Electronic Supplementary Information

Synthesis of g-C_3N_4 Nanosheets/Au@Ag Nanoparticles Hybrids as SERS Probe for Cancer Cells Diagnostics

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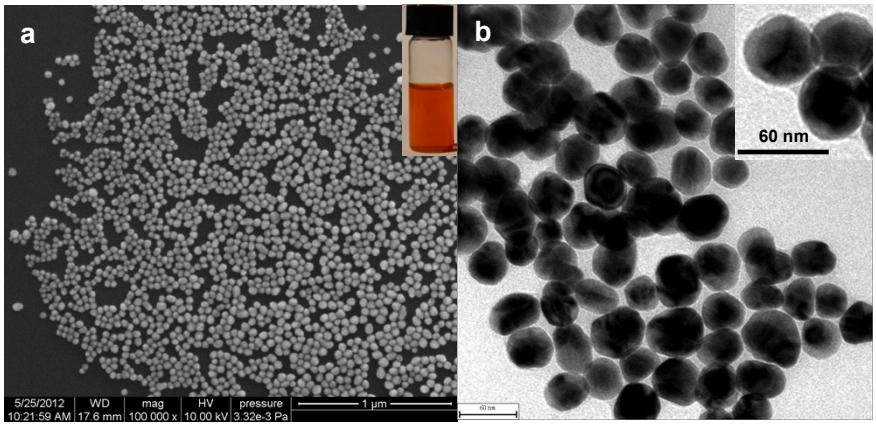

Figure S1. (a) SEM image of the Au@AgNPs. The inset was the photograph of the synthesized Au@AgNPs. (b) TEM image of the Au@AgNPs. The illustration was the TEM image of Au@AgNPs with larger magnification.

Zeta-potential (mv)

C_3N_4	Au@Ag
-35.8	-42.6

Table S1. The Zeta-Potential of the ultrathin g-C_3N_4 nanosheets and Au@AgNPs.

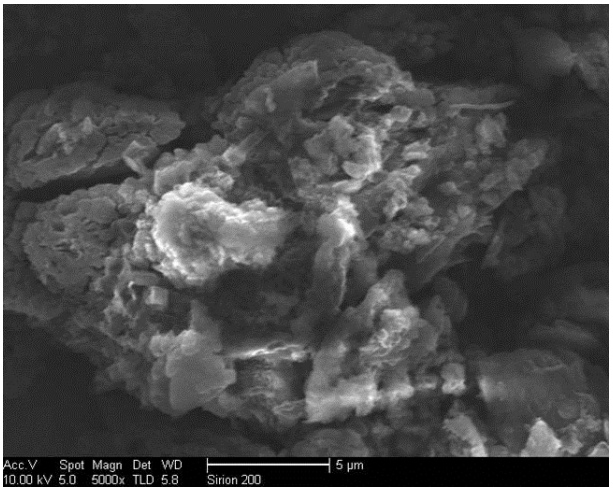

Figure S2. SEM image of the bulk g-C_3N_4.

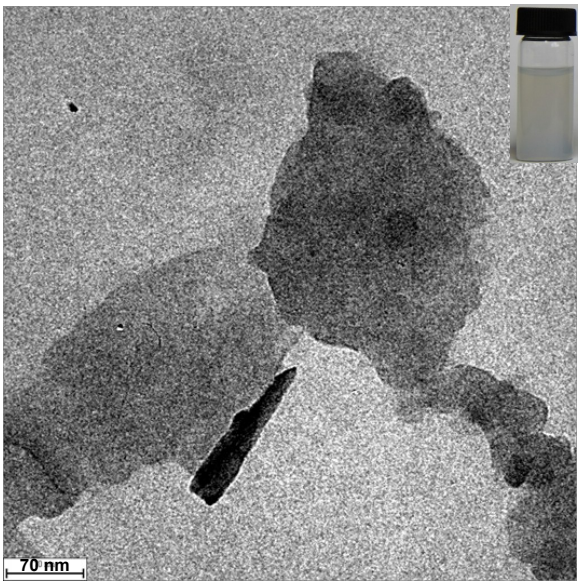

Figure S3. TEM image of the ultrathin g-C_3N_4 nanosheet. The inset was the photograph of the suspension of ultrathin g-C_3N_4 nanosheets.

