Supporting information

of

Cancer Cell Membrane Camouflaged Cascade Bioreactor for Cancer Targeted Starvation and Photodynamic Therapy

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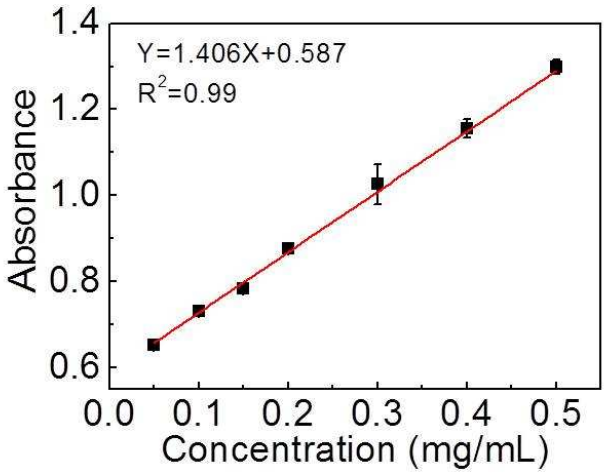

Figure S1. The standard curve of BSA for BCA Protein Assay Kit.

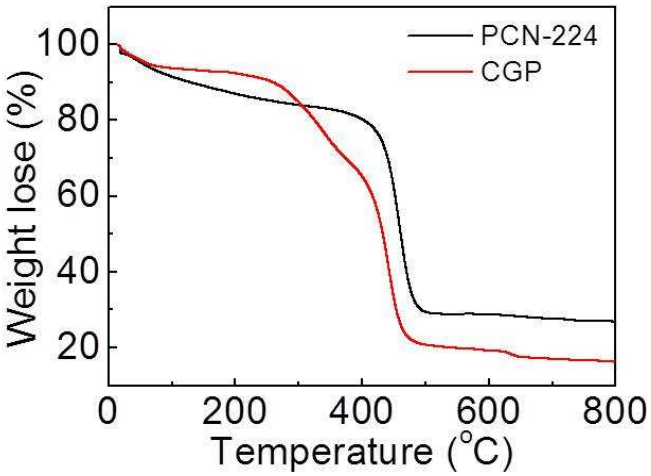

Figure S2. The TGA analysis of PCN-224 and CGP.

