

Electronic Supplementary Information for

Fabrication and characterization of hierarchical multipods silver citrate complexes microcrystals with excellent SERS properties

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Experimental Section

Fabrications of the hierarchical multipods SCC microcrystals

The hierarchical multipods SCC microcrystal was synthesized using silver nitrate and trisodium citrate dihydrate, without further purification. In a typical synthesis, 3.6174 g trisodium citrate dihydrate was dissolved into 100 mL deionized water and kept slowly stirring for 20 min at room temperature. Subsequently, 100 g solution containing 2.0894 g AgNO₃ was then quickly dropped into the trisodium citrate dihydrate solution and the temperature was maintained at room temperature for another 10 min. Then the mixture was heated to 70 °C, the temperature was maintained for another 30 min to complete the synthesis and then cooled down to room temperature. The products were harvested by centrifugation, washed several times with deionized water and ethanol, and then dried under vacuum at 70 °C for 12 h, eventually affording the hierarchical multipods silver microcrystal.

Preparation of surface-enhanced Raman spectroscopy multipods SCC microcrystal

A total of 1 mL of multipods SCC microcrystal was mixed with 1 mL 10⁻⁴ M 2-mercaptopyridine while stirring. After self-assembly at room temperature for 24 h, thin monolayer of thiol compounds would be formed on the multipods SCC surface. The thiol compounds labeled multipods SCC were collected by centrifuge at 2000 r/min for 5 min and the excess unassembled thiol compounds in the supernatant were discarded. The thiol compounds labeled multipods SCC were then washed three times

with ultrapure water to remove the unabsorbed thiol compounds before resuspended into ultrapure ethanol. All of the experiments were carried out at room temperature.

Characterization of the hierarchical-like multipods SCC microcrystals

The structural analysis of the sample was performed using powder X-ray diffraction. The morphologies of the products were observed using a TESCAN 3400N scanning electron microscope. The Raman spectra were recorded with the Renishaw inVia microscope, equipped with a standard CCD (charge coupled device) array detector cooled to about 153 K using liquid N₂. The laser power was set at 300 mW. The spectral resolution was 1 cm⁻¹.