

Supporting Information

Dual-modal imaging and photodynamic therapy using upconversion nanoparticles for tumor cells

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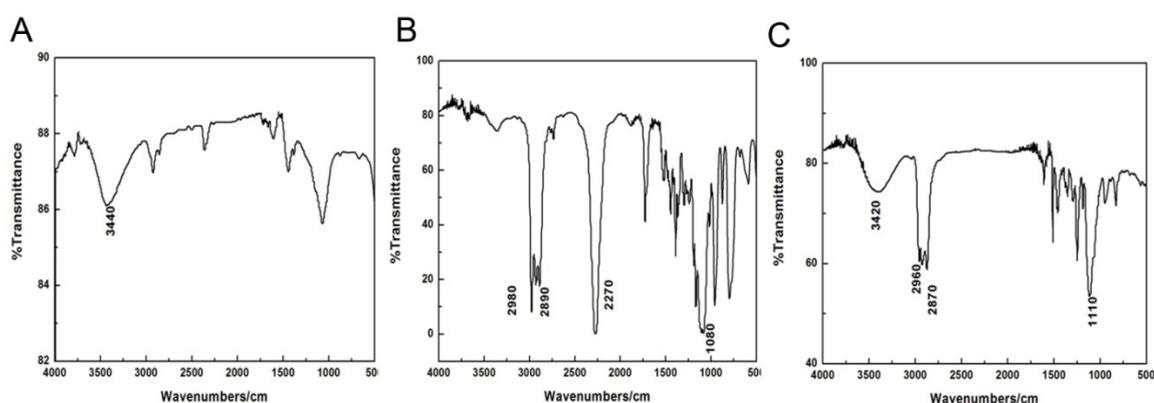


Fig S1. FTIR spectra of (A) hypocrellin A (B)TESPIC and (C)hypocrellin A molecule precursor

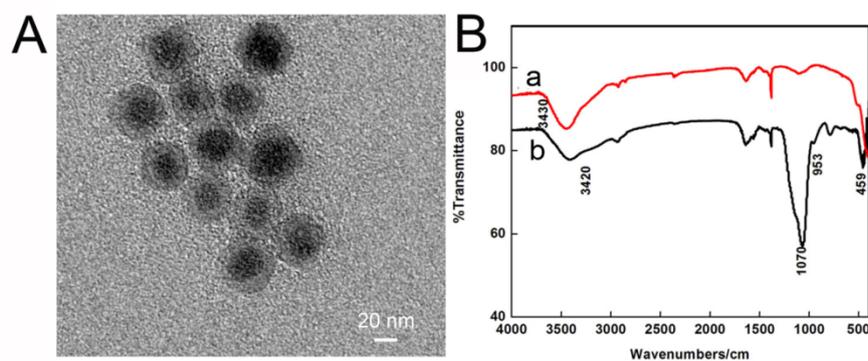


Fig S2. (A)TEM image of UCNPs@SiO₂@hypocrellin A nanoparticles.(B)FTIR spectra of a) UCNPs and b) UCNP@SiO₂@hypocrellin A nanoparticles.

