"Supporting Information" for Reversible coupling of 4-nitroaniline molecules to 4-aminothiophenol functionalized on Ag nanoparticles/ graphene oxide nanocomposites through the plasmon assisted chemical reaction

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Table S1. Sequence of oligonucleotides used in this study

DNA name	Sequence（ 5’-3’）
Probe DNA	TGCATTACGGAATCTTACTC-NH_2
Target DNA	GAGTAAGATTCCGTAATGCA-SH
Non-complementary DNA	TACATCTTGCGACATCGCAG-SH

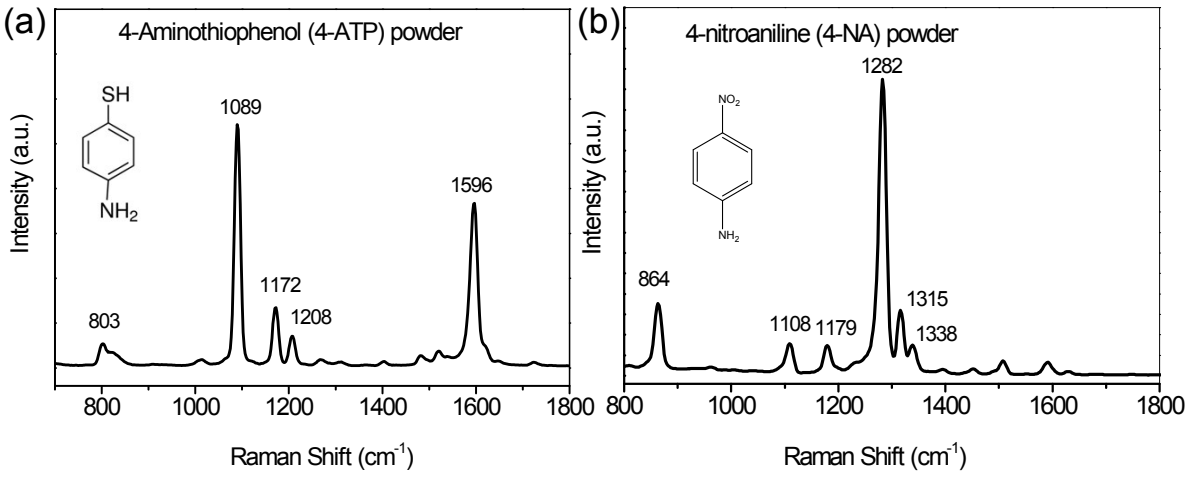

Figure S1 Raman spectrum of (a) 4ATP and (b) 4NA powders.