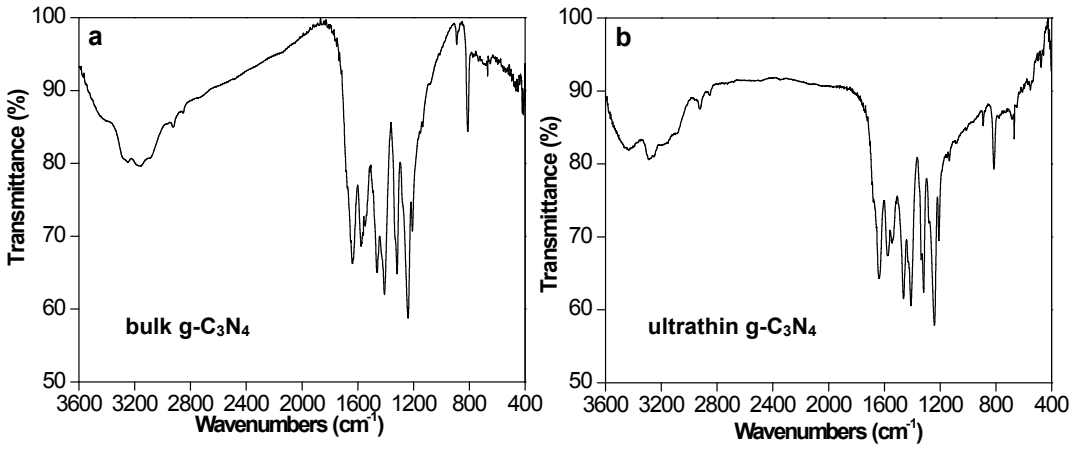

Figure S4. The IR spectrum of bulk g-C_3N_4 (a) and ultrathin g-C_3N_4 nanosheet (b).

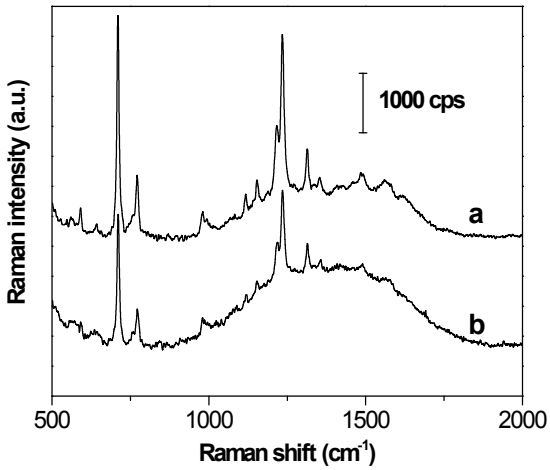

Figure S5. Raman spectra of the bulk g-C_3N_4 (a) and ultrathin g-C_3N_4 nanosheet (b).

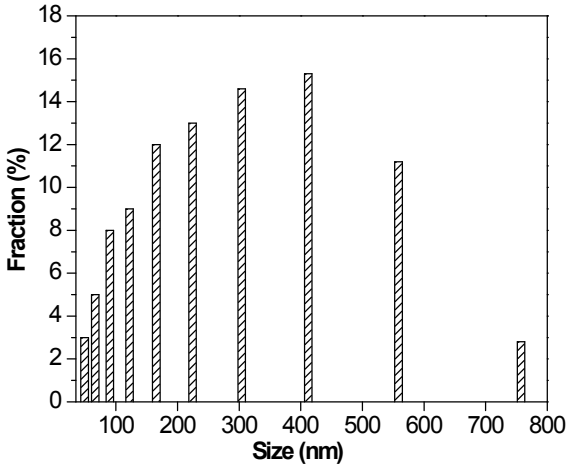

Figure S6. The size distribution of the obtained ultrathin g-C_3N_4 nanosheets.

