

## [Supplementary Information]

### Nanoparticle Assembly on Nanoplate

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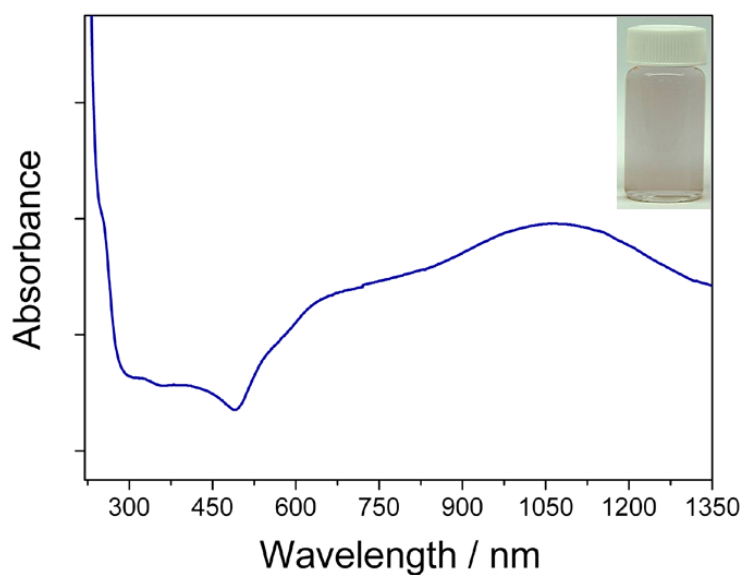
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#### Experimental

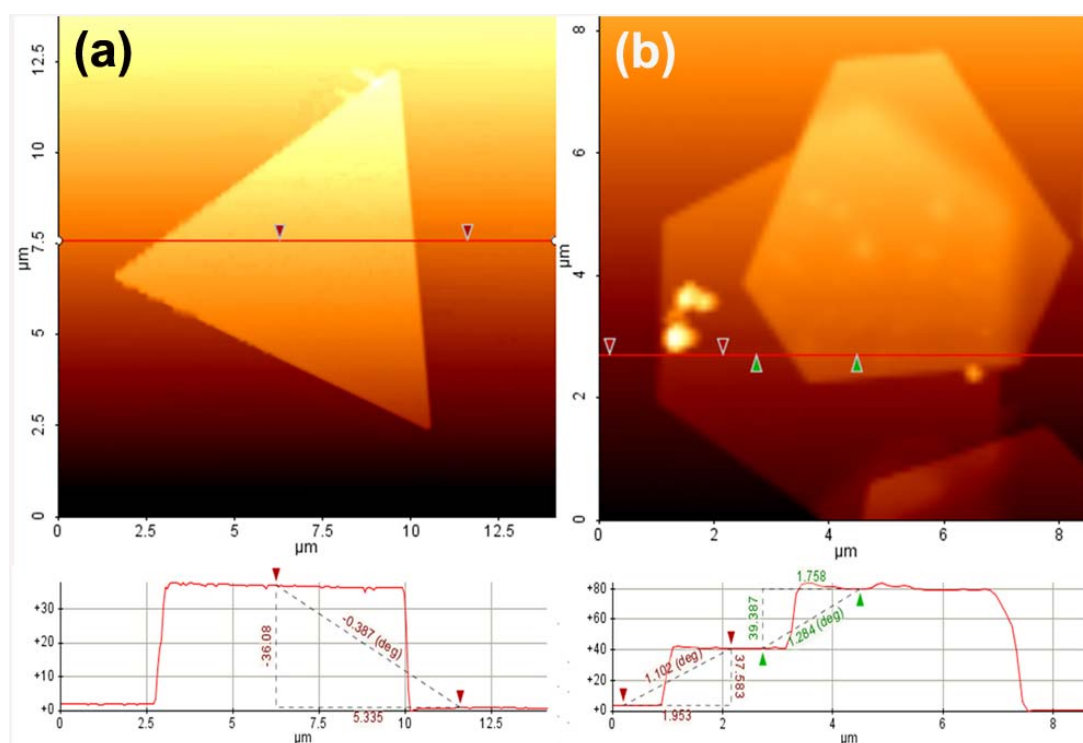
**Preparation of Au Nanoplates.** The Au nanoplates were prepared by mixing an aqueous solution of HAuCl<sub>4</sub>, cetyltrimethylammonium bromide (CTAB), and ascorbic acid, followed by the addition of NaOH. In a typical synthesis, an aqueous solution of HAuCl<sub>4</sub> (40 mM, 500 μL, 99.9+%, Aldrich), CTAB (10 mM, 20 mL, 95%, Aldrich), ascorbic acid (100 mM, 100 μL, 99.0%, Sigma), and NaOH (100 mM, 100 μL) were mixed in a vial. This solution was then heated at 80 °C for about 12 h in an oven. The color of the solution changed from orange to pale-pink, and the nanoplates formed after ~5 h.

