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Electronic Supplementary Information (ESI)

**Facile Ligand Exchange and Silica Coating on Hydrophobic Upconverting β -NaYF₄
Nanoparticles**

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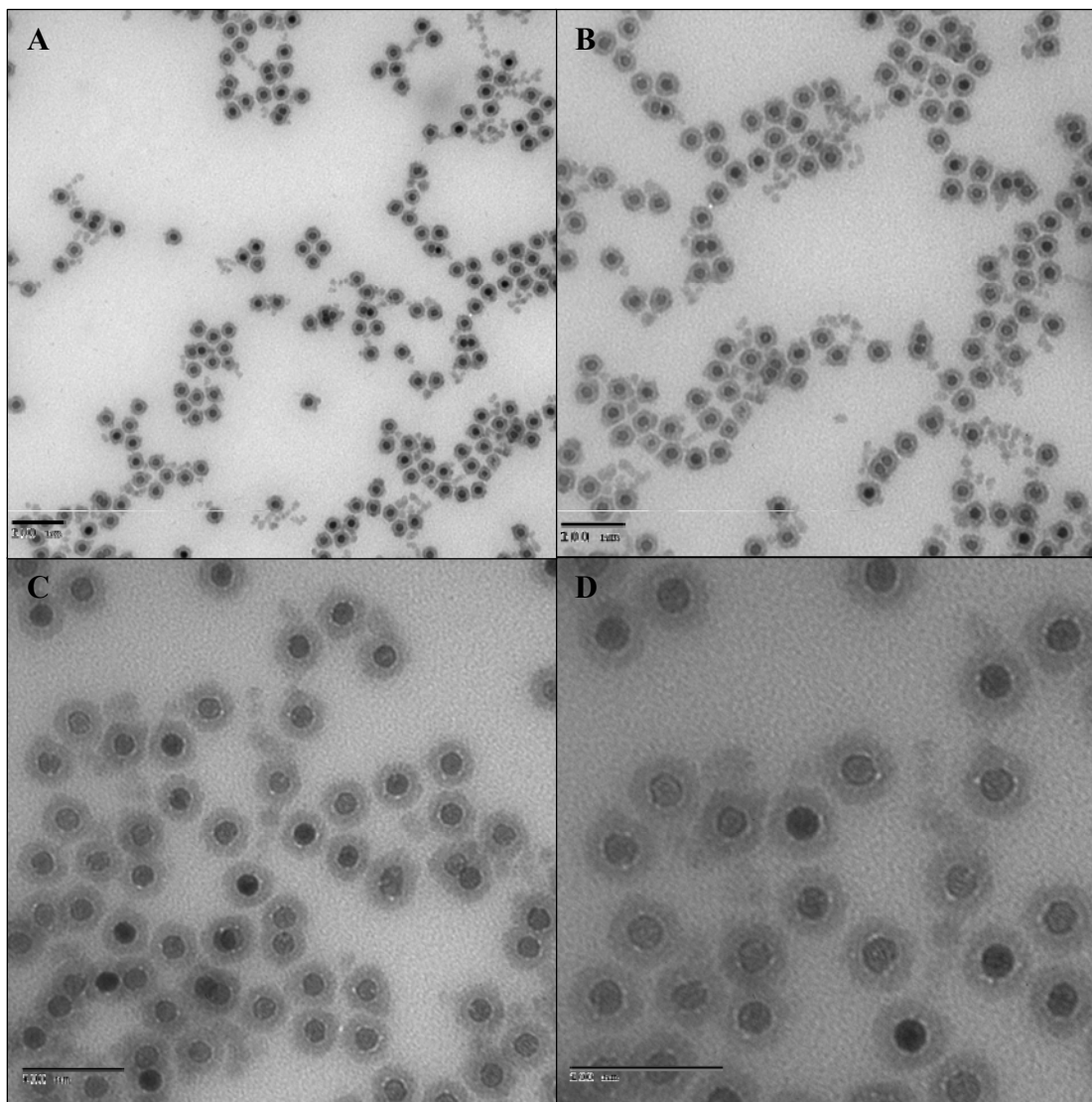


Figure S1. TEM images of PVP-stabilized β -NaYF₄:Yb³⁺/Er³⁺ coated with silica after washing and stored in water for 2 days. Scale bar = 100 nm

