

Supporting Information

Organic Solvent-Induced Crystallization of Water-Soluble Inorganic Salt of $\text{Na}_3\text{Au}(\text{SO}_3)_2$ into Ultralong Nanobelts on A Large Scale

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Experimental details

Commercial gold bath (Oromerse Part B, 0.28 M) was supplied by Technic Inc. Organic solvents including DMF, ethanol, and isopropyl alcohol were bought from Aldrich and used as received. The inorganic salt nanobelts were prepared as follows: In a typical experiment, 5 μL of gold bath was diluted to 300 μL by adding 295 μL of H_2O first, and then such solution was added into 700 μL of DMF at room temperature under shaking condition. A large quantity of milk yellow precipitate was observed with several minutes. The precipitate was then collected by centrifugation (5,000 rpm, 5 min) and further washed them with 2-propanol several times. The precipitate thus obtained was dispersed in 2-propanol for future use. Scanning electron microscopy (SEM) measurements were made on a HITACHI S-3400N microscope operated at an accelerating voltage of 10 kV. Samples for SEM examination were made by placing a drop of the dispersion of the precipitate in 2-propanol on a glass slide and air-dried at room temperature. Transmission electron microscopy (TEM) measurements were made on a Zeiss LIBRA 120 microscope operated at an accelerating voltage of 120 kV. Samples for TEM examination were made by placing a drop of the dispersion of the precipitate in 2-propanol on a carbon-coated copper grid and air-dried at room temperature. Optical microscopy images were taken with a LEICA DM4000 M microscope. X-ray diffraction (XRD) analysis was carried out on a D/Max 2500 V/PC X-ray diffractometer using Cu (40 kV, 200 mA) radiation. A sample for XRD characterization was prepared by placing 50 μL of the precipitate in 2-propanol on a glass slide and air-dried at room temperature.

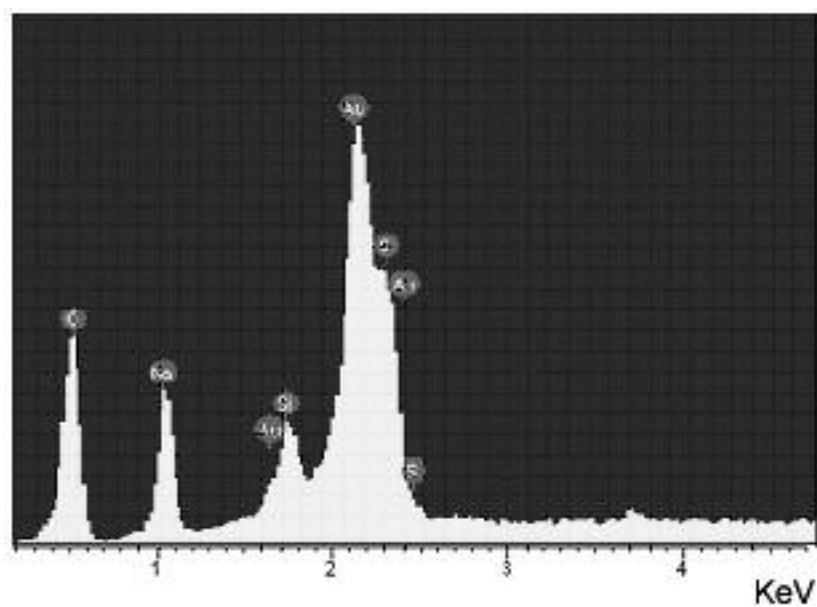


Figure S1. EDS elemental analysis of the nanoblets obtained by adding a diluted solution of 5 μl of gold bath in 295 μl of H_2O into 700 μl of DMF at room temperature.