**Characterization.** The UV-vis-NIR extinction spectra were recorded with Shimadzu UV-3600 spectrophotometers. Scanning electron microscopy (SEM) images of the samples were taken with FEI field-emission scanning electron microscope (Sirion 400). Transmission electron microscopy (TEM) and selected area electron diffraction (SAED)

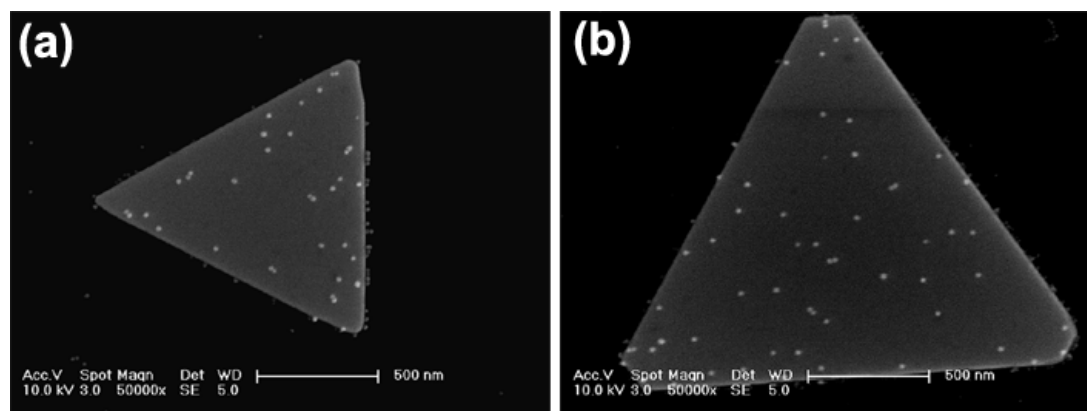
characterizations were performed with a FEI Technai G2 F30 Super-Twin transmission electron microscope operating at 300 kV. Atomic force microscopy (AFM) images were obtained in air at room temperature by using a Veeco Dimension 3100 scanning probe microscope. Topographic images were recorded in the tapping mode by using Si tips (Veeco, RTESP). Raman spectra were obtained using a Jobin Yvon/HORIBA LabRAM spectrometer equipped with an integral microscope (Olympus BX 41). The 632.8 nm line of an air-cooled He/Ne laser was used as an excitation source. Raman scattering was detected with 180° geometry using a thermoelectrically cooled 1024 × 256 pixel charge coupled device (CCD) detector. The Raman band of a silicon wafer at 520 cm<sup>-1</sup> was used to calibrate the spectrometer.



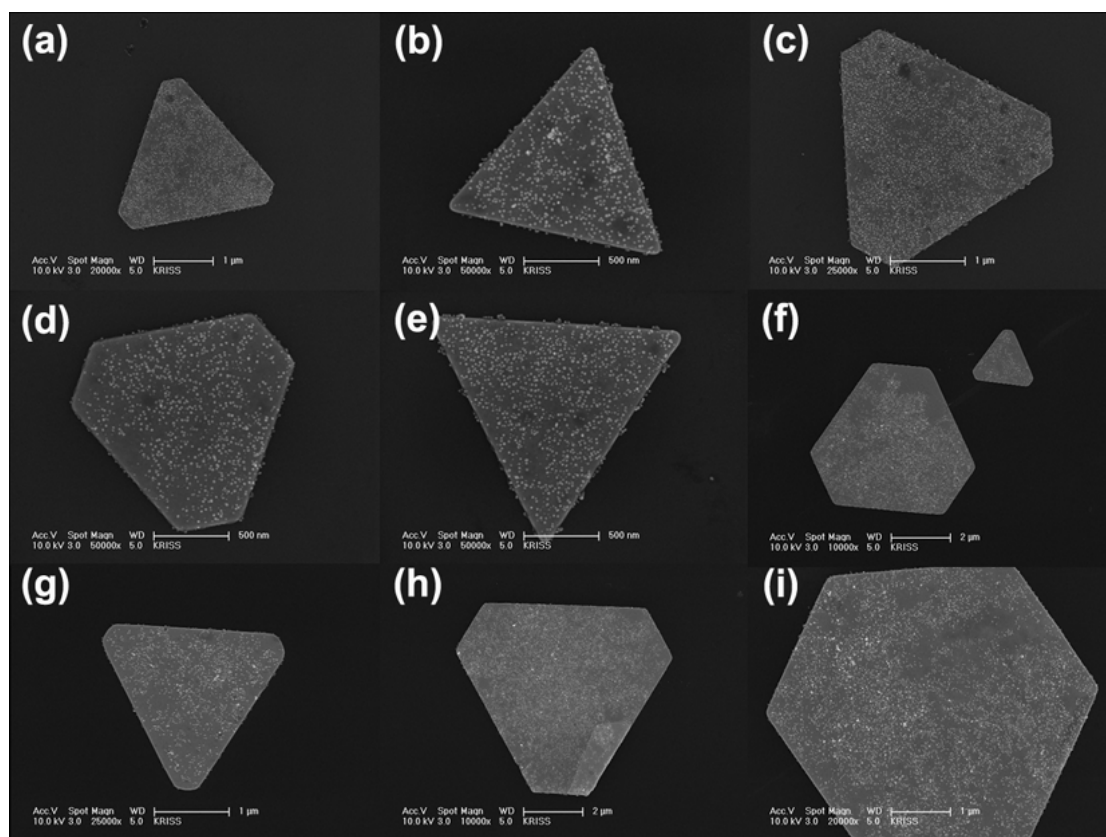
**Fig. S1.** UV-vis-NIR extinction spectrum of the Au nanoplates. Inset shows a digital picture of the aqueous solution of the Au nanoplates. Au hydrosol with pale-pink color was formed after the reaction.



**Fig. S2.** AFM images of the Au nanoplates. The cross-section view corresponds to the line drawn.



**Fig. S3.** SEM images of the assemblies prepared without the removal of CTAB. The density of nanoparticles assembled on the surface of the nanoplates was very low because dithiol molecules could not effectively replace the adsorbed CTAB.



**Fig. S4.** SEM images of the assemblies prepared by using (a)-(e) 1,4-benzenedithiol and (f)-(i) 1,6-hexanedithiol as the linker molecules. In all cases the Au nanoparticles well assembled on the surfaces of nanoplates in the form of monolayer.