Electronic Supplementary Information (ESI)

Manipulating the Formation of Cesium Lead Bromide Nanocrystals via Oleic Acid

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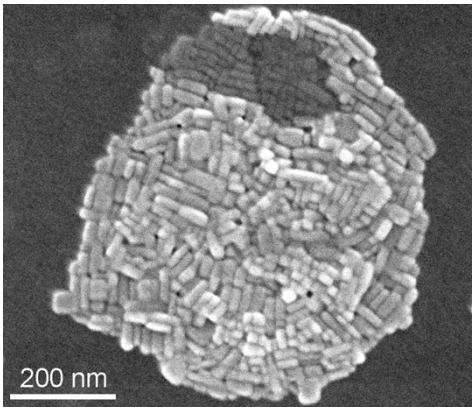

Fig. S1. Typical SEM images of as-prepared $CsPbBr_3$ nanorods.

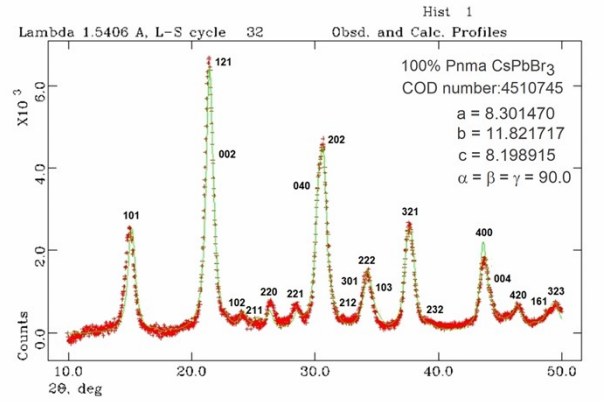

Fig. S2. Rietveld refinement analyses of the diffractograms acquired from the $CsPbBr_3$ nanorods.

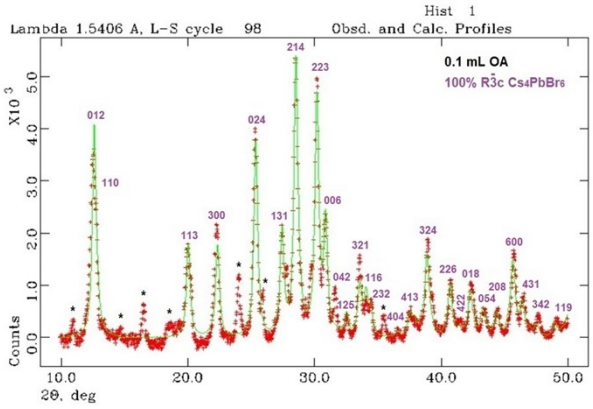

Fig. S3. Rietveld refinement analyses of the diffractograms acquired from the Cs_4PbBr_6 nanocrystals.

