Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

800 nm driven $NaErF_4$@$NaLuF_4$ upconversion system for multimodality imaging and photodynamic therapy

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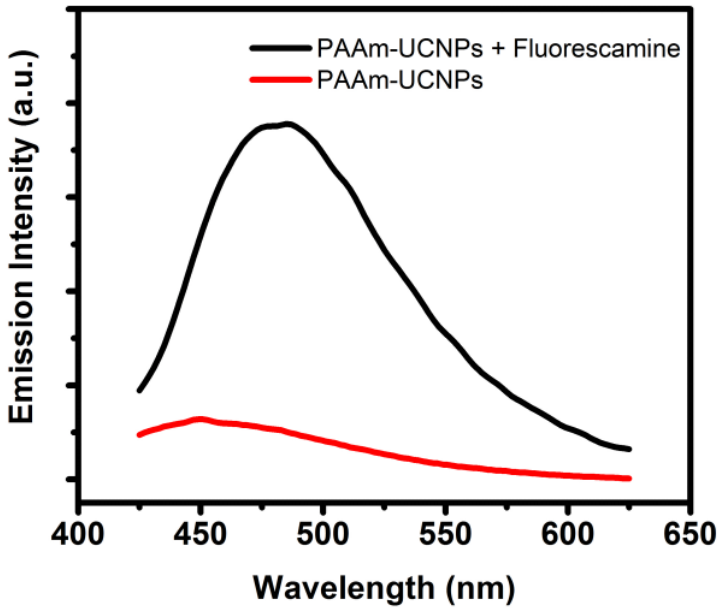

Fig.S1 The spectra of PAAm-UCNPs aqueous solution with (black line) and without (red line) fluorescamine under 360 nm excitation.

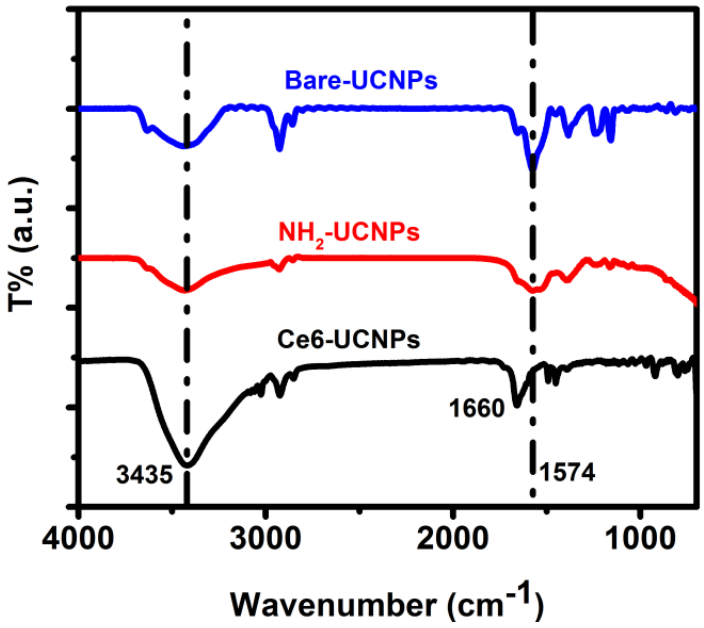

Fig.S2 FT-IR spectra of ligand-free UCNPs (blue line), NH_2-UCNPs (red line) and Ce6-UCNPs (black line). The broad peak at 3435 cm^{-1} was attributed to the -OH vibration of the absorbed water. The peak at 1660 cm^{-1} was attributed to C=O stretching vibration and N-H bending vibration modes of secondary amide. The peak at 1574 cm^{-1} is attributed to carboxylate anions and methylene group.

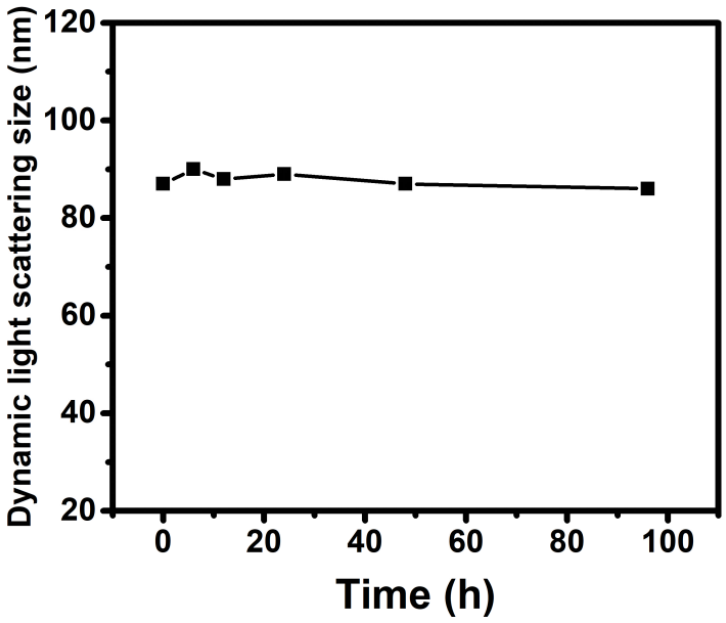

Fig.S3 Time dependence of hydrodynamic diameter of UCNPs-Ce6/PEG in PBS.

