

## Supporting Information

Synthesis of Near-Infrared Fluorescent, Elongated Ring-Like

Ag<sub>2</sub>Se Colloidal Nanoassembly

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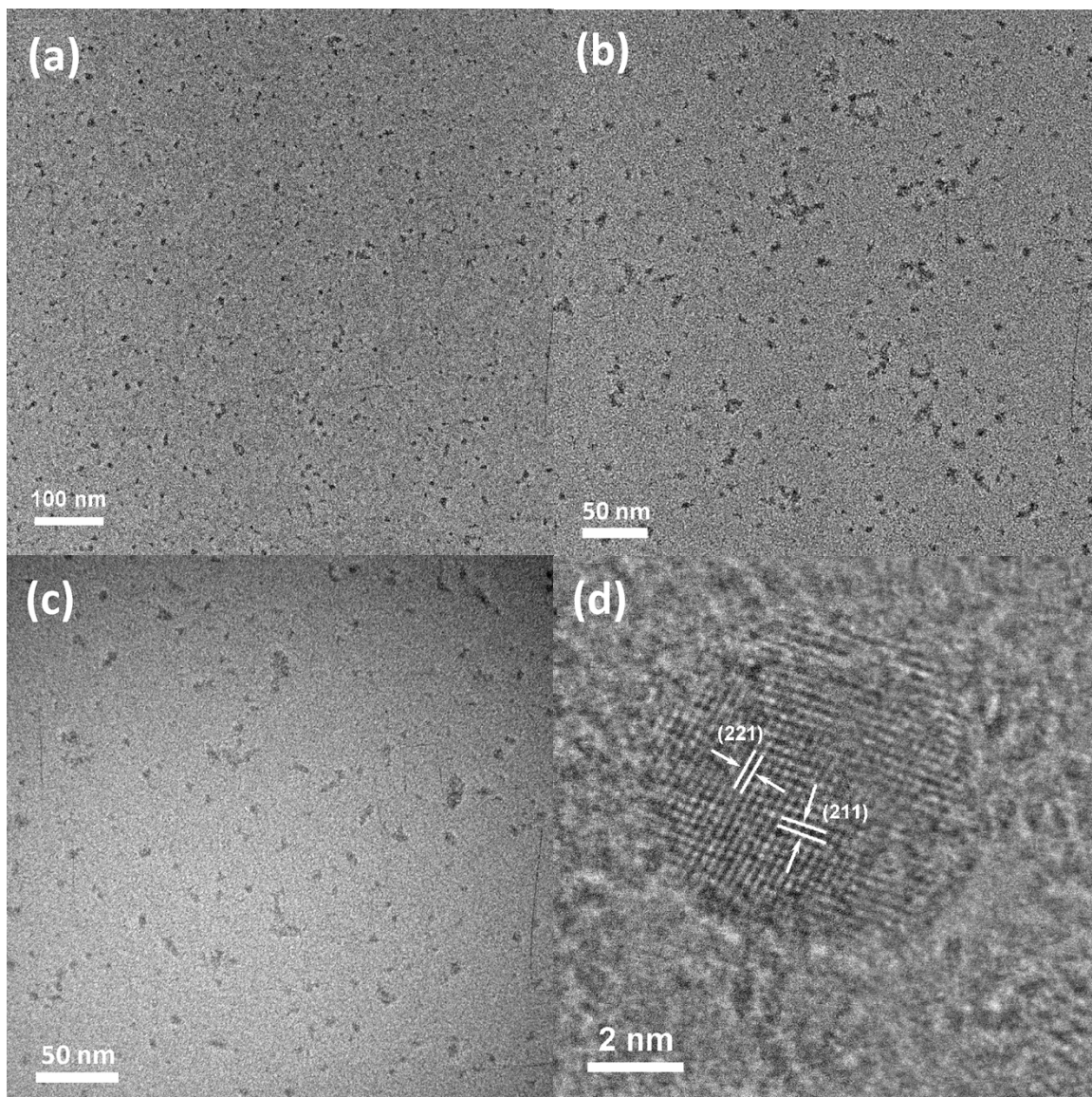
