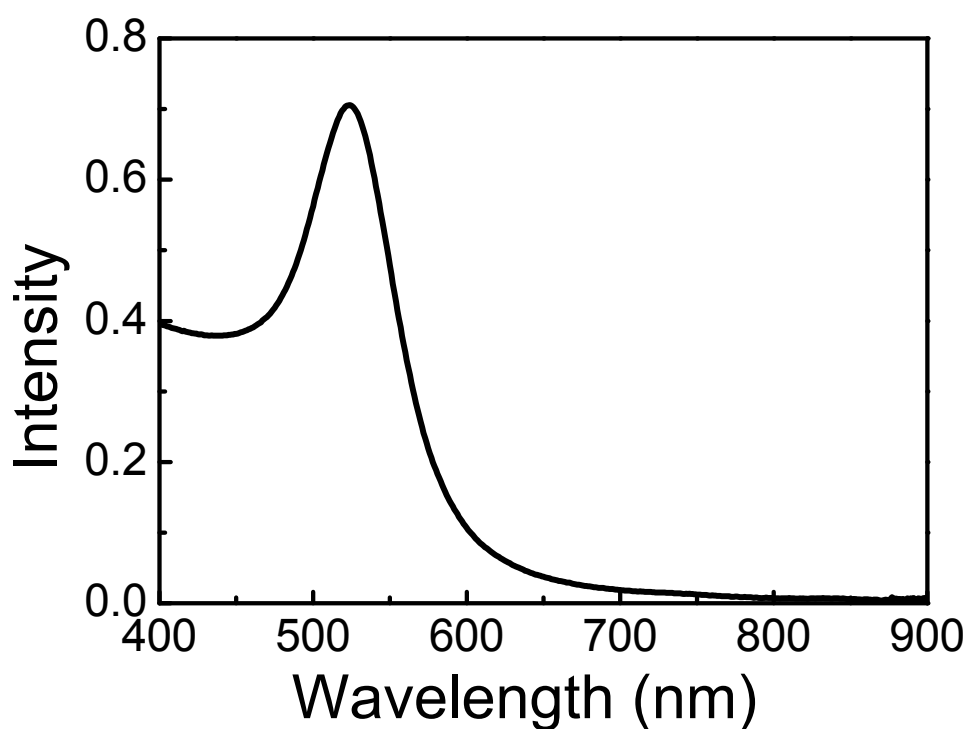


Supporting information

Light-Controlled Synthesis of Gold Nanoparticles Using a Rigid, Photoresponsive Surfactant

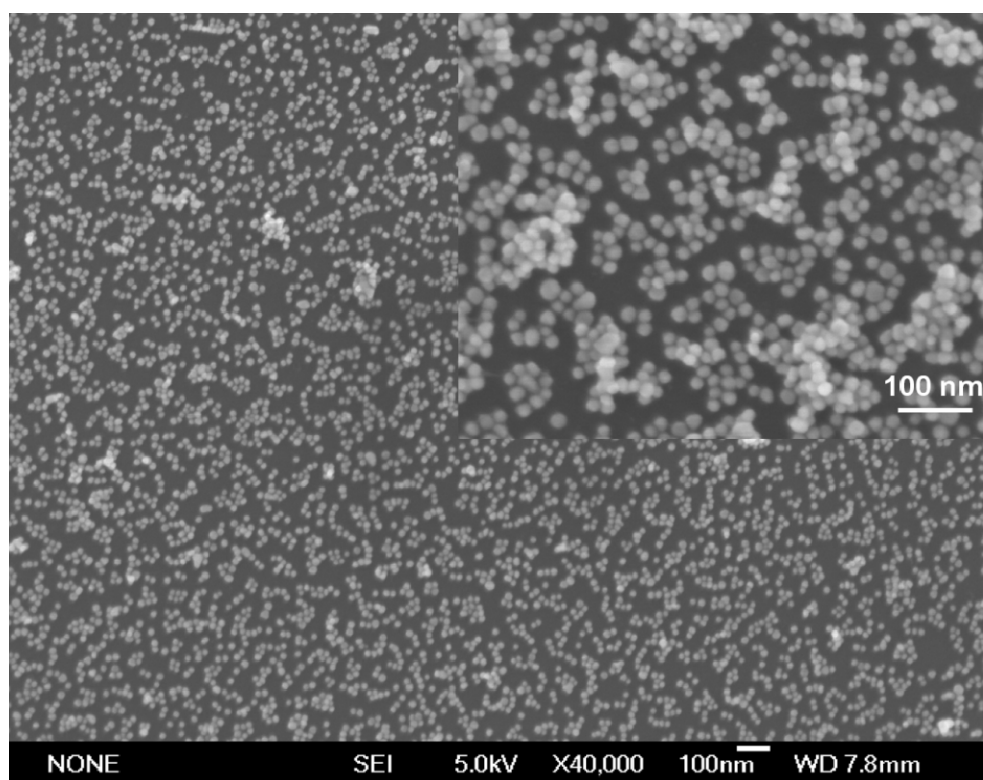
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637457, Singapore

