

Supporting Information

Kinetically Controlled Synthesis of Large-Scale Morphology-Tailored Silver Nanostructures at Low Temperature

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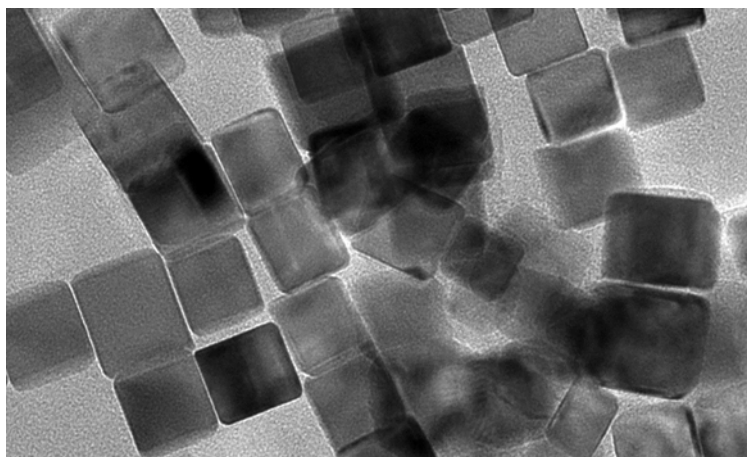


Figure S1. TEM image of Pd nanocubes.