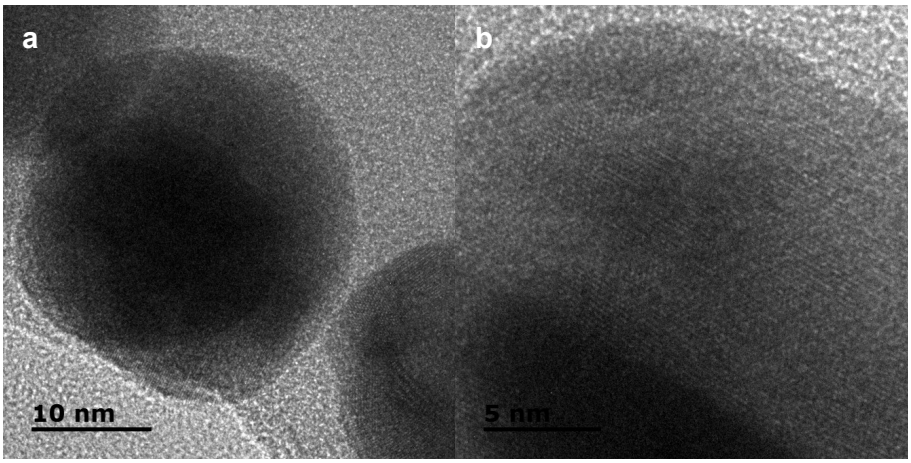

Figure S7. (a) High-magnification TEM image of g-C_3N_4/Au@Ag NPs nanohybrids, (b) the corresponding HRTEM image of one single Au@Ag NP.

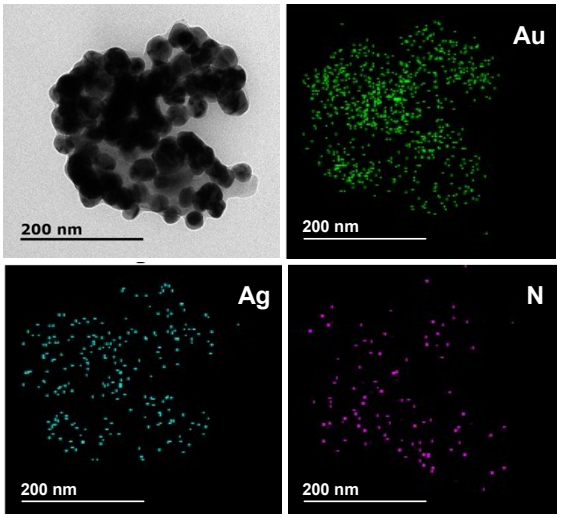

Figure S8. TEM image and the corresponding EDS elemental distribution of Au, Ag, N in the g-C_3N_4/Au@Ag NPs nanohybrids.

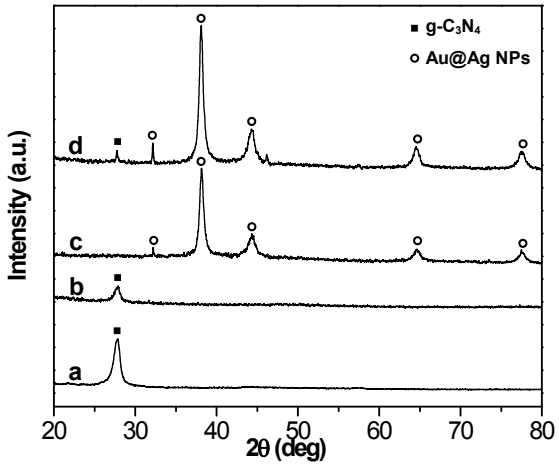

Figure S9. XRD patterns of (a) bulk g-C_3N_4, (b) ultrathin g-C_3N_4 nanosheets, (c) Au@Ag NPs and (d) g-C_3N_4/Au@Ag NPs nanohybrids.

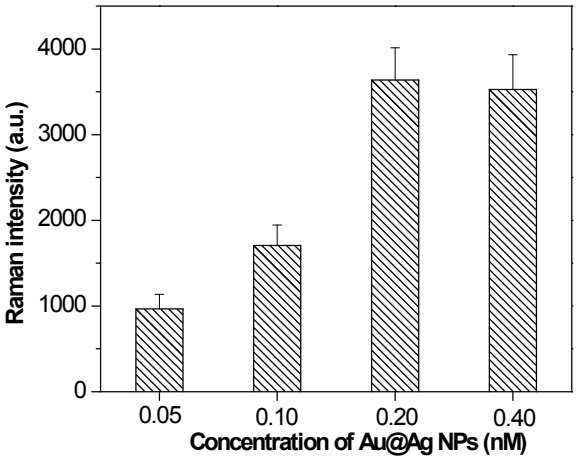

Figure S10. The SERS intensity of 1×10^{-13} M R6G molecules at 1360 cm^{-1} from g-C_3N_4/Au@AgNPs hybrids with various concentrations Au@AgNPs: 0.05 nM, 0.10 nM, 0.20 nM and 0.40 nM.