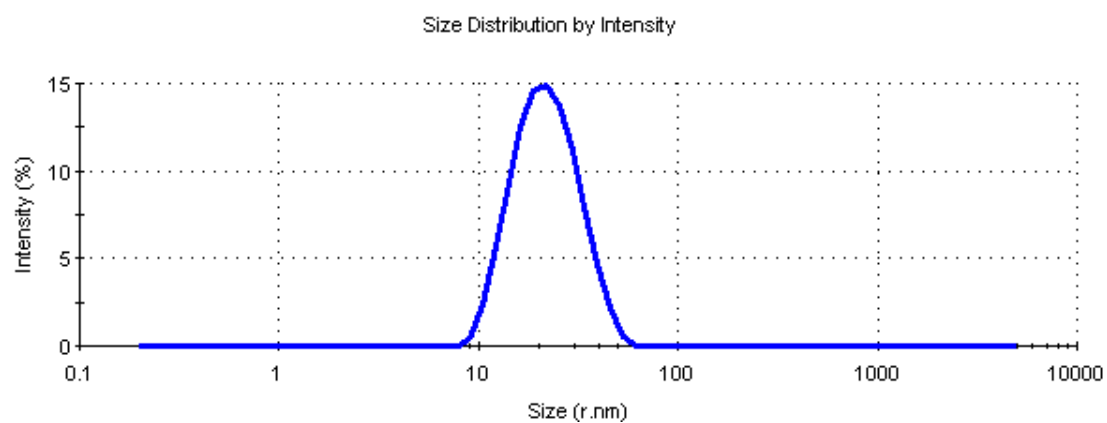


S-Figure 1. UV-vis spectra of Au-seeds with an average size of 18 nm.

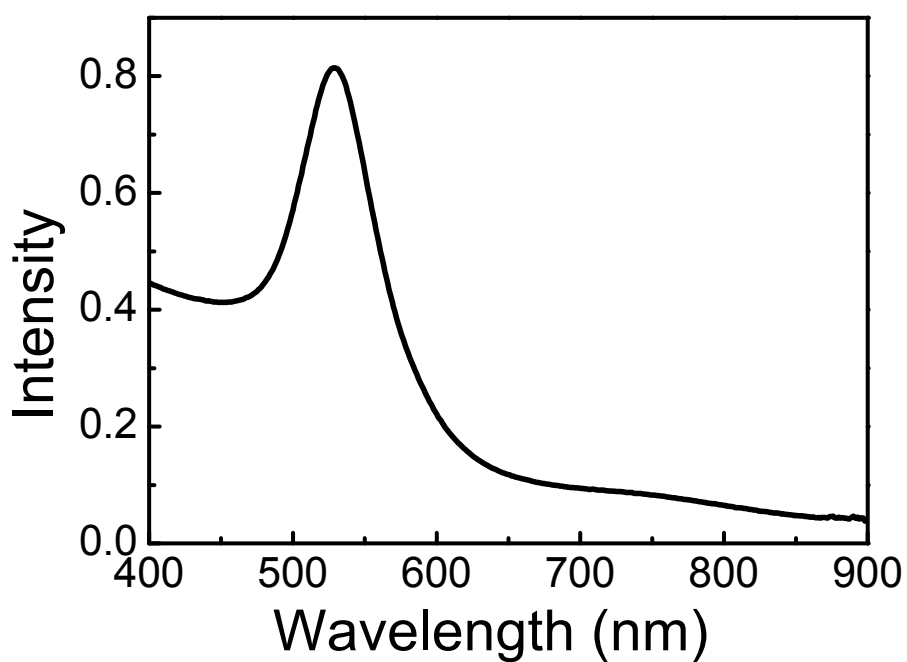
* Corresponding author: e-mail: dhkim@ntu.edu.sg; Tel: 65-67904111; Fax: 65-67911761 (DH. Kim)



