

## Supporting information

### One-step synthesis of AgBr microcrystals with different morphologies by ILs-assisted hydrothermal method

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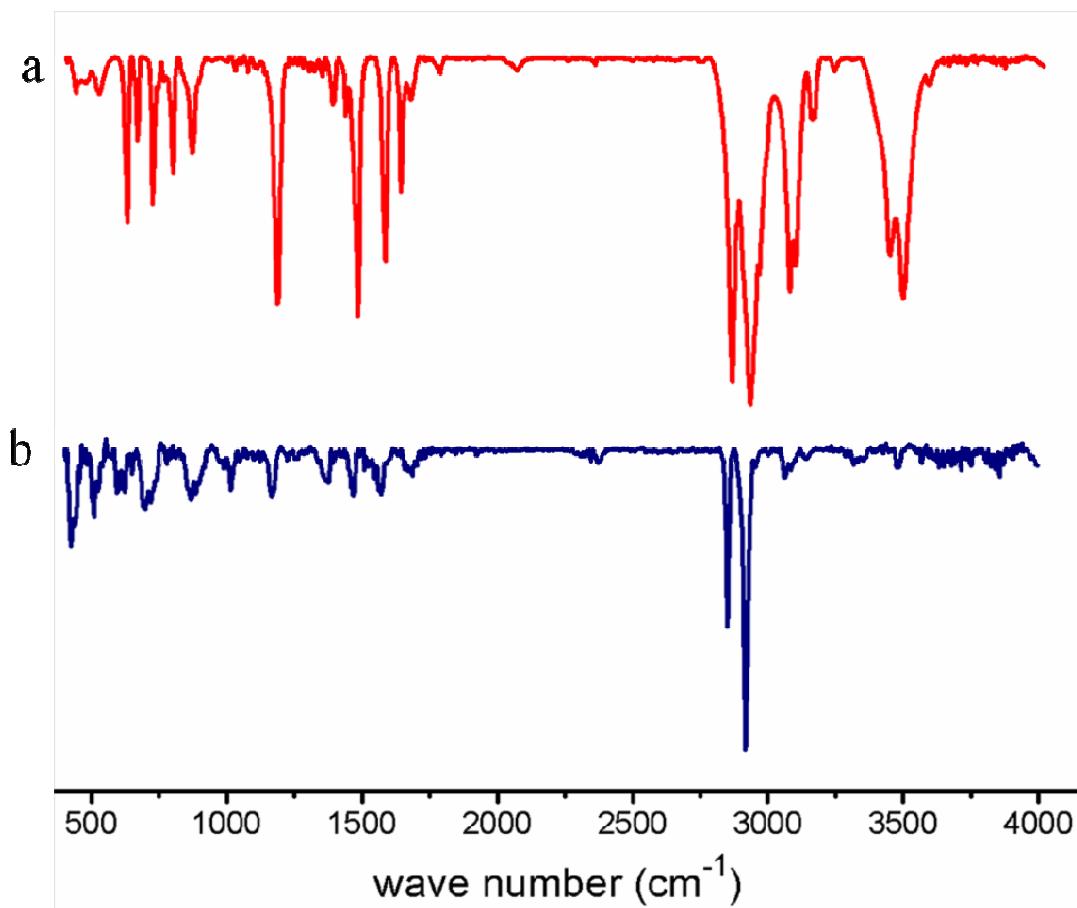


Figure S1. FTIR spectrums of C<sub>16</sub>MimBr (a) and the near-spherical AgBr(b) separated from solution.

The samples separated from solution were used to measure FTIR. FTIR spectras were carried out using Vector-22 spectroscopy. Samples were prepared by dispersing

$\text{C}_{16}\text{MimBr}$ , near-spherical AgBr and cubic AgBr in KBr respectively, and compressing the mixture to form disks.

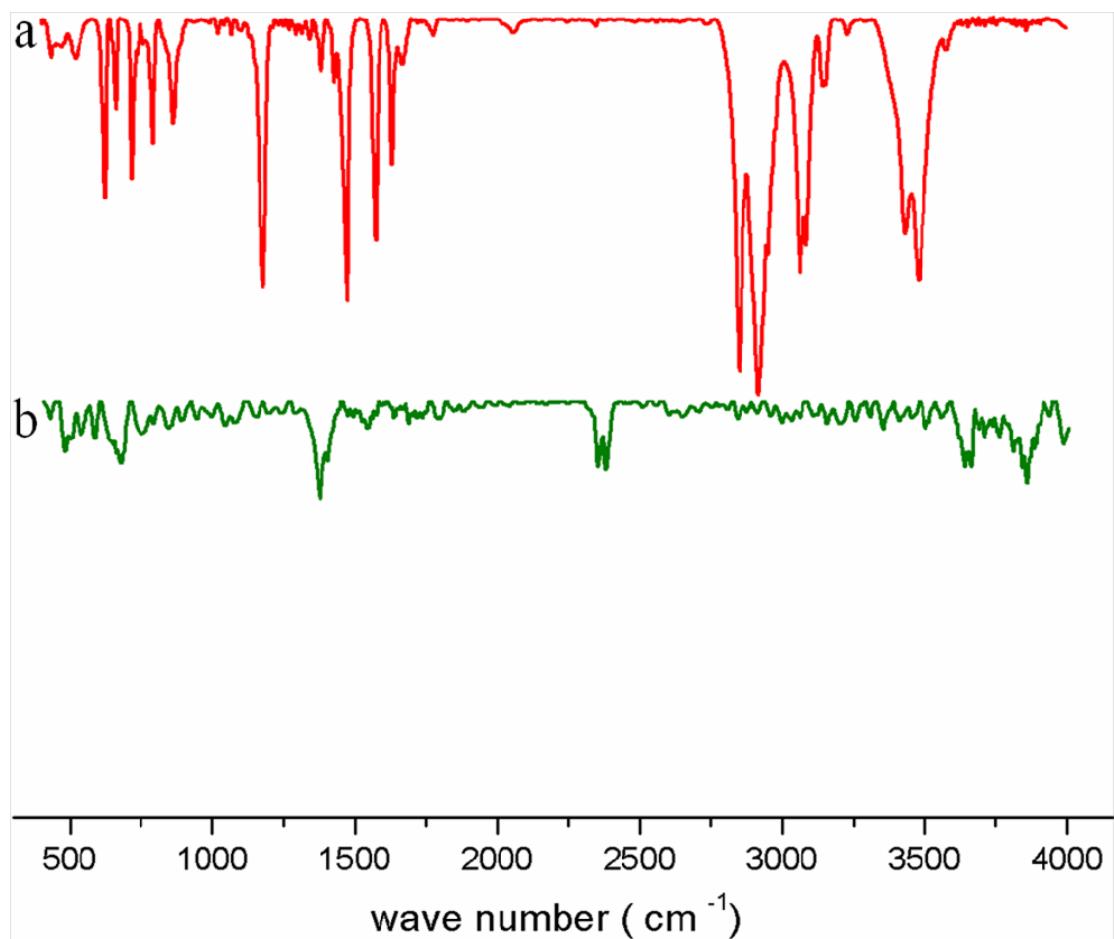


Figure S2. The FTIR spectrums of  $\text{C}_{16}\text{MimBr}$  (a) and cubic AgBr (b) prepared in glycol ether.

