

Supporting information

A metal-coordination stabilized small-molecule nanomedicine with high drug-loading capacity and synergistic photochemotherapy for cancer treatments

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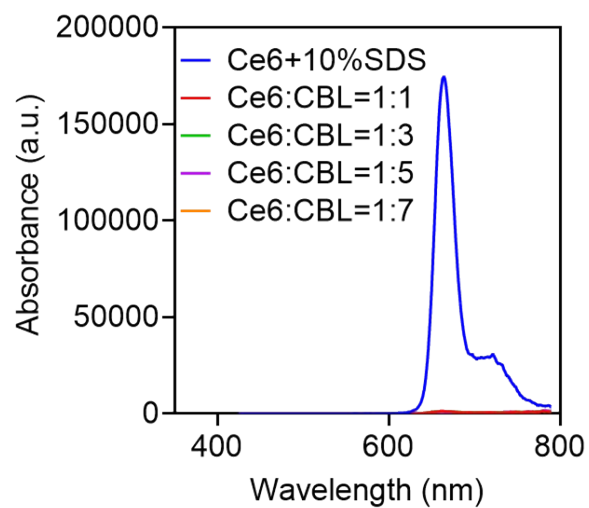


Figure S1 The fluorescence quenching effect of CMC NPs assembled by Ce6 and CBL at various molar ratios (1:1, 1:3, 1:5 and 1:7).

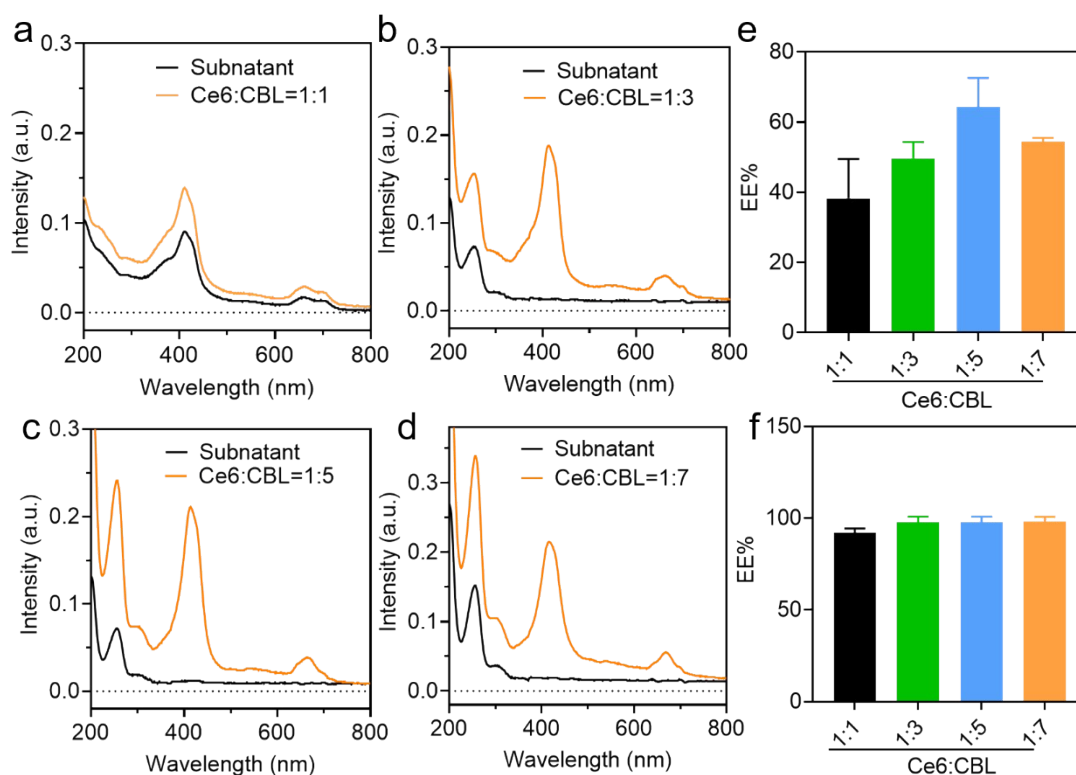


Figure S2 The encapsulation efficiency of CMC NPs mainly assembled by Ce6 and CBL at a) 1:1, b) 1:3, c) 1:5, d) 1:7 ratio. e) Quantitative data of the antitumor CBL encapsulation efficiency at different ratios. f) Quantitative data of the phototherapeutic agents Ce6 encapsulation efficiency at different ratios. The molecular weight cut-off (MWCO=3500 Da) of the tube was selected to cut off the nanoparticles only while to remove the free molecules. “Subnatant” was referred to “solution that under the centrifugal dialysis tube after centrifuge”.

