

Supporting Information

Nd³⁺ sensitized upconversion nanosystem with dual photosensitizers for improving photodynamic therapy efficacy

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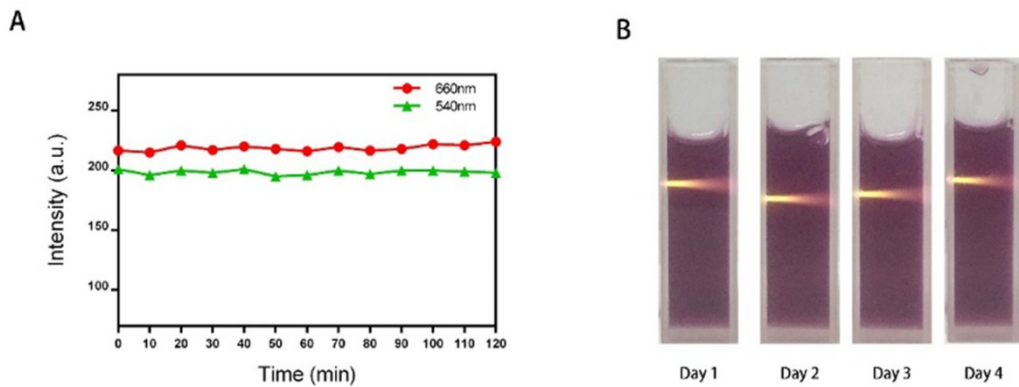


Figure S1 (A) Photostability of FPU under 808 nm light irradiation over 120 min. (B) Appearance of FPUMZ under 808 nm light irradiation after stored at 4 °C.

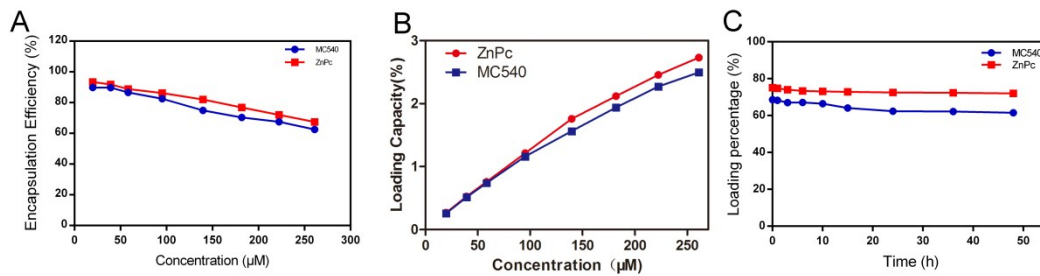


Figure S2 Encapsulation efficiency (A) and loading capacity (B) of MC540 and ZnPc in FPU. (C) the MC540 and ZnPc release capacity from FPUMZ in PBS containing 10% FBS.