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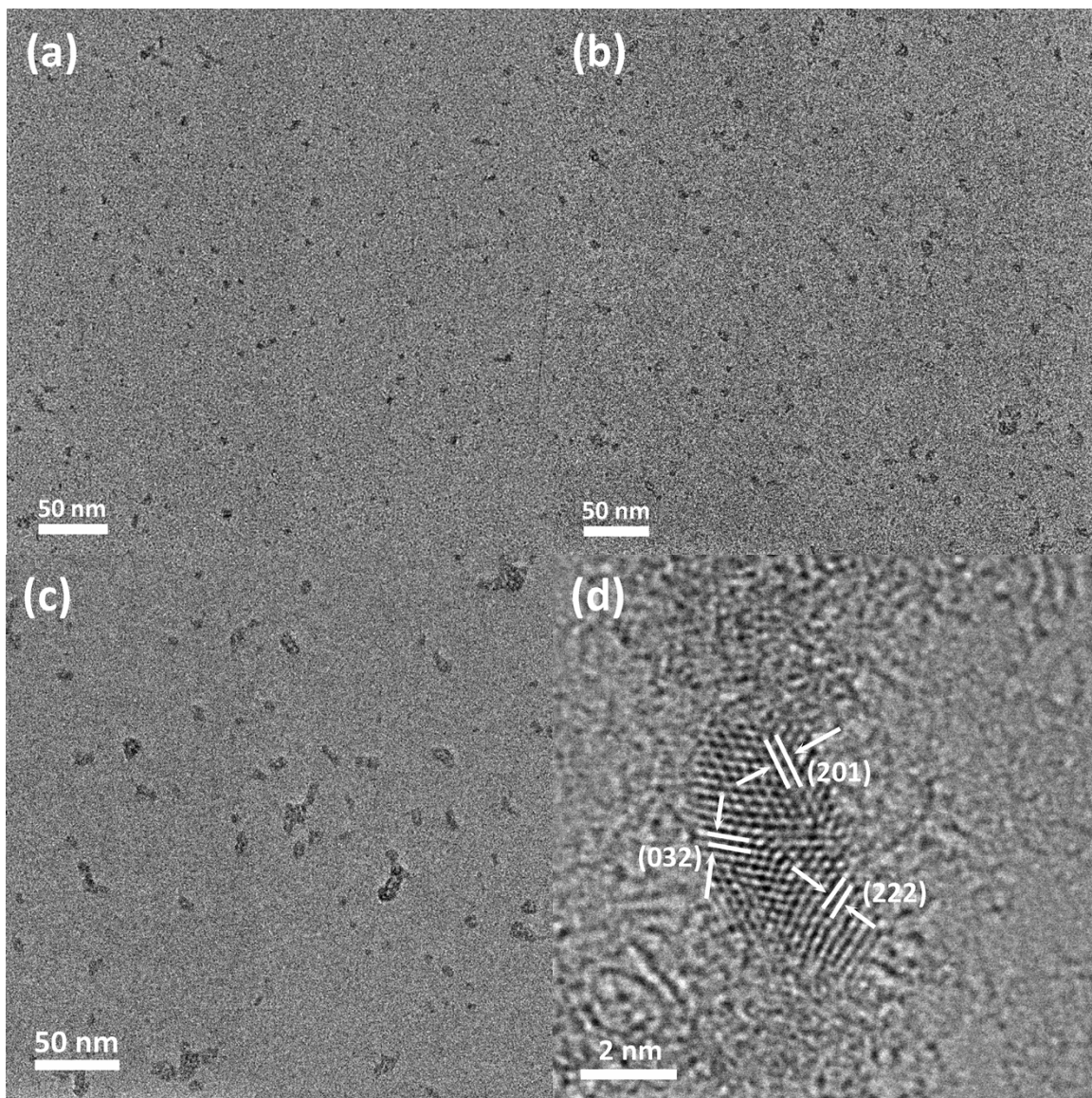
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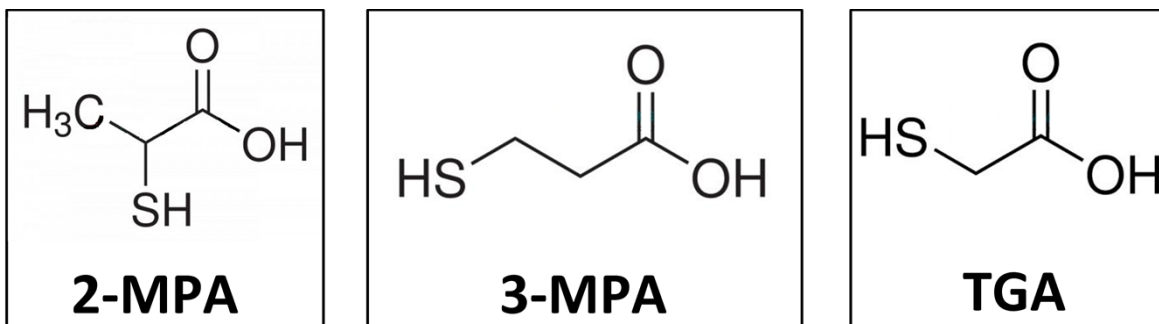
Supporting figures S1 - S6.



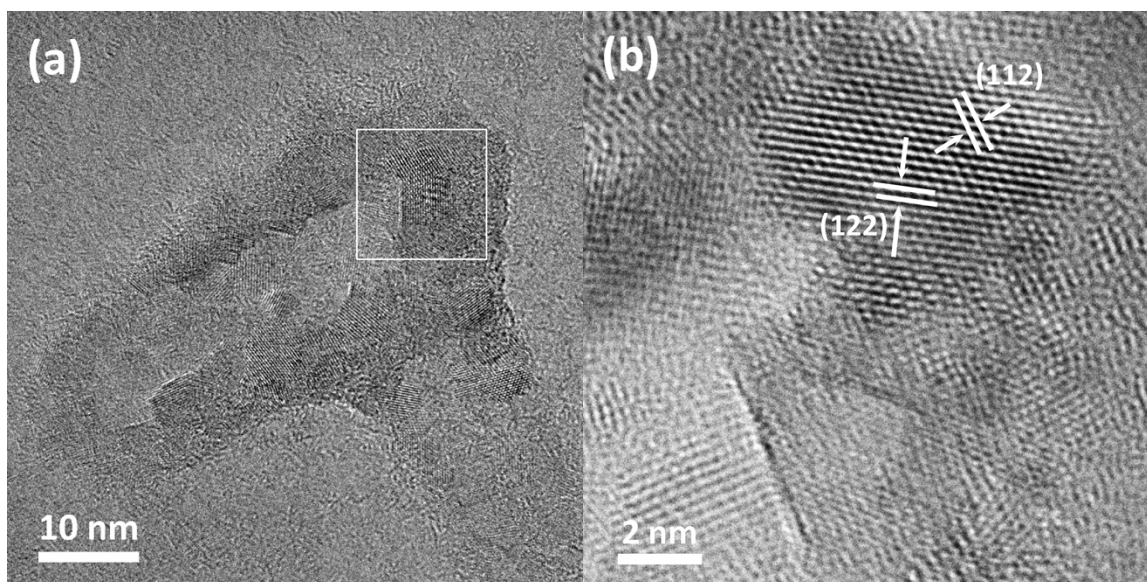
**Fig. S1** (a-c) TEM images of the 2-MPA capped  $\text{Ag}_2\text{Se}$  nanocrystals obtained with (a) 15 min, (b) 1 h and (c) 5 h of the reaction time; (d) HRTEM image of the synthesized 2-MPA capped  $\text{Ag}_2\text{Se}$  nanocrystals obtained at 15 min.



**Fig. S2** (a-c) TEM images of the TGA capped Ag<sub>2</sub>Se nanocrystals obtained with (a) 15 min, (b) 1 h and (c) 5 h of the reaction time; (d) HRTEM image of the synthesized TGA capped Ag<sub>2</sub>Se nanocrystals obtained at 15 min.

