

Electronic Supplementary Information (ESI) for

Rapid visual detection of aluminum ion using citrate capped gold nanoparticles

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Experimental details

Synthesis of Au nanoparticles. Au nanoparticles are synthesized with the traditional citrate reduction method. UV-vis absorption spectra were recorded by a spectrophotometer Lambda 750 Perkinelmer. TEM and HRTEM of Au nanoparticles are performed on a TECNAI F-20 high-resolution transmission electron microscope operating at 200 kV. All the other chemicals were of analytical grade. Deionized water (Millipore, Bedford, MA, USA) was used throughout.

Synthesis of Au nanoparticles. Au nanoparticles are synthesized with the traditional citrate reduction method. 1g $\text{HAuCl}_4 \cdot 4\text{H}_2\text{O}$ was dissolved in 100 mL second-distilled water. 1.9 mL of the resulted HAuCl_4 solution was diluted to 100 mL and heated up and in a flask with reflux while stirring. After the solution was boiling, 4 mL citrate solution ($\text{C}_6\text{H}_5\text{Na}_3\text{O}_7 \cdot 2\text{H}_2\text{O}$, 1.14g/100mL) was quickly added into the solution, allowed to react for 60 mins, resulting in red wine color Au nanoparticles solution.

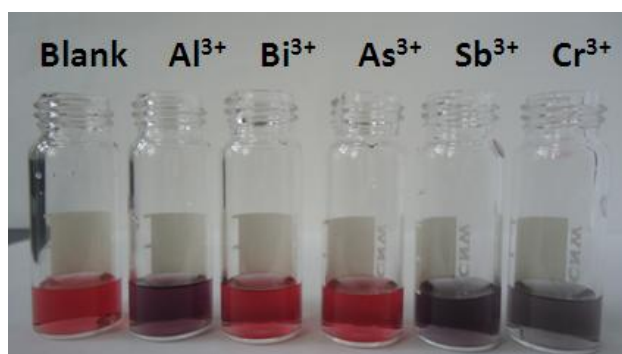


Fig. S1 Photograph of the solution with the addition of 10^{-5}M different metal ions (51mg/L AuNPs, pH=2.9)