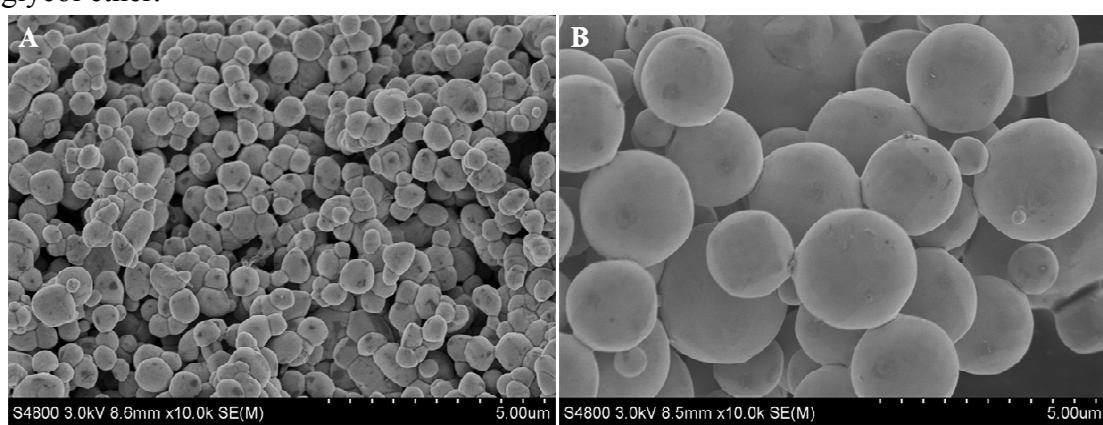


Figure S3: SEM images of samples prepared using  $\text{C}_{16}\text{MimBr}$ : A) reaction at room temperature for 10 h, B) reaction during hydrothermal process at 160 °C for 8 h.

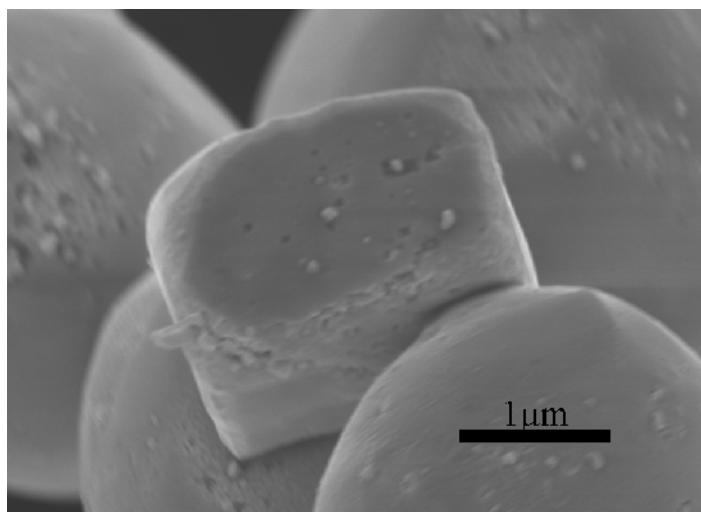


Figure S4: SEM images of the cubic AgBr prepared by KBr.

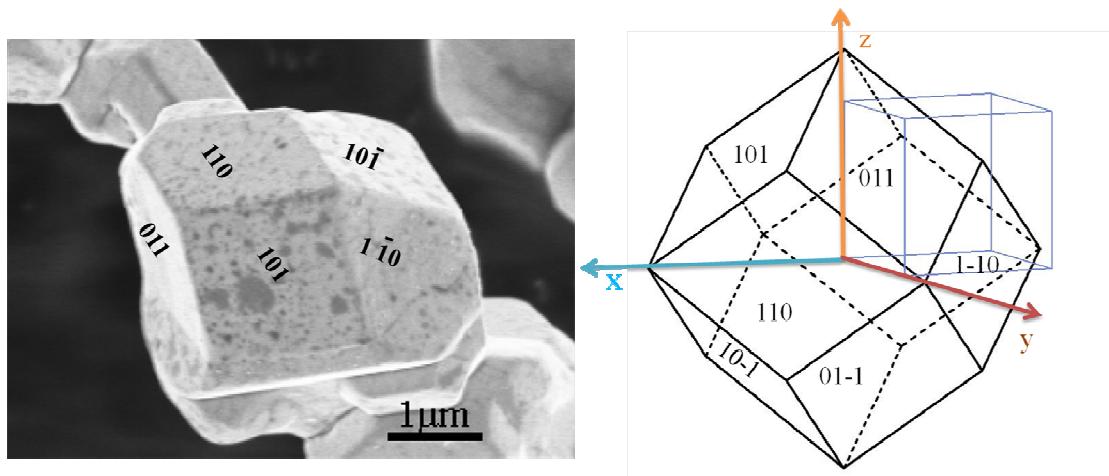


Figure S5. The crystallographic orientations of the exposed facets of AgBr prepared by C<sub>4</sub>MimBr