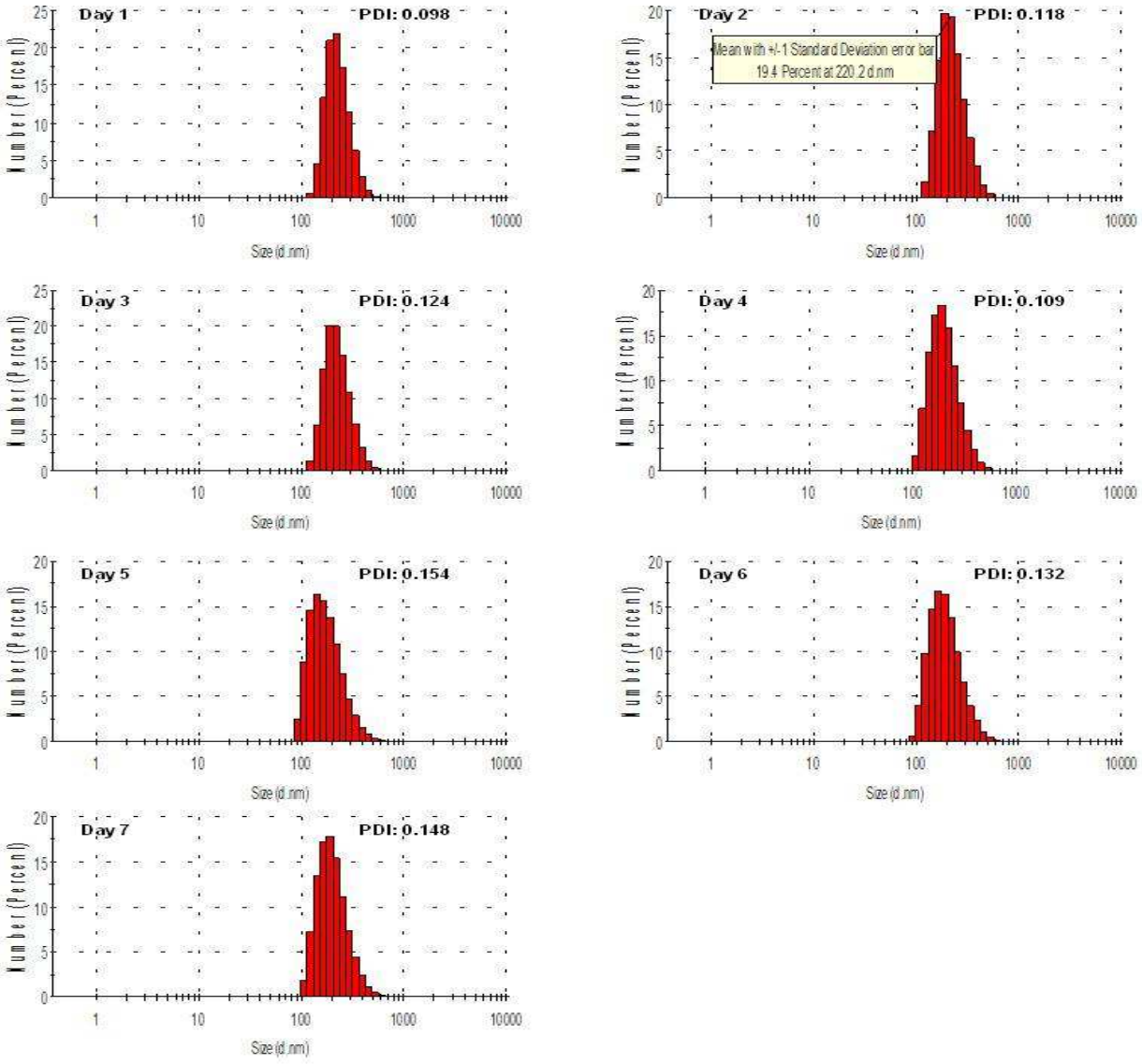

Figure S3. The hydrodynamic size distribution of mCGP in 7 days.

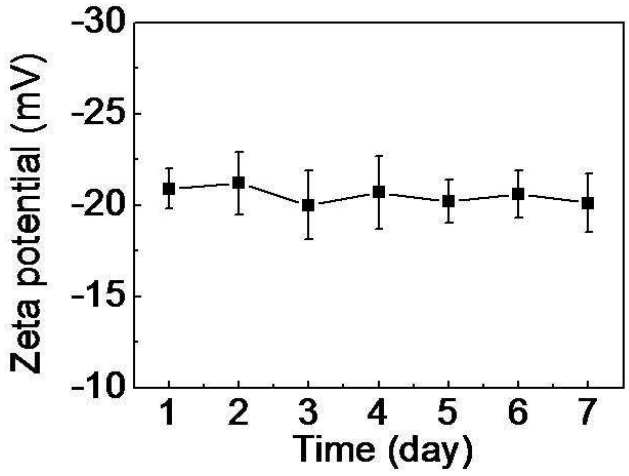

Figure S4. The zeta potential changes of mCGP in 7 days.

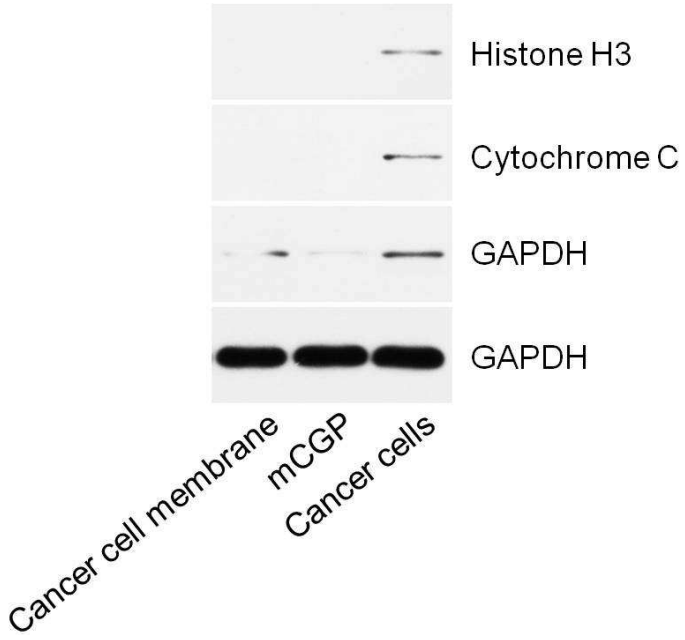

Figure S5. Western blot analysis of the expression of Histone H3 (nuclear marker), Cytochrome C (mitochondrial marker) and GAPDH (cytosolic marker) in 4T1 cell membrane, mCGP and 4T1 cells using GAPDH as a control.

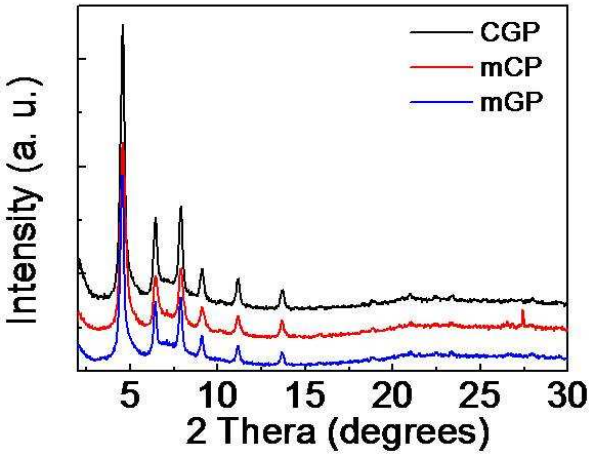

Figure S6. PXRD patterns of CGP, mCP and mGP.

