

Supporting Information

A new near infrared photosensitizing nanoplatform containing
blue-emitting up-conversion nanoparticles and hypocrellin A for
photodynamic therapy of cancer cell

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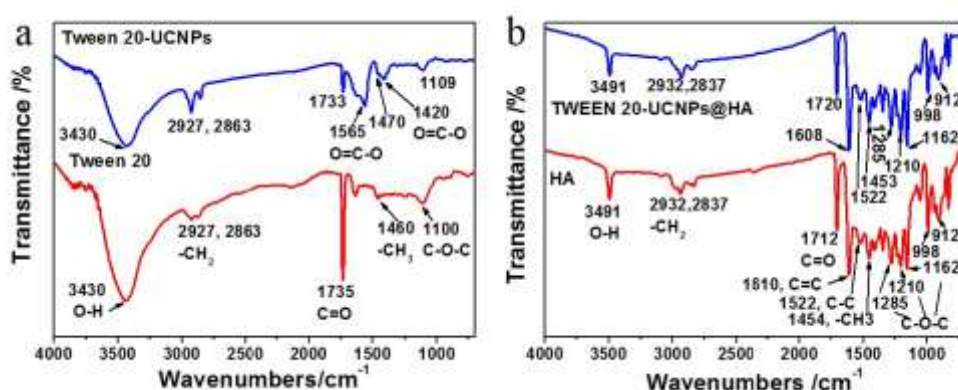


Fig. S1 FT-IR spectra of (a) Tween 20-UCNPs and Tween 20; (b) Tween 20-UCNPs@HA and HA. In these four samples, it is clear to find that the strong and broad band around 3430/3491 cm⁻¹, corresponding to the O-H stretching vibrations, and the bands centered at 2927/2932 cm⁻¹ and 2863/2837 cm⁻¹, associated with the asymmetric (ν_{as}) and symmetric (ν_s) stretching vibrations of methylene (-CH₂), respectively. Stretching vibrations generated by O-C=O carboxylic group at 1565 cm⁻¹ and 1420 cm⁻¹ demonstrated the bound oleic acid while disappeared in Tween 20-UCNPs@HA due to strong signal of HA. Moreover, characteristic bands of C=O ester group and C-O-C group belong to Tween 20 are observed in (a) at 1735 cm⁻¹ and 1100 cm⁻¹, respectively, which are also found in Tween 20-UCNPs but greatly reduced (1733 cm⁻¹ and 1109 cm⁻¹). The C=O bands (1712 cm⁻¹ and 1710 cm⁻¹) also could be observed in (b) with three bands (1285 cm⁻¹, 1210 cm⁻¹ and 1162 cm⁻¹) belong to stretching vibrations of C-O-C groups. Band at 1460/1470/1454/1453 cm⁻¹ in all spectra attributed to ν_{as} of -CH₃ groups. The three bands (998 cm⁻¹, 912 cm⁻¹ and 814 cm⁻¹) observed in (b) are assigned to the deformation vibration of ring hydrogens.¹⁻⁶

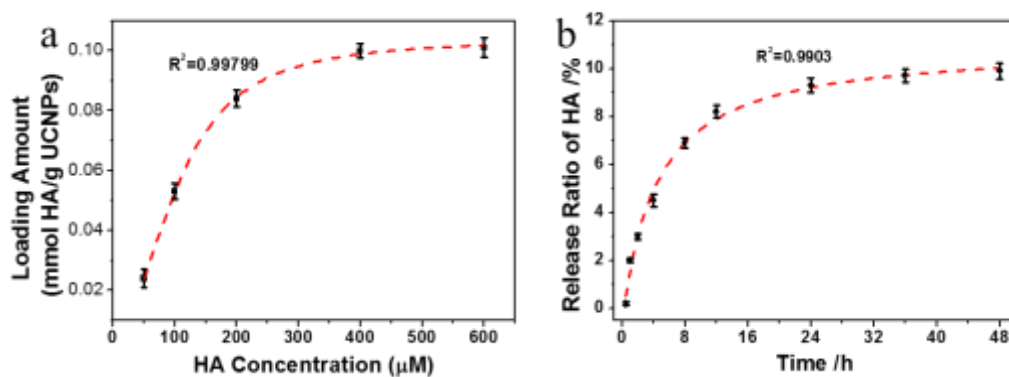


Fig. S2 (a) HA Loading amount of UCNPs *versus* increased concentrations of HA. (b) Cumulative HA released from Tween 20-UCNPs@HA in PBS (pH=7.4) under continuous stirring for different time at 37 °C. All these studies were repeated for three times.