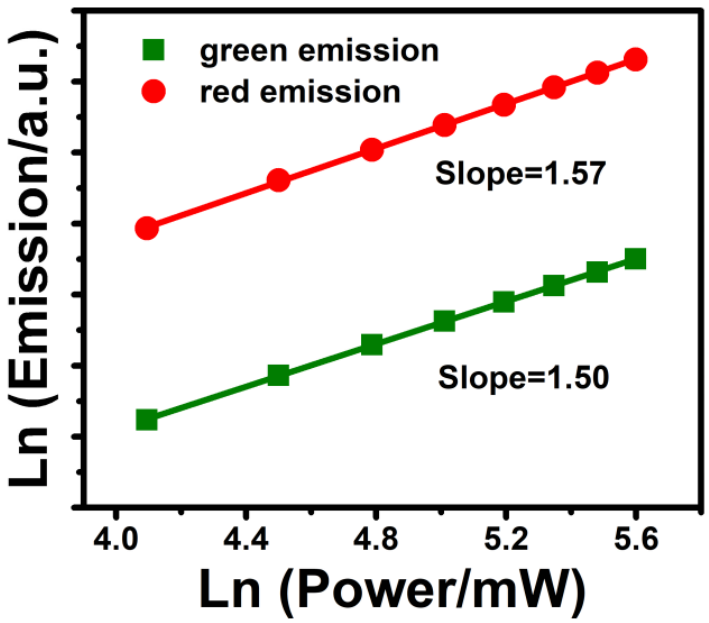

Fig. S4 The dependence on pumping power of the emission intensities of OA-UCNPs in cyclohexane.

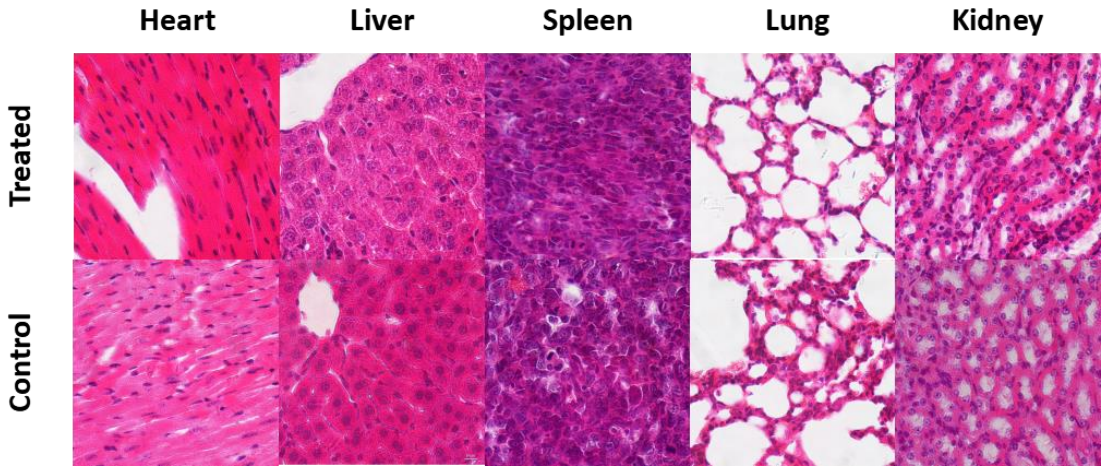

Fig.S5 H&E stained images of heart, liver, spleen, lung, kidney collected from different groups of mice: a) treated group was injected in veil with UCNPs-Ce6/PEG; b) control group was only injected with PBS.