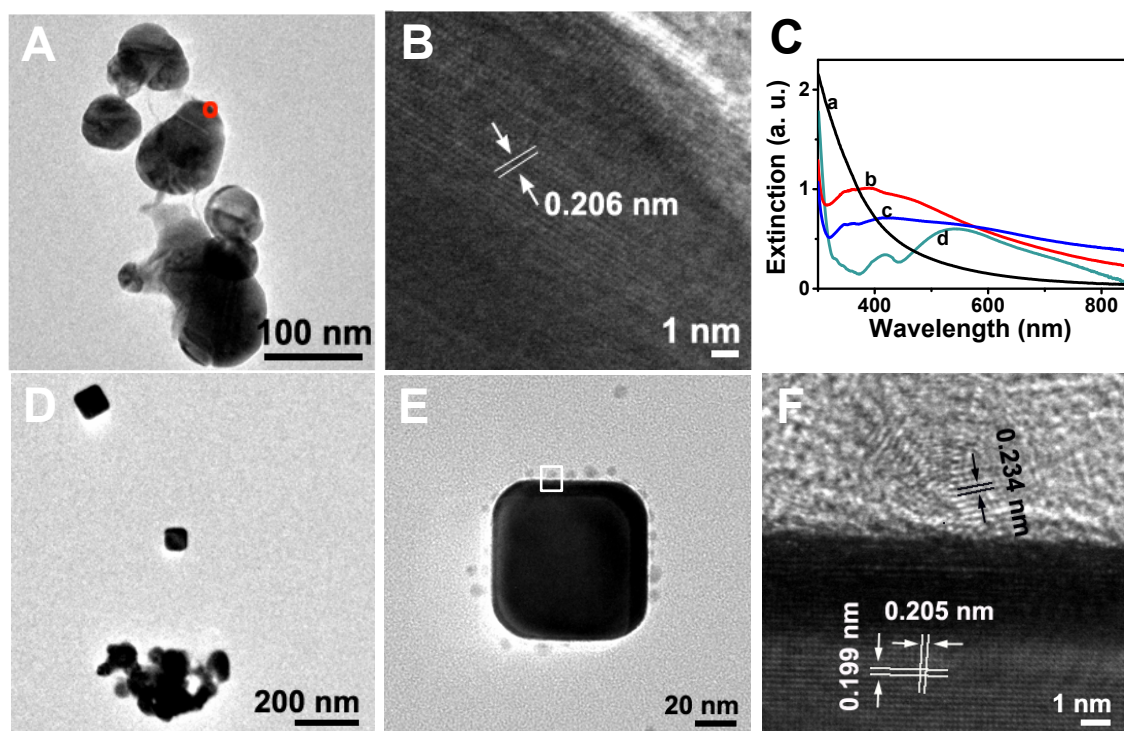


Figure S2. (A) TEM image of the AgCl precursors taken at 25 min after AgNO₃ was added into CPC solutions at the pH value of 8.0. (B) HRTEM image of the part of a single AgCl nanoparticle in the cycle marked in (A). (C) UV-visible spectra of the reacting solution during the growth of Ag nanocubes. (a) 0 h, (b) 4.5 h, (c) 7 h, and (d) 11 h. (D) TEM image of products at 4.5 h after Asa was added into the CPC solution with the AgCl precursors. (E) TEM image of a single Ag nanocube and the Ag nanoclusters formed at 4.5 h. (F) HRTEM image of the part of a single Ag nanocube and nanocluster in the quadrilateral marked in (E).

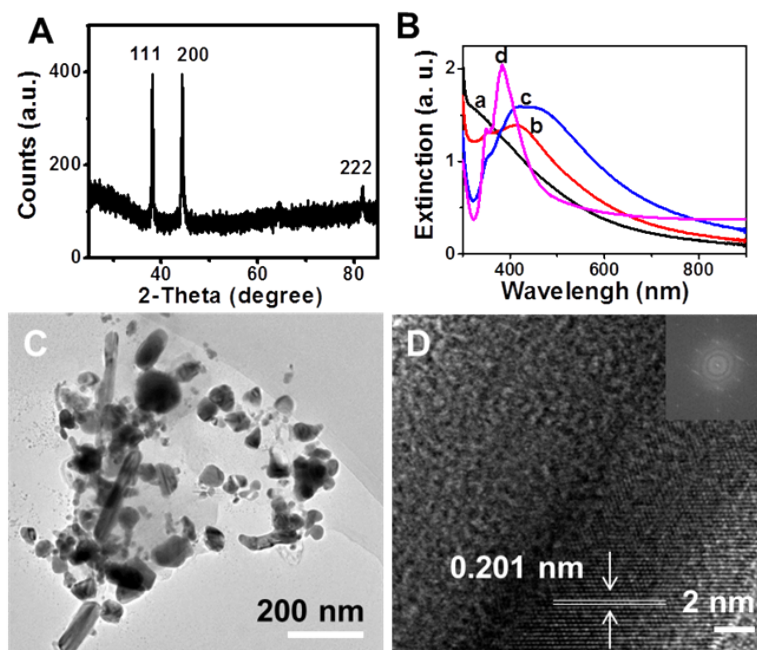


Figure S3. (A) XRD pattern of Ag nanowires. (B) UV-visible spectra of the reacting solution during the growth of Ag nanowires at the pH value of 8.0 (33.2 pM Pd nanocubes were introduced). (a) 1.5 h, (b) 2.3 h, (c) 3.5 h, and (d) 4.5 h. (C) TEM image of the products taken at 1.5 h after Asa was added into reacting solutions. (D) HRTEM image and corresponded FFT patterns of the part of a single Ag nanowire (the measured lattice spacing fits for {200} facet of the face-centered cubic Ag nanostructure, theoretical value, 0.204 nm).

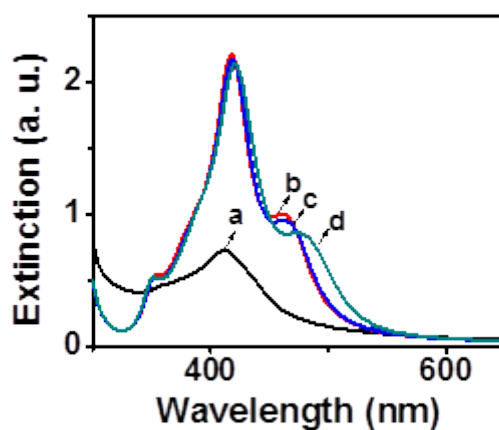


Figure S4. (A) UV-visible spectra of the reacting solution (diluted by 5 times) during the growth of {100}-faceted Ag nanocubes and right-triangular bipyramids at the pH value of 8.0 (1.33 nM Pd nanocubes were introduced). (a) 30 min, (b) 50 min, (c) 70 min, and (d) 2.5 h.

