
Supplementary Files

Reporter molecules embedded Au@Ag core-shell nanospheres as SERS nanotags for cardiac troponin I detection

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The calculation procedure of electromagnetic field distribution: Firstly, the geometric models were established according to the morphology of Au NSs and Au@Ag NS. Secondly, the material properties of gold and silver were assigned. Then, the frequency domain of the electromagnetic field was set and the scattering field was used in the calculation, and the parameter of scattering field is $E_0 \cdot \exp(-j \cdot \omega \cdot t) \cdot \exp(j \cdot k_0 \cdot z)$. Finally, the frequency response of the corresponding wavelength is calculated. (Other parameters: Pressure (Pa): one atmosphere. Temperature (K): 293.15 K. Laser wavelength: 532 nm)

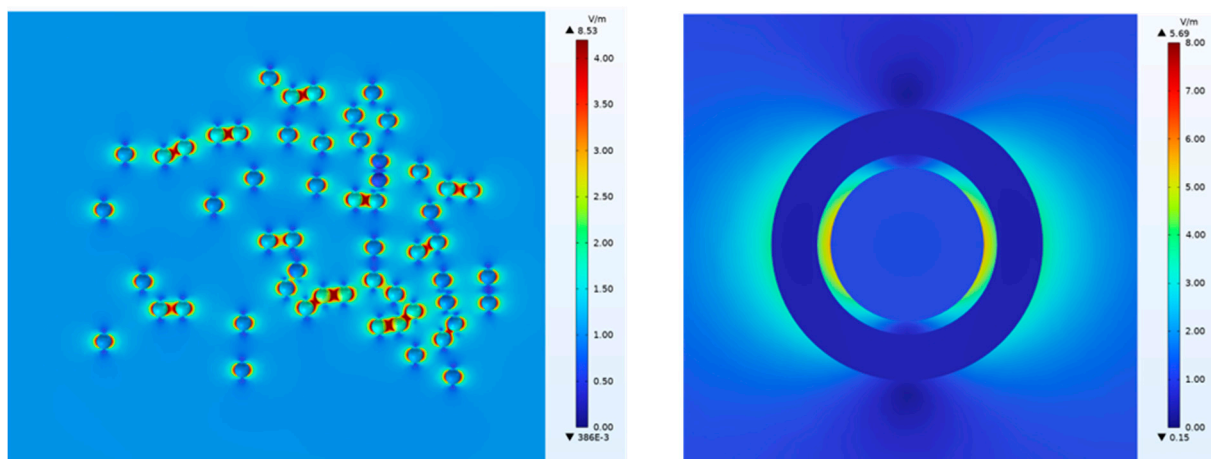


Figure S1. (a) Electrical field distributions of randomly distributed Au NSs and (b) Au@Ag NS with GERTs.

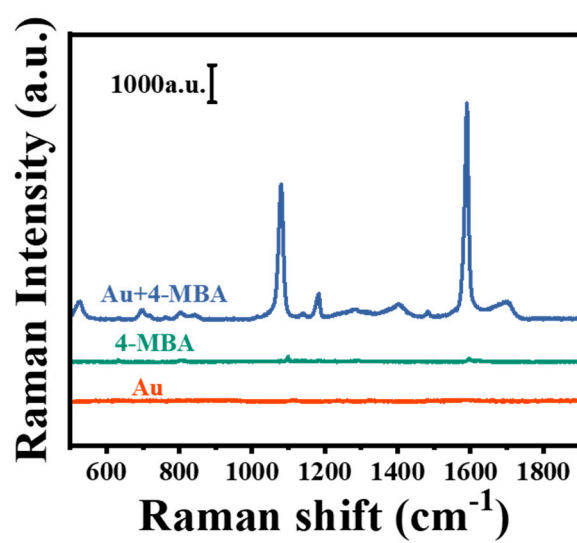


Figure S2. Raman spectra of pure Au NPs , 4-MBA and pure Au NPs+4-MBA.

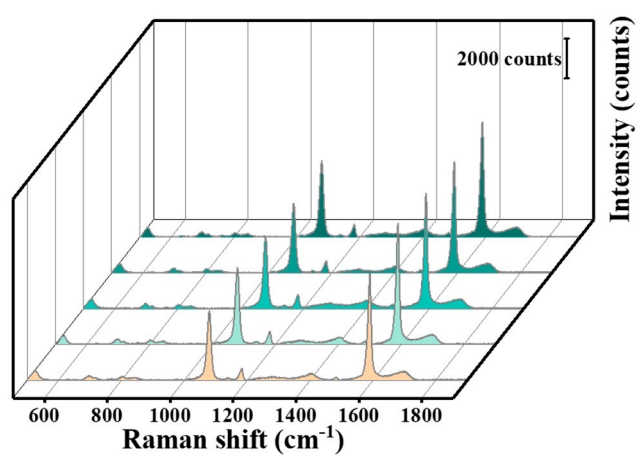


Figure S3. Three-dimensional Raman spectra of Au.

Table S1. Detection limits of cTn I by different detection methods.

Methods	Linear ranges (ng/mL)	LOD (pg/mL)	Reference
Electrochemical	0.5 ~ 100	40	[1]
Immunoassay			
ELISA	0.1 ~ 10	27	[2]
fluorescence	3.9 ~ 100	980	[3]
Photoelectrochemical	50 ~ 500000	8.0	[4]
Differential Pulse			
Voltammetry	1.25 ~ 125	67.5	[5]
Enzymatic			
Chemiluminescence	0.1 ~ 50	50	[6]
SERS	0.01 ~ 10	8.6	This work

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