## **ELECTRONIC SUPPORTING INFORMATION**

## Synthesis of Bright CdSe Nanocrystals by Optimization of Low-Temperature Reaction Parameters

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**Figure S1.** Series of UV-vis absorption spectra showing the temporal evolution of the CdSe nanocrystal nucleation and growth process at 130 °C using reaction system I synthesis conditions. The only difference to the sample displayed in Figure 3 of the manuscript is the use of a different batch (lot number) of ODA growth ligand. All spectra were intensity-normalized for better comparison.



**Figure S2.** Series of UV-vis absorption and PL emission spectra showing the temporal evolution of the CdSe nanocrystal nucleation and growth process at 130 °C using reaction system III synthesis conditions (use of lauric acid in place of oleic acid as the cadmium precursor ligand). PL emission spectra were excited at a wavelength of 405 nm. All spectra were intensity-normalized for better comparison.



**Figure S3.** Series of UV-vis absorption and PL emission spectra showing the temporal evolution of the CdSe nanocrystal nucleation and growth process at 130 °C using reaction system IV synthesis conditions (use of octanoic acid in place of oleic acid as the cadmium precursor ligand). PL emission spectra were excited at a wavelength of 405 nm. All spectra were intensity-normalized for better comparison.



**Figure S4.** Series of UV-vis absorption and PL emission spectra showing the temporal evolution of the CdSe nanocrystal nucleation and growth process at 130 °C using reaction system V synthesis conditions (Cd:Se:ODA molar ratio of 1:7:124). PL emission spectra were excited at a wavelength of 405 nm. All spectra were intensity-normalized for better comparison.



**Figure S5.** Series of UV-vis absorption and PL emission spectra showing the temporal evolution of the CdSe nanocrystal nucleation and growth process at 130 °C using reaction system VI synthesis conditions (Cd:Se:ODA molar ratio of 1:7:37). PL emission spectra were excited at a wavelength of 405 nm. All spectra were intensity-normalized for better comparison.