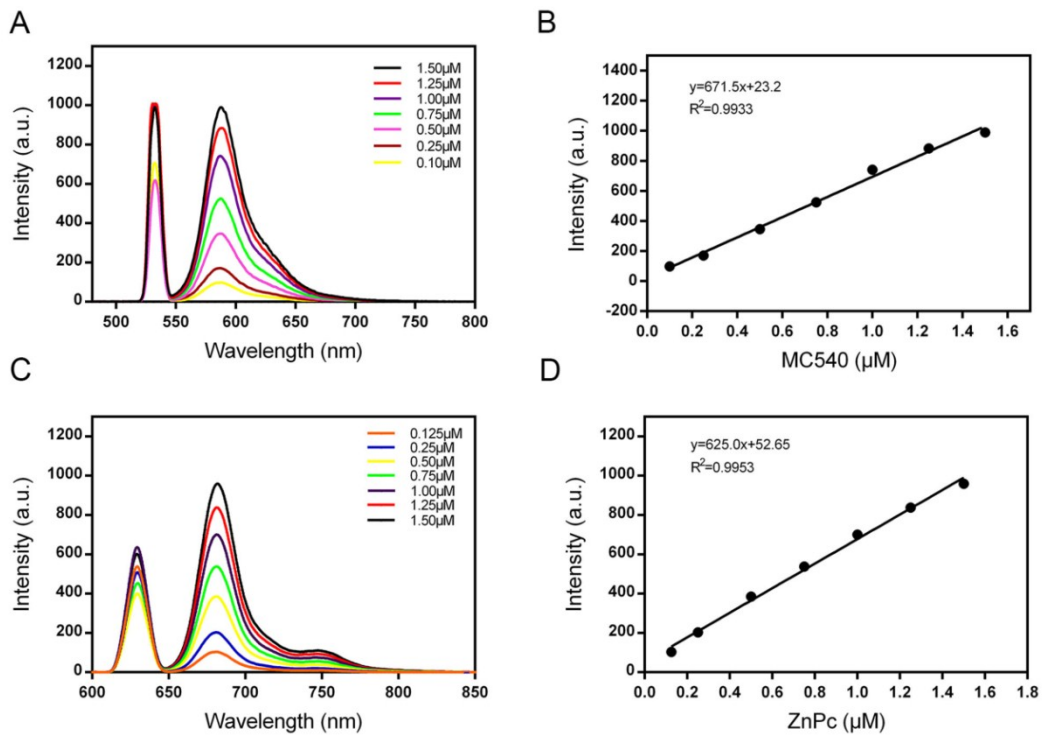


Figure S3 Quantification of MC540 and ZnPc encapsulated in the nanoconstructs. (A) Fluorescence spectrum of MC540 at different concentration. (B) Calibration curve of MC540 in DMSO. (C) Fluorescence spectrum of ZnPc at different concentration. (D) Calibration curve of ZnPc in DMSO.

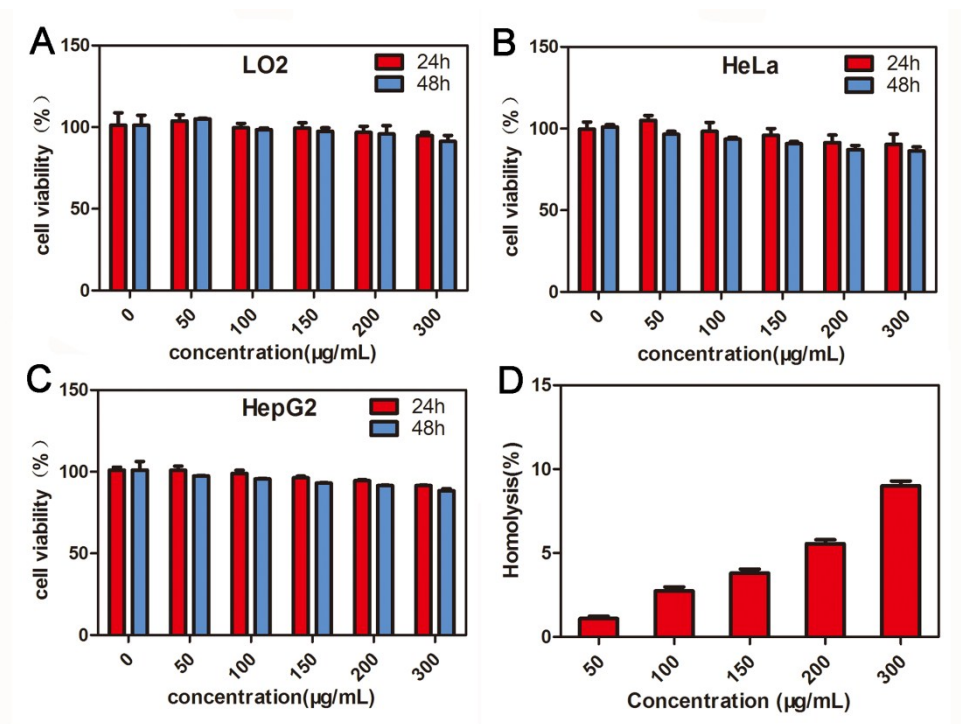


Figure S4 Biosafety assays of FPUMZ. Cell viability LO2 (A), HeLa (B), and HepG2 cells (C) with incubating FPUMZ (50 µg/mL, 100 µg/mL, 150 µg/mL, 200 µg/mL and 300 µg/mL). (D) hemolytic activity of FPUMZ with different concentrations