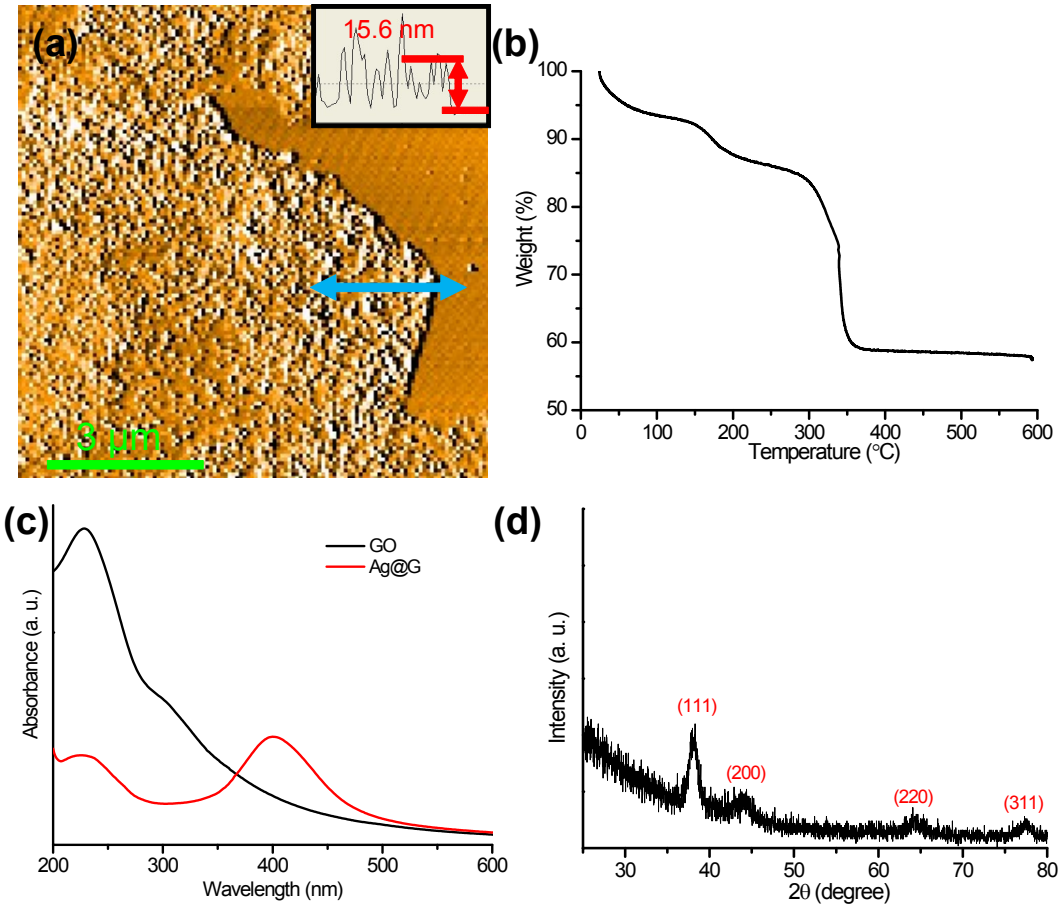

Figure S2 (a) Typical AFM image of a Ag@G nanosheet on SiO_2/ Si substrate. The inset in Figure S2a shows that the height difference between the two blue arrow heads is approximately 15.6 nm which is close to the average diameter of AgNPs. (b) TGA curve of Ag@G. (c) UV/Vis absorption spectra of GO nanosheets and Ag@G. The absorption spectrum of pristine GO shows a broad peak at 228 nm originating from the π-plasmon of carbon.[1] Compared with GO, Ag@G shows a new absorption peak at 400 nm due to the LSPR of AgNPs.[2] The UV/Vis absorption spectra were obtained using a UV-1800 Shimadzu spectrophotometer. (d) X-ray powder diffraction pattern of Ag@G. All the peaks can be indexed as the fcc silver (JCPDS card No. 4-783). The composition of Ag@G was characterized by Philips X'Pert Pro MPD.

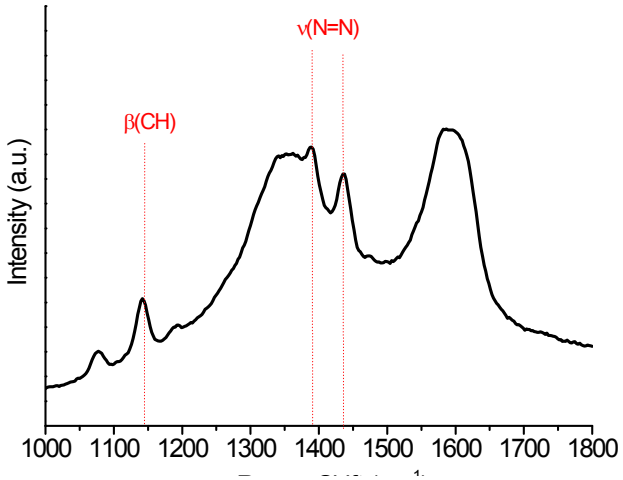

Figure S3 SERS spectrum of azo compound on Ag@G. The spectrum was measured using 532 nm laser excitation with a laser power of 0.5 mW after the SERS substrate is thoroughly cleaned with ethanol.

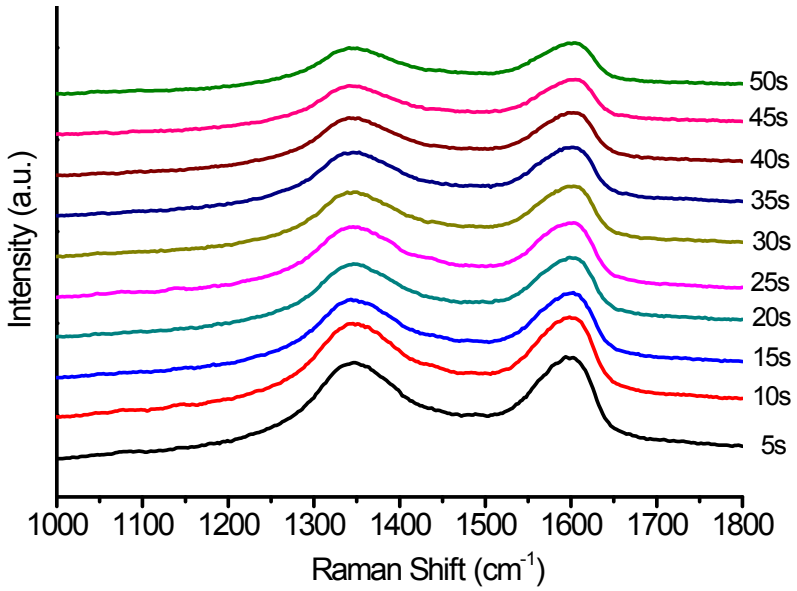

Figure S4 Time–dependent SERS spectra of the NB solution (10^{-2} M) dropped on 4ATP modified Ag@G.

