

Supplementary Information

Investigation of the Effects of Surface Chemistry on Adsorption of Albumin by Surface-Enhanced FTIR Spectroscopy

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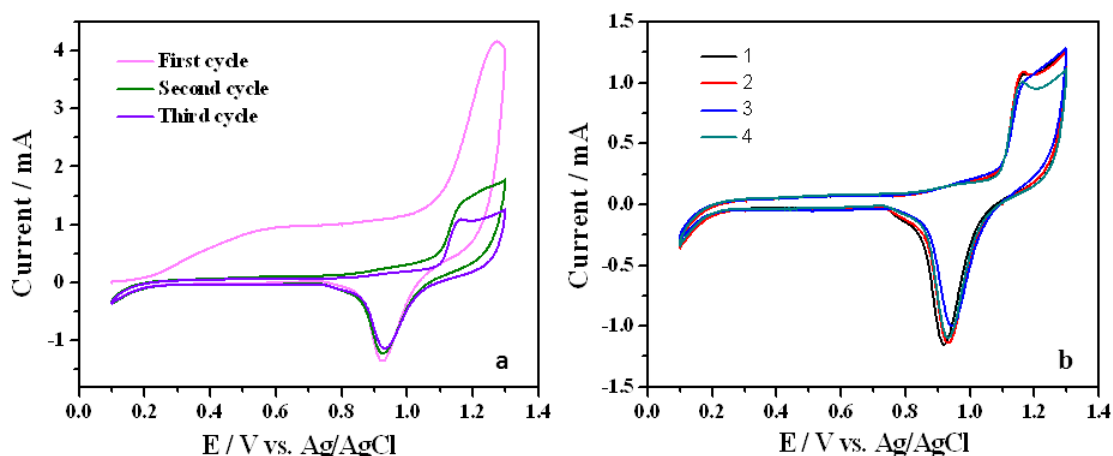


Figure S1. (a) Cyclic voltammograms (CVs) of a freshly prepared gold film with 3 cycles in 0.1 M H₂SO₄ solution. (b) CVs of four cleaned gold films in 0.1 M H₂SO₄ solution prepared independently. Scan rate: 50mV/s.

The gold film was wet-chemically deposited onto the surface of silicon triangle prism. In the process of deposition the gold film was usually contaminated with chemical compounds that have to be cleaned. Cyclic voltammetric measurements were carried out to clean the gold film by oxidation/reduction reactions. As shown in Fig. S1a, the first cyclic voltammogram (initial potential is 0.1 V) showed a larger background current and shoulder peak at peak potential of 1.2 V than subsequent scans, which results from oxidation of impurities on the gold film. With increasing scan number, oxidation current decreased gradually and was little unchanged at the third cycle, which indicates that gold surface has been cleaned. The intensity of the redox peak current is related to the active surface of the cleaned gold film, which is decided by the roughness of the gold film. In addition, the enhancement factor is also decided by the roughness of the gold film. Therefore, the intensity of the redox peak current of the cleaned gold film should reflect the enhancement factor. By controlling the reaction conditions, we can control the state of the deposited gold film, which can be reflected by the intensity of redox peak current. **Figure S1b** shows the CVs of four cleaned gold film prepared independently, as an example to show the reproducibility of the deposited gold film. The four gold films showed almost the same CVs, which suggests that gold film should have similar enhancement factor. Therefore, we can tune the gold structure and control enhancement factor well in a predictable manner through our experiment conditions and have a high reproducibility.

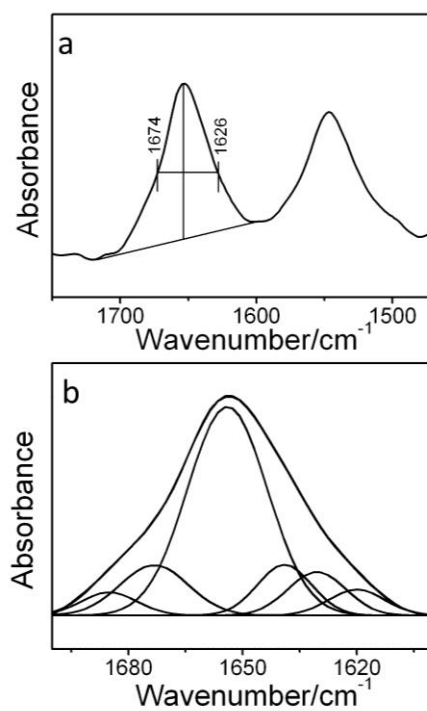


Figure S2 (a) ATR-FTIR spectrum of native HSA in 25 mM PBS (pH 7.4). (b) The curve-fitting spectra of amide I region of native HSA fitted with Gaussian curves.