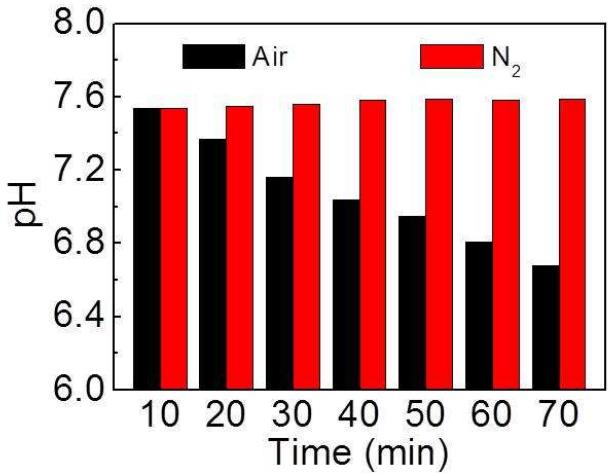

Figure S7. The pH changes of GOx (0.05 mg/mL) and glucose (1 mg/mL) solutions in the presence or absence of O_2.

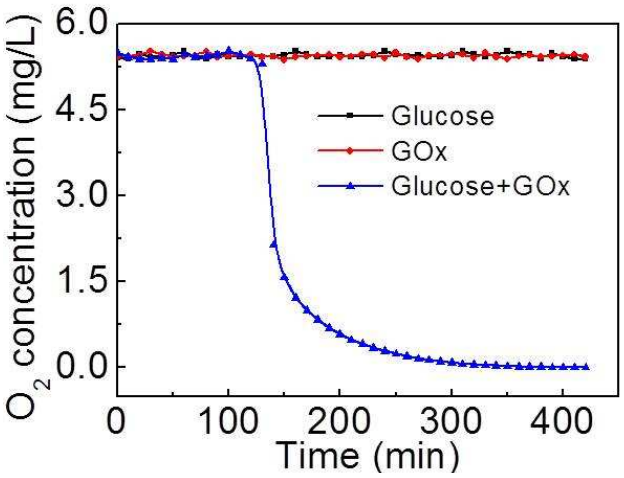

Figure S8. The O_2 concentration changes in the solutions of glucose, GOx or glucose and GOx.

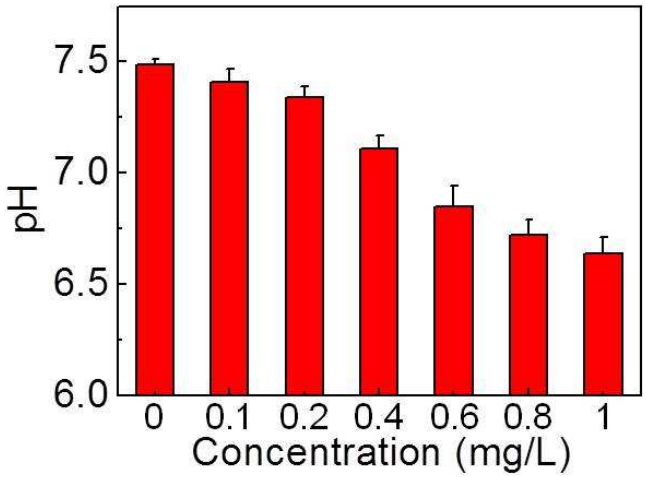

Figure S9. Glucose concentration related pH changes after treatment with GO_X for 1 h.

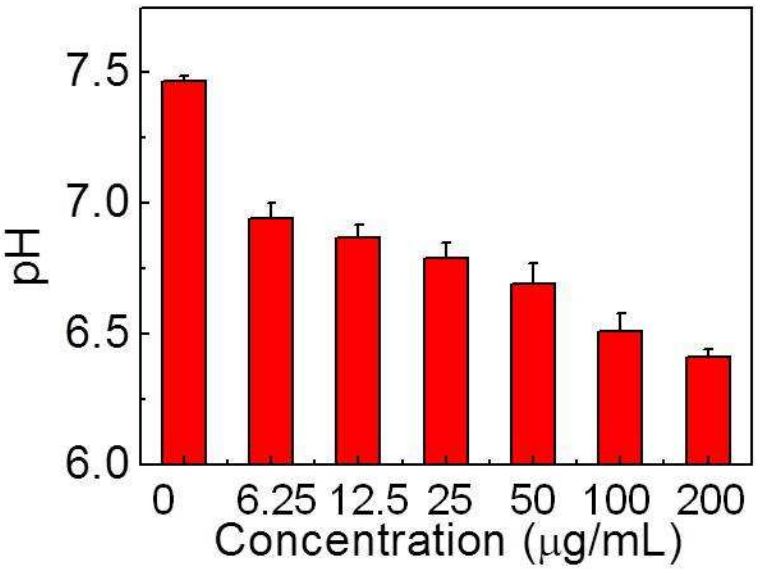

Figure S10. GOx concentration related pH changes after treatment with glucose for 1 h.

