

Supplementary Materials

Analytical Enhancement Factor Calculation

Analytical enhancement factor (analytical EF) is estimated using the following equation [1]:

$$EF = \frac{I_{\text{SERS}} \times C_{\text{NR}}}{I_{\text{NR}} \times C_{\text{SERS}}} \quad (1)$$

where I_{SERS} and I_{NR} is the intensity of characteristic absorption peak in SERS and normal Raman (NR) measurements, respectively, and C_{NR} and C_{SERS} is the concentration of probe molecule in the NR and SERS measurements, respectively.

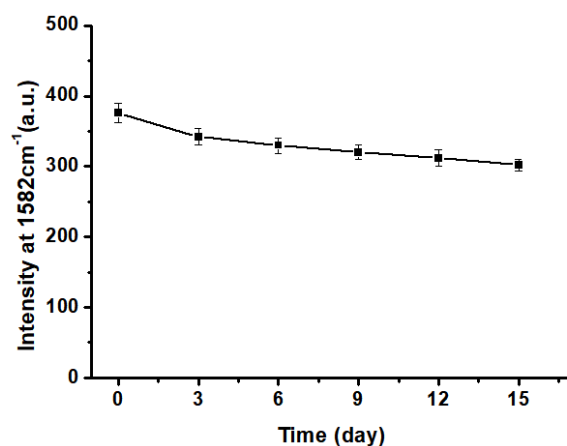


Figure S1. The stability and life-time of the Au@Ag NPs probes.

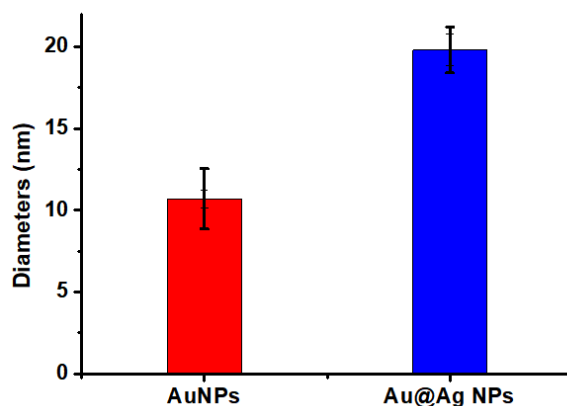


Figure S2. Statistical diameters of Au NP, Au@Ag NP according to TEM image.

Reference

1. Qi, M.H.; Huang, X.Y.; Zhou, Y.J.; Zhang, L.Y.; Jin, Y.; Peng, Y.; Jiang, H.J.; Du, S.H. Label-free surface-enhanced Raman scattering strategy for rapid detection of penicilloic acid in milk products. *Food Chem.* **2016**, *197*, 723–729.