Supporting Information

Green Solvent Assisted preparation of One-dimensional $CsPbBr_3$ Nanocrystals with Controllable Morphology for Cyan-emitting Applications

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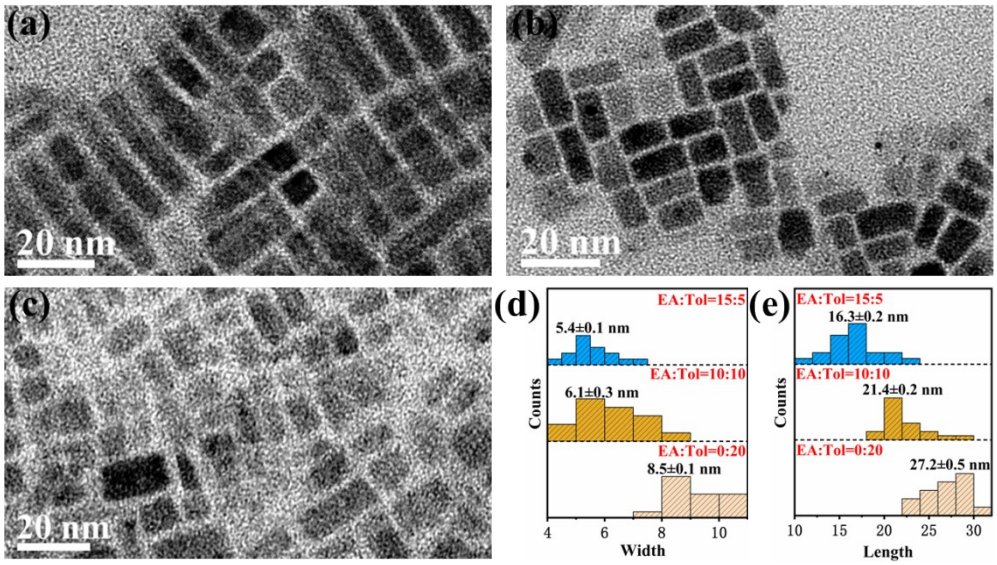

Figure S1. TEM images of $CsPbBr_3$ NCs synthesized at the different volume ratios of EA/Tol. (a) 0-20; (b) 10-10; (c) 15-5. (d) width and (e) length distribution for obtained $CsPbBr_3$ NCs.

When Tol was solely used as the antisolvent, the average length and width of the obtained nanorods were ~27.2nm and ~8.5 nm, respectively (**Figure S1**). After adding EA into Tol with relatively low amount (EA/Tol ratio less than 17:3), products show a slight decrease in both length and width but generally remain the nanorod morphology. The addition of EA leads to an increase in the polarity of the antisolvent and breaks

the balance between the dissolution rate and the growth rate of the $CsPbBr_3$ NCs. The enhancement of ionization of the reaction solution allows more precursors presented as ions and accounts for the continuous reduction in particle size. Furthermore, the EA content is still too low to affect the binding balance between ligands and the crystal surface at this stage. Thus, EA has not exhibited its ability in directing the shape of NCs yet.