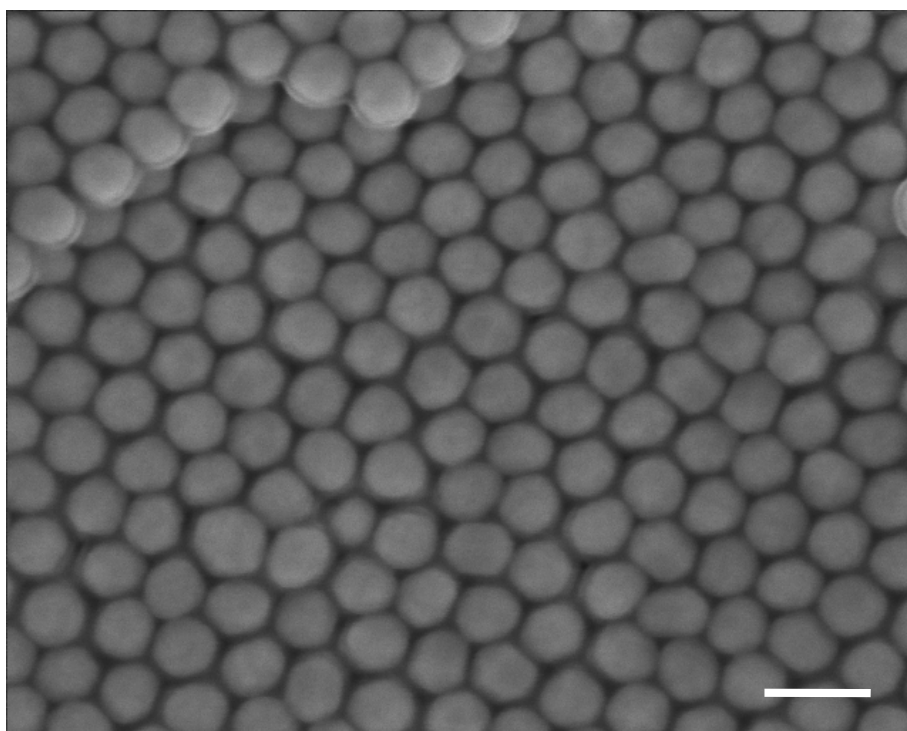
S-Figure 2. A representative SEM image of Au-seeds (18 nm) used in the present study.



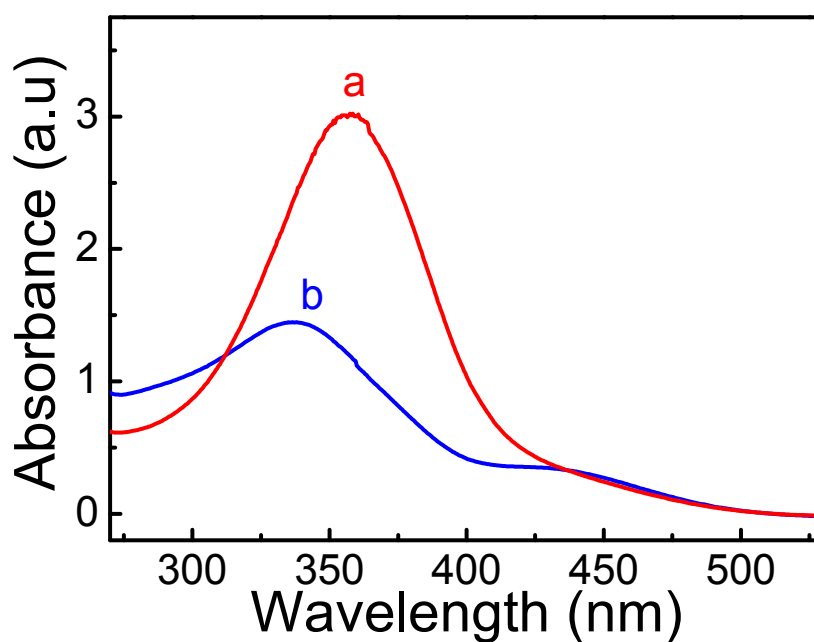
S-Figure 2. The size distribution of Au-seeds used in the present study. The seed size was measured by Zetasizer Nano particle characterization systems from Malvern Instruments.



