

Supporting Information for

**Polar Solvent Free Room Temperature Synthesis of CsPbX₃ (X =
Br, Cl) Perovskite Nanocubes**

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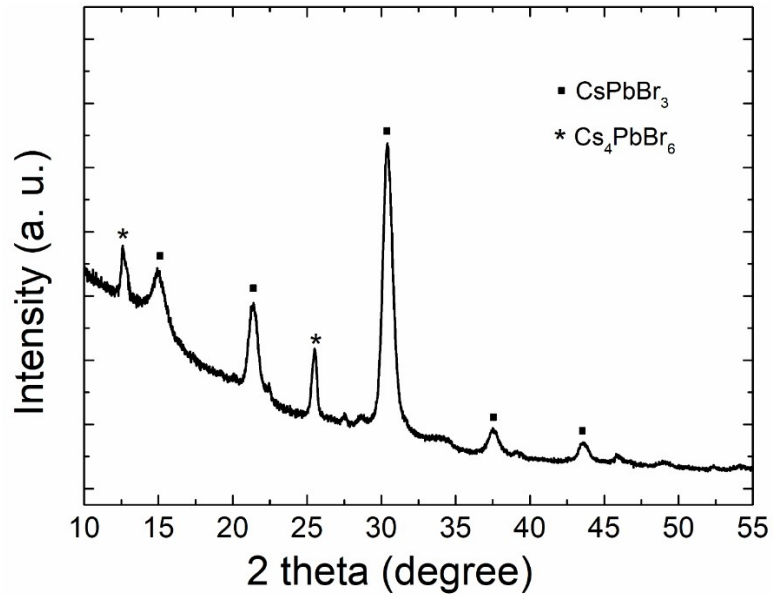


Figure S1. XRD pattern shows the formation of both CsPbBr_3 and Cs_4PbBr_6 phases when the molar ratio of Cs/Pb is 2.

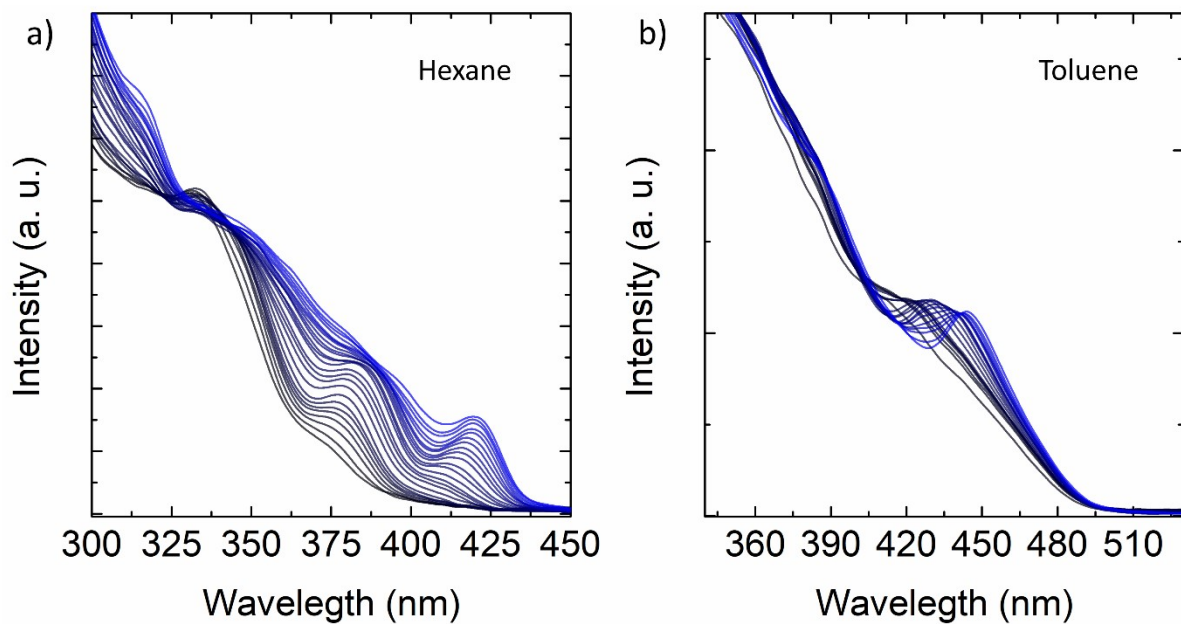


Figure S2. In-situ absorption measurement of the synthesis of CsPbBr_3 nanocrystals without addition of GA-oleate (a) in hexane and (b) in toluene.