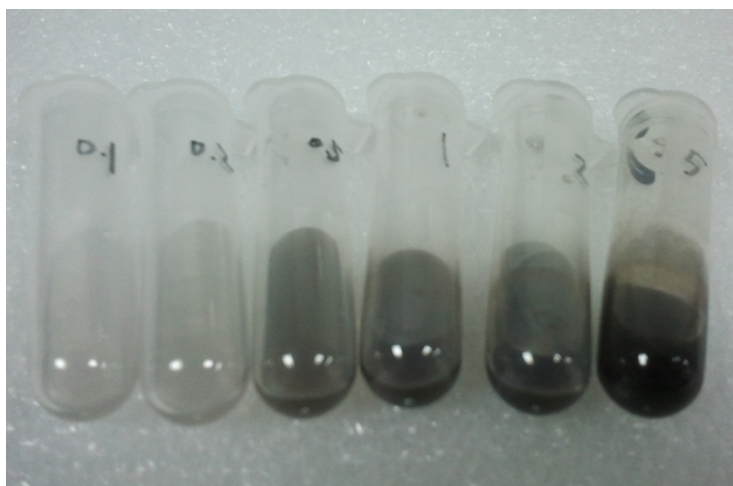


**Fig. S3** Chemical structures of the capping molecules 3-MPA, 2-MPA and TGA used in this work.

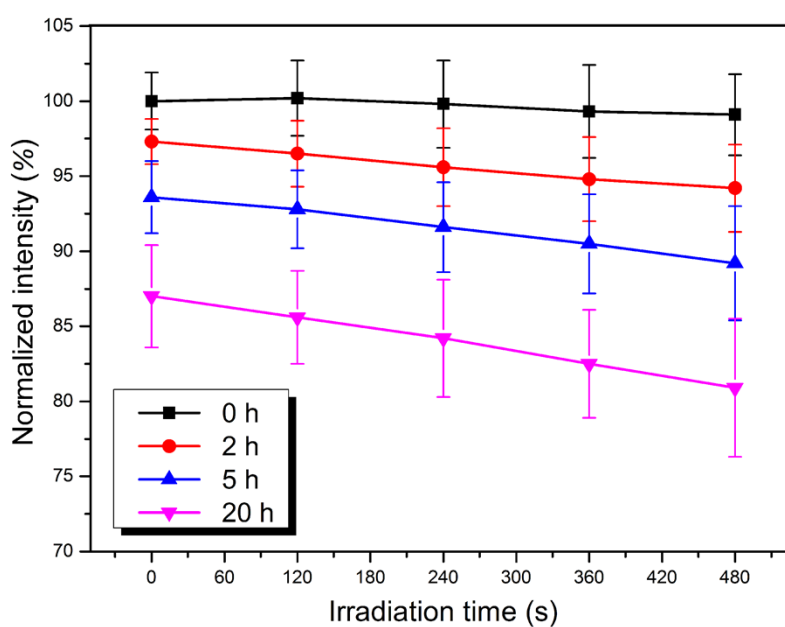


**Fig. S4** Representative (a) TEM and (b) HRTEM images of the ER-like  $\text{Ag}_2\text{Se}$  NAs with 15 min of the reaction time while have not been washed by ethanol afterwards.





**Fig. S5** A photograph of the water dispersed  $\text{Ag}_2\text{Se}$  ER-like NAs with different concentrations. From left to right: 0.1 mg/mL, 0.2 mg/mL, 0.5 mg/mL, 1 mg/mL, 2 mg/mL and 5 mg/mL, respectively. All these dispersions have been placed at room temperature for 2 h upon preparation.



**Fig. S6** The normalized fluorescent intensity *versus* irradiation time of the synthesized  $\text{Ag}_2\text{Se}$  ER-like NAs dispersed in water (10 mg/L) upon preparation (■) and 2 h (●), 5 h (▲), 20 h (▼) after preparation. All the spectra were recorded using a 808 nm laser as the excitation source.