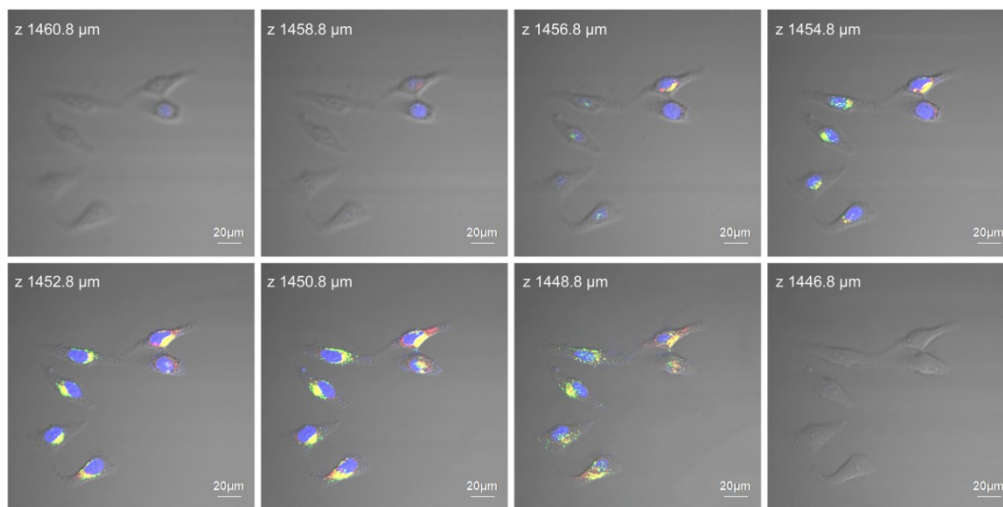


Figure S5 Series images of FPUMZ incubated HeLa cells at the continuative z-axis.

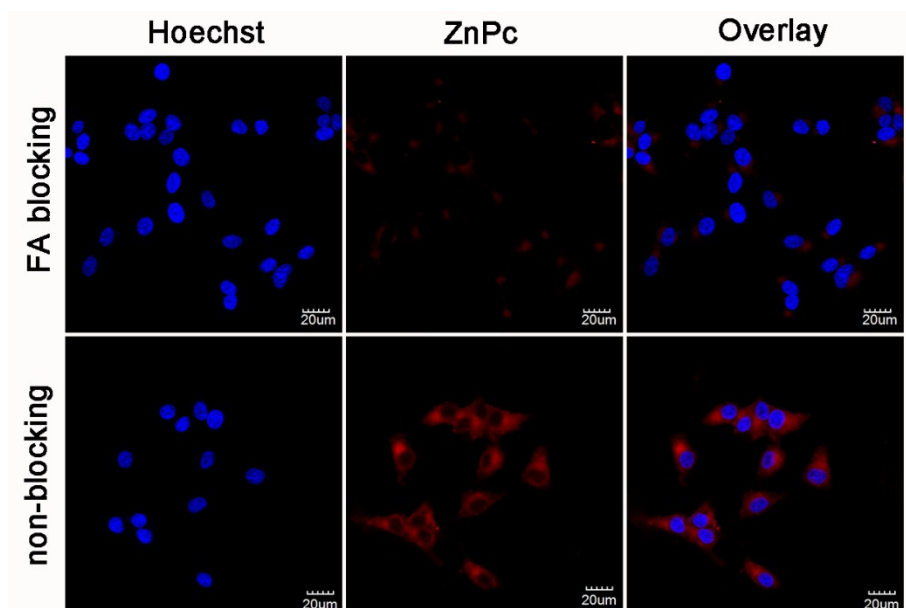


Figure S6 FA receptor blocking experiment. 1 mM FA pretreated HeLa cells incubated with 20 μ L FPUMZ (60 mg/L, containing MC540 (50 μ M) and ZnPc (50 μ M)) for 8 h.

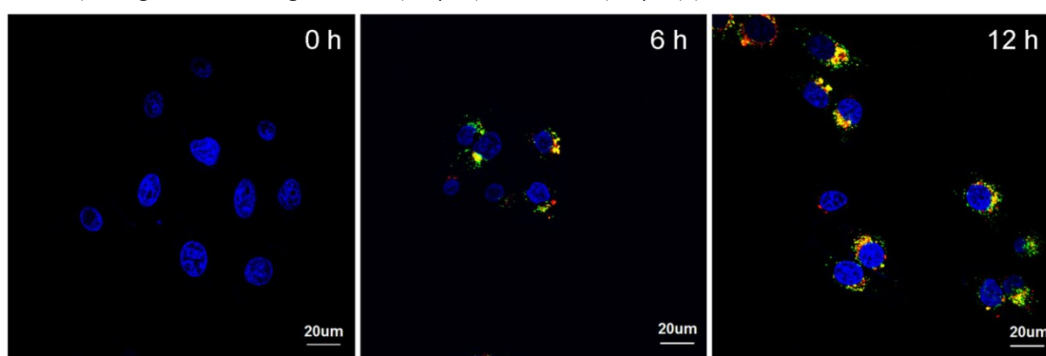


Figure S7 Cell uptake of PUMZ in HeLa cells at different incubation time points.

