On the Mechanistic Roles of Hydroxide in Controlling the Deposition of Gold on Colloidal Silver Nanocrystals

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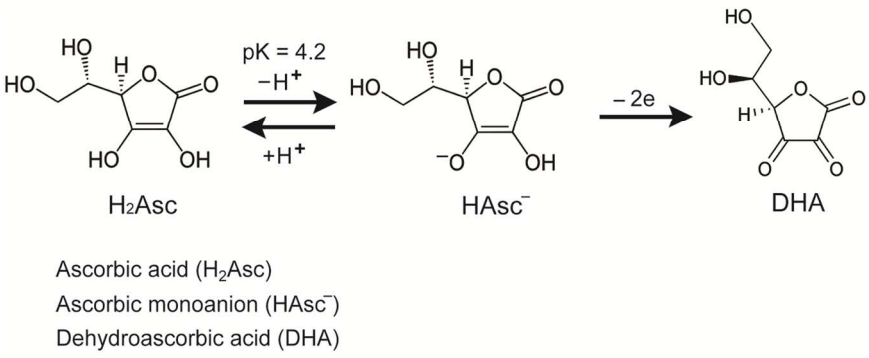

Figure S1. Structures of major chemical species associated with ascorbic acid dissolved in an aqueous solution (this figure is adapted with permission from ELSEVIER Biochimica et Biophysica Acta, ref. 20).

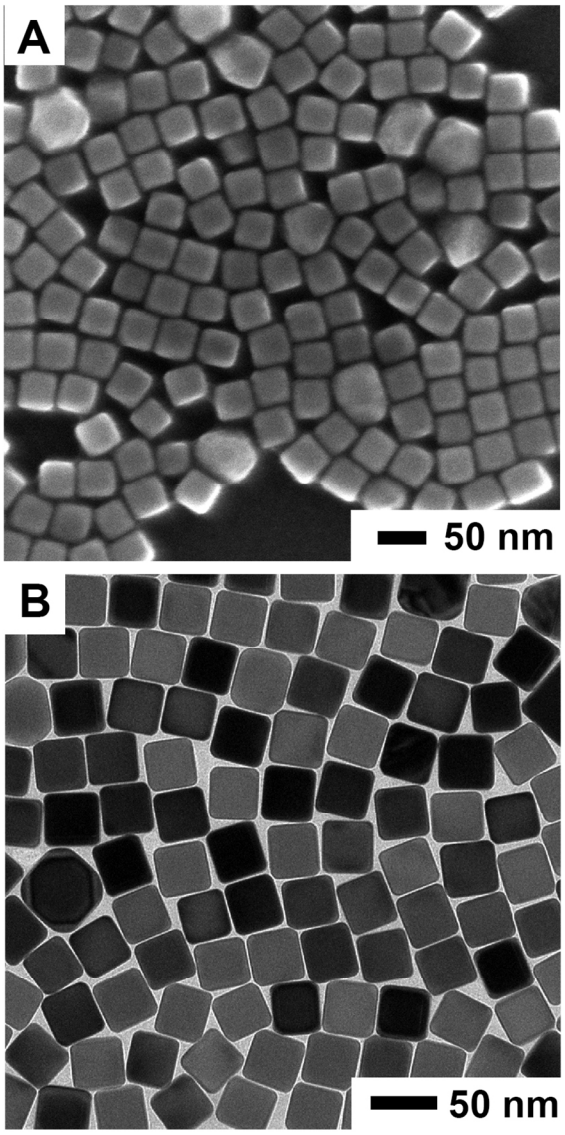

Figure S2. (A) SEM and (B) TEM images of the Ag nanocubes used in the present study.