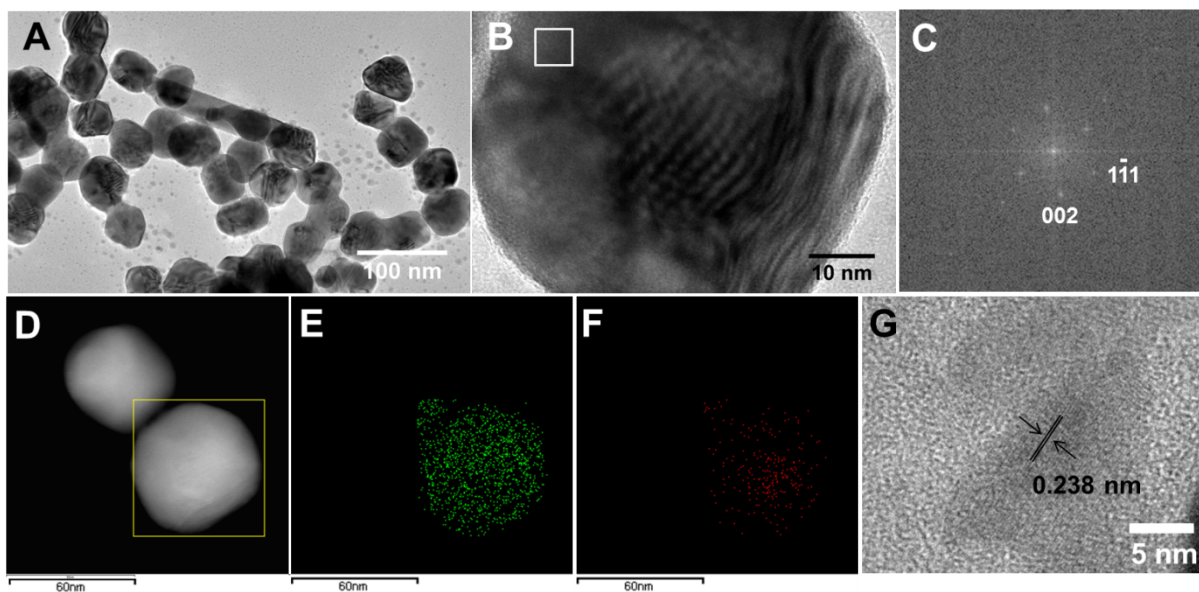


Figure S5. TEM characterizations of products obtained at 20 min when 6.75 nM Pd cubes were introduced. Other conditions are the same as those in Figure 1. (A) TEM image of products. (B) TEM image of a single Pd-Ag core-shell nanoparticle. (C) FFT pattern of the part of Ag shell marked in the quadrilateral in (B). (D-F) Dark-field TEM image and elemental mapping analysis of the single Pd-Ag core-shell nanoparticle in (B). (G) HRTEM of small Ag nanoclusters (the measured lattice spacing fits for $\{111\}$ facet of the face-centered cubic Ag nanostructures).

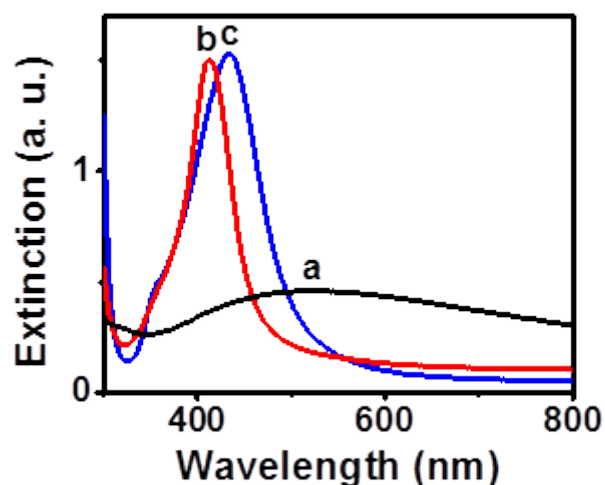


Figure S6. UV-visible spectra of the reacting solutions (diluted by 5 times) at the pH value of 10.0 before (a) and 40 min after 0.3 mM (b) and 1.2 mM (c) Asa was added.