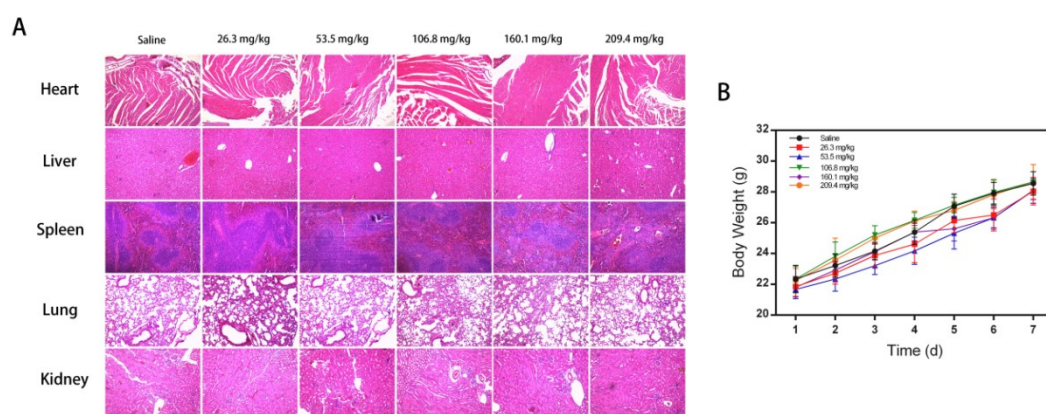


Figure S8 H&E staining tissue sections (A) and changes of body weight (B) of Kunming mice injected with different amount of FPUMZ.

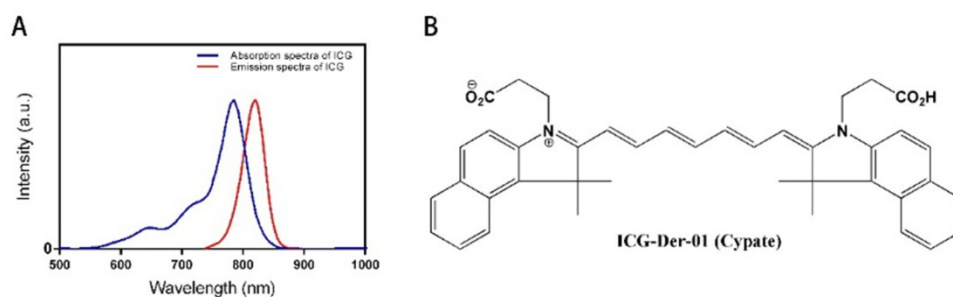


Figure S9 (A) Absorption and emission spectrum of NIR fluorescence dye ICG-Der-01 (cypate). (B) Chemical structure of NIR fluorescence dye ICG-Der-01 (cypate).