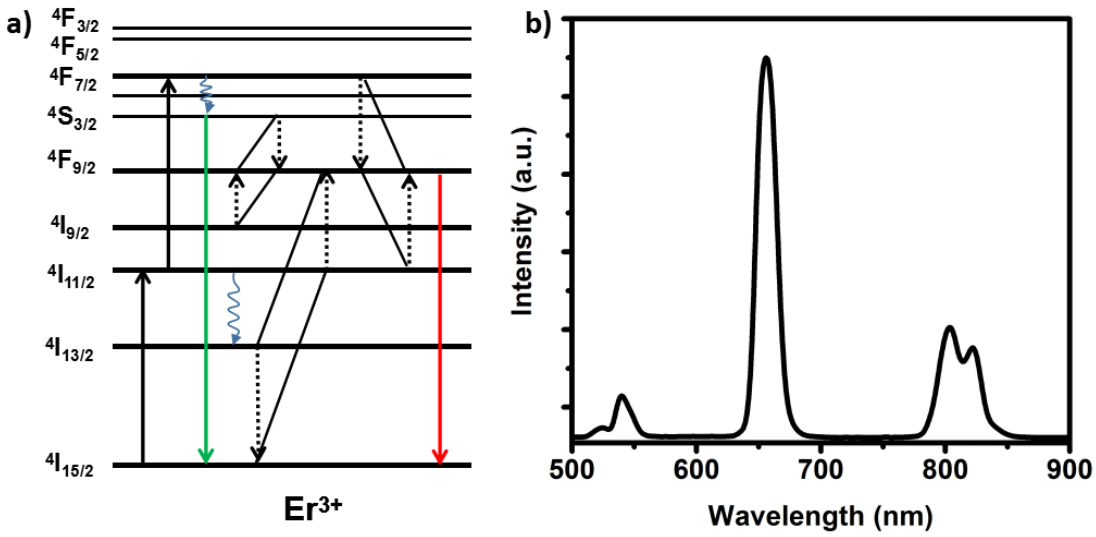

Fig.S6 a) The schematic diagram and b) The upconversion spectra of ligand-free UCNPs under 980 nm excitation.

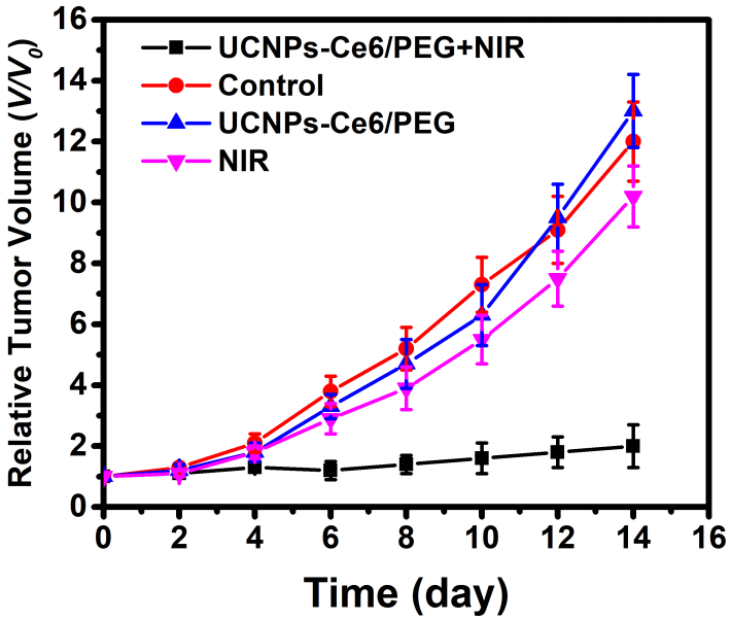

Fig.S7 The relative volume of tumors in different groups via intravenous injection: a) NPs combined with 800 nm laser irradiation (treated group, black line), b) PBS only (control group, red line), c) NPs, blue line d) 800 nm laser only, pink line.

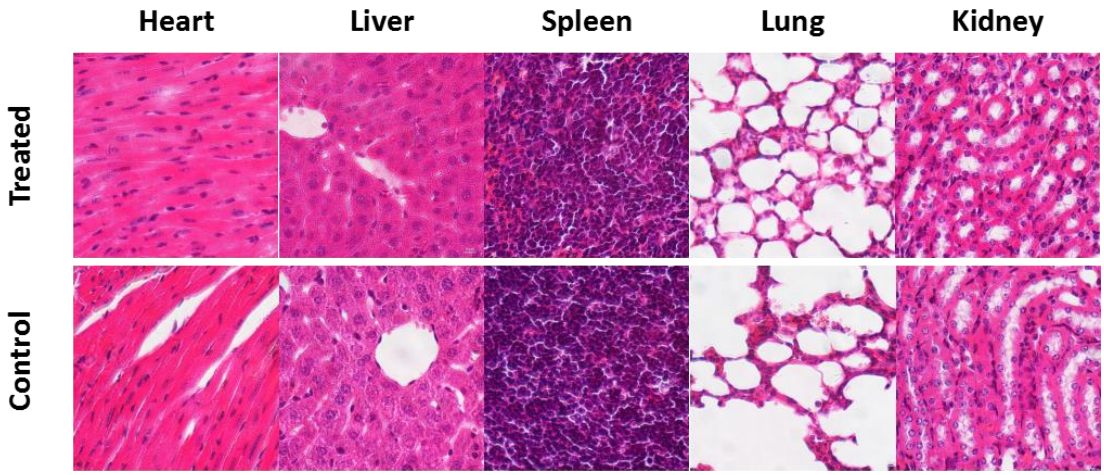

Fig.S8 H&E stained images of heart, liver, spleen, lung, kidney collected from different groups of mice with tumor: a) The treated group was injected intravenously with UCNPs-Ce6/PEG and irradiated with 800 nm laser; b) The control group was only intravenously injected with PBS.