Supporting Information

Low temperature aqueous phase synthesis of silver/silver chloride plasmonic nanoparticles as visible light photocatalyst

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**Bulk AgCl and Ag@AgCl prepared without PVA stabilizer**

*Figure S1.* FE-SEM images of the (a) bulk AgCl and (b) bulk Ag@AgCl prepared under the same condition as in Figure 1b except for the addition of PVA stabilizer. The inserted photographs show the as-prepared solution of bulk AgCl (upper right) and bulk Ag@AgCl (bottom right). The bulk Ag@AgCl was prepared via reduction of bulk AgCl with L-arginine for 1 h.
UV-vis spectra of the AgCl and PVA solution

Figure S2. UV-vis spectra of the as-prepared AgCl dispersed PVA solution (black solid line) and the as-prepared PVA solution (red dot line).
Photographs of the as-prepared Ag@AgCl solutions

Figure S3. Photographs of the Ag@AgCl suspensions prepared via the partial reduction of the as-prepared AgCl nanocubes. The AgCl nanocubes with edge length of ~57 (T25), ~61 (T40), and ~87 nm (T60) were synthesized at 25, 40, and 60 °C, respectively and reduced to Ag@AgCl nanocomposites using L-arginine at 25 °C.
FE-SEM images of the as-prepared Ag@AgCl before and after photocatalytic test

Figure S4. SEM images of Ag@AgCl before (a) and after (b) photocatalytic test. For more clear image, the test was conducted with Ag@AgCl T40 samples which has bigger size than the Ag@AgCl T25.