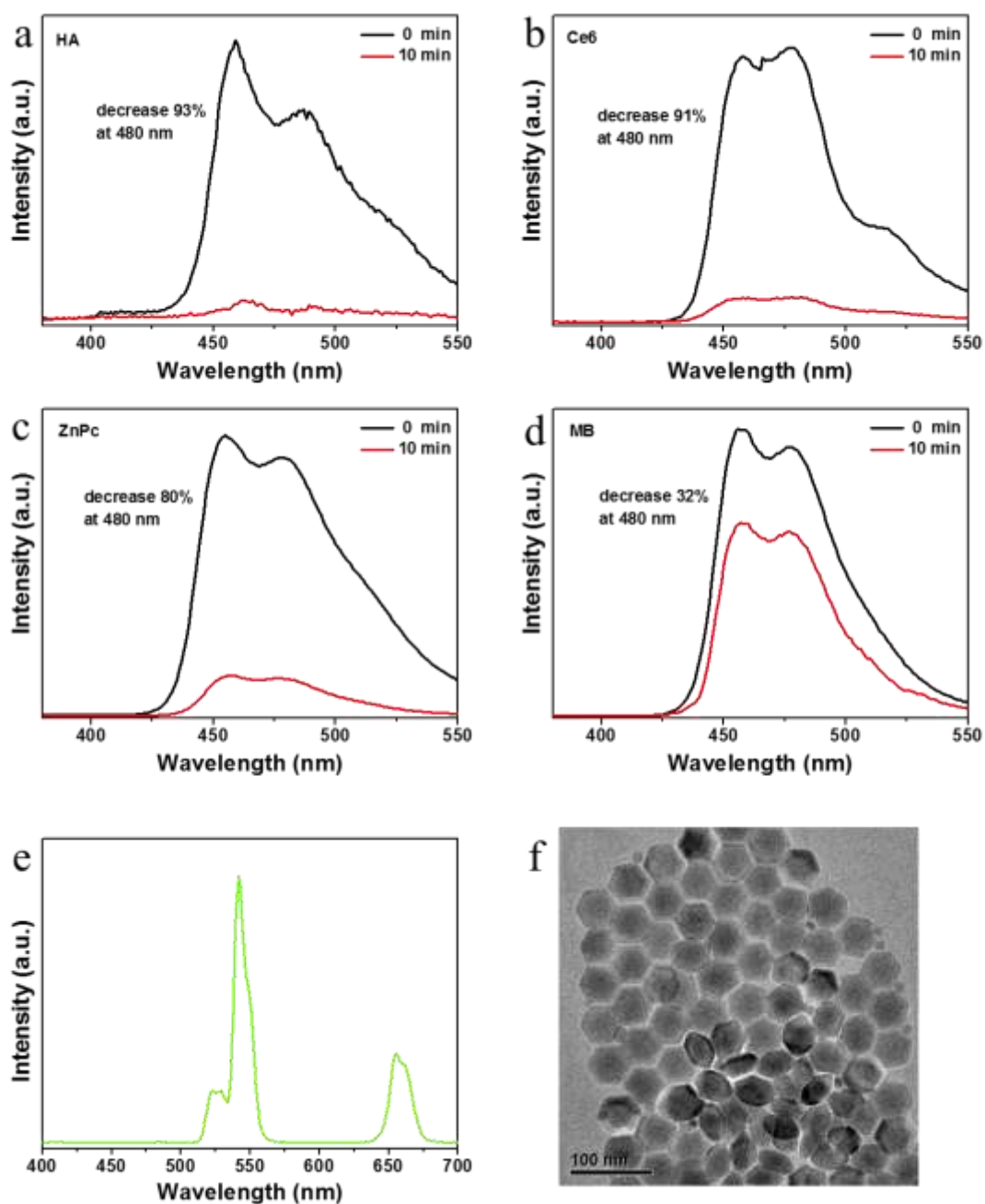


Fig. S3 Luminescent intensity changes of DPBF in acetonitrile (15 μL , 5 mM) dealt with 4 mL dispersion of Tween 20-UCNPs@PSs (2.5 mg/mL; a: HA; b: Ce6; c: ZnPc; d: MB) after 980 nm laser irradiation (0.8 W/cm^2) for 10 min. (e) Up-conversion luminescence spectrum and (f) TEM image of NaYbF₄:Er UCNP used in b-d.

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