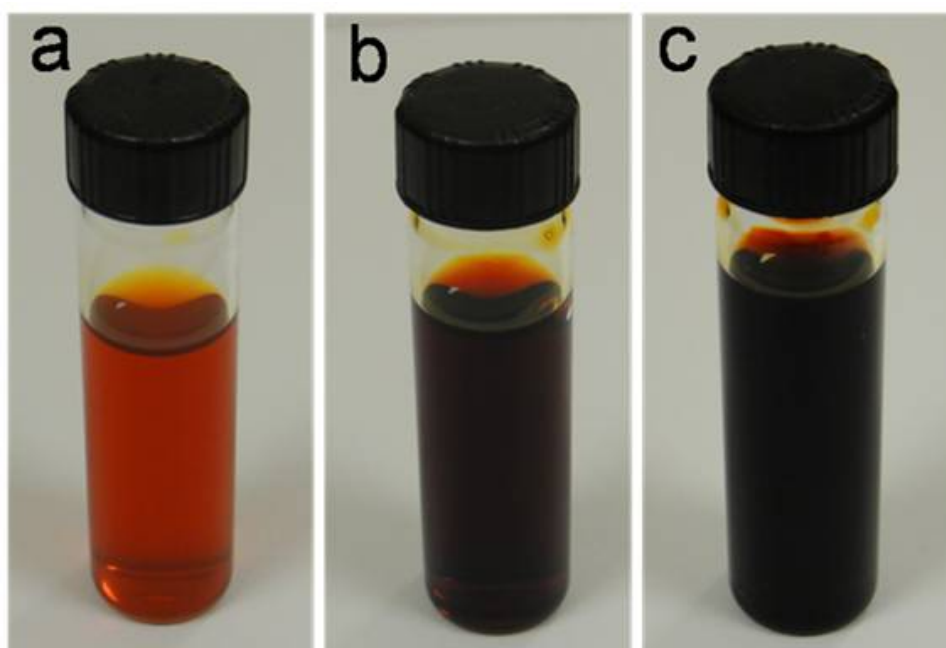
S-Figure 4. UV-vis spectra of spherical gold nanoparticles with an average size of 50 nm.



S-Figure 5. A representative SEM image of spherical gold nanoparticles with an average size of 50 nm in the present study for comparison of SERS properties. The scale bar represents 100 nm.