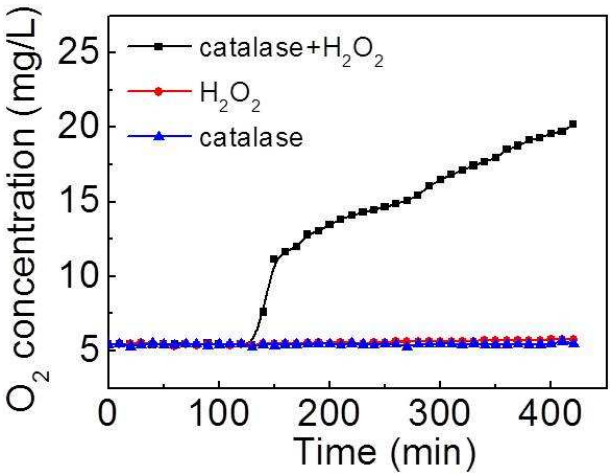

Figure S11. The O_2 concentration changes in the solutions of H_2O_2, catalase, H_2O_2 and catalase.

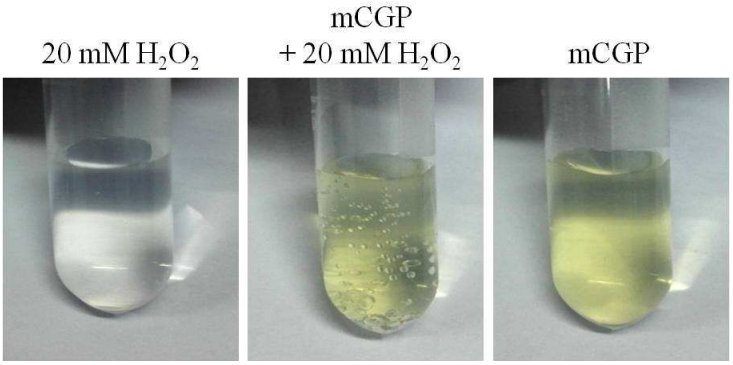

Figure S12. The macroscopic images of the solutions in the presence of H_2O_2, mCGP and H_2O_2, or mCGP, respectively.

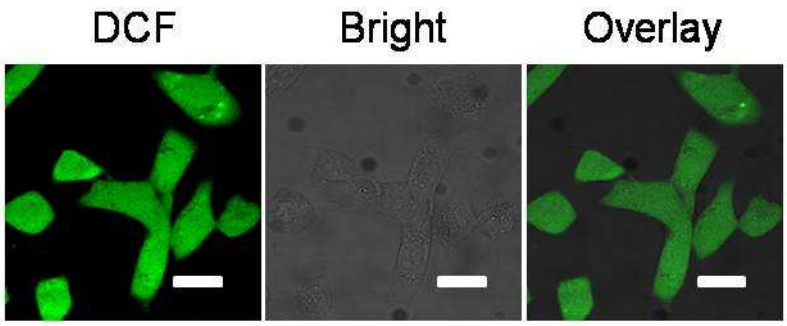

Figure S13. CLSM images of 4T1 cells after treatment with TCPP and DCFH-DA under 5 min irradiation. Scale bar: 20 μm.

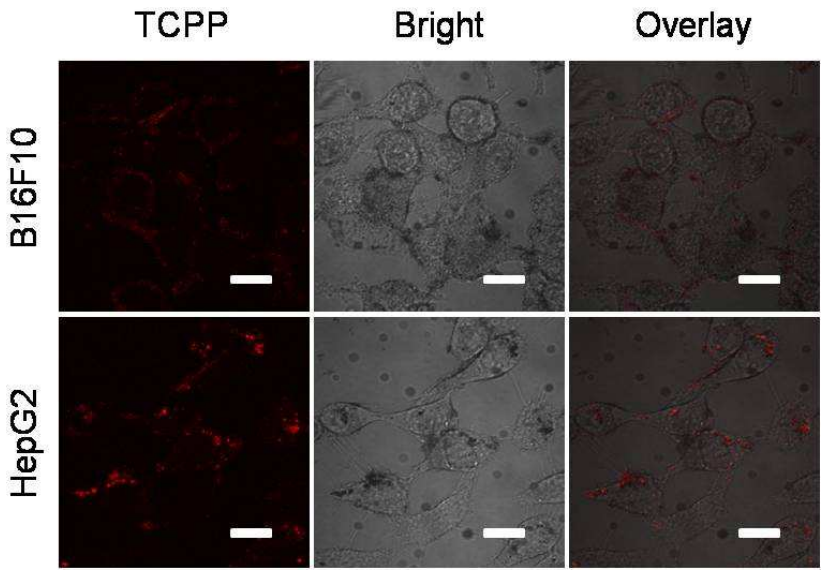

Figure S14. CLSM images of B16F10 cells and HepG2 cells after treatment with mCGP. Scale bar: 20 μm.

