Supplementary Material (ESI) for Journal of Materials Chemistry

Supplementary Data

Precise Placements of Metal Nanoparticles from Reversible Block Copolymer Nanostructures

Heesook Cho,[a] Hyungmin Park,[a] Thomas P. Russell,*[b] and Soojin Park*[a]

[a] Interdisciplinary School of Green Energy, Ulsan National Institute of Science and Technology, Banyeon-ri 100, Ulsan 689-798, Korea

[b] Department of Polymer Science & Engineering, University of Massachusetts, Amherst, MA 01003, USA

*Corresponding authors:
Soojin Park, E-mail: spark@unist.ac.kr
Thomas P. Russell, E-mail: russell@mail.pse.umass.edu

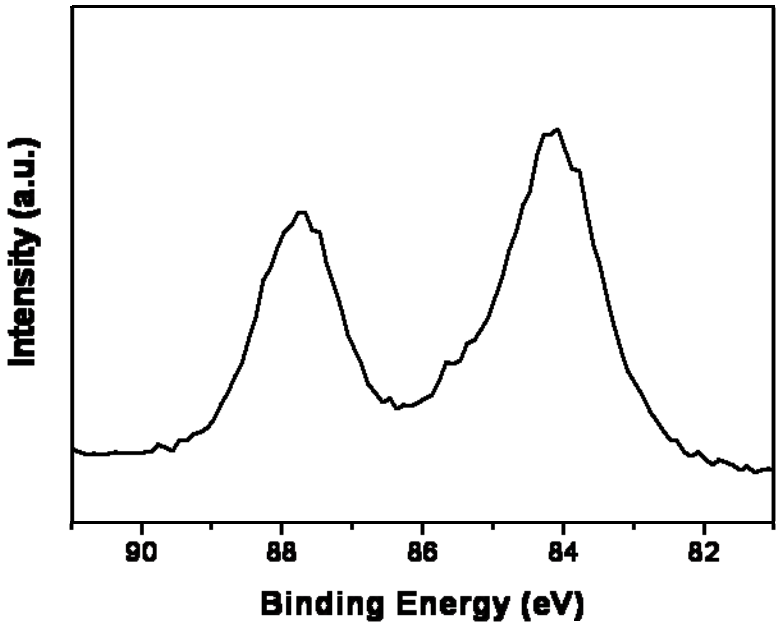

Figure S1. XPS results of gold nanoparticles prepared from reversible PS-*b*-P2VP templates. The photoelectron spectra of Au(4f) of gold nanoparticles corresponding to metallic Au (84.0 and 87.6 eV) were seen.

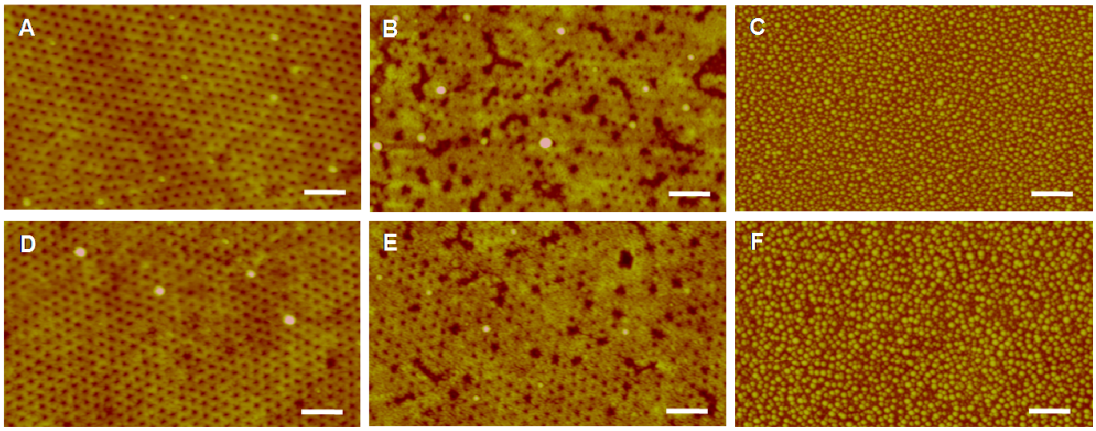

Figure S2. SFM images of gold nanoparticles prepared from PS-*b*-P2VP templates containing over-loaded gold precursors. (A) Surface reconstructed film, (B) Spin-coating of 0.15 wt% gold precursor solution onto the reconstructed film seen in (A), (C) Arrays of gold nanoparticles obtained by toluene vapor exposure and oxygen plasma etching. (D) Reconstructed film, (E) Spin-coating of 0.2 wt% gold precursor, and (F) Gold nanoparticles obtained by thermal annealing and oxygen plasma. Scale bars are 200 nm.