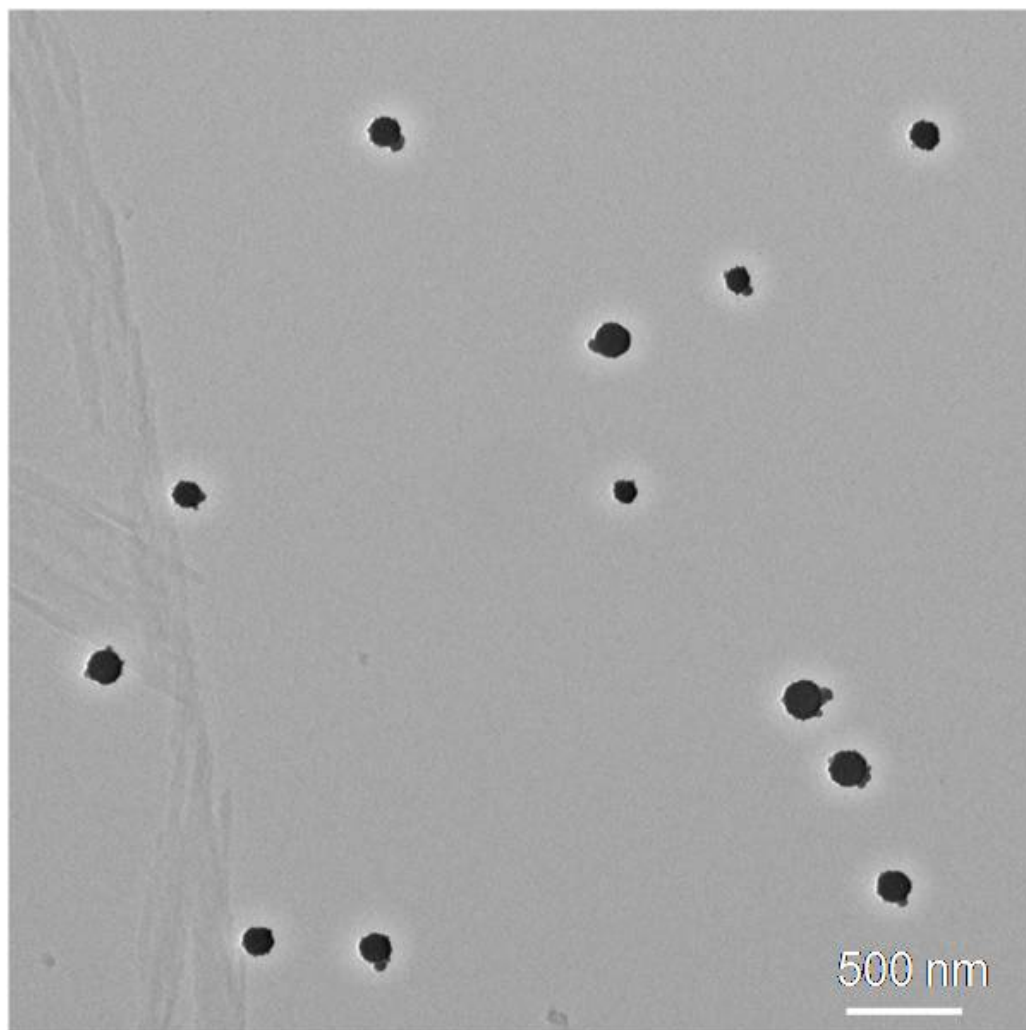


S-Figure 6. UV-vis spectra of the TASBT in water after exposure to visible light (a) and UV irradiation at 365 nm (b) for 10 min. Under visible light, there is only one absorption band at ~ 360 nm, which is attributed to the $\pi \rightarrow \pi^*$ transition in trans isomer, whereas UV irradiation at 365 nm caused a reverse isomerization (trans to cis) as observed by the decrease of the 360 nm band and the appearance of a new band at ~ 445 nm, which is attributed to the $n \rightarrow \pi^*$ transition in cis isomer.

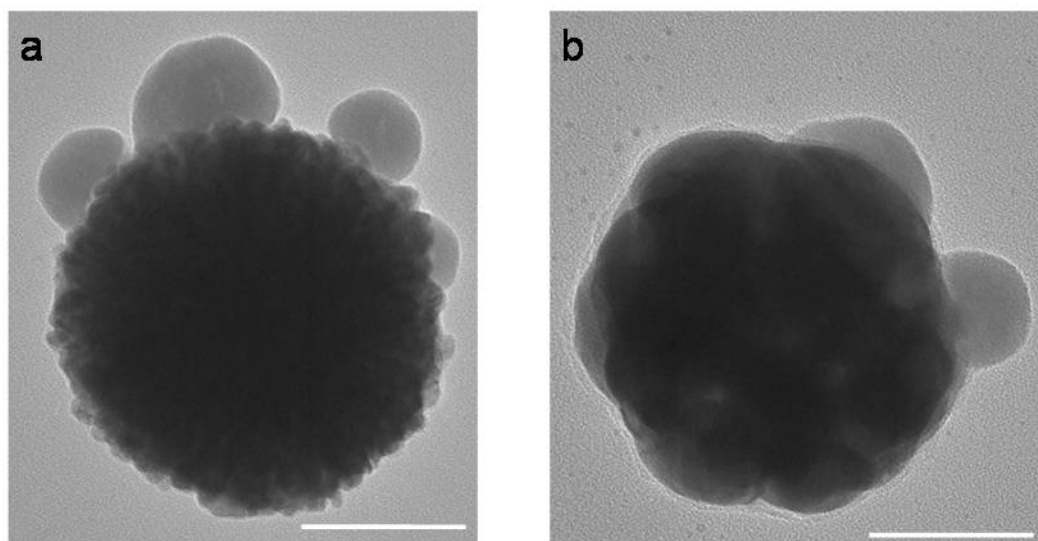


S-Figure 7. photograph of the Au-seeds (18 nm) in the growth solution containing 5×10^{-3} g/mL TASBT molecules, 5×10^{-4} M HAuCl_4 and 1.2×10^{-4} M AgNO_3 without ascorbic acid (a), with