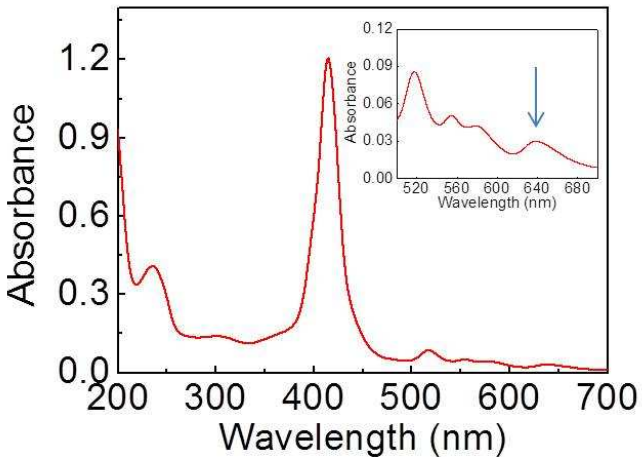

Figure S15. The UV-vis absorbance spectrum of mCGP. Insert: the magnified spectrum and the arrow represented the selected excitation wavelength for in vivo imaging.

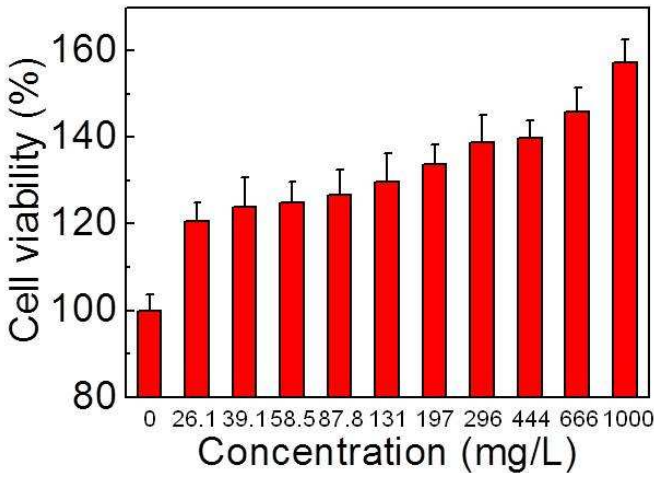

Figure S16. The cell viability of 4T1 cells after treatment with glucose for 24 h at various concentrations.

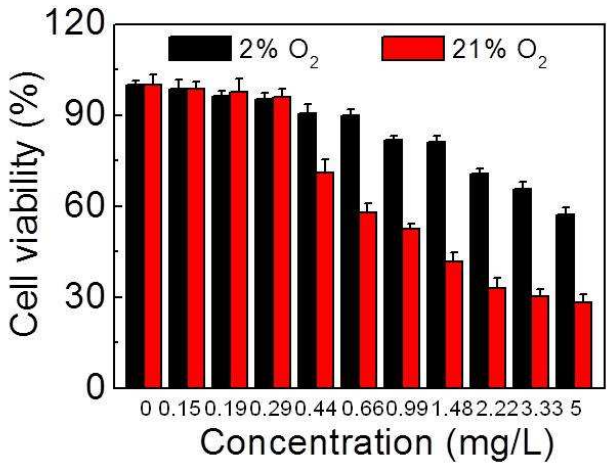

Figure S17. The cell viability of 4T1 cells after treatment with GOx for 24 h at various concentrations.

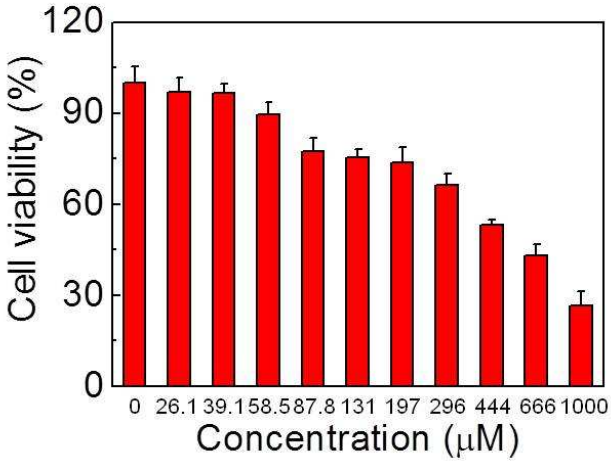

Figure S18. The cell viability of 4T1 cells after treatment with H_2O_2 for 24 h at various concentrations.