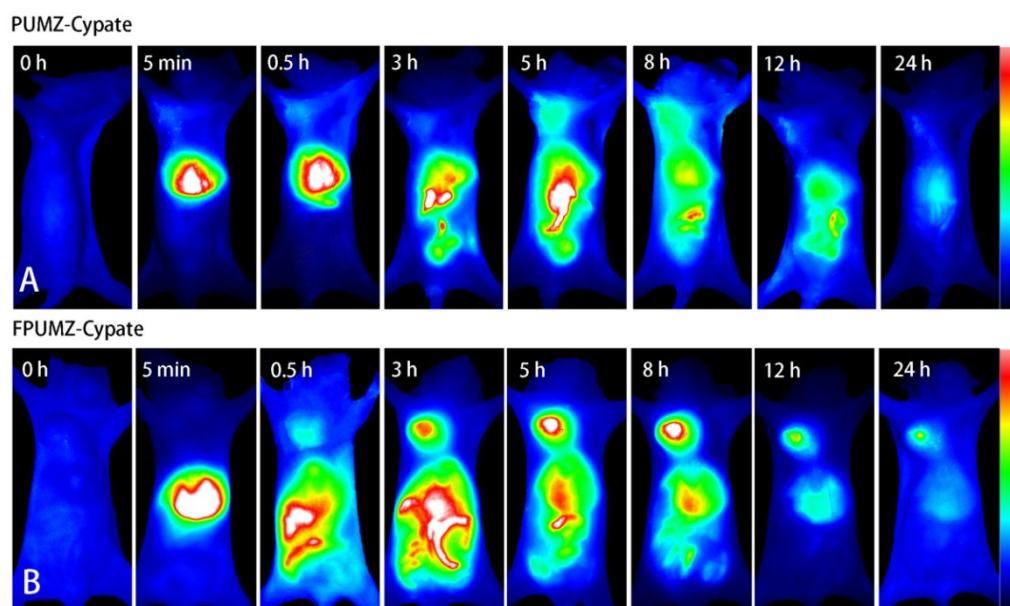


Figure S10 Fluorescence images of Kunming mice bearing H22 tumors with intravenously injection of PUMZ (A) and FPUMZ (B).

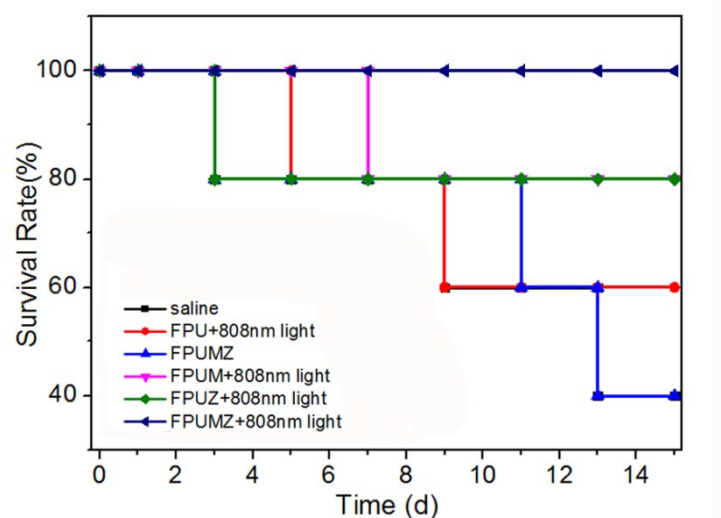


Figure S11 Survival rates of mice in different treatment groups within 15 days

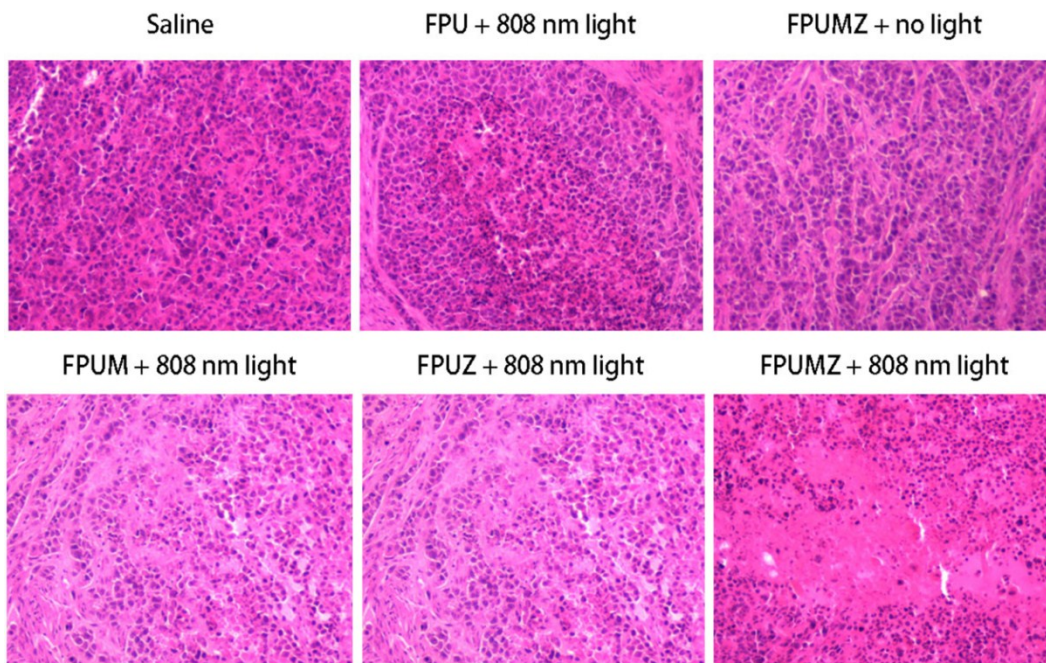


Figure S12 H&E stained tumor tissues harvested from the mice with different treatments.