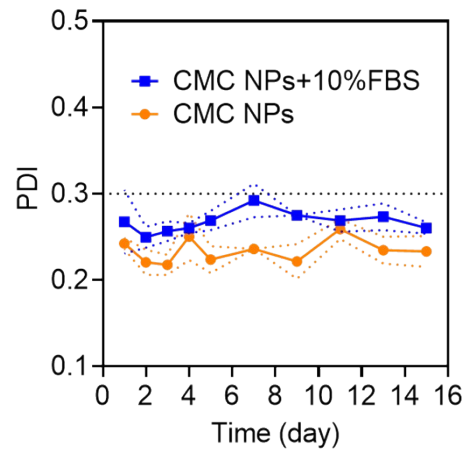


Figure S3 A 14-day PDI monitoring of CMC NPs with or without 10% FBS. This experiment was intentionally designed to mimic actual conditions in the bloodstream (PBS with 10% fresh FBS).

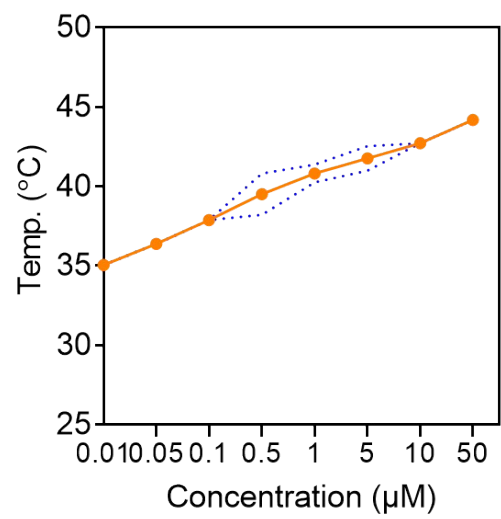


Figure S4 Photothermal effect of CMC NPs was indicated by hyperthermia generation at different concentration.

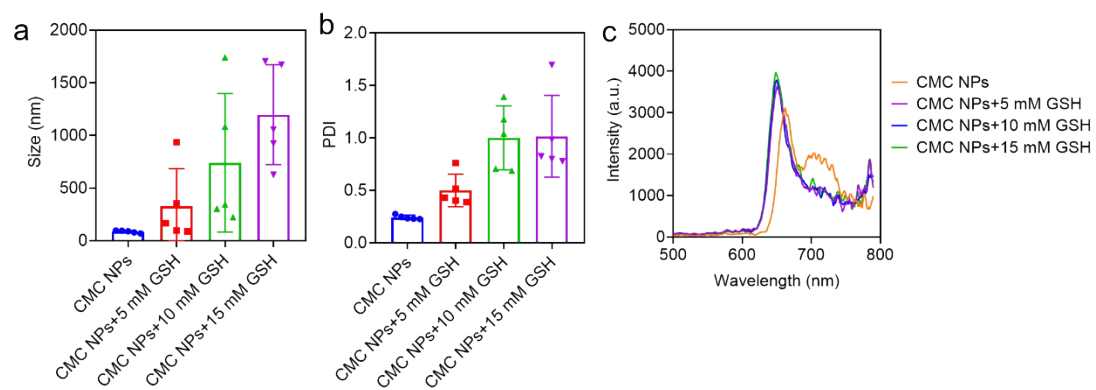


Figure S5 The change of the self-assembled nanoparticles after incubation with different concentrations of GSH PBS solution (0, 5, 10 and 15 mM). a) Particle size; b) PDI; c) The UV-vis absorption peak at 670 nm.