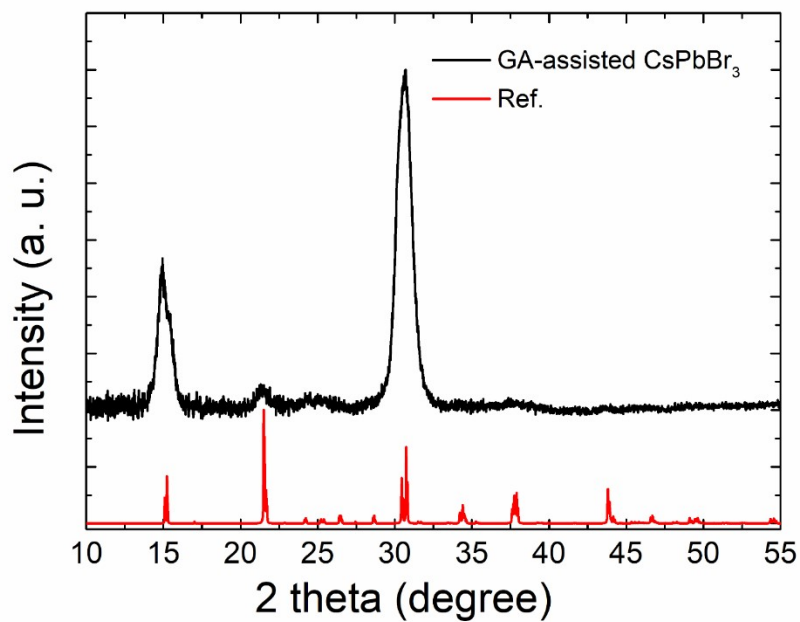


Figure S3. Comparison of the XRD patterns of the GA-assisted synthesized CsPbBr₃ nanocubes and reference XRD pattern.¹

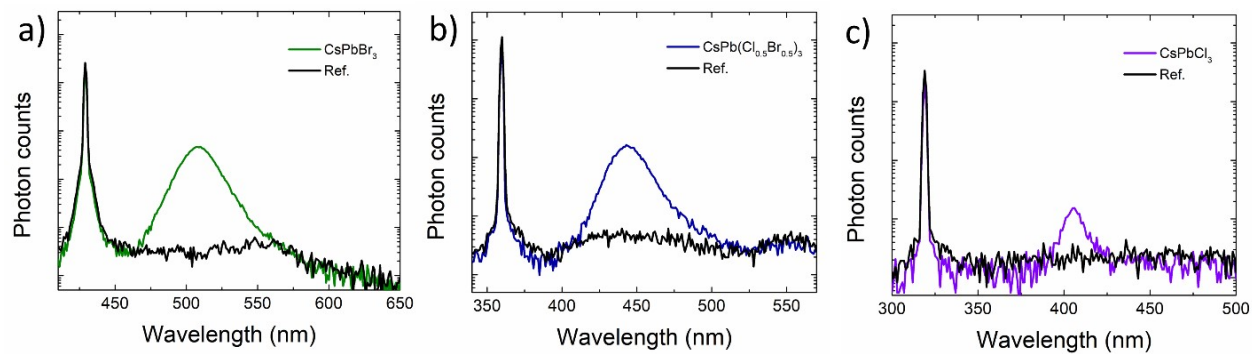


Figure S4. The PLQY measurements of the samples. Measurements were done using an integrating sphere.

