

**Sensitive and selective detection of glutathione based on resonance light scattering using
gold nanoparticles as colorimetric probes**

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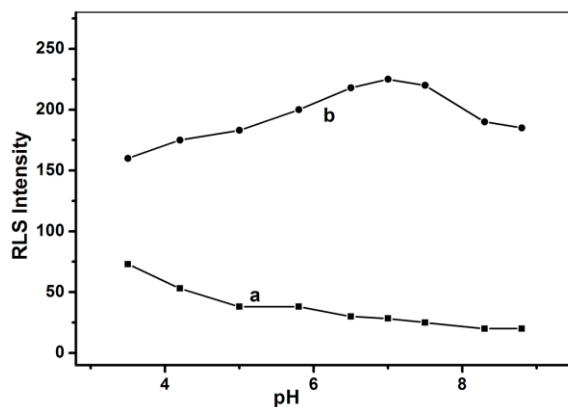


Fig. S1. Effect of pH on the RLS intensity of (a) $0.5 \times$ AuNPs and (b) $0.5 \times$ AuNPs + 200 nM GSH + 1.0 mM Cu^{2+} . The pH values of the solutions were controlled by BR buffer with different concentration ratio of acid to base in the pH range 3.5–8.8. The incubation time for AuNPs-GSH- Cu^{2+} is 20 min. Each data is average value of three measurements.

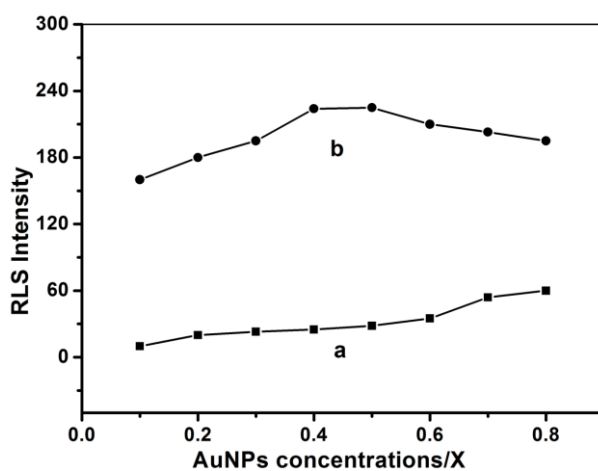


Fig. S2. Effect of AuNPs concentration on the RLS intensity of (a) AuNPs and (b) AuNPs + 200 nM GSH + 1.0 mM Cu^{2+} . The concentration of gold nanoparticles was varied from $0.1 \times$ to $0.8 \times$. Conditions: BR (pH 7.0) buffer solution, each data point is average value of three measurements.

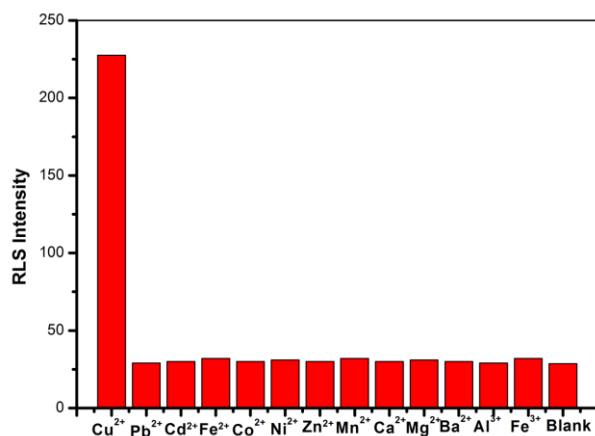


Fig. S3. The RLS intensity of 0.5×AuNPs+200nM GSH in the presence of various metal ions (performed in pH 7.0 BR buffer solution, the concentration of all the metal ions was 1 mM)

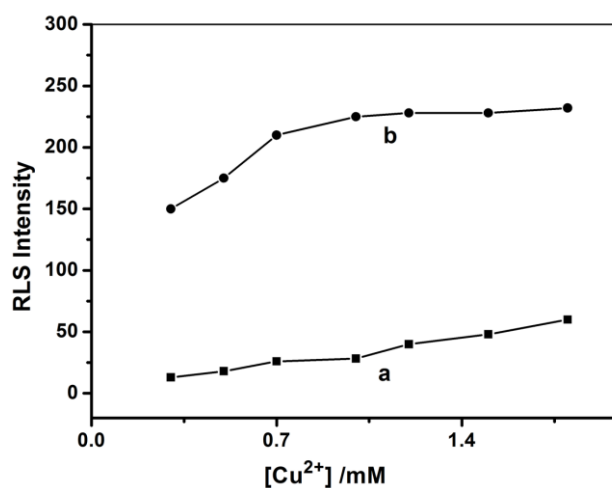


Fig. S4. Effect of Cu²⁺ concentration on the RLS intensity of (a)0.5×AuNPs and (b) 0.5×AuNPs+200nM GSH. The concentration of Cu²⁺ was varied from 0.3 to 1.8 mM. Conditions: BR (pH7.0) buffer solution, each data point is average value of three measurements.

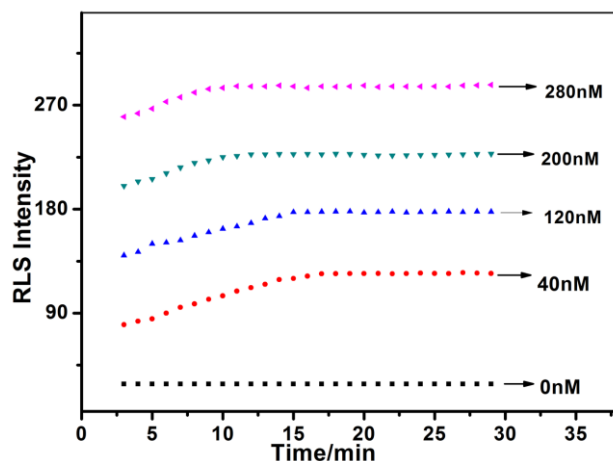


Fig. S5. The RLS intensity profile of the method for different concentrations of GSH in the presence of 1mM Cu^{2+} .

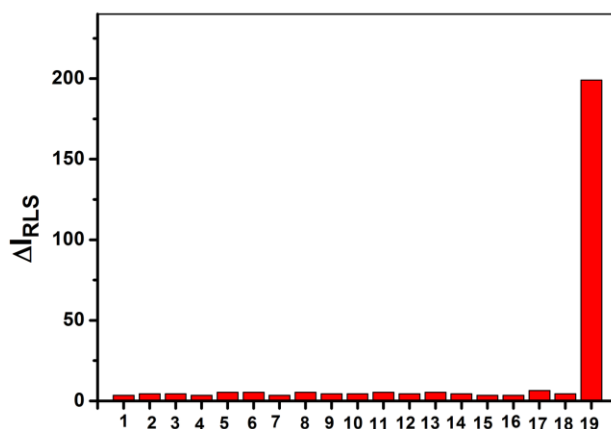


Fig. S6. The ΔI_{RLS} intensity in the presence of 200nM GSH (19) and 0.5 mM other amino acids (1. histidine, 2. leucine, 3. aspartic acid, 4. methionine, 5. valine, 6. isoleucine, 7. serine, 8. arginine, 9. tryptophan, 10. glycine, 11. phenylalanine, 12. threonine, 13. cystine, 14. lysine, 15. alanine, 16. thioglycolic, 17. cysteine, 18. mercaptoethyl alcohol. Experimental conditions: Cu^{2+} , 1mM, AuNPs, 0.5 \times , BR (pH7.0) buffer solution. The incubation time for AuNPs-amino acids - Cu^{2+} is 20min.