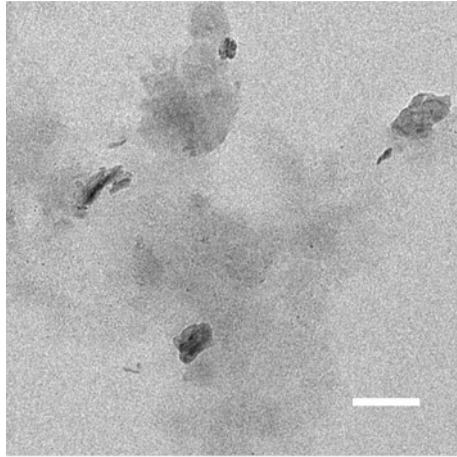


Figure S6 The TEM micrograph of CMC NPs (50 μM) at the stimulation of 10 mM GSH for 2 h. Scale bar: 100 nm.

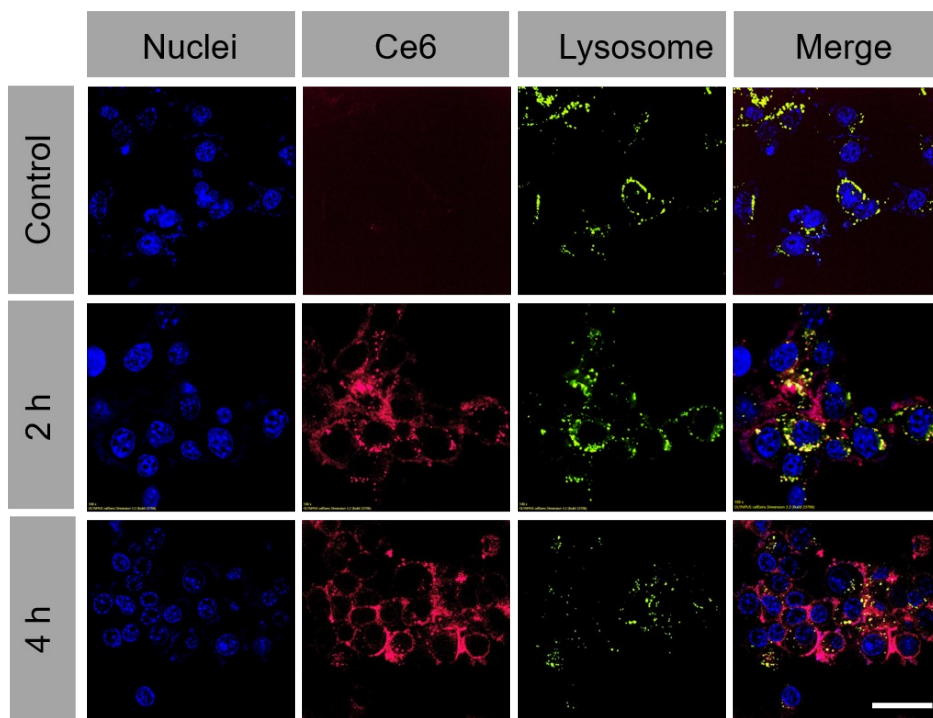


Figure S7 Cellular uptake of CMC NPs for different incubation time (0, 2 and 4 h). Scale bar: 20 μ m.

