

Electronic Supplementary Information

Efficient tailoring the surface of upconversion nanoparticle *via* surface-initiated cationic ring-opening polymerization

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Fig. S1

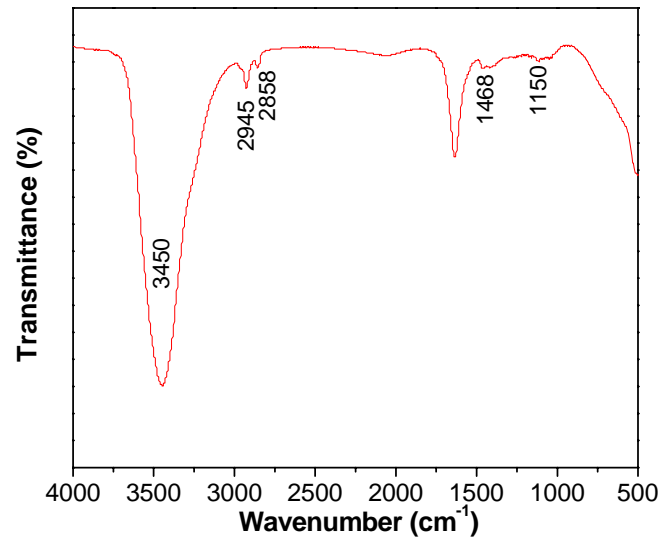


Fig. S1. FTIR spectrum of UCNP-OH.

Fig. S2

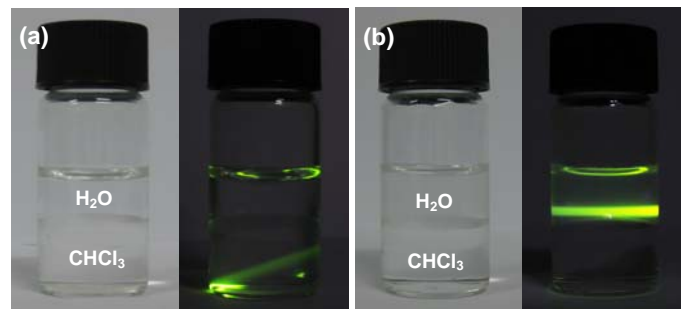


Fig. S2. Photographs of UCNP-g-PCL2 (a) and UCNP-g-HPG (b) in the mixture of water and chloroform under daylight (left) and 980 nm laser illumination (right).

Fig. S3

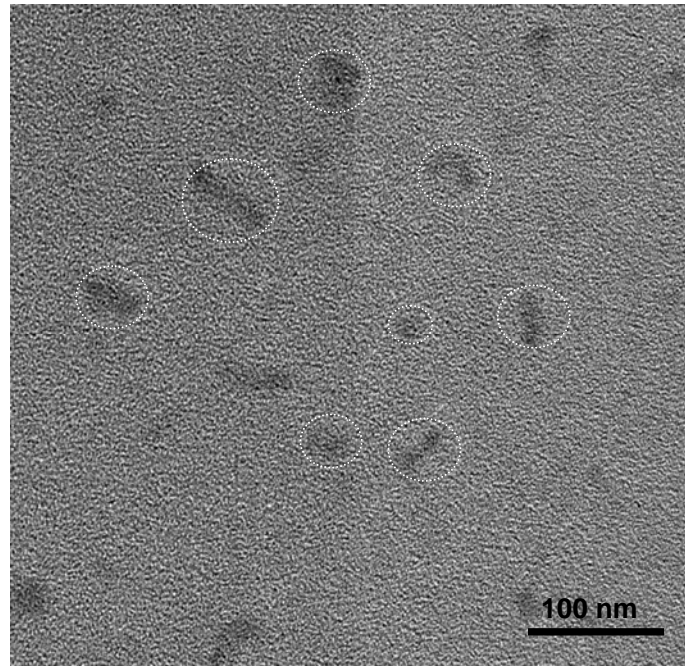


Fig. S3. Representative TEM image of UCNP-*g*-PCL/PMMA film.

