

Supporting Information

Flexible Conductive Film by Oriented Stacking of Ag and Au/Ag Alloy Nanoplates and its Surface Chemically Roughening for Explosive SERS Detection and Cell Adhesion

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Addition figures and table:

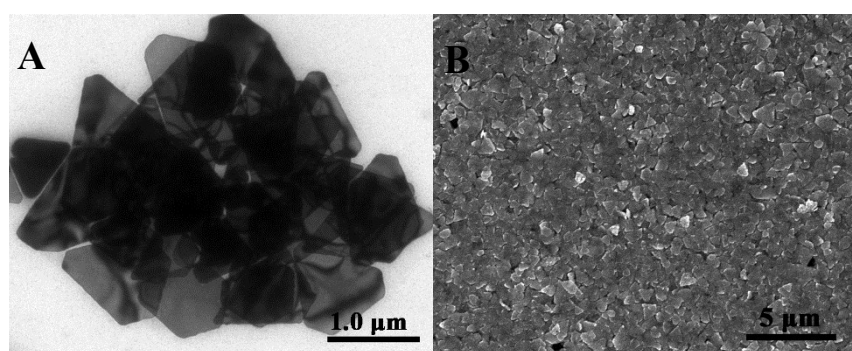


Fig. S1 (A) The TEM image of the pure Ag nanoplates. (B) The SEM image of Au-Ag alloy nanoplates on the PET transparent film after in-situ conversion.

Table S1. The resistance of different bending degree from Ag film.

	Line 1	Line 2	Line 3	Line 4	Line 5
L_0 (cm)	2	2	2	2	2
L (cm)	2	1.6	1.4	1.0	0.8
Bending degree	1	0.8	0.7	0.5	0.4
Resistance(Ω)	107	108	113	119	113

The Line 1 is the original Ag nanoplates film without any bending. The Line 2-5 are resistances of different extent. The variation range is from 107-119 Ω .

Table S2. The resistance of different bending degree from Au-Ag film.

	Line 1	Line 2	Line 3	Line 4	Line 5
L_0 (cm)	2	2	2	2	2
L (cm)	2	1.6	1.4	1.0	0.8
Bending degree	1	0.8	0.7	0.5	0.4
Resistance(Ω)	10.3	10	10.5	10.1	10.3

The Line 1 is the original Au-Ag alloy film without any bending. The Line 2-5 are resistances of different extent. The variation range is from 10-10.5 Ω , which is comparatively stable for application.

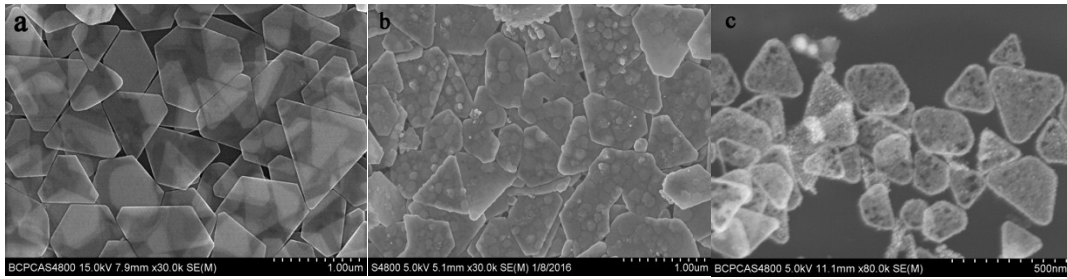


Fig. S2 The SEM images of Au-Ag alloy nanoplates surface roughness evolution. (a) The original smooth Ag nanoplates; introducing different quantity of HAuCl_4 solution (0.2 mM/mL) into the Ag nanoplate colloids: (b) 10 mL, (c) 20 mL.