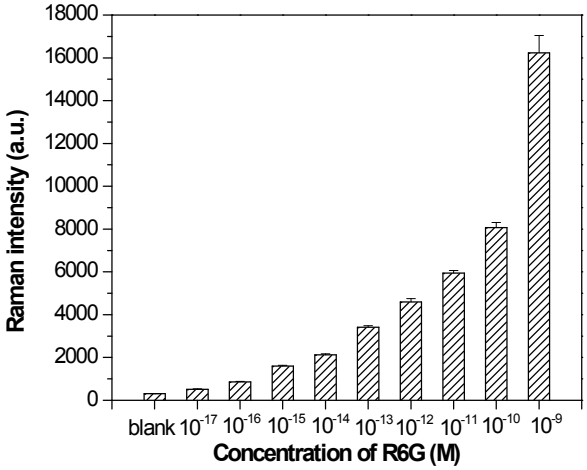

Figure S11. Raman intensity of R6G at 1360 cm^{-1} with different concentrations from 1×10^{-17} M to 1×10^{-9} M obtained from g-C_3N_4/Au@AgNPs hybrids.

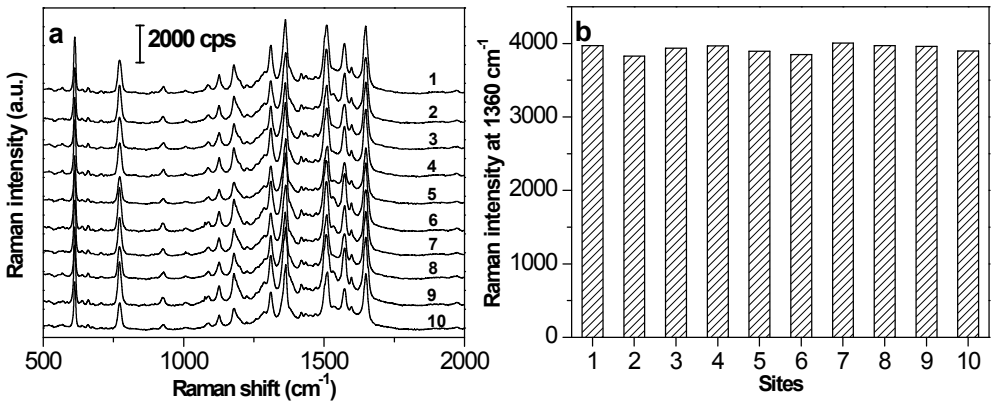

Figure S12. (a) SERS spectra of 1.0×10^{-13} M R6G molecules from 10 random sites, (b) the corresponding SERS intensity of R6G (at 1360 cm^{-1}) obtained from the above sites.

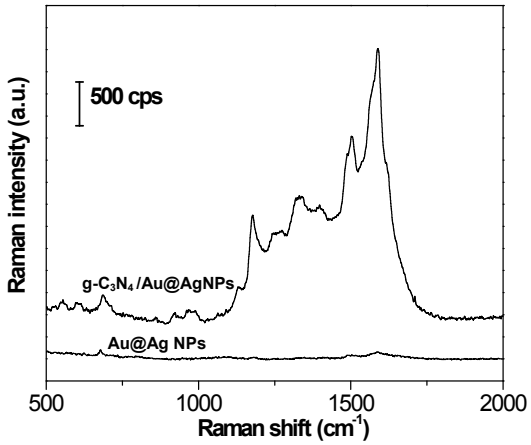

Figure S13. SERS spectra of FA with the same concentration (100 nM) obtained from g-C_3N_4/Au@AgNPs and Au@AgNPs, respectively.