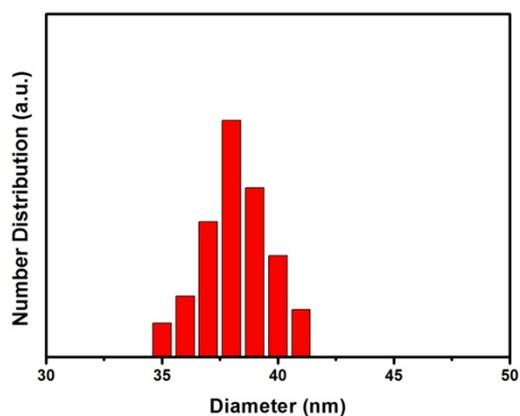


Fig S3. Hydrodynamic diameter distribution of UCNPs@SiO₂@hypocrellin A

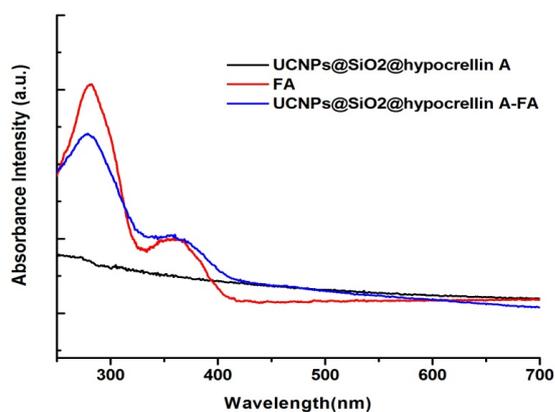


Fig S4. UV/Vis absorption spectra of UCNPs@SiO₂@hypocrellin A, FA, UCNPs@SiO₂@hypocrellin A-FA

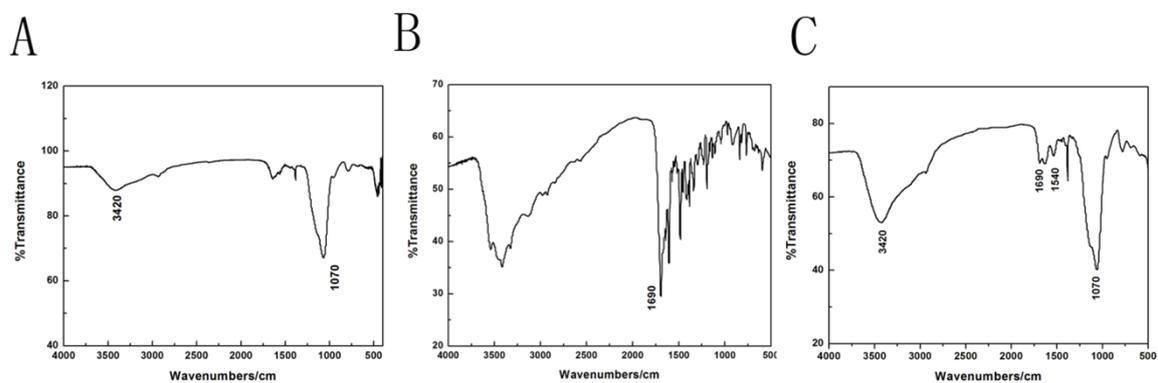


Fig S5. FTIR spectra of (A) UCNPs@SiO₂@hypocrellin A, (B) FA, and (C) UCNPs@SiO₂@hypocrellin A-FA

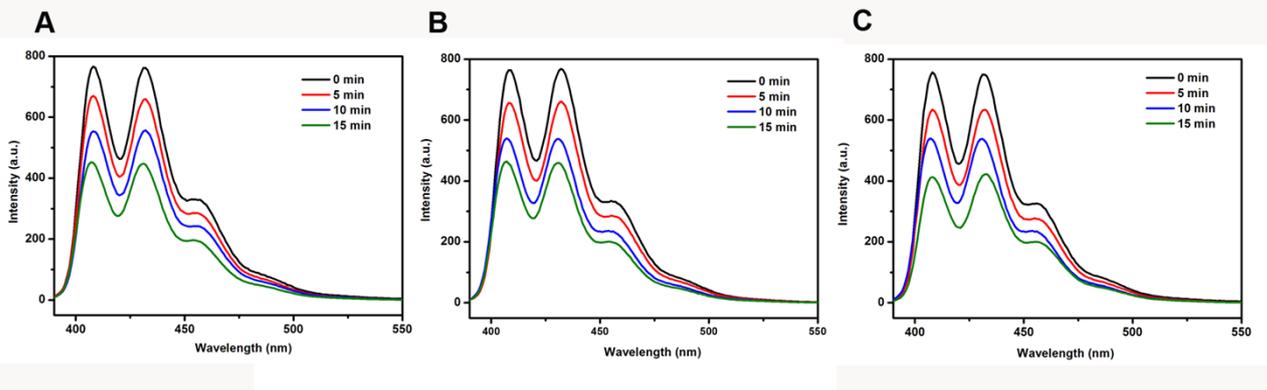


Fig S6. Fluorescence spectra of ABDA with UCNPs@SiO₂@hypocrellin A-FA nanoparticles exposed to 980 nm NIR laser for 0, 5, 10, 15 min at different pH value: (A) pH 5;(B) pH 6.8; (C) pH 7.4.