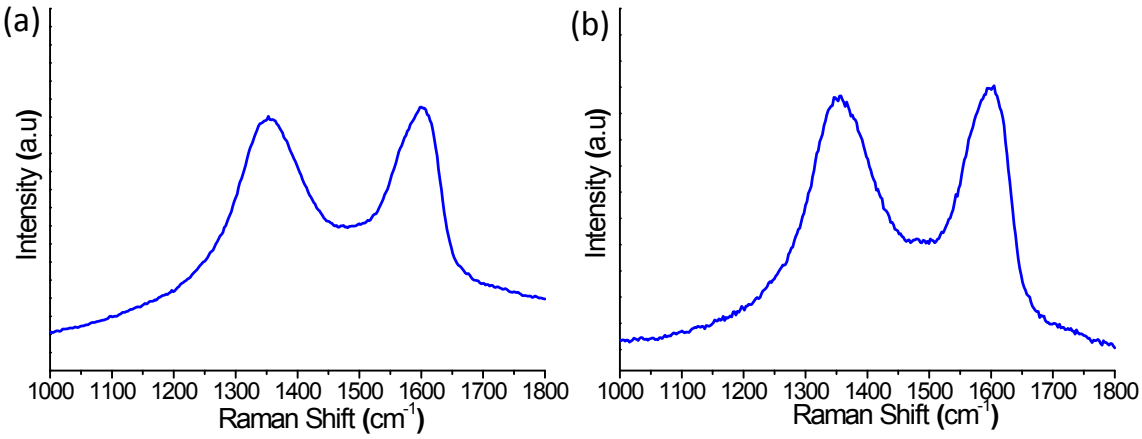

Figure S5 (a) SERS spectrum of the mixed solution of 4ATP and 4NA dropped on a GO nanosheet. (b) SERS spectrum of 4NA solution dropped on a Ag@G nanosheet. After a 6s laser exposure, the spectra were collected using 532 nm laser with the power of 0.5 mW.

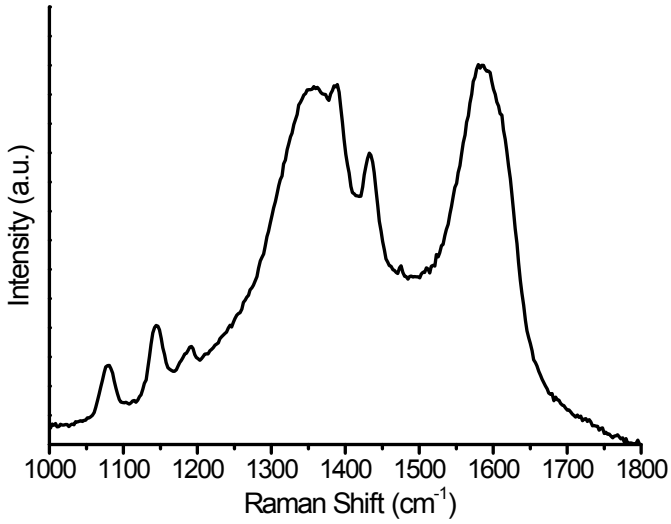

Figure S6 SERS spectrum of probe DNA immobilized on Ag@G. The spectrum was measured using 532 nm laser excitation with a laser power of 0.5 mW after the SERS substrate is thoroughly cleaned with 1×PBS.

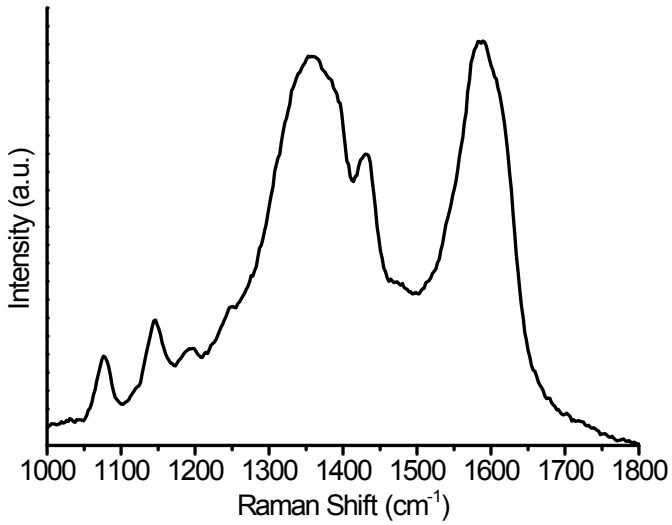

Figure S7 SERS spectrum recorded after adding a solution of AgNPs functionalized with TP and 10^{-6} M non-complementary target DNAs onto probe DNA modified Ag@G.

References

[1] X. Sun, Z. Liu, K. Welsher, J. T. Robinson, A. Goodwin, S. Zaric, H. Dai, Nano-graphene oxide for cellular imaging and drug delivery. Nano Res. 1 (2008) 203-212.

[2] R. Pasricha, S. Gupta, A. K. Srivastava, A facile and novel synthesis of Ag–graphene-based nanocomposites. Small 5 (2009) 2253-2259.