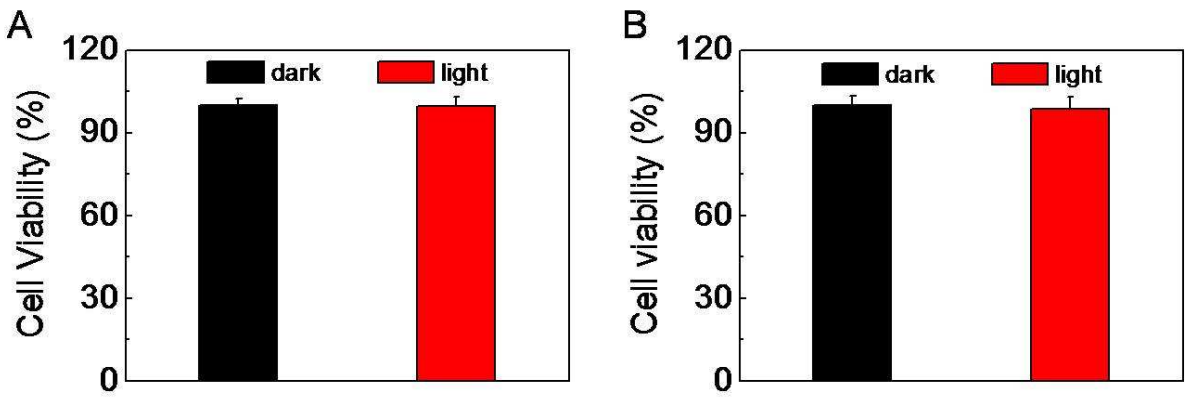

Figure S19. The cell viabilities of (A) 4T1 cells and (B) COS7 cells with or without light irradiation.

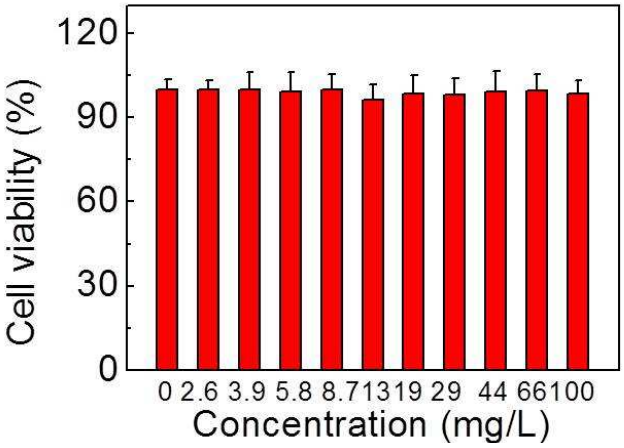

Figure S20. The cell viability of 4T1 cells after treatment with PCN-224 for 24 h at various concentrations.

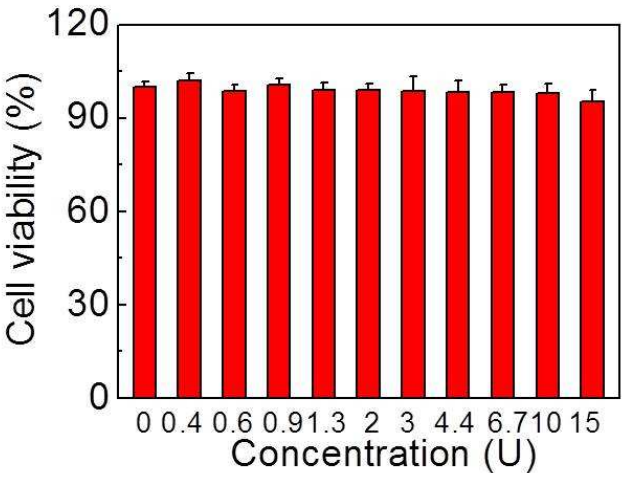

Figure S21. The cell viability of 4T1 cells after treatment with catalase for 24 h at various concentrations.

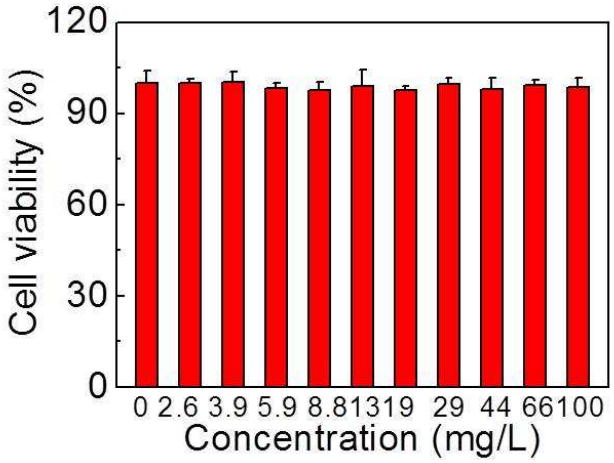

Figure S22. The cell viability of 4T1 cells in the dark after treatment with various concentrations of mCP for 24 h in the presence of 21% O_2.

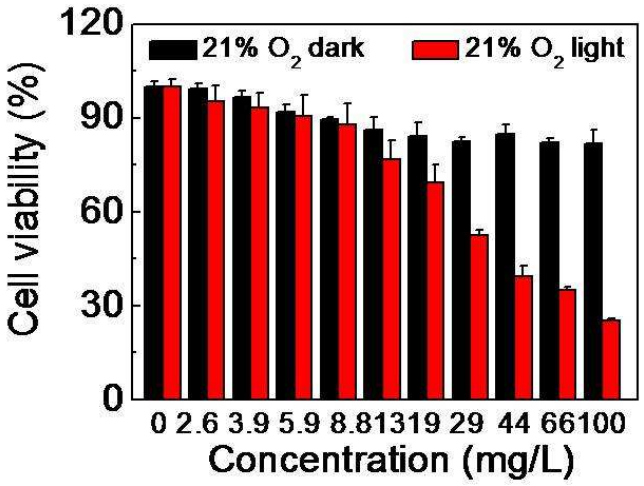

Figure S23. The dark and light toxicities of mCGP against COS7 cells under 21% O_2.

