

## Supporting Information

### Switching between upconversion luminescence imaging and therapy *in vitro* enabled by NIR excitation modulation of nanocomposite

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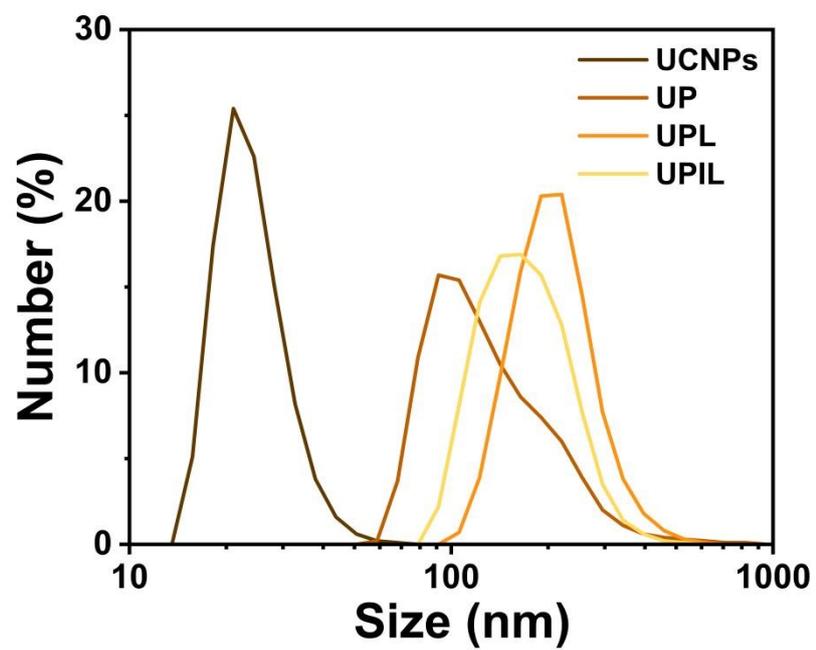
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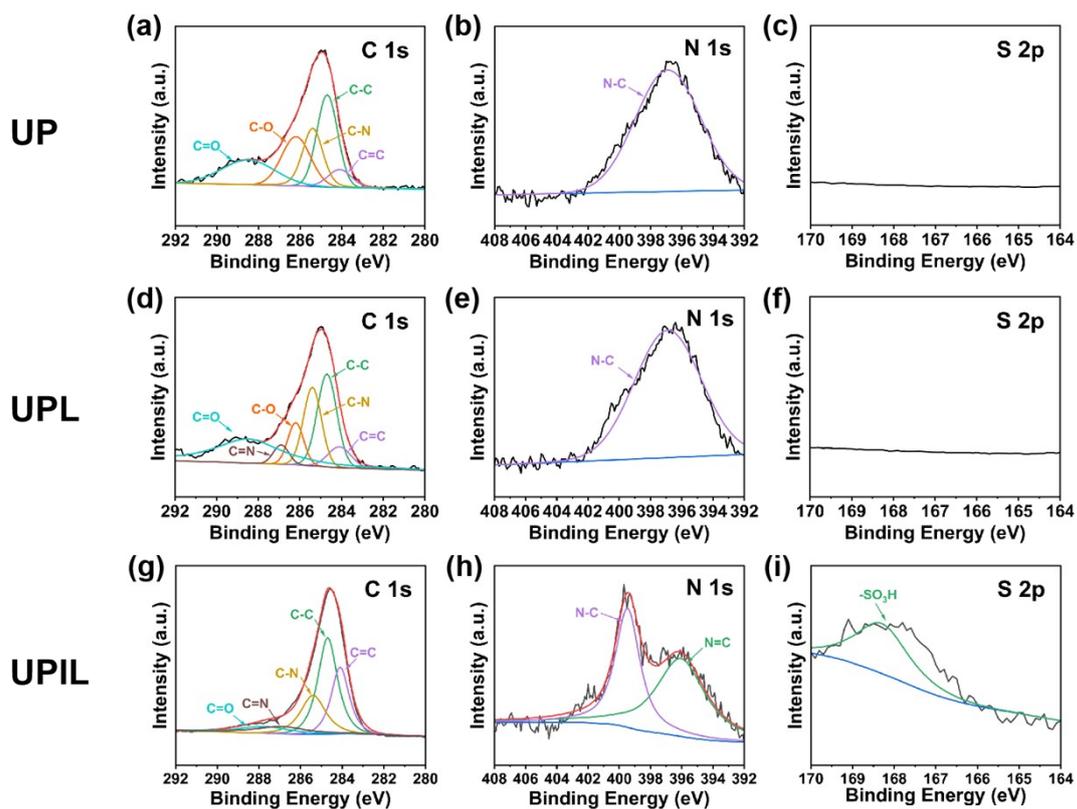
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**Figure S1.** Dynamic light scattering (DLS) of UCNPs, UP, UPL, and UPIL.