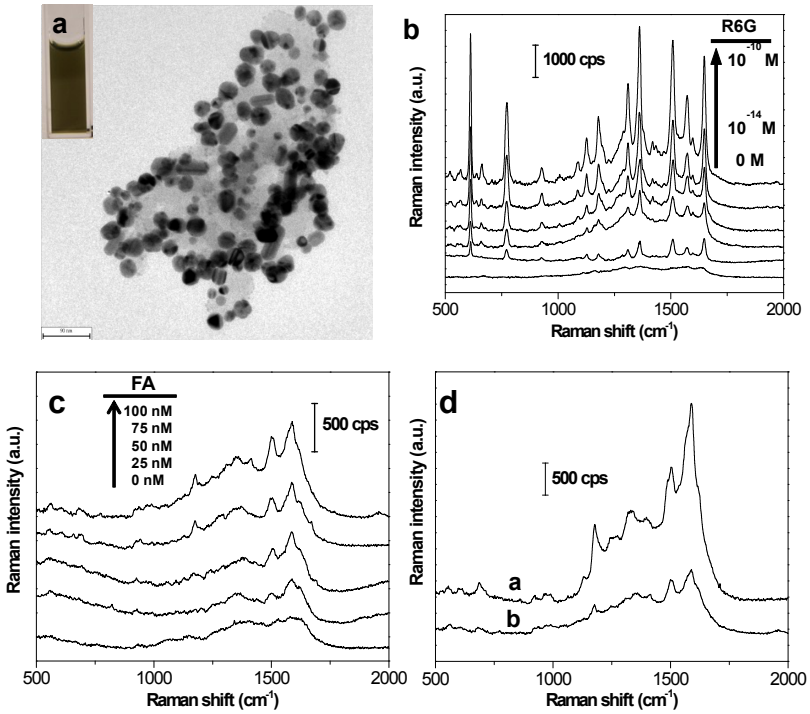

Figure S14. (a) TEM image of ultrathin g-C_3N_4 nanosheets/AgNPs (g-C_3N_4/AgNPs) composite structure. The inset was the photograph of above mentioned nanocomposite. (b) SERS spectra of R6G molecules with different concentrations (from 1×10^{-10} M to 1×10^{-14} M) obtained from g-C_3N_4/AgNPs. (c) SERS spectra of FA with different concentrations: 0 nM, 25 nM, 50 nM, 75 nM, 100 nM. (d) SERS spectra of FA with the same concentration (100 nM) obtained from g-C_3N_4/Au@AgNPs (a) and g-C_3N_4/AgNPs (b).

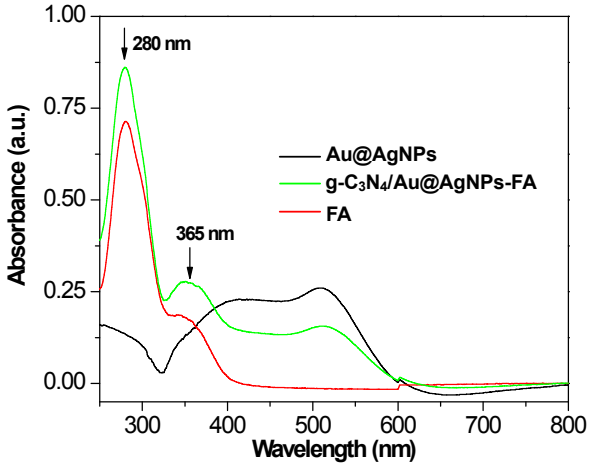

Figure S15. UV-vis spectra of FA, Au@AgNPs and g-C_3N_4/Au@AgNPs-FA.

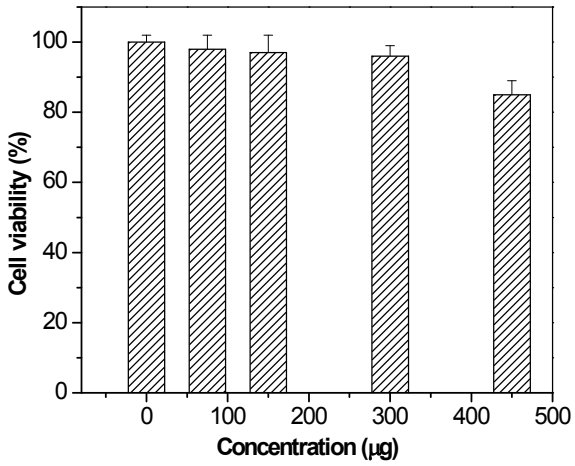

Figure S16. Viability of HeLa cells after 24 h of incubation with different concentrations of g-C_3N_4/Au@AgNPs-FA.