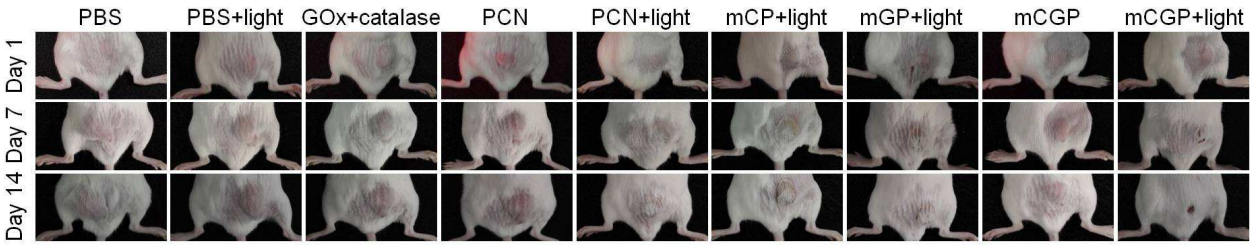

Figure S24. Representative photos of the cancer size of the mice after various treatments for 1 day, 7 days and 14 days, respectively.

	After *i.v.* 14 d	Reference range
WBC (10^9/L)	8.1±1.1	5.4–16.0
RBC (10^{12}/L)	8.27±0.94	6.70–12.50
HGB (g/L)	117.3±7.04	102–166
HCT (%)	41.5±4.8	32.0–54.0
MCV (fL)	50.19±0.53	31.0–62.0
MCH (pg)	14.23±1.24	9.2–20.8
MCHC (g/L)	283.6±5.2	220–355
PLT (10^9/L)	498.4±3.5	150–500
MPV (fL)	7.06±0.49	5.0–20.0
PCT (%)	0.33±0.05	0.10–0.35

Figure S25. The hematological parameters of the mice after treatment with mCGP for 14 days.

	After *i.v.* 14 d	Blank
TP (g/L)	42.65±2.9	36.45±1.25
ALB (g/L)	28.20±0.8	24.95±1.75
GLO (g/L)	14.35±2.1	11.5±0.5
A/G	1.95±0.2	2.15±0.25
ALT (U/L)	23.5±7.8	32.5±3.35
AST (U/L)	130.6±3.5	122.5±3.96
UREA (mmol/L)	3.10±1.5	4.56±1.52
GLU (mmol/L)	13.9±3.2	12.2±2.1

Figure S26. Blood biochemical levels of the mice after treatment with mCGP for 14 days.

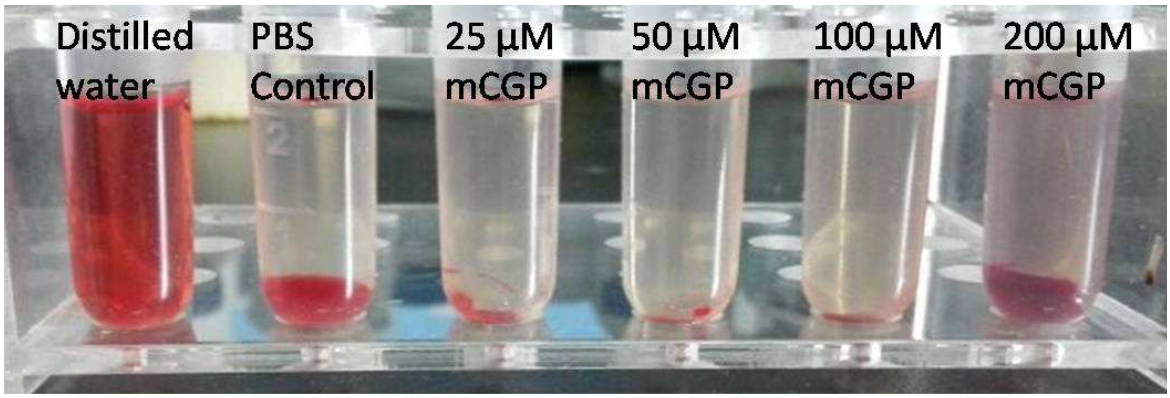

Figure S27. Hemolysis detection of mCGP at various concentrations.