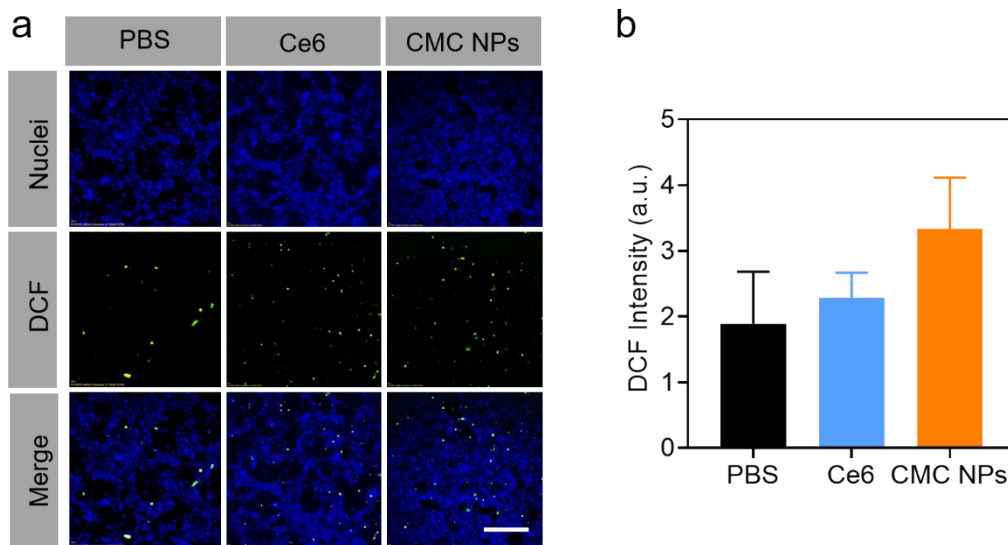


Figure S8 Intracellular ROS production treated with CMC NPs and the control materials without laser irradiation. a) CLSM images showed the intracellular ROS production. The green dots indicated the ROS. Scale bar: 200 μm . b) The quantification of intracellular ROS production based on a).

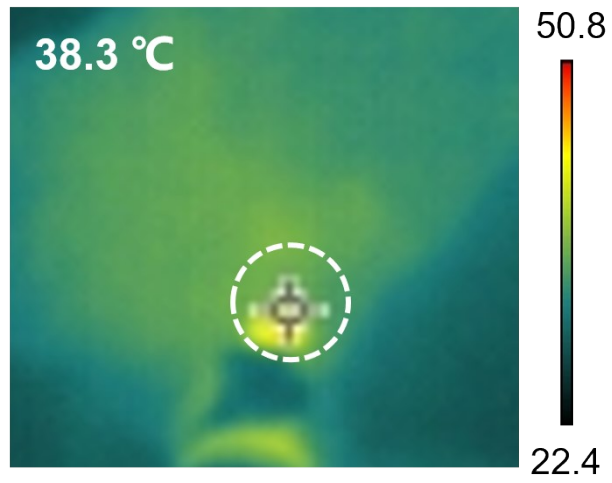


Figure S9 The thermal images of the 4T1 tumor-bearing mice in PBS group upon exposure to 680 nm laser irradiation (0.4 W/cm^2) for 5 min.

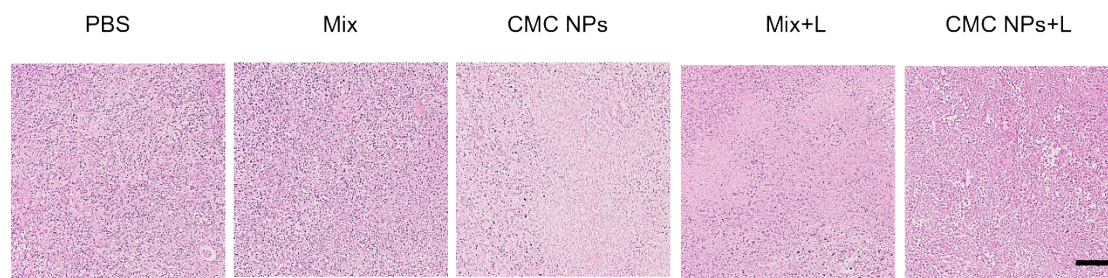


Figure S10 H&E stain of the tumor tissue. Scale bar: 100 μ m.

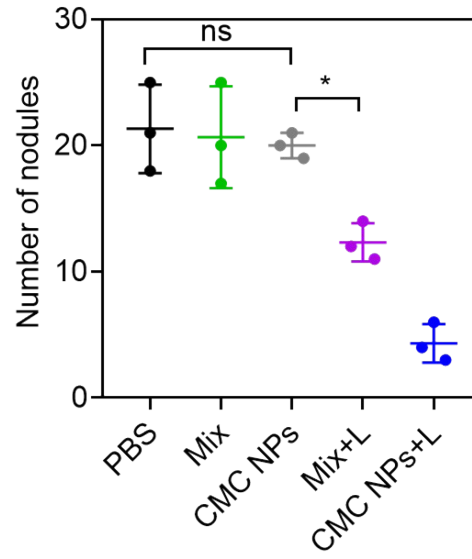


Figure S11 Quantitative analysis of tumor metastatic nodules on liver slices at the endpoint of experiments. *, $P \leq 0.05$; ns, not significantly.