Fig. S4

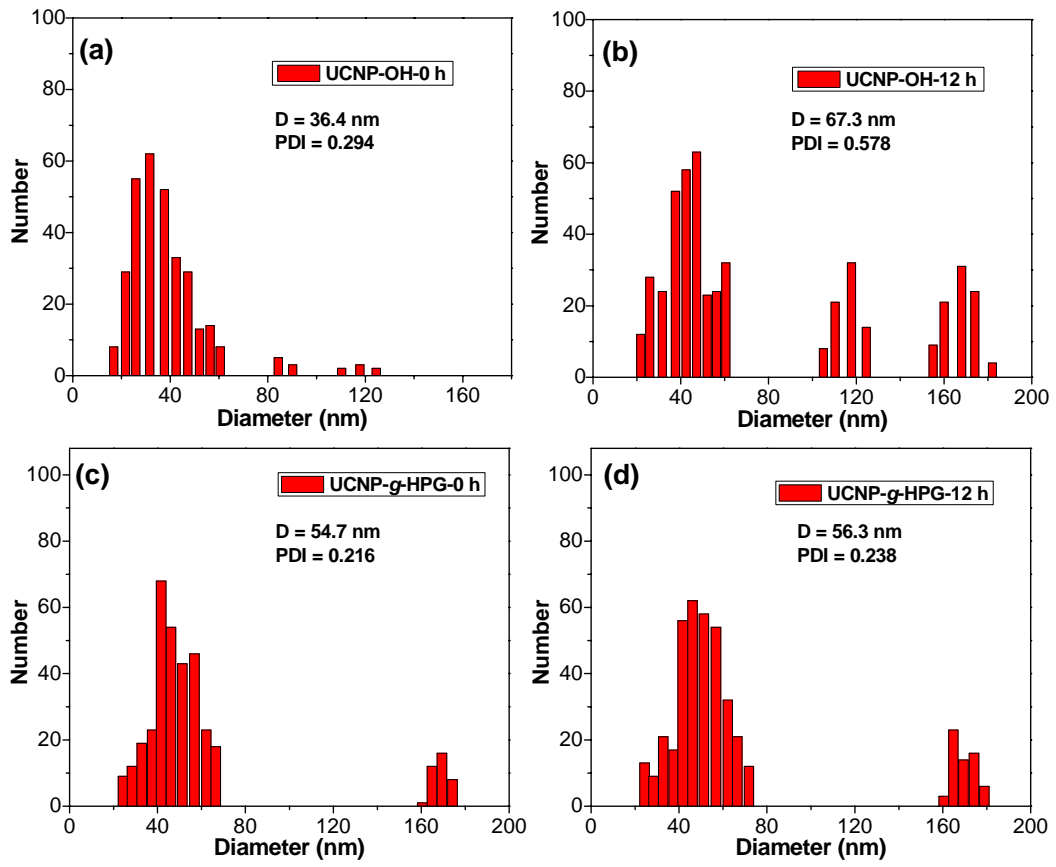


Fig. S4. Hydrodynamic radius distribution of freshly prepared aqueous dispersion of UCNP-OH (a) and UCNP-g-HPG (c) at a concentration of 0.1 mg/mL. Hydrodynamic radius distribution of aqueous dispersion of UCNP-OH (b) and UCNP-g-HPG (d) after 12 h.

Fig. S5

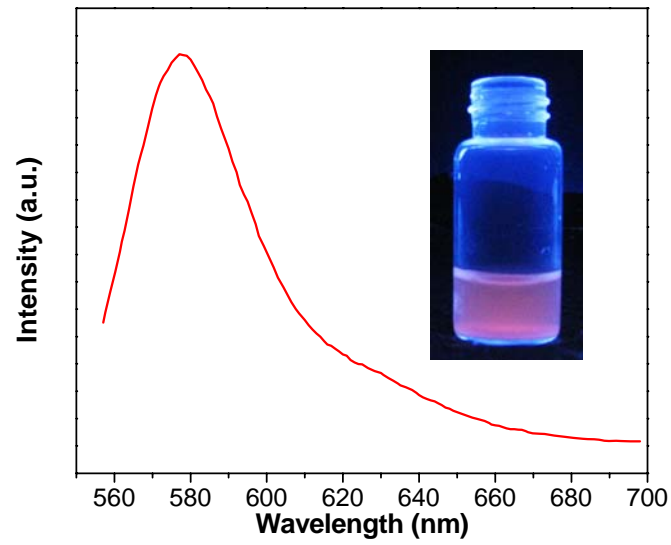


Fig. S5. Emission spectrum of UCNP-*g*-HPG-RB in aqueous solution ($\lambda_{\text{ex}} = 545$ nm). Inset: photograph of UCNP-*g*-HPG-RB (0.5 mg/mL) in water under 365 nm UV-light illumination.

Fig. S6

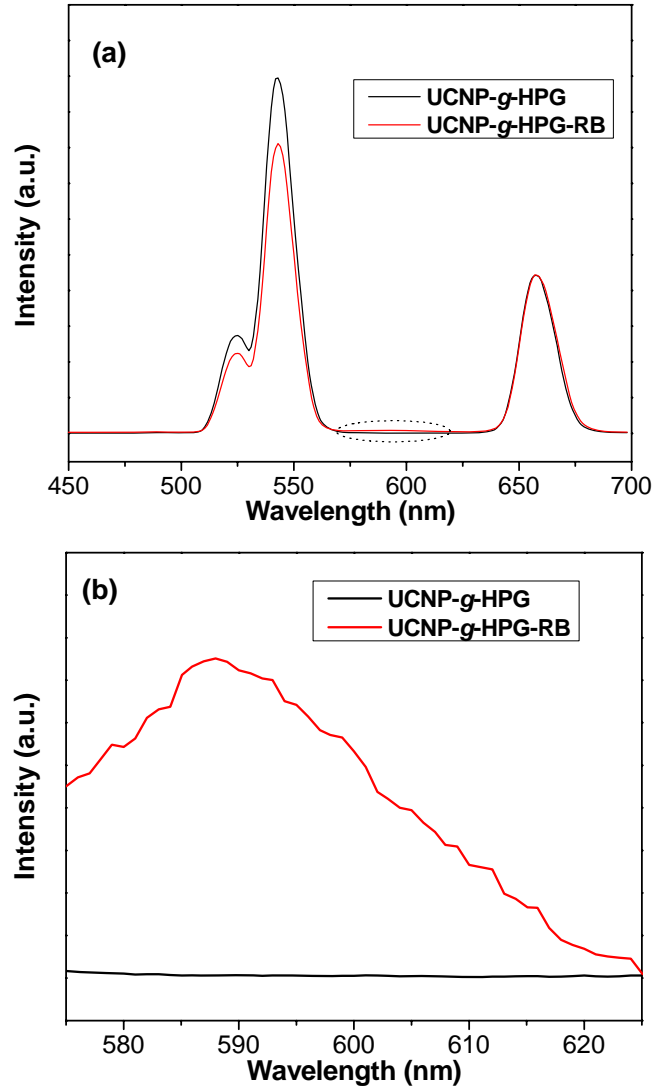


Fig. S6. (a) Normalized upconversion emission spectra ($\lambda_{\text{ex}} = 980$ nm) of UCNP-g-HPG and UCNP-g-HPG-RB. (b) Upconversion emission spectra ($\lambda_{\text{ex}} = 980$ nm) of UCNP-g-HPG and UCNP-g-HPG-RB.