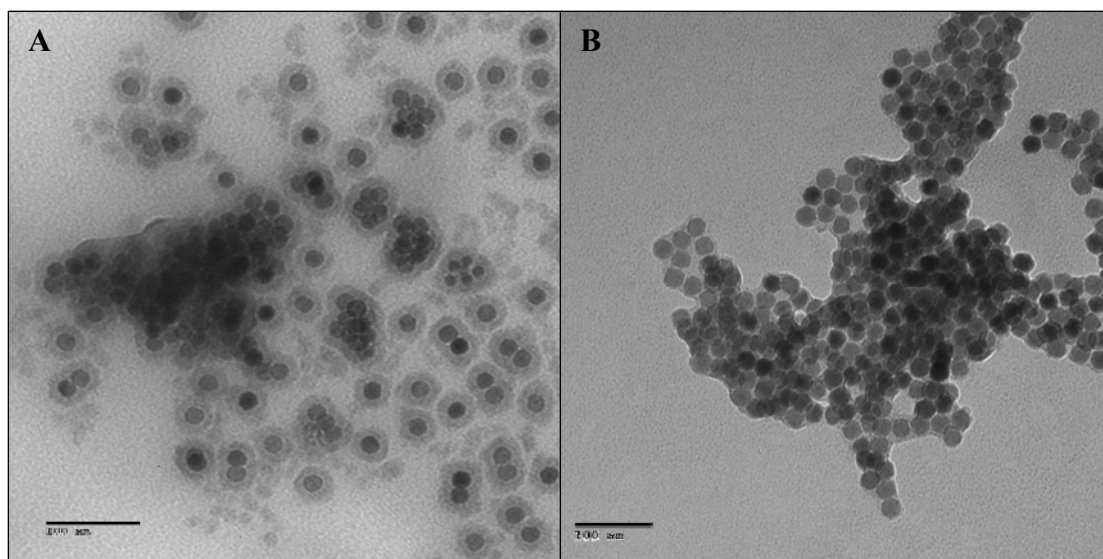


Figure S2. TEM images of PVP-stabilized β -NaYF₄:Yb³⁺/Er³⁺ coated with silica after washing and stored in water for 5 days (A), and more than a week (B). Scale bar = 100 nm

Table 1. Appearance of the silica coated nanoparticles as observed from TEM showing their stability over 7 days in dispersion.

	Silica coated after PVP exchange	Silica coated by Reverse microemulsion
Immediately after coating	<i>individual core-shell</i>	<i>individual core-shell</i>
After vigorous washing and centrifuge cycles (~5 times with ethanol)	<i>individual</i>	<i>necking between the silica shells</i>
2 days after silica coating	<i>individual</i>	<i>aggregated</i>
5 days after silica coating	<i>some aggregation</i>	<i>aggregated</i>

> 7 days after silica coating	<i>aggregated</i>	<i>aggregated</i>
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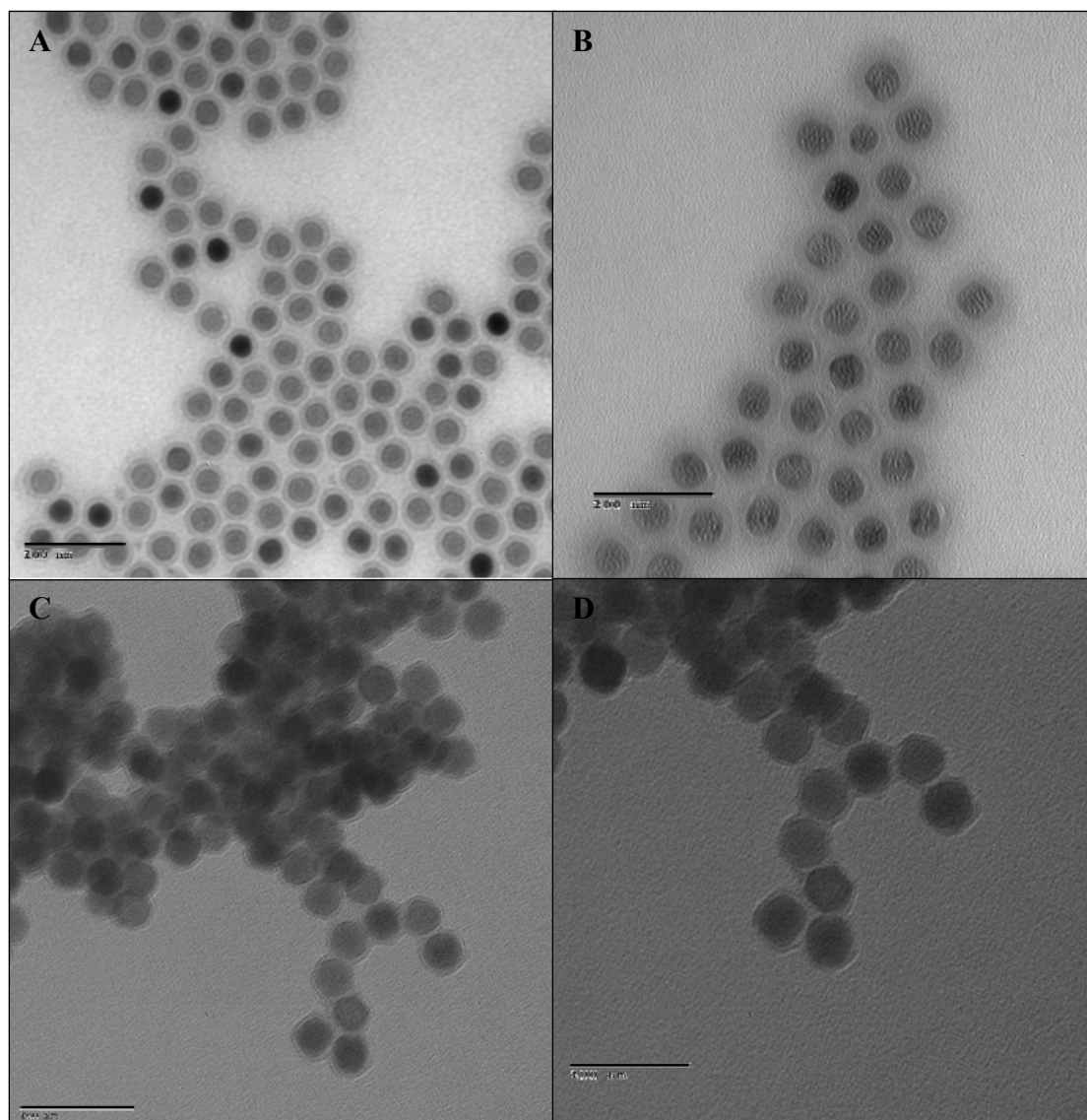


Figure S3. TEM images of β -NaYF₄:Yb³⁺/Er³⁺ coated with silica in reverse emulsion, immediately after coating (A and B), and after washing vigorously and stored for a day (C and D). Scale bar = 100 nm