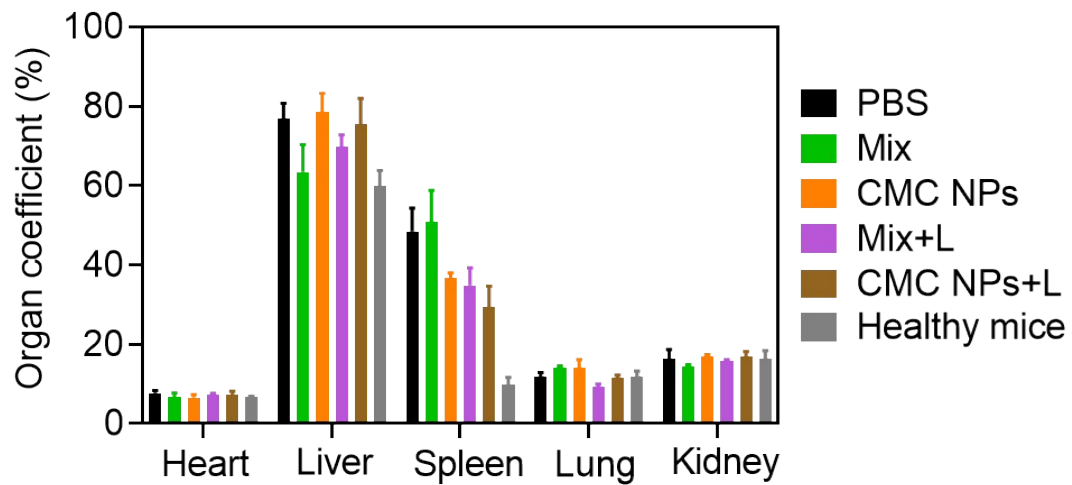


Figure S12 Organ coefficients of mice treated with different materials were calculated at the endpoint of experiments.

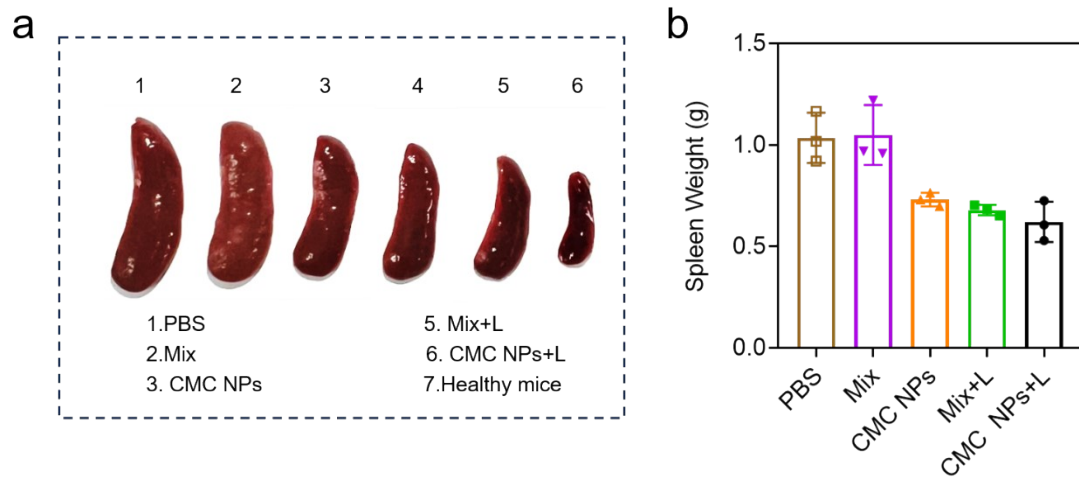


Figure S13 Morphological changes of spleen tissues. a) Representative photographs and b) the weight of the harvested spleen tissues at the endpoint of experiments. The 4T1 breast cancer generally induced mouse spleen swell.

