

## Supporting information

# **One-Step Synthesis and Assembly of Gold Nanochains Using Langmuir Monolayer of Long-Chain Ionic Liquid and Their Applications to SERS**

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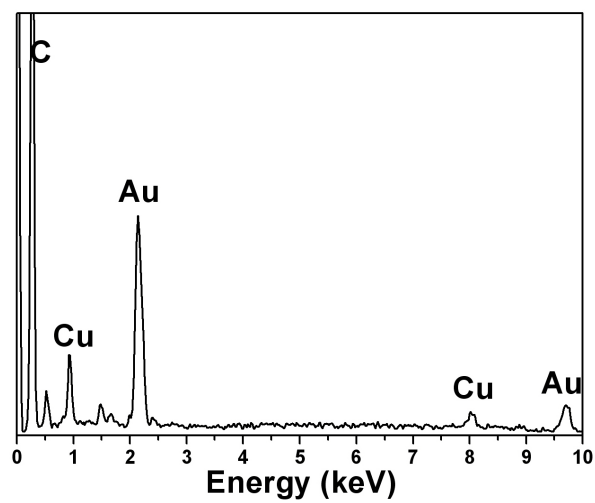


Figure S1. EDS spectrum of the Au nanochains in Figure 2D.

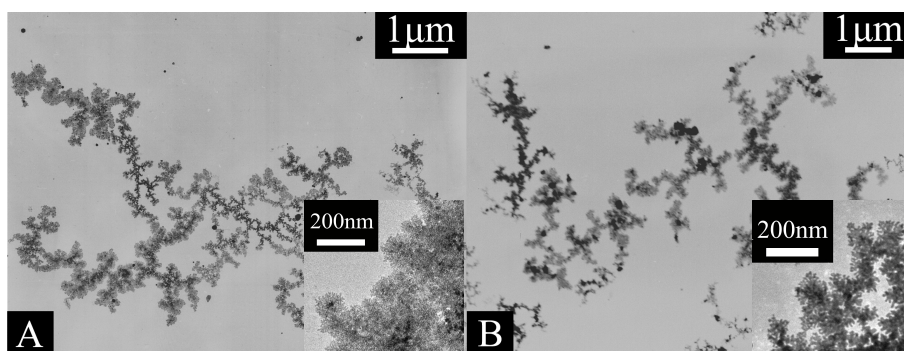


Figure S2. TEM images of Au nanochains formed at the air/water interface at 65°C under UV-light irradiation for 5 min. The surface pressure is 25 mN/m (A), and the concentration of HAuCl<sub>4</sub> aqueous solution is  $1 \times 10^{-3}$  M (B). Insets show the enlarged images.

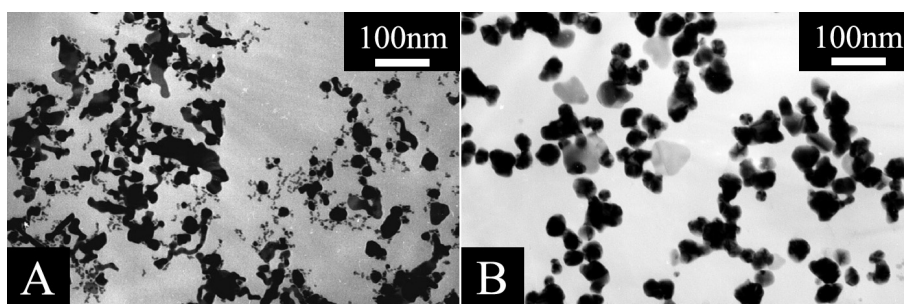


Figure S3. TEM images of Au nanostructures obtained by replacing  $C_{16}mimBr$  with  $C_{16}MPB$  (A) or CTAB (B) when other conditions are same to the Figure 2D.

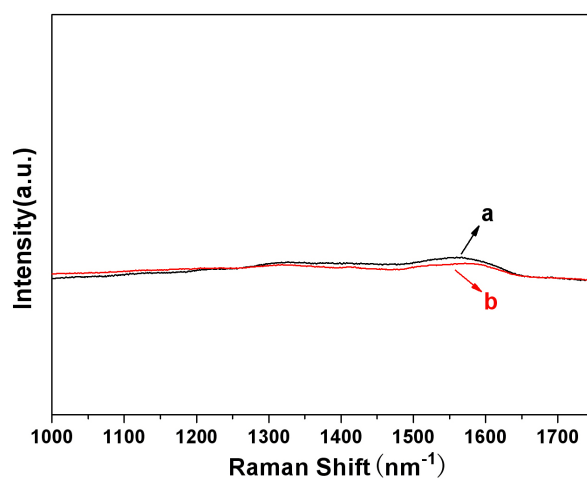


Figure S4. Raman spectrum of solid R6G (curve a) and SERS spectra on the ionic liquid substrate (curve b).