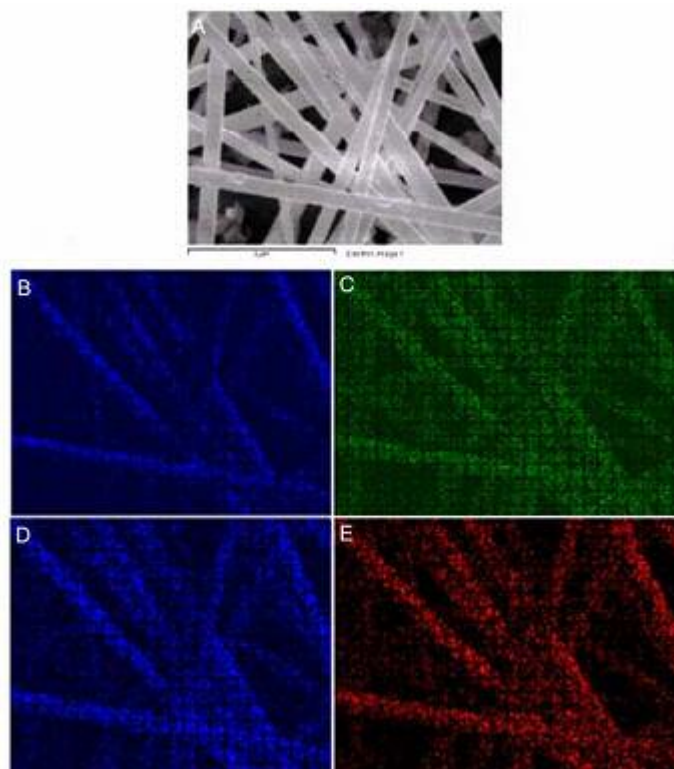


Figure S2. (A) SEM image and the corresponding (B~E) X-ray maps of the nanoblets obtained by adding a diluted solution of 5 μl of gold bath in 295 μl of H_2O into 700 μl of DMF at room temperature (B, C, D, and E corresponds to Au, S, O, and Na, respectively).

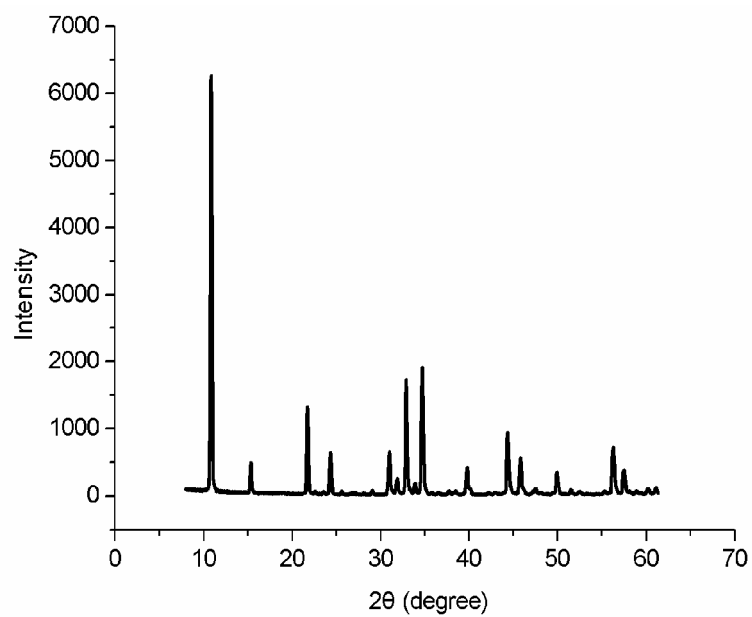


Figure S3. XRD pattern of the nanobelts thus formed.

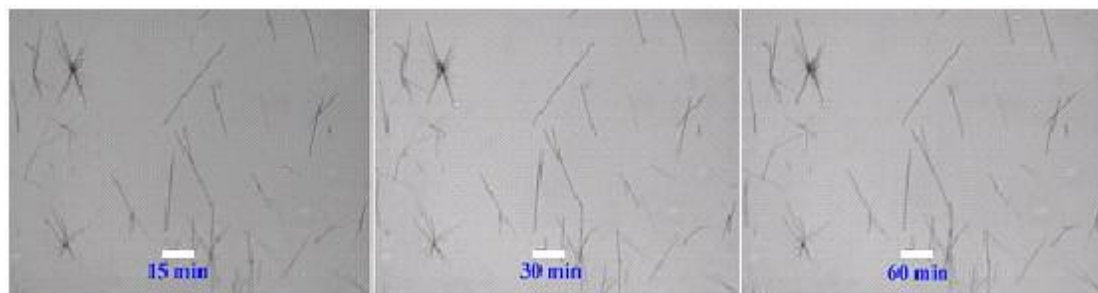


Figure S4. Time-dependent optical microscope images (scale bar, 100 μm) of the inorganic salt crystals formed with elapsed time 15 min, 30 min, and 60 min after the introduction of a diluted solution of 5 μl of gold bath in 295 μl of H_2O into 700 μl of DMF at room temperature.