**Figure S2.** High-resolution X-ray photoelectron spectroscopy (XPS) spectra of C 1s (a, d, g), N 1s (b, e, h), and S 2p (c, f, i) as measured on UP (a - c), UPL (d - f), and UPIL (g - i), respectively.

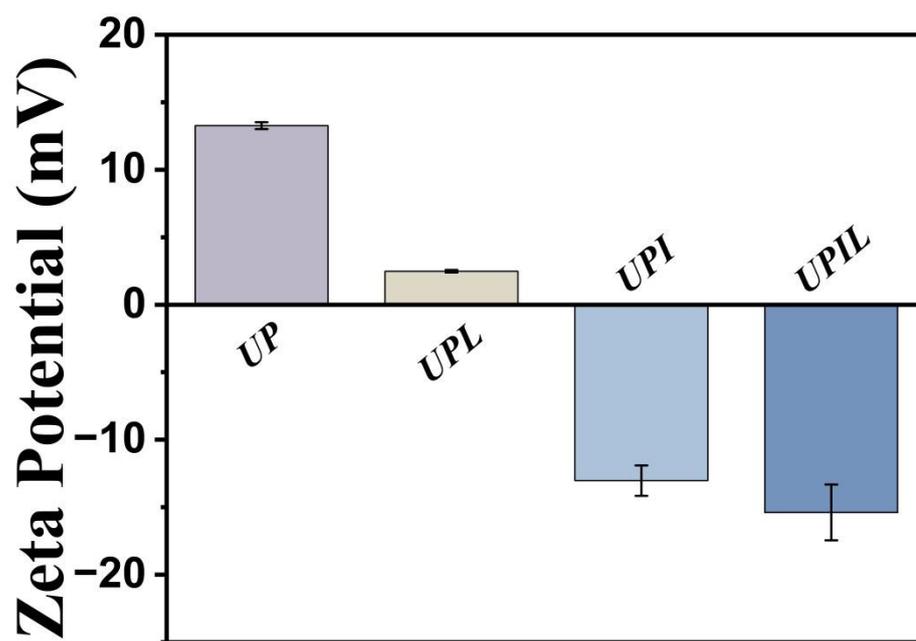


Figure S3. Zeta potentials of UP, UPL, UPI, and UPIL nanocomposite.