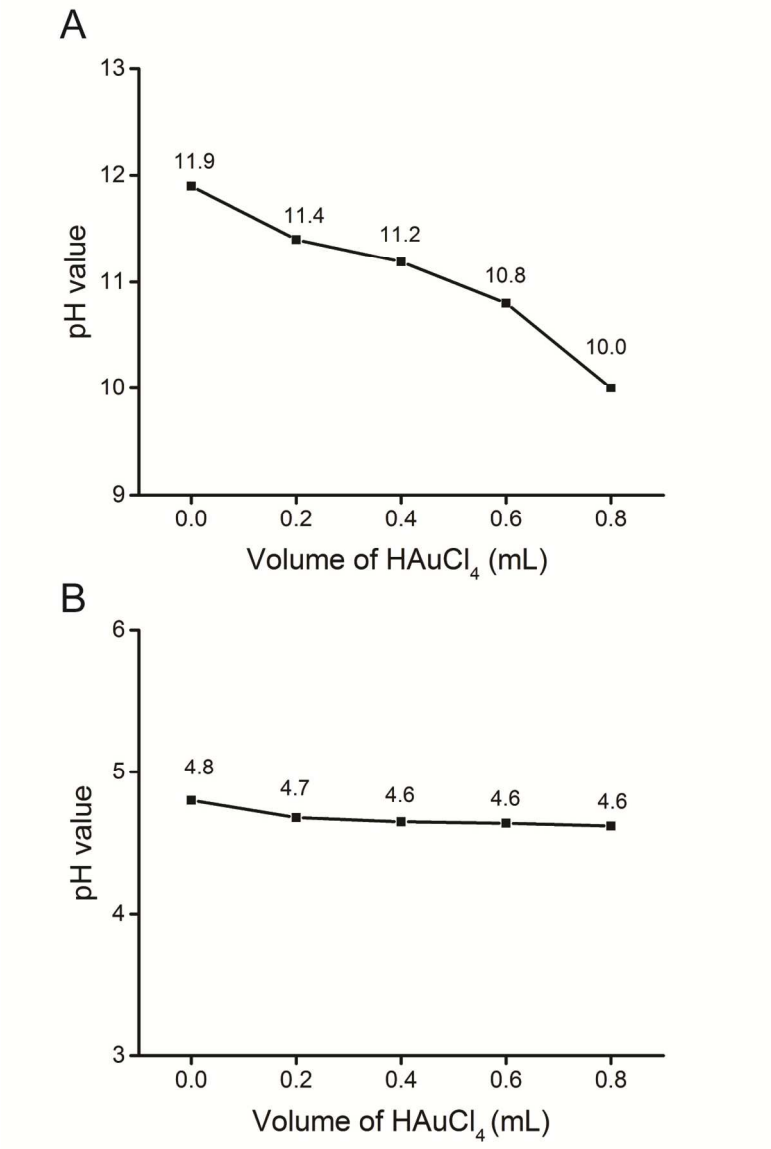

Figure S3. During the titration of 0.1 mM aqueous $HAuCl_4$ solution, the change of pH in the reaction solution containing Ag nanocubes, H_2Asc, PVP and (A) 0.5 mL and (B) 0.2 mL of 0.2 M NaOH.