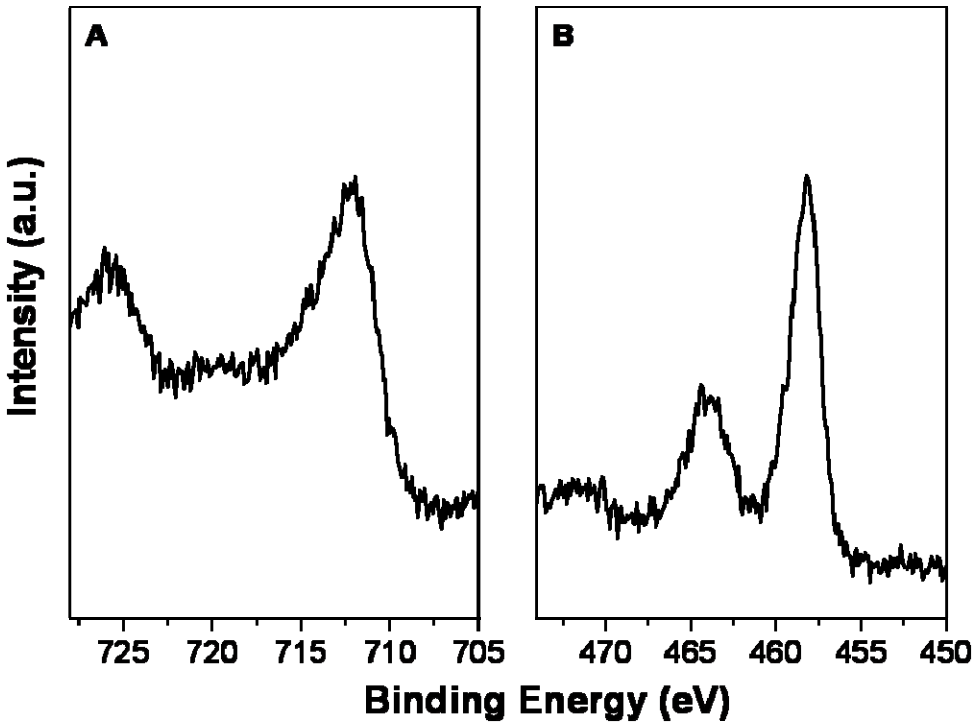

Figure S3. XPS results of γ-Fe_2O_3 (A) and TiO_2 (B) nanoparticles prepared from reversible PS-*b*-P2VP templates. The Fe(2p) and Ti(2p) photoelectron peaks are shown at 711.6 eV and 458 eV, respectively.

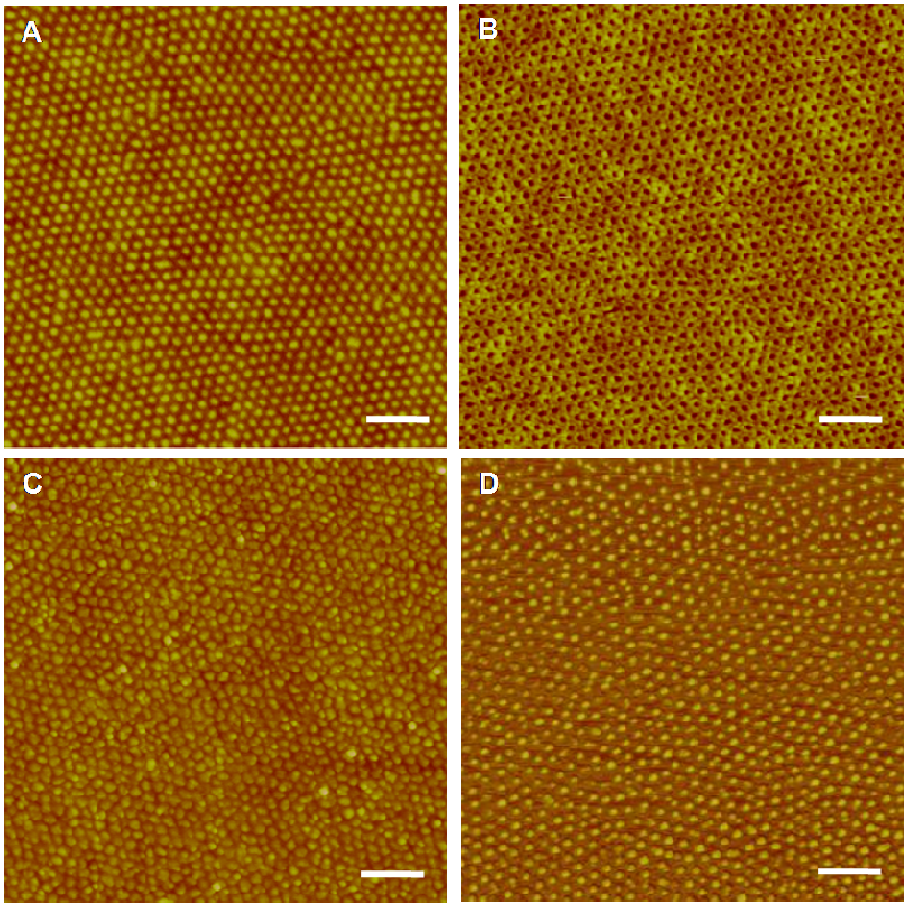

Figure S4. SFM images of gold nanoparticles prepared from PS-*b*-P2VP templates having smaller molecular weights. (A) Solvent annealed film, (B) Surface reconstructed film, (C) Spin-coating of 0.1 wt% gold precursor solution onto the reconstructed film seen in (B), and (D) Gold nanoparticles obtained by thermal annealing and oxygen plasma. Scale bars are 200 nm.