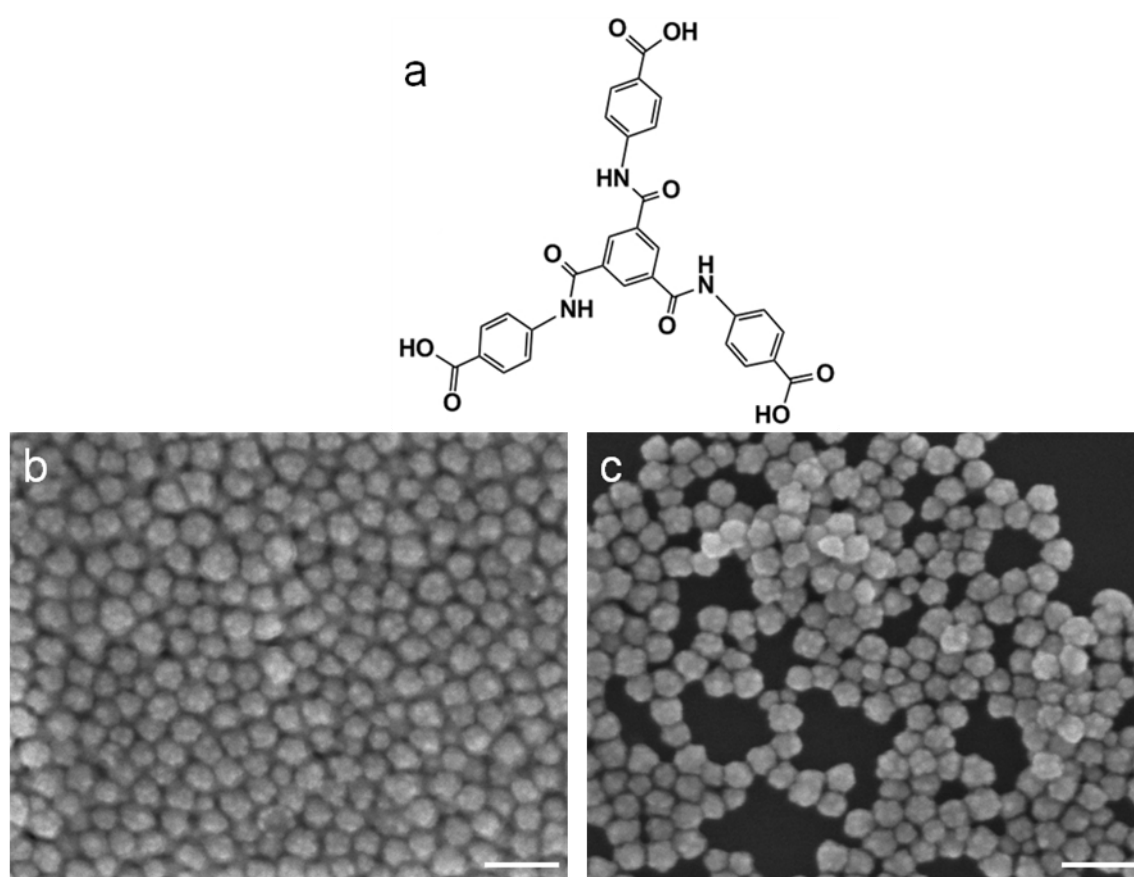
ascorbic acid under visible light (b) and UV light (c).



