Supporting Information

Single nanocrystal studies on the homogeneity of the optical properties of $NaYF_4:Yb^{3+}$, Er^{3+}

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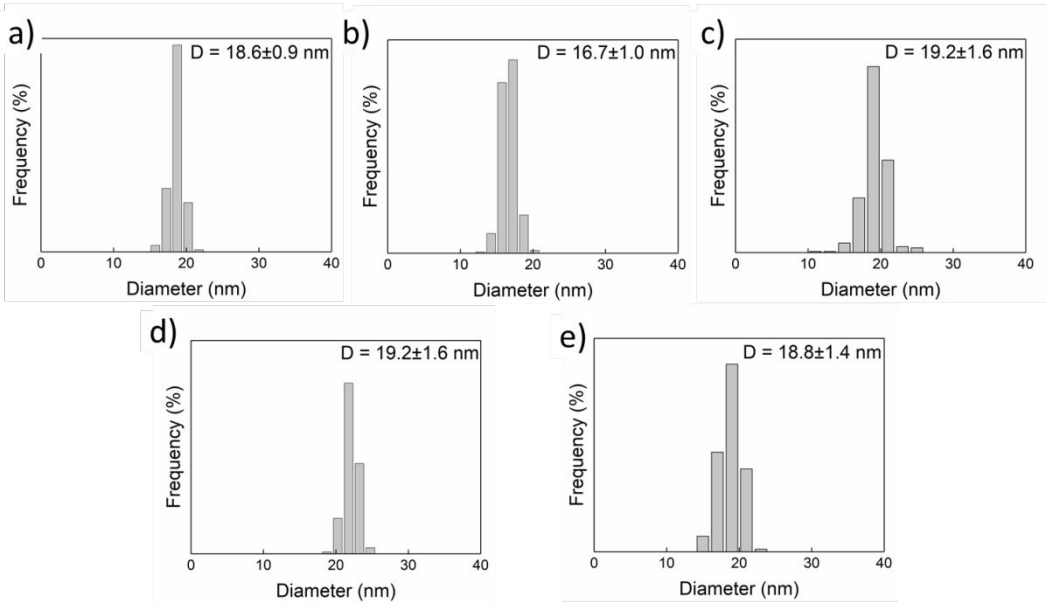

Figure S1. Size distribution histograms of NaYF4:Yb^{3+}, Er^{3+} (2 mol%) nanocrystals with different Yb^{3+} concentrations: (a) 5, (b) 10, (c) 15, (d) 20, and (e) 30 mol%.

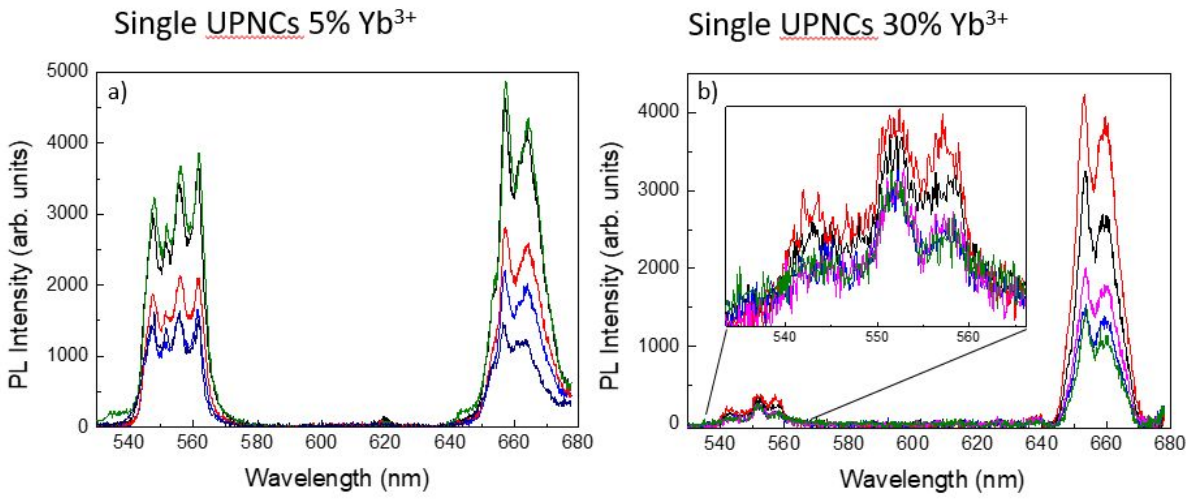

Figure S2. Single UPNCs photoluminescence spectra for 5% (a) and 30% (b) Yb^{3+} concentration.

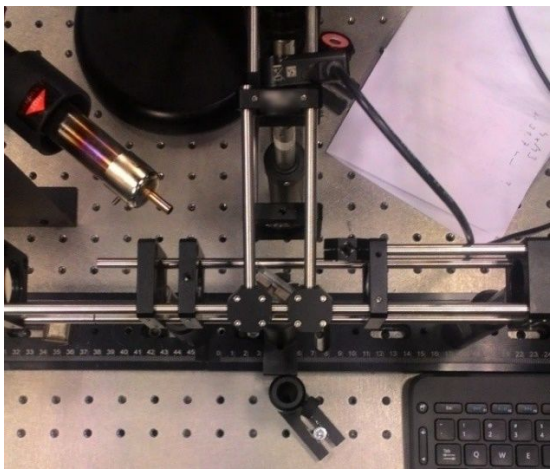

Figure S3. Glass coverslip with UPNCs was heated with a hot air gun. The temperature of the substrate was continuously monitored with a thermographic camera.

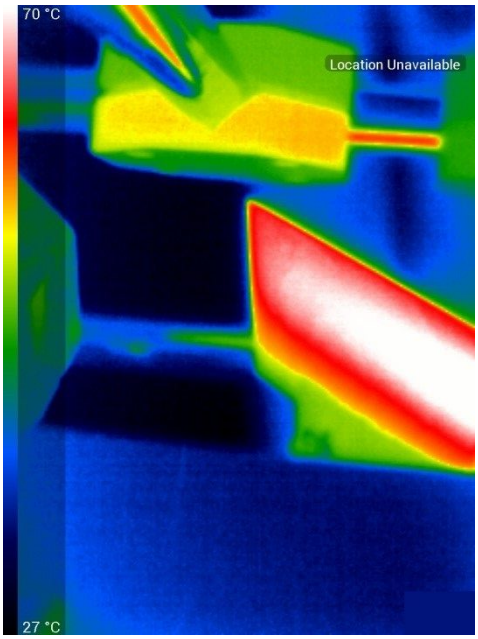

Figure S4. Thermographic image of glass coverslip (red/white rectangle) covered with UPNCs.