Supporting Information

Ripening of bimodally distributed AgCl nanoparticles

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Figure S1. Size distribution of the as-synthesized AgCl nanoparticles shown in Fig. 1. The measured size distribution curve (solid black line with squares) can be fitted with two separated Gaussian peaks (blue dotted lines). It can be clearly seen that the fitting curve (solid red line) agrees well with the measured curve. The consistency indicates that the AgCl nanoparticles shown in Fig. 1 are indeed bimodal distributed.
Figure S2. Schematic drawings and SEM image of the cube-tetrapod nanoparticles shown in Fig. 2f. Four nanoparticles with different orientations related to the electron beam are highlighted in the SEM image with circles. Their corresponding schematic drawings are shown on the sides.
Figure S3. X-ray diffraction (XRD) patterns of the as-synthesized AgCl bimodal nanoparticles (shown in Fig. 1) before (black curve) and after (red curve) ripening at 160 °C for 30 min (shown in Fig. 2f). The two curves are normalized against the intensity of the (200) peak. The inset magnifies the curves with $2\theta$ ranging from 34.5 to 45.5 degrees. The arrows highlight the appearance of two weak and broad peaks corresponding to the (111) and (200) peaks of fcc Ag, indicating the formation of Ag nanocrystallites in the cube-tetrapod AgCl particles after ripening. The XRD patterns were acquired by a Bruker D8 Advanced Diffractometer with Cu Kα (1.5406 Å) source.
Figure S4. Photodecomposition of MB molecules in aqueous solutions with the assistance of the AgCl-Ag cube-tetrapod particles under illumination of white light. (a) Photographs and (b) UV-visible absorption spectra of the MB solutions after the photocatalytic decomposition lasted different times ($t$). The monotonic decrease in absorbance indicated the continuous decomposition of MB molecules which could be completely decomposed within 40 min (b). The AgCl-Ag particles could be collected through centrifugation and reused to catalyze a new reaction. (c) Decomposition kinetics of MB molecules for 3 successive reactions catalyzed with the same batch of AgCl-Ag particles. The catalytic efficiency slightly decreased because of the loss of the particles involved in the recycling process.