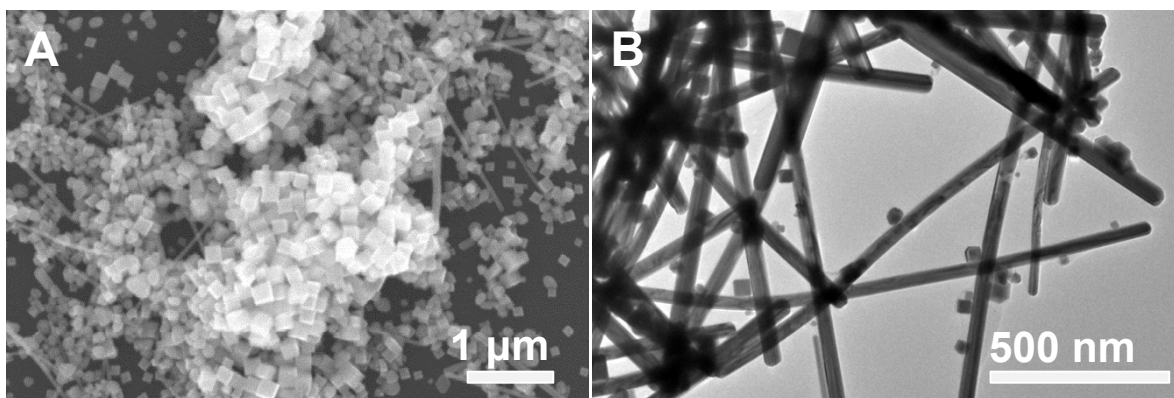


Figure S7. SEM (A) and TEM (B) images of Ag nanostructures produced at 80 °C. Other conditions are the same as those in Figure 1.

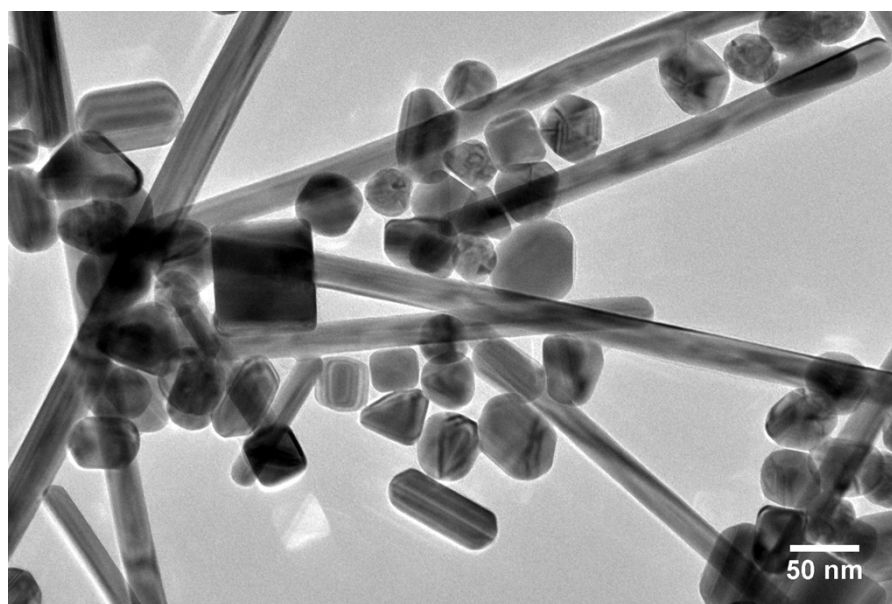


Figure S8. TEM image of Ag nanoparticles produced when cetyltrimethylammonium chloride (5 mM) are used as the capping agents. Other conditions are the same as those in Figure 1.