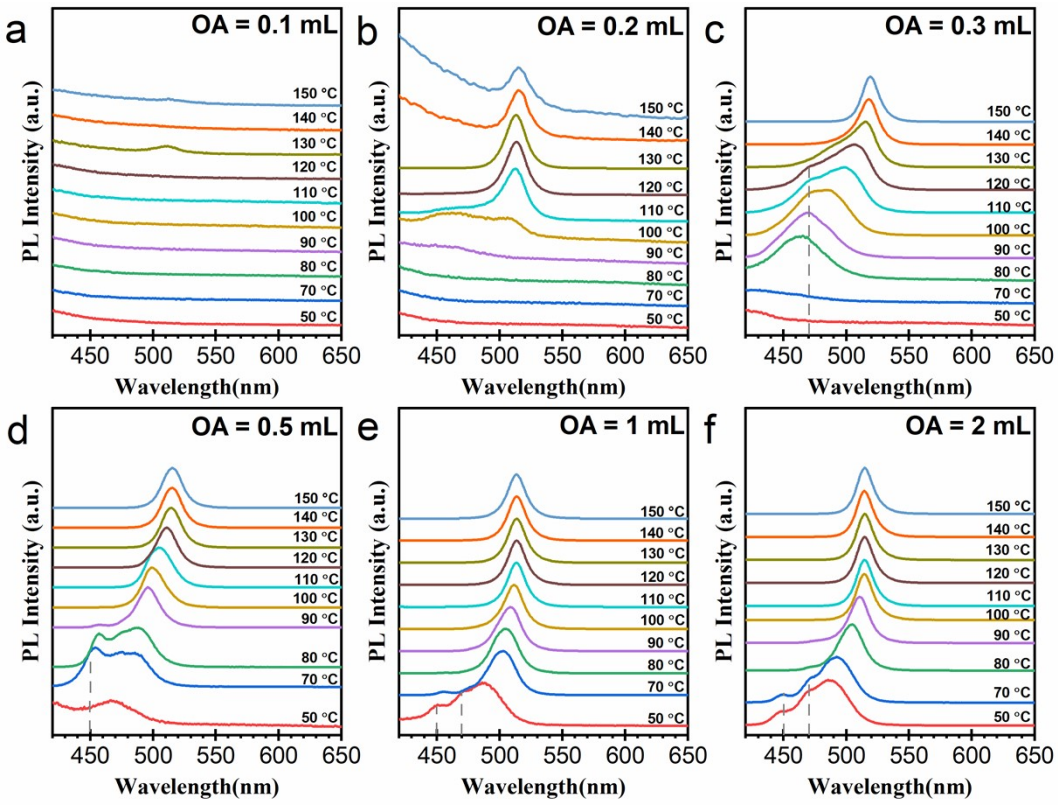

Fig. S4. Evolution of the photoluminescence (PL) spectra during heating up the reaction systems with OA amounts of (a) 0.1, (b) 0.2, (c) 0.3, (d) 0.5, (e) 1 and (f) 2 mL, respectively. Two kinds of PL signals around 450 and 470 nm were indicated (dashed lines), respectively.

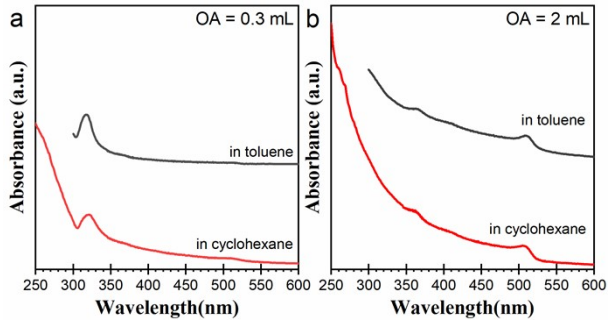

Fig. S5. UV−vis absorption spectra of $CsPbBr_3$ rude samples prepared in reaction systems with the OA amounts of (a) 0.3 and (b) 2 mL, respectively. The measurement was taken after the samples being diluted in toluene and cyclohexane, respectively.

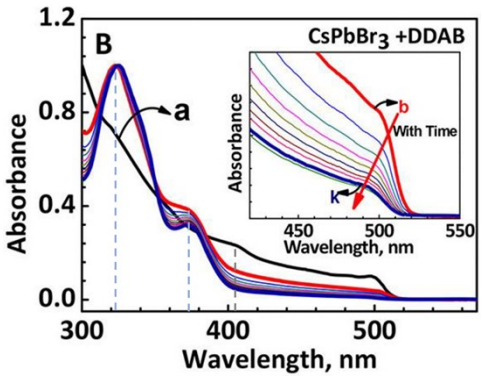

Fig. S6. Absorption spectra recorded after the addition of dodecyl dimethylammonium bromide (DDAB) to $CsPbBr_3$ NCs in toluene: (a) before adding DDAB and (b−k) after addition of DDAB. The magnified region of absorption at the band edge is shown in the inset. In curve a, an absorption signal near 400 nm was indicated (dashed grey line). In curves b−k, absorption signals near 320 nm and those between 360−370 nm were also indicated (dashed blue lines). Adapted with permission from ref 1. Copyright 2018 American Chemical Society.

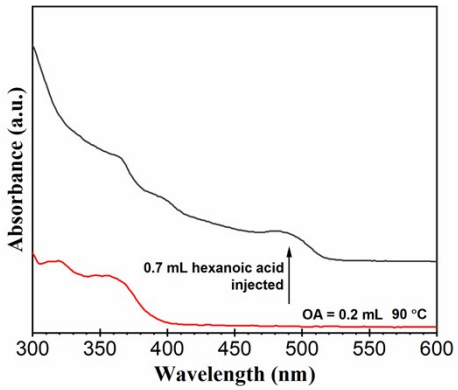

Fig. S7. Absorption spectra illustrating the generation of $CsPbBr_3$ NCs from lead bromide complex species upon hexanoic acid injection. A dispersion of lead bromide complex species was made with 0.2 mL of OA, followed by the addition of 0.7 mL of hexanoic acid. The spectra were collected before (red curve) and immediately after the injection of hexanoic acid (black curve).

1. Balakrishnan, S. K.; Kamat, P. V. *Chem. Mater.* **2018**, *30* (1), 74−78.