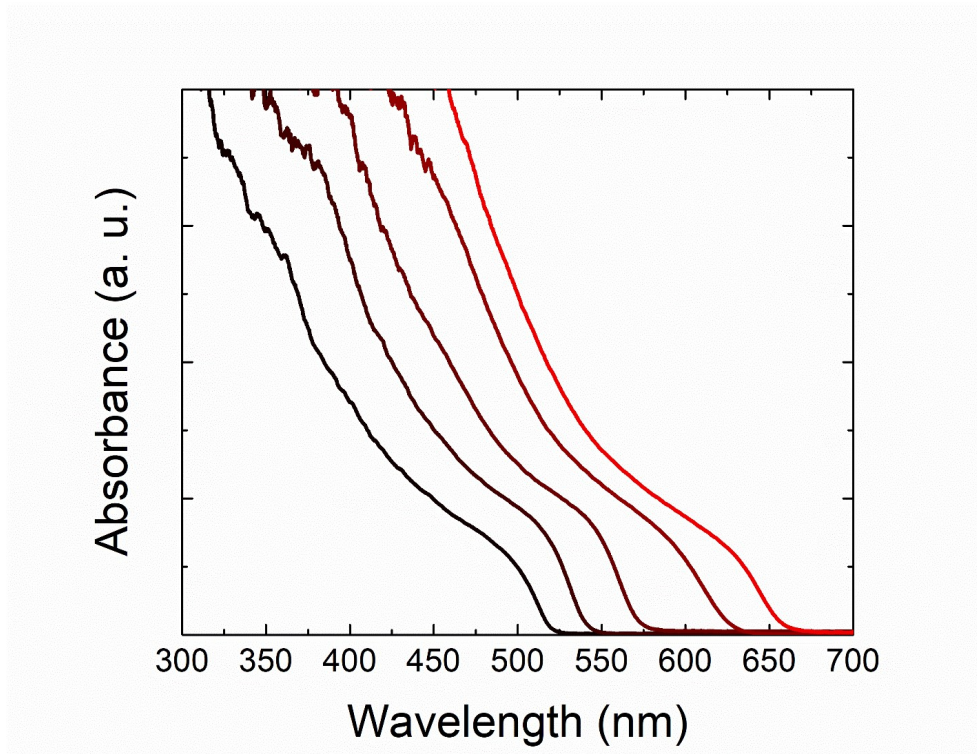


Figure S5. Absorption spectra of the halide exchange reaction from CsPbBr₃ to CsPbI₃.

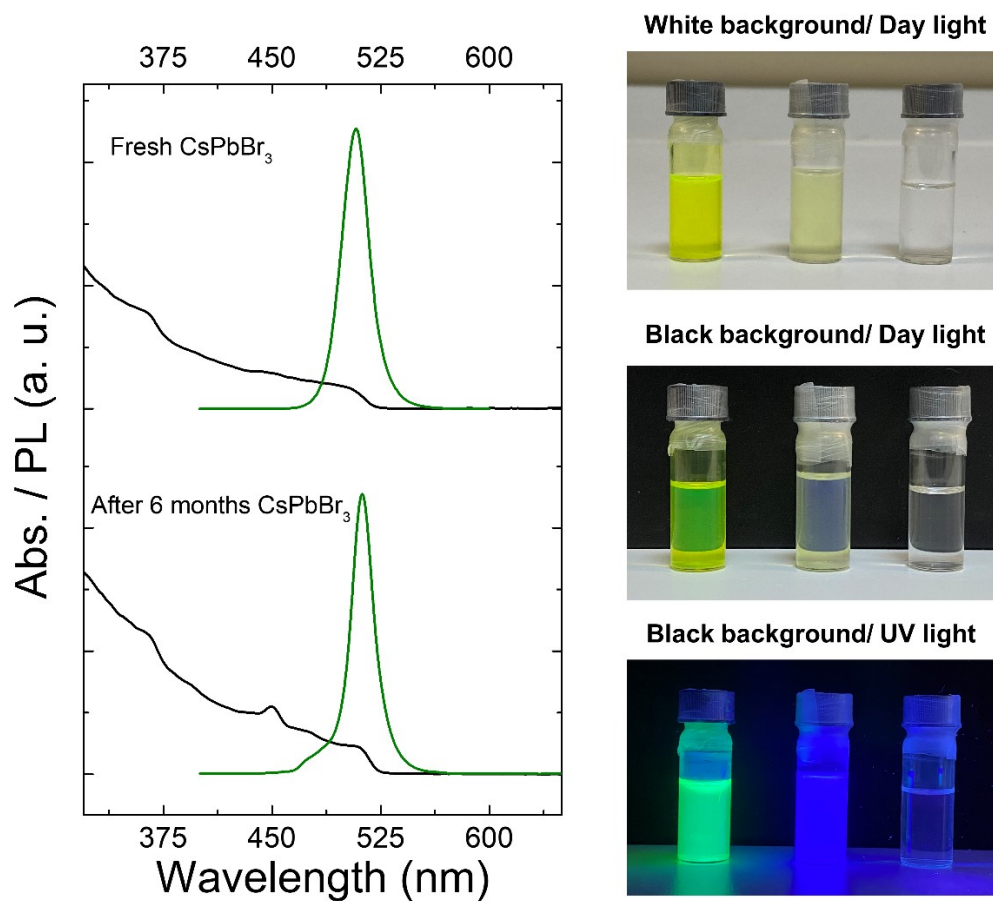


Figure S6. On the left-hand panel, absorption and PL spectra of the freshly prepared and six months old CsPbBr₃ nanocubes stored at 2- 8 °C are shown. On the right-hand panel, digital images of the six months old CsPbX₃ (X = Cl, Br) nanocubes are provided.

Table S1. Comparison of average size and optical properties of the perovskite nanocrystals synthesized at room temperature.

	PL (nm)	PL FWHM	Average Particle Size (nm)	PLQY (%)	τ_{avg} (ns)
MAPbBr₃²	515	21 nm (96 meV)	3.3	50-70	13.54
CsPbBr₃³	517- 501 depend on rection duration	16- 19 nm	13.6- 6.8 depend on rection duration	Above 80	-
CsPbBr₃ (RT synthesis only)⁴	468	230 meV	3.4	-	-
CsPbBr₃⁵	511-515	18- 20 nm	12.7 nm	80-85	11.4
CsPbBr₃⁶	515	18 nm	10 nm	93	8.63
CsPbBr₃ (Our method)	508	21 nm	14 nm	85	18.98

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