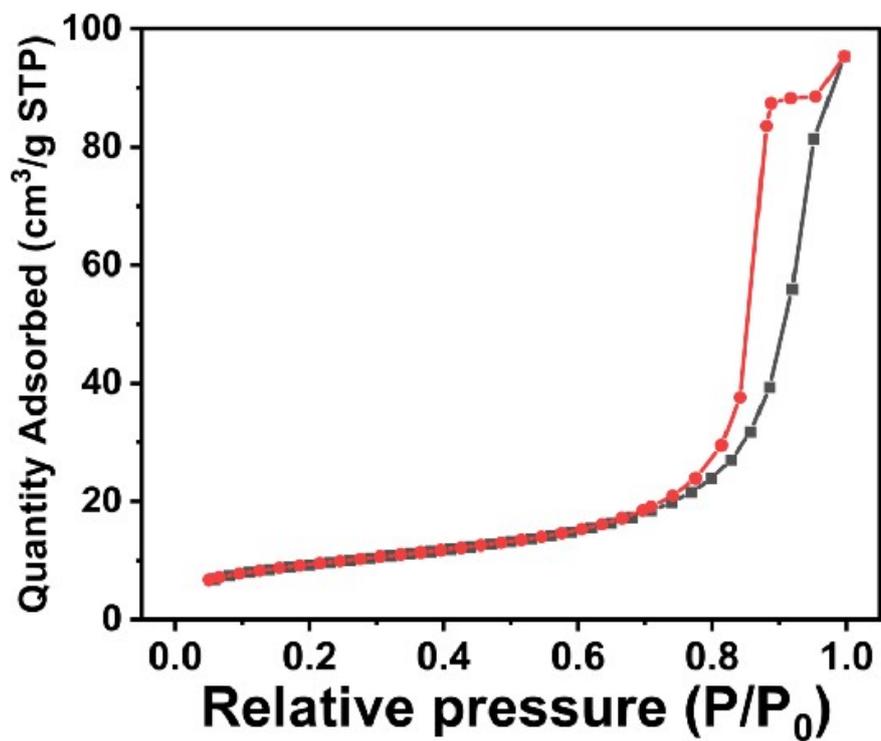
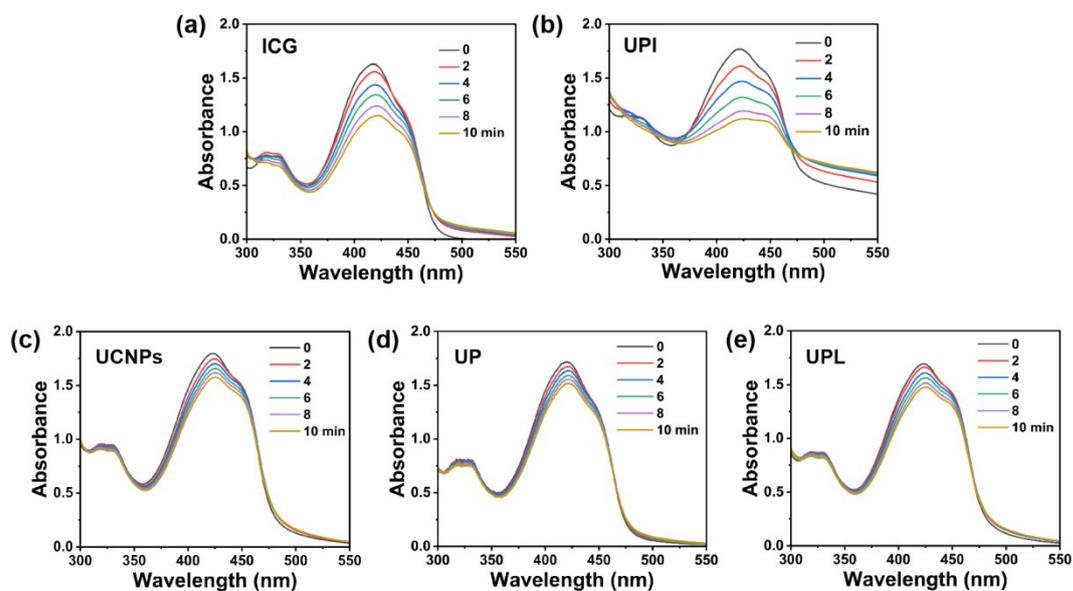
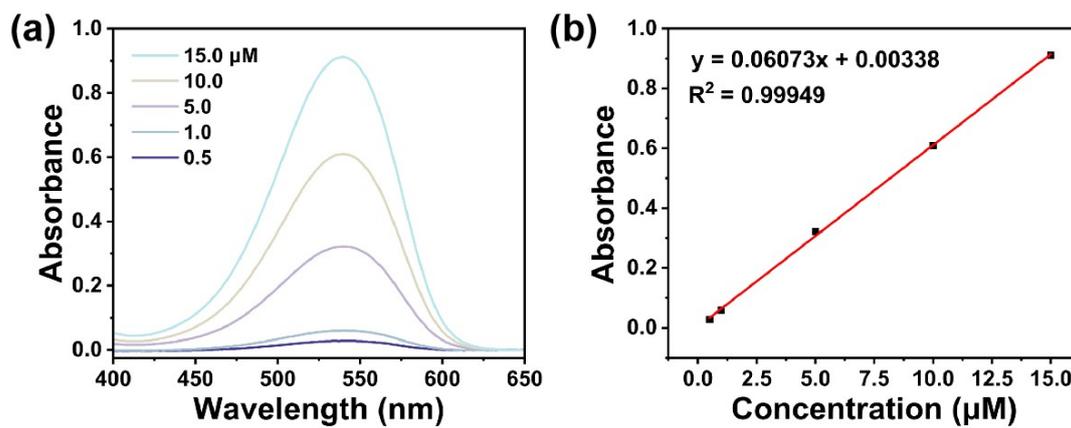


Figure S4. Nitrogen adsorption-desorption curve of UP.



**Figure S5.** Time-dependent absorbance spectra of ICG (a), UPI (b), UCNPs (c), UP (d), and UPL (e) co-incubated with DPBF, respectively, then irradiated by 808 nm laser ( $0.7 \text{ W/cm}^2$ , for 0, 2, 4, 6, 8, and 10 minutes, respectively).



**Figure S6.** (a) The absorption spectra of Griess agent for different concentrations of NaNO<sub>2</sub> from 0.5 to 15 μM. (b) The responding absorbance of Griess agent to NO at 540 nm in Fig. S6 (a).