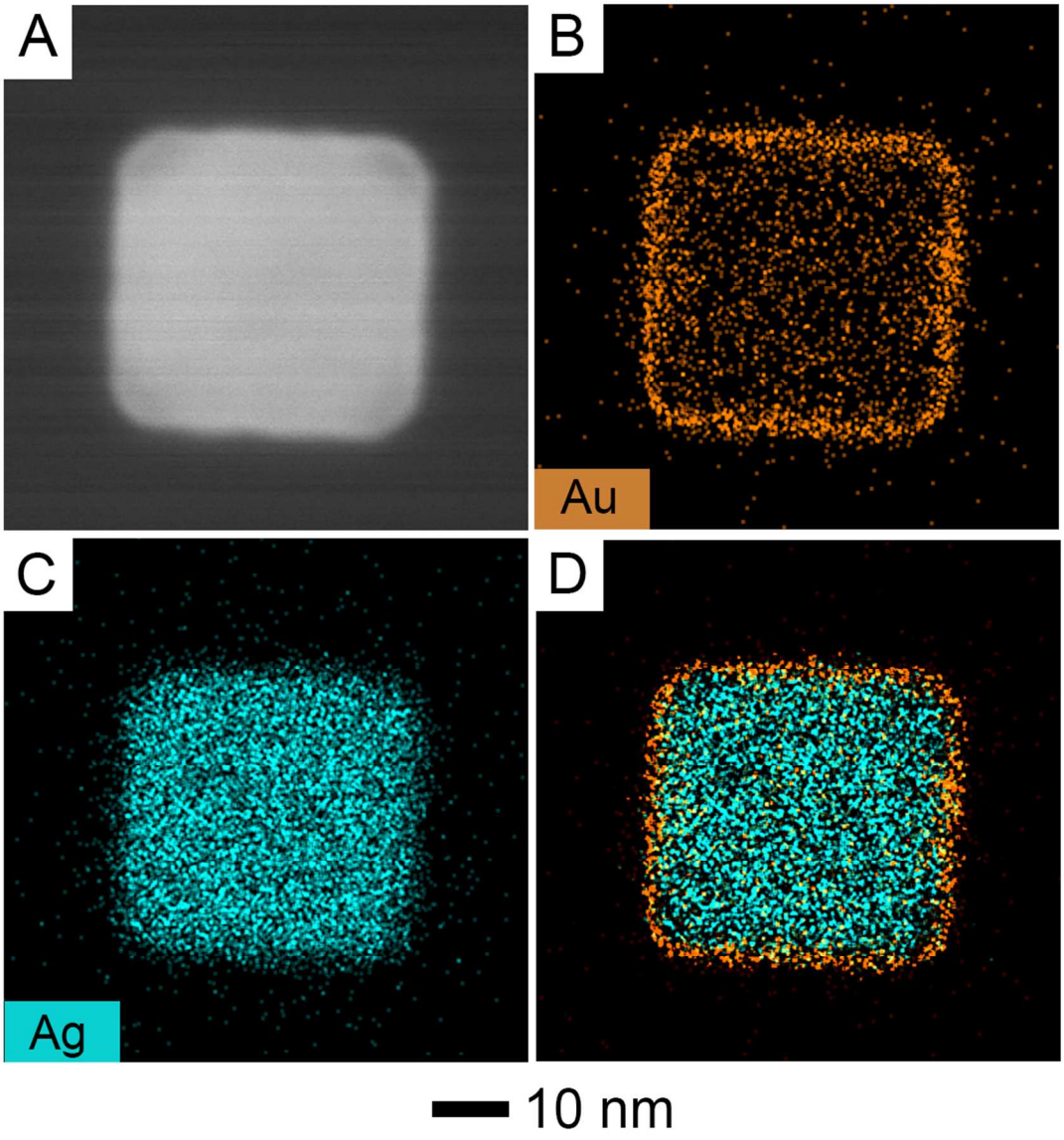

Figure S4. (A) STEM and (B-D) EDS mapping image of a Ag@Au nanocube shown in Figure 3E.

