction time on the absorption ratio A_{625}/A_{530} for AuNPs-MPA system in the presence of various concentrations of Ba^{2+} .

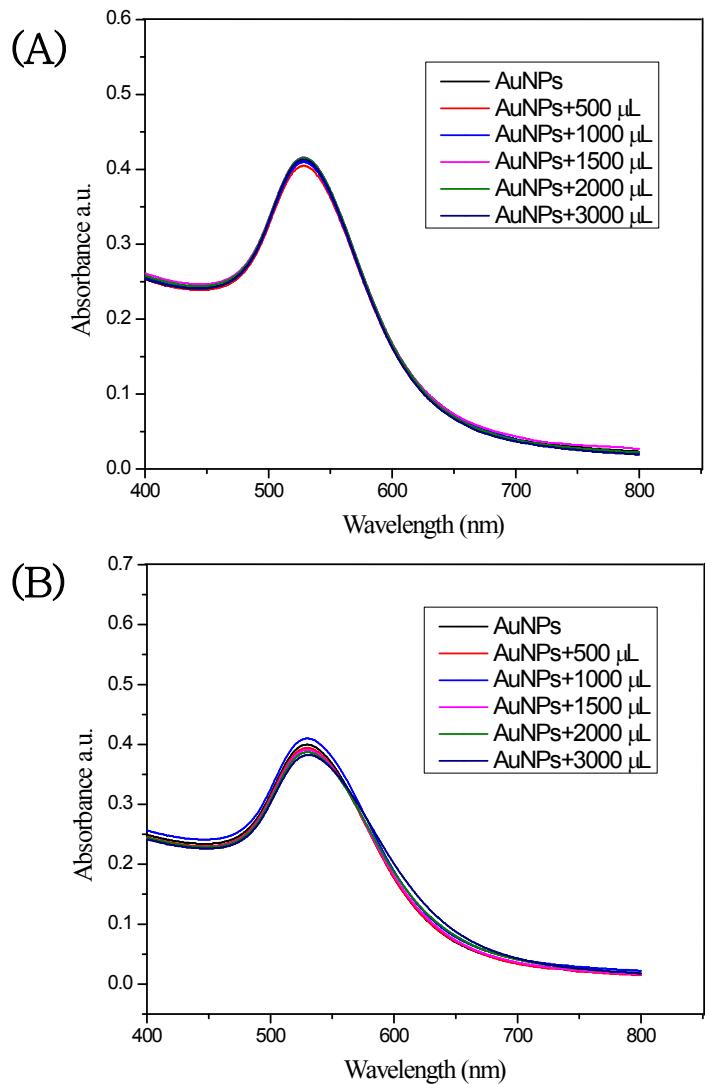


Fig. S6. UV-vis spectra of AuNPs-MPA detecting Ba^{2+} ions in (A) drinking water and (B) tap water.

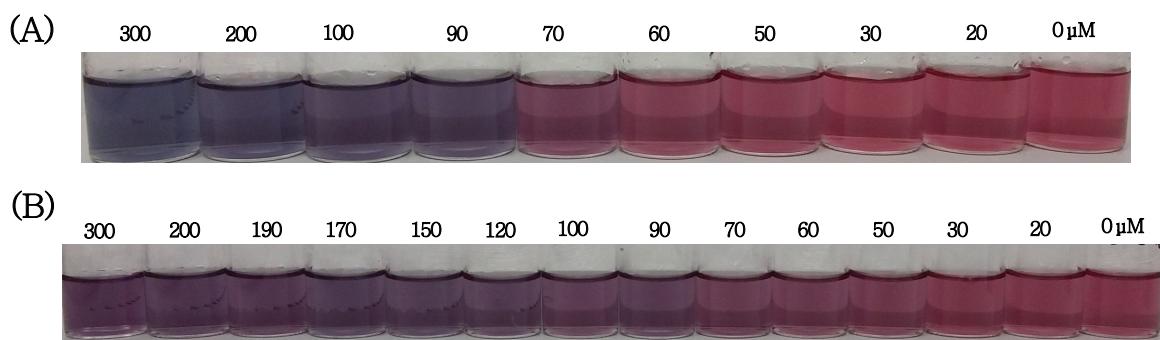


Fig. S7. Colorimetric response of (A) drinking water and (B) tap water.

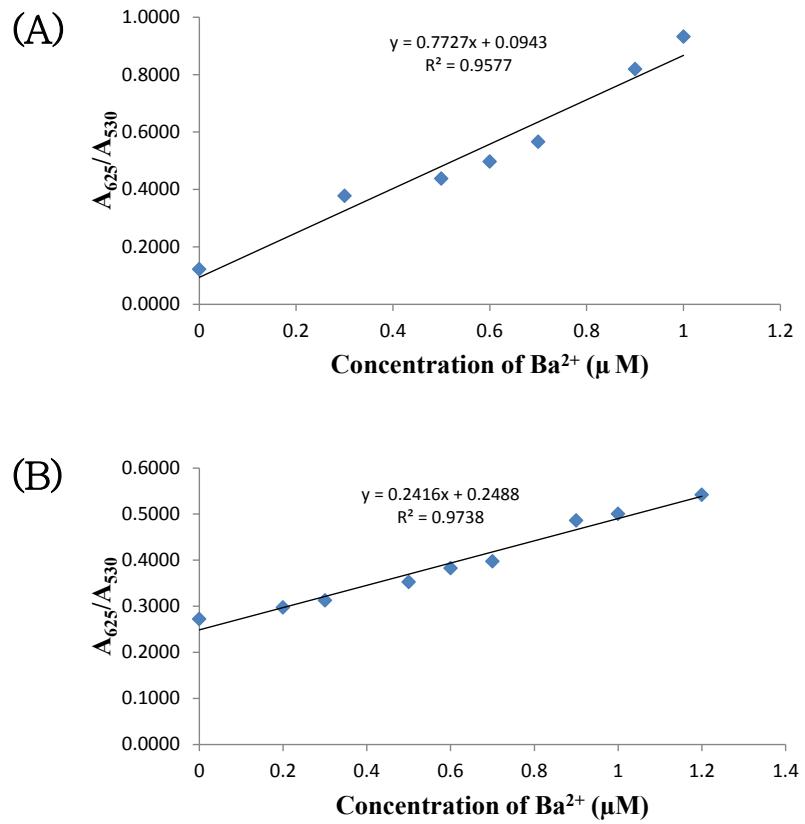


Fig. S8. The linearity curve of the ratio of A_{625}/A_{530} versus Ba^{2+} concentration (A) drinking water and (B) tap water.