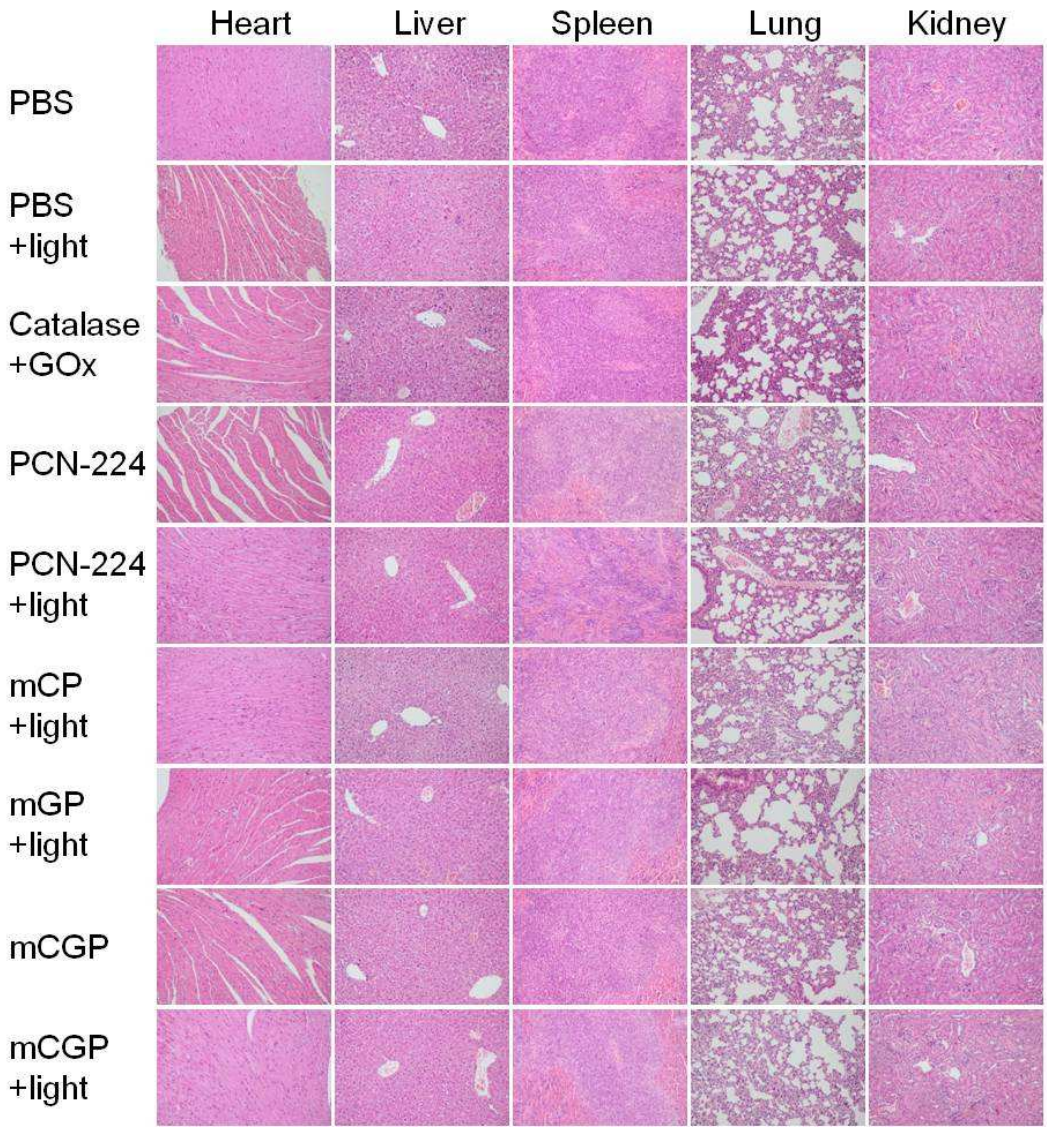

Figure S28. H&E staining of heart, liver, spleen, lung and kidney in the mice from various groups.

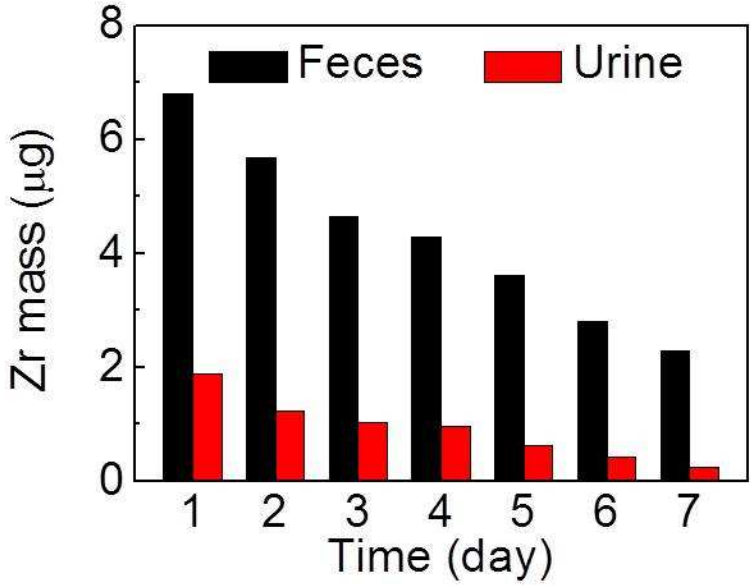

Figure S29. ICP-MS analysis of Zr element in feces and urine after intravenously injection of mCGP at different time.