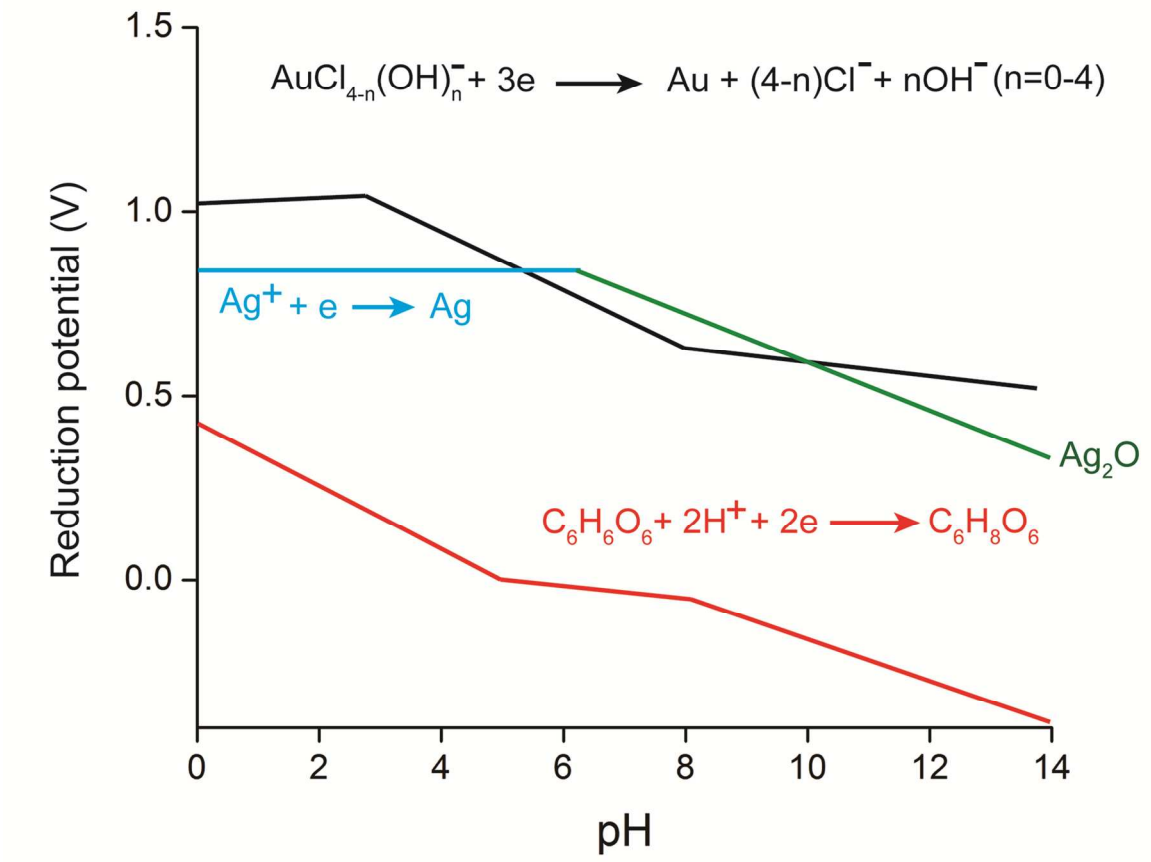

Figure S5. The standard reduction potentials of Ag^{+}, Au^{3+}, and H_2Asc at different pH values (this figure is reproduced with permission from ELSEVIER Colloids and Surfaces A: Physicochemical and Engineering Aspects, ref. 22).