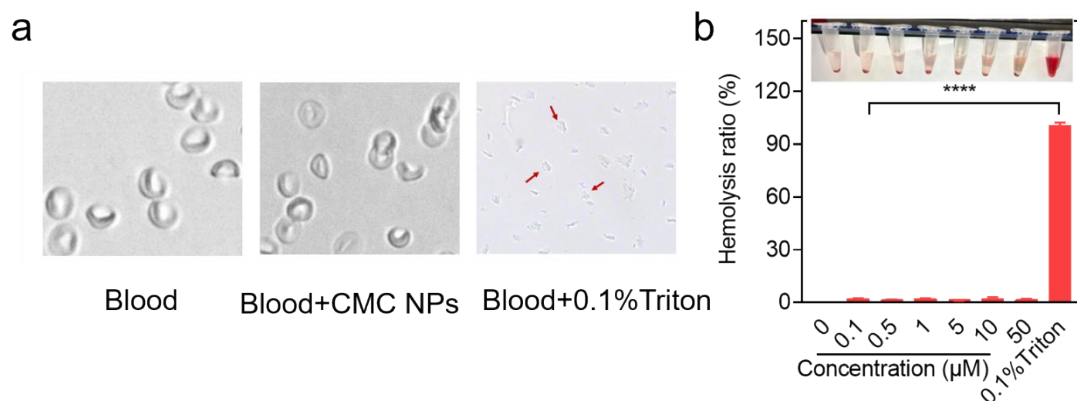


Figure S14 The hemolysis profile of healthy mice treated with CMC NP in various concentrations. a) Microscopic images of red blood cells were observed after incubated with CMC NPs ($50 \mu\text{M}$). b) The hemolysis ration from various concentration of CMC NPs. The insets contained the optical photographs of RBCs incubated with various concentration of CMC NPs after centrifugation.

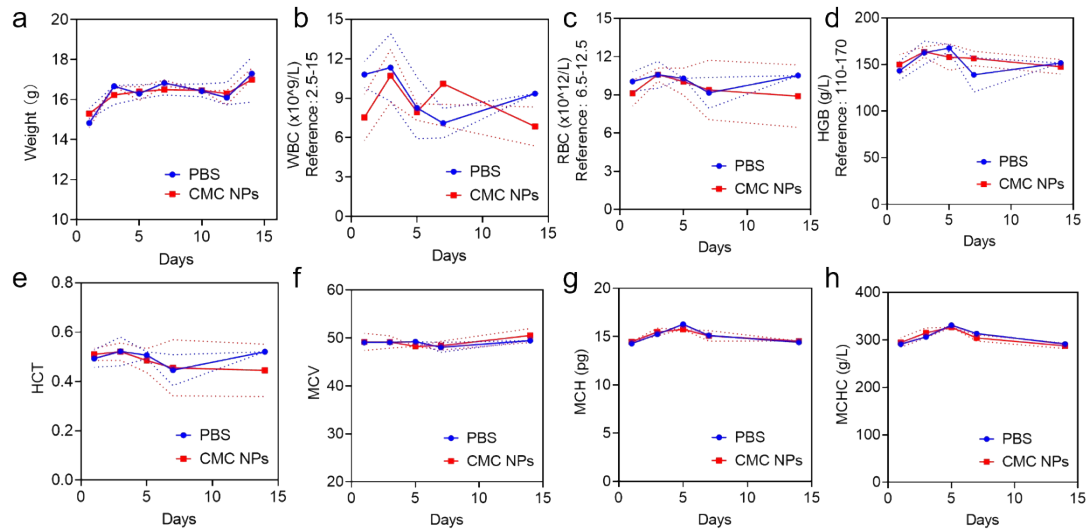


Figure S15 The biosafety profile of healthy mice treated with CMC NPs (10 mg/kg). a) Body weight change of healthy mice during two weeks. b-h) The comparison of CBC parameters of mice in CMC NPs groups during two weeks, including white blood cell (WBC), red blood cell (RBC), hemoglobin (HGB), hematocrit value (HCT), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC).