

Supporting Information

L-Cysteine-Modified Gold Nanostars for SERS-based Copper Ions Detection in Aqueous Media

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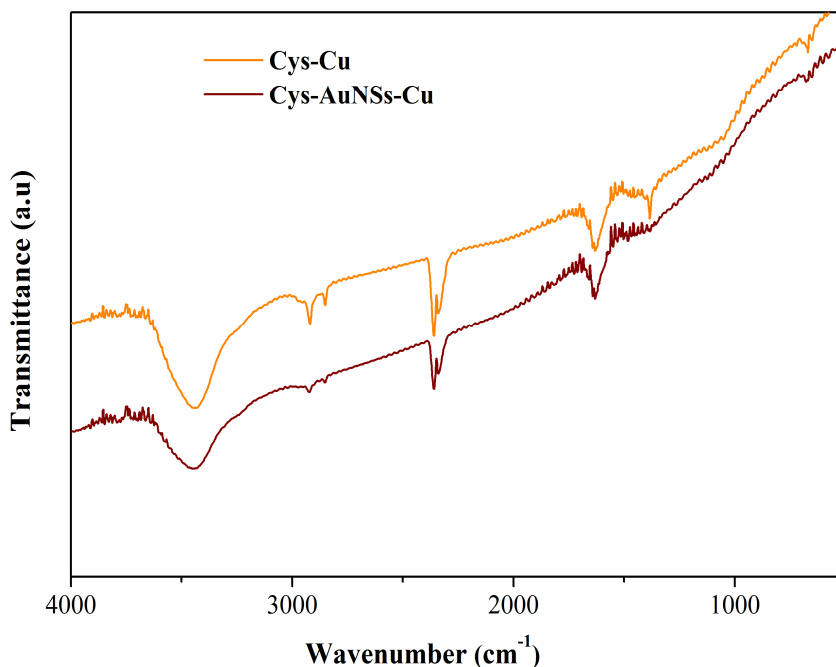


Figure S1. FTIR spectra of Cys-Cu (Orange), Cys-AuNSs-Cu (Dark red).

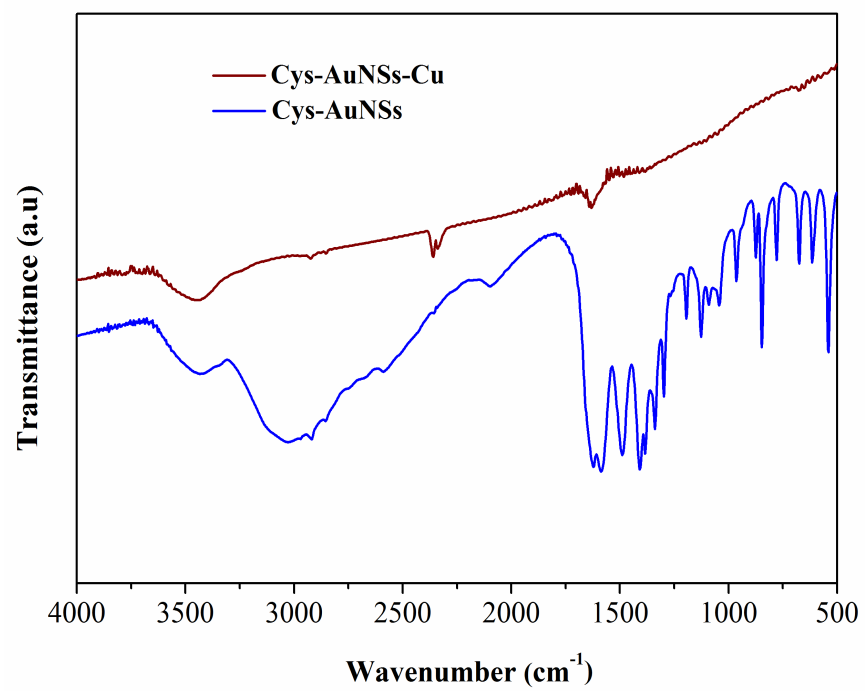


Figure S2. FTIR spectra of Cys-AuNSs-Cu (Dark red) and Cys-AuNSs (Blue).

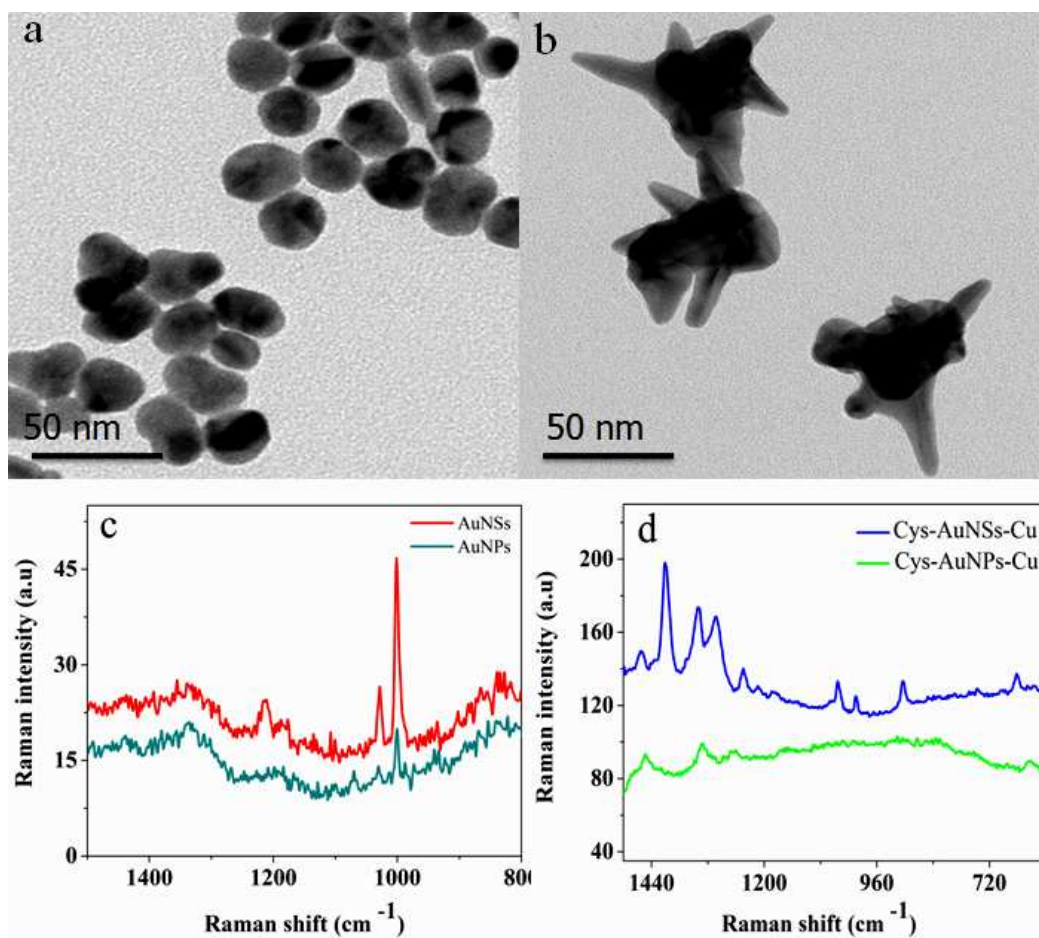


Figure S3. SERS signal intensities of (a) naked AuNPs and AuNSs, and (b) Cys-coated AuNPs and AuNSs Cys- AuNSs with Cu^{2+} ions. SERS intensities of naked nanoparticles (both AuNSs and AuNPs) (1c) were compared, and AuNSs exhibited stronger signals than those of AuNPs. On the other hand, both AuNSs and AuNPs were coated with Cys and used to measure their responses in the presence of Cu^{2+} (Figure 1d), it is clear that Cys-AuNSs- Cu^{2+} complex shows strong signals compared to Cys-AuNPs-Cu. This observation is consistent with the reports on higher SERS enhancements of AuNSs compared with AuNPs^{1,2}.

References

1. Rodriguez-Lorenzo, L., Alvarez-Puebla, R. A., Pastoriza-Santos, I., Mazzucco, S., Stephan, O.; Kociak, M.; Liz-Marzan, L. M.; de Abajo, F. J. G. Zeptomol Detection through Controlled Ultrasensitive Surface-enhanced Raman scattering. *J. Am. Chem. Soc.* **2009**, 131, 4616–4618.
2. Rodriguez-Lorenzo, L.; Alvarez-Puebla, R. A.; Garcia de Abajo, F. J.; Liz-Marzan, L. M. Surface-enhanced Raman scattering using Star-shape Gold Colloidal Nanoparticles. *J. Phys. Chem. C.* **2010**, 114, 7336–7340.