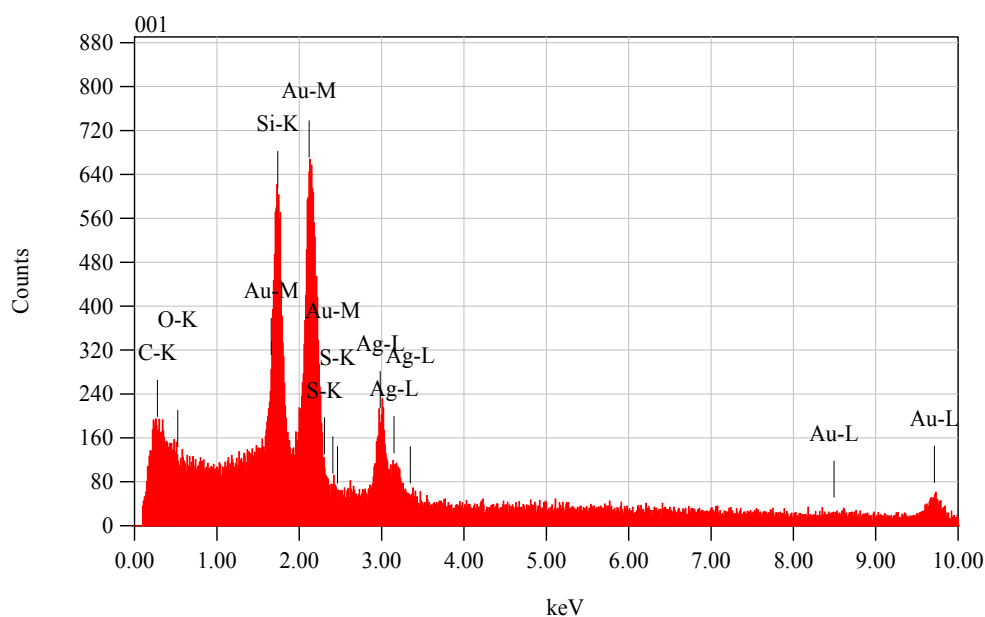
S-Figure 8. TEM of AuNPs obtained under the irradiation of visible light.



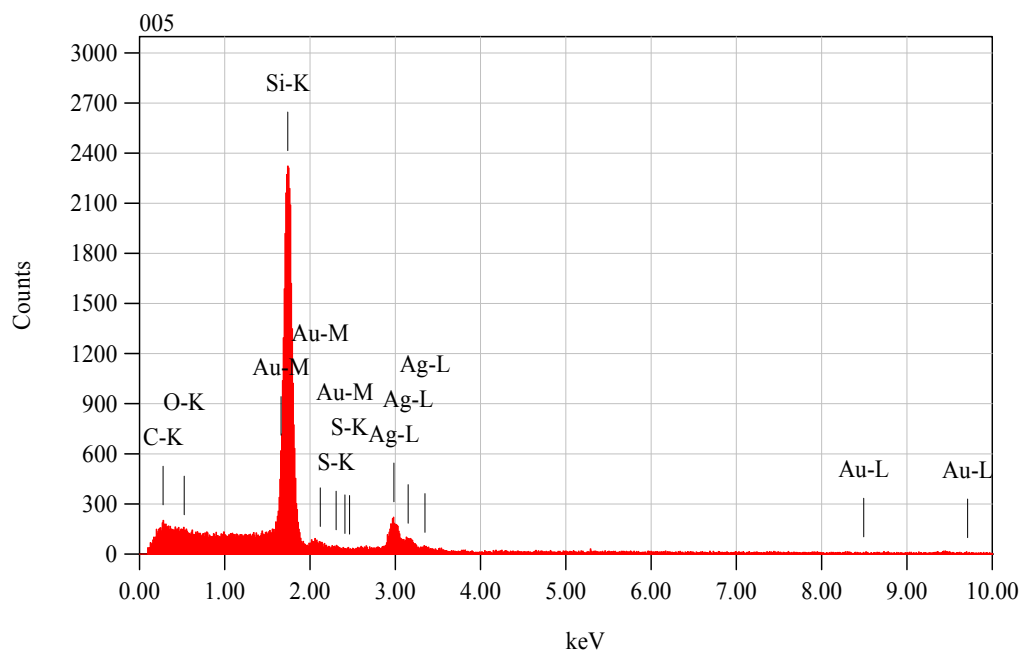
S-Figure 9. Representative TEM images of AuNPs obtained under the irradiation of visible light. The scale bars in a and b represent 100 nm.



S-Figure 10. Chemical structure of rigid surfactant without azo groups (a), representative SEM images of AuNPs obtained under the irradiation of visible light (b) and UV (c). The scale bars in b and c represent 100 nm.



S-Figure 11. EDX spectrum of blackberry-like AuNPs.



S-Figure 12. EDX spectrum of Au microplates.