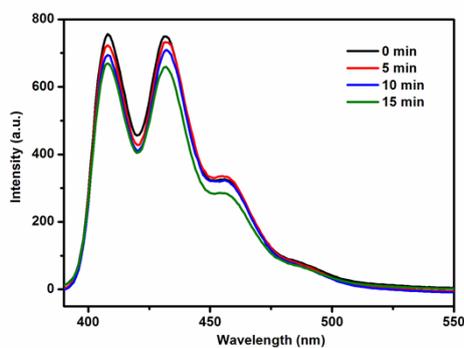


Fig S7. Fluorescence spectra of ABDA with UCNPs@SiO₂(hypocrellin A)-FA nanoparticles exposed to 980 nm NIR laser for 0, 5, 10, 15 min.

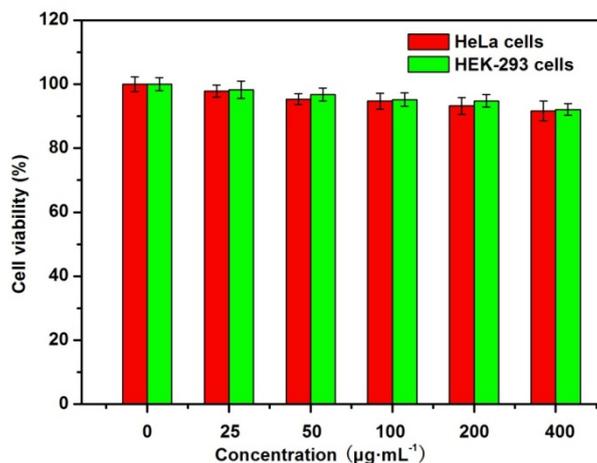


Fig S8. Viability of HeLa cells and HEK-293 cells treated with UCNPs@SiO₂@hypocrellin A-FA at different concentrations.

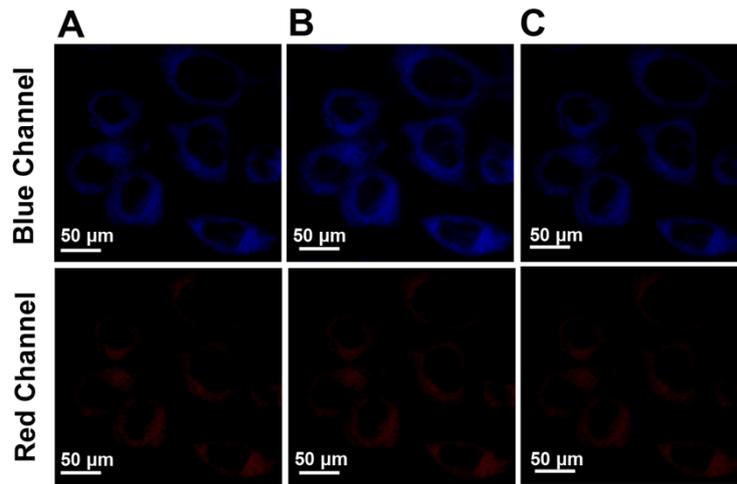


Fig S9. Serial layer scanning of HeLa cells incubated with UCNPs@SiO₂@hypocrellin A-FA (A)

Layer 1; (B) Layer 2; (C) Layer 3. The distance between different layers is 1 μm.

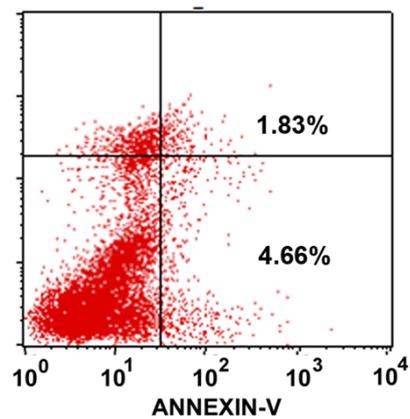


Fig S10. Flow cytometry of apoptosis of HeLa cells stained with Annexin V-FITC/PI induced by UCNPs@SiO₂(hypocrellin A)-FA.