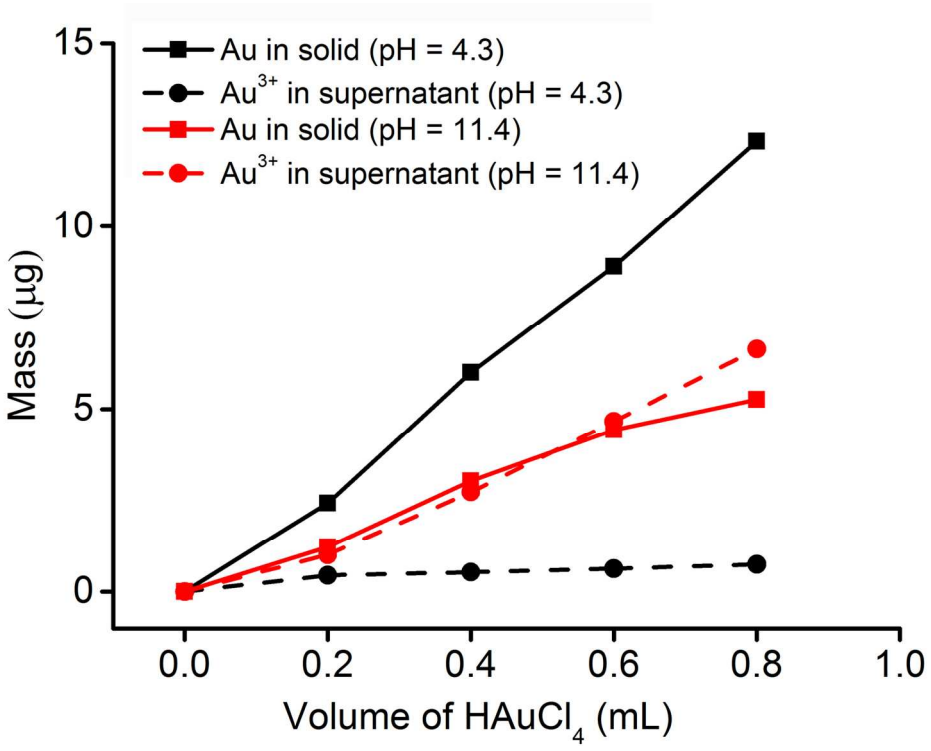

Figure S6. The amounts of Au deposited on the Ag nanocubes and remaining in the supernatant after the titration of different volumes of $HAuCl_4$ into the suspension of Ag nanocubes in the absence of H_2Asc at pH = 4.3 (without NaOH) and 11.4 (with NaOH), respectively.

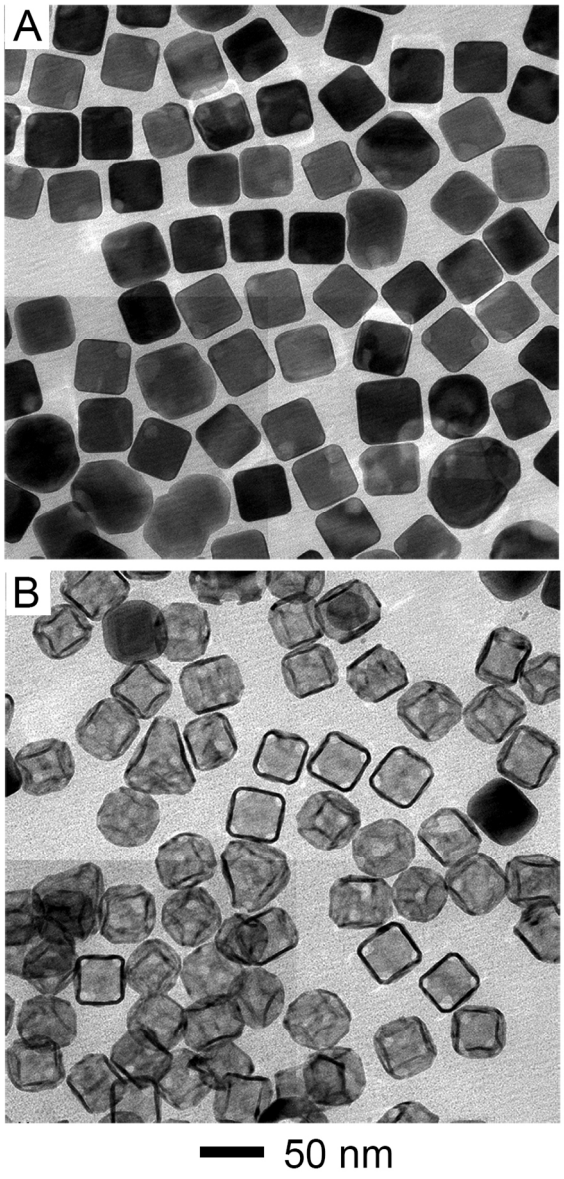

Figure S7. TEM images of products before (A) and after (B) treatment with H_2Asc and then 3% aqueous H_2O_2. The sample was prepared at an initial pH of 11.9 by titrating 0.8 mL of a pre-mixed solution prepared by mixing 0.03 mL of $HAuCl_4$ (10 mM) with 0.1 mL of NaOH (0.2 M) in 2.87 mL of water to obtain a 0.1 mM Au(III) precursor solution with pH=11.5.