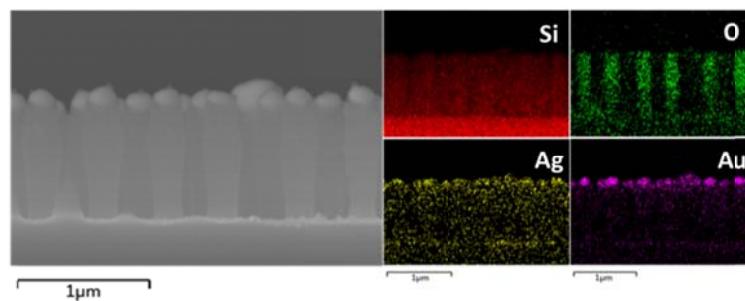


# Wafer-scale Hierarchical Nanopillar Arrays Based on Au Masks and Reactive Ion Etching for Effective 3D SERS Substrate

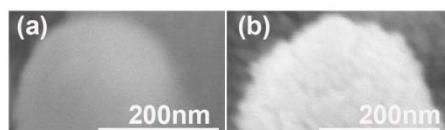
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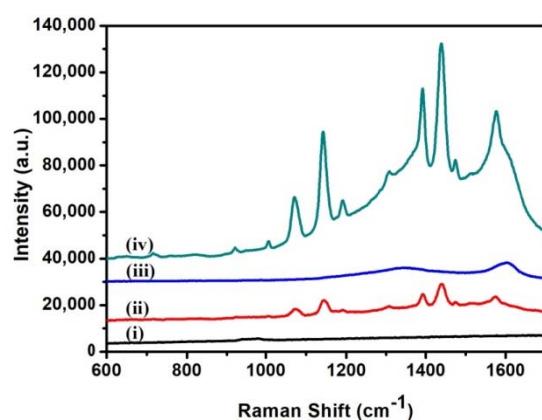
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**Figure S1.** Elemental mapping images of the  $\text{SiO}_2$  nanopillar arrays decorated with Ag NPs.



**Figure S2.** Comparison of surfaces for Au-Ag alloy NP on the as-prepared periodic hierarchical  $\text{SiO}_2$  nanopillar array before (a) and after (b) depositing Au film.



**Figure S3.** Comparison of average Raman spectra for the  $10^{-4}$  M 4-ATP on the  $\text{SiO}_2$  nanopillars array (i),  $\text{SiO}_2$  nanopillars with the Ag film (ii),  $\text{SiO}_2$  nanopillar arrays decorated with Ag NPs (iii) and  $\text{SiO}_2$  nanopillar arrays decorated with Ag NPs after depositing Au film (iv).