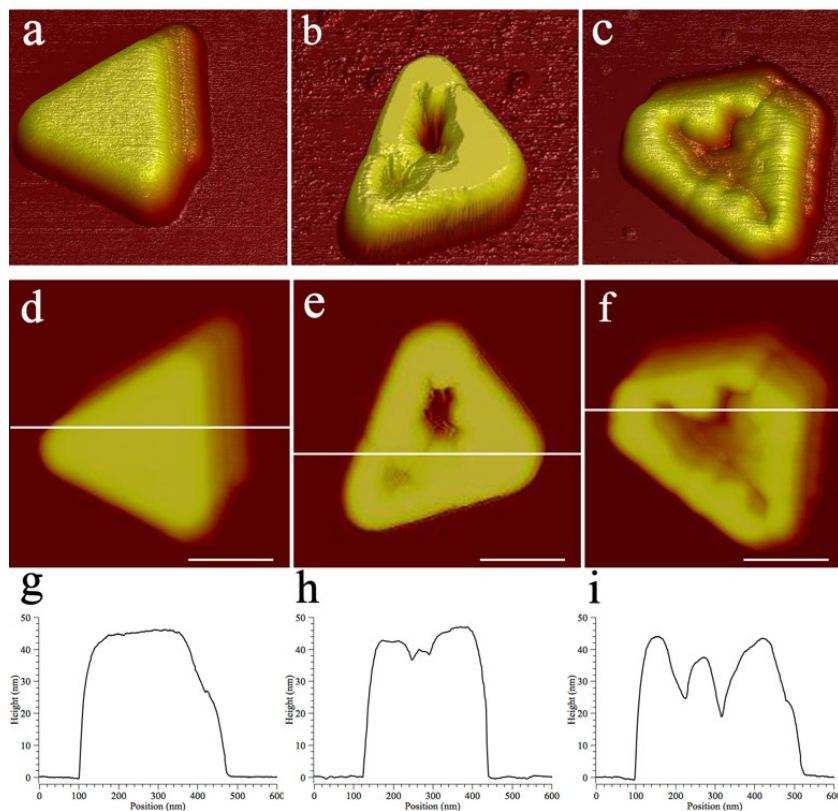


Fig. S3 The 3D (a-c) and 2D (d-e) AFM images and corresponding cross-sectional profiles (g-h) along the white line, respectively, of the Ag nanoplate and Au-Ag alloy nanoplate. Scan bars: 300 nm.

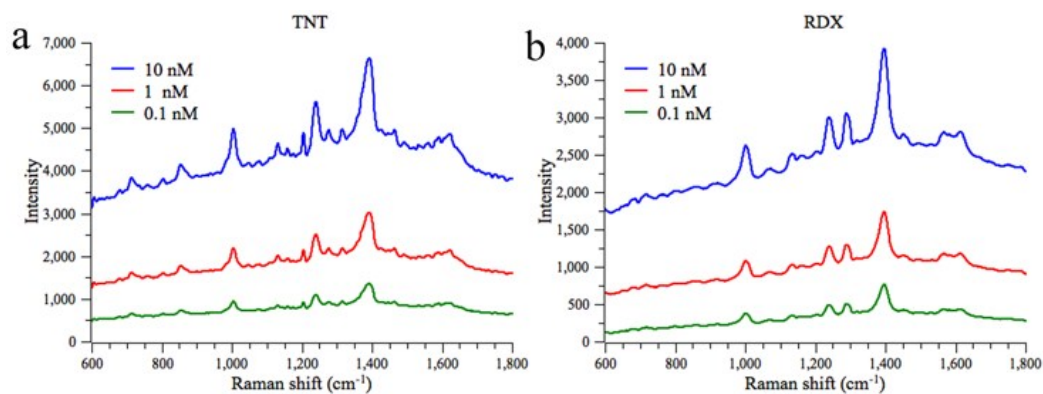


Fig. S4 SERS spectra of different concentrations of TNT (a) and RDX (b) molecules.

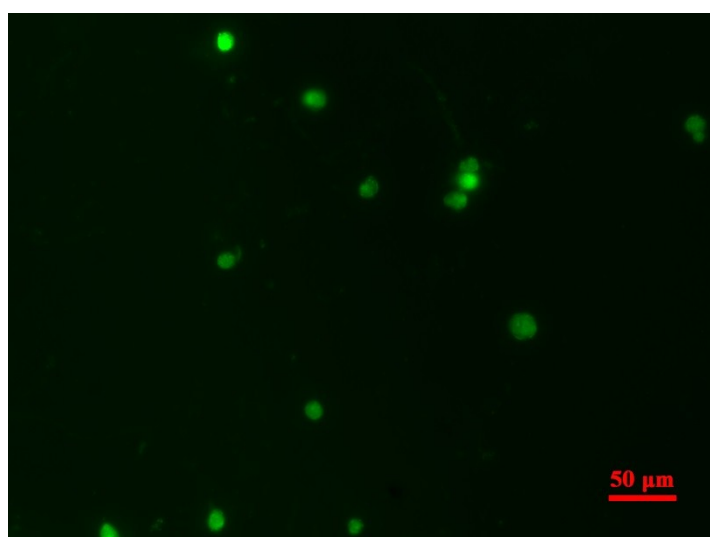


Fig. S5 The fluorescence microscopy images of NIH 3T3 cells cultured on pure Ag substrate. Those cells have sphere morphologies without any filopodias. Those cells have a low concentration compared with Au-Ag alloy substrate.

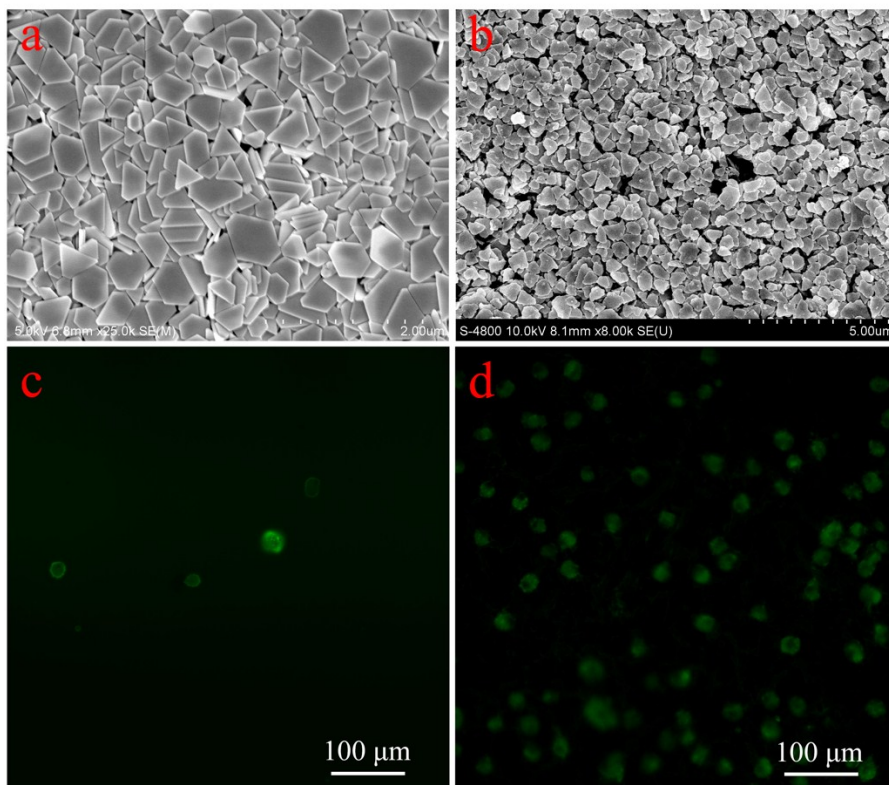


Fig. S6 SEM images of random-oriented Ag (a) and Au-Ag nanoplates (b)-built films, respectively. Fluorescence microscopy images of NIH 3T3 cells on random-oriented Ag (c) and Au-Ag nanoplates (d)-built films, respectively.