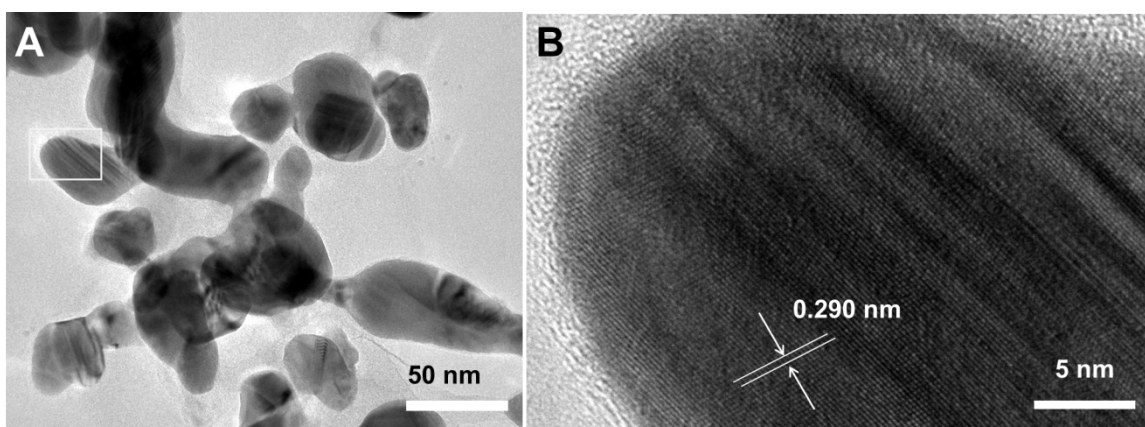


Figure S9. (A) TEM image of AgBr nanoparticles produced when cetyltrimethylammonium bromide (5 mM) are used as the capping agents. Other conditions are the same as those in Figure 1. (B) HRTEM of the part of a single AgBr nanoparticle marked in the quadrilateral in (A). (the measured lattice spacing fits for {200} facet of the face-centered cubic AgBr nanostructures, theoretical value, 0.288 nm).

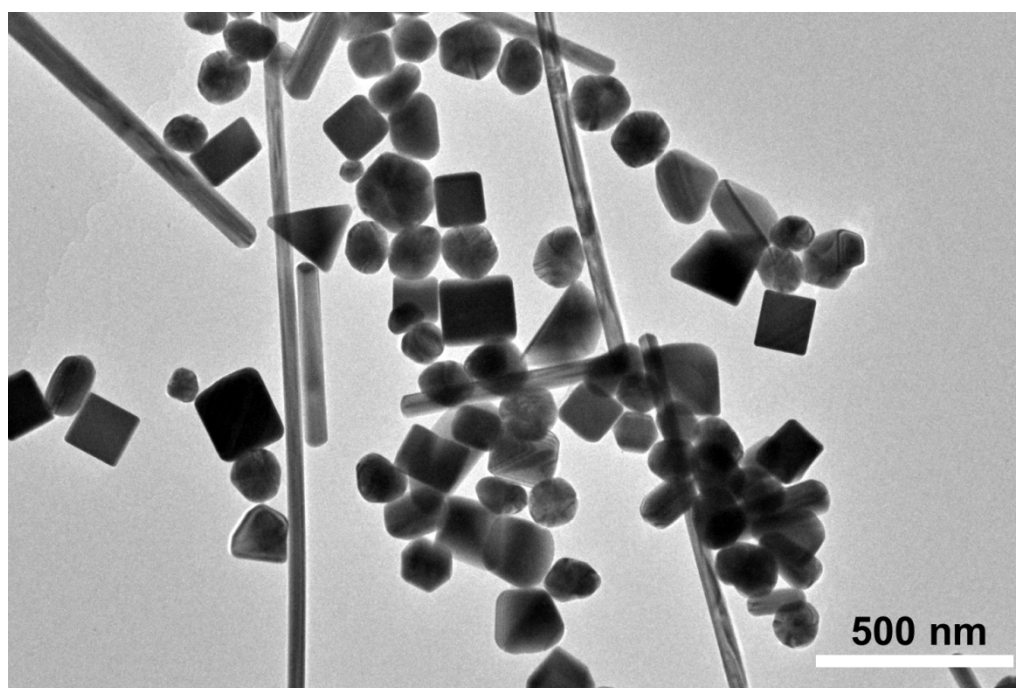


Figure S10. (A) TEM image of Ag nanostructures produced when 0.1 mM potassium bromide was introduced. Other conditions are the same as those in Figure 2.