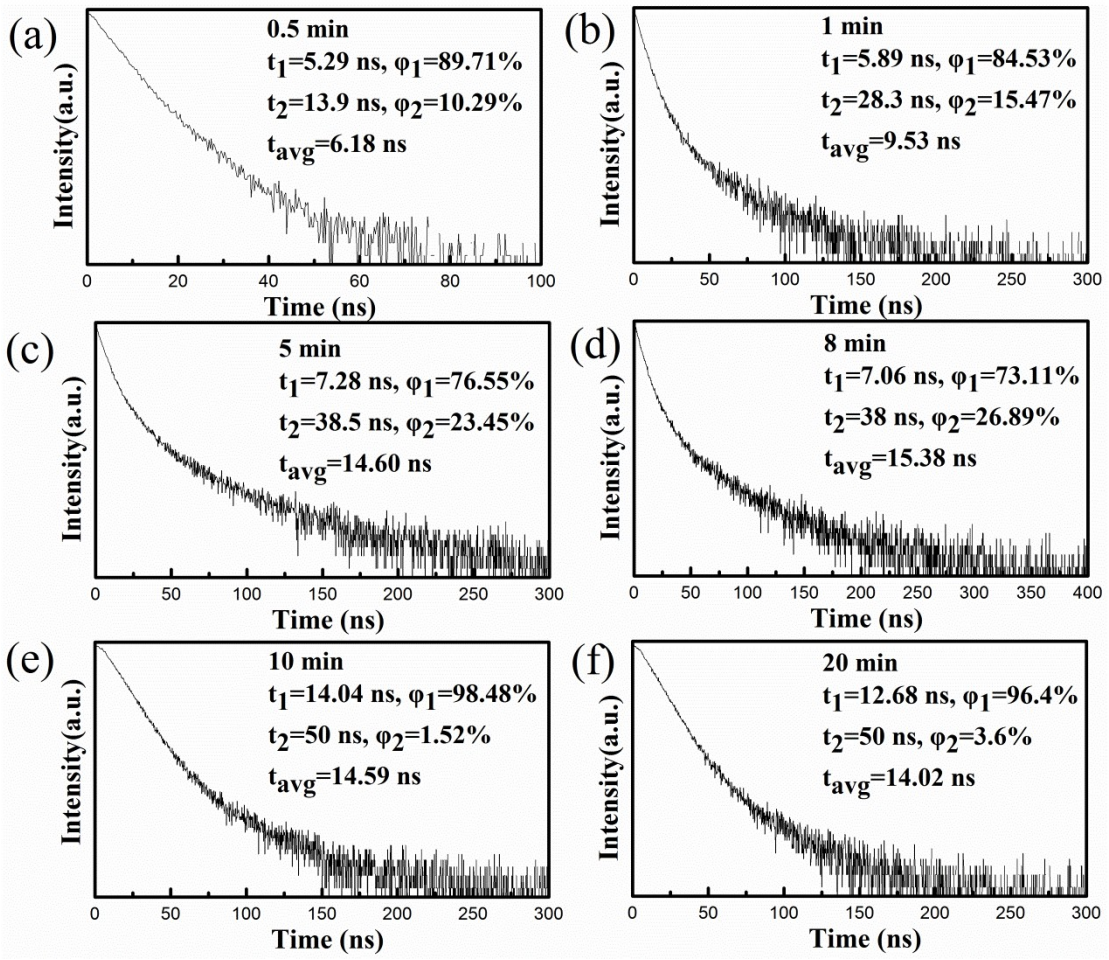

Figure S2. Time-resolved PL decay curve of $CsPbBr_3$ NWs with reaction time of 0.5min, 1 min, 5min, 8 min, 10 min and 20 min in EA antisolvent.

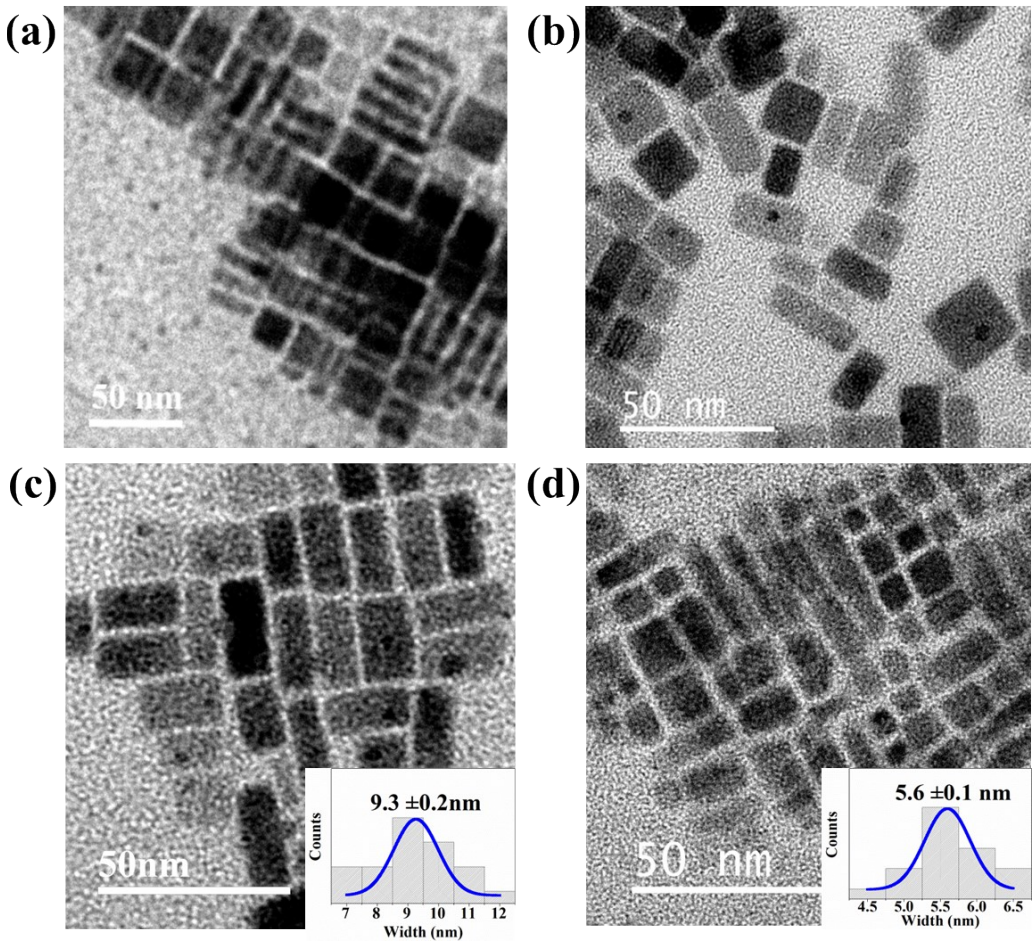

Figure S3. (a)TEM images of $CsPbBr_3$ NCs synthesized by using caprylic acid replaced HAc; (b) TEM images of $CsPbBr_3$ NCs synthesized by using caprylic acid replaced oleic acid; (c) TEM images of $CsPbBr_3$ NCs synthesized by using 0.5ml OAm. (d) TEM images of $CsPbBr_3$ NCs synthesized by using 1ml OAm. The illustration shows the width size distribution.