

Supporting Information

Renal-Clearable Porphyrinic Metal-Organic Framework Nanodots for Enhanced Photodynamic Therapy

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Supporting Figures

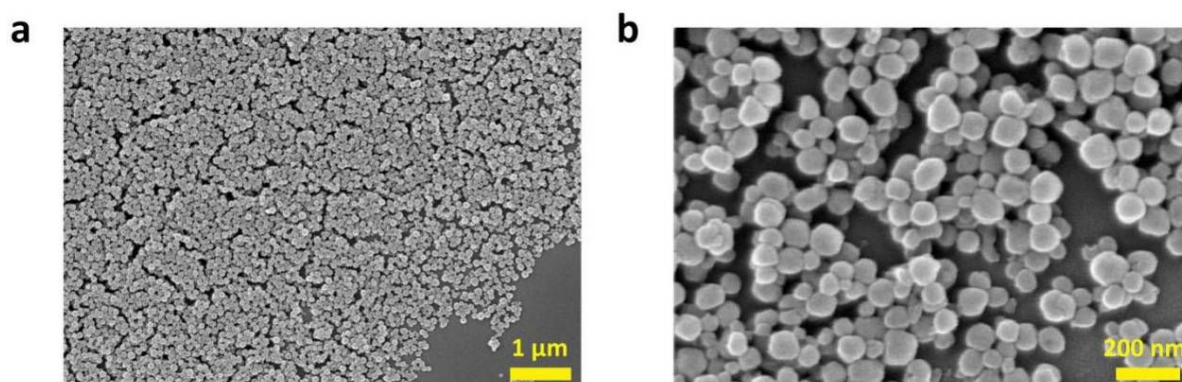


Figure S1. SEM image (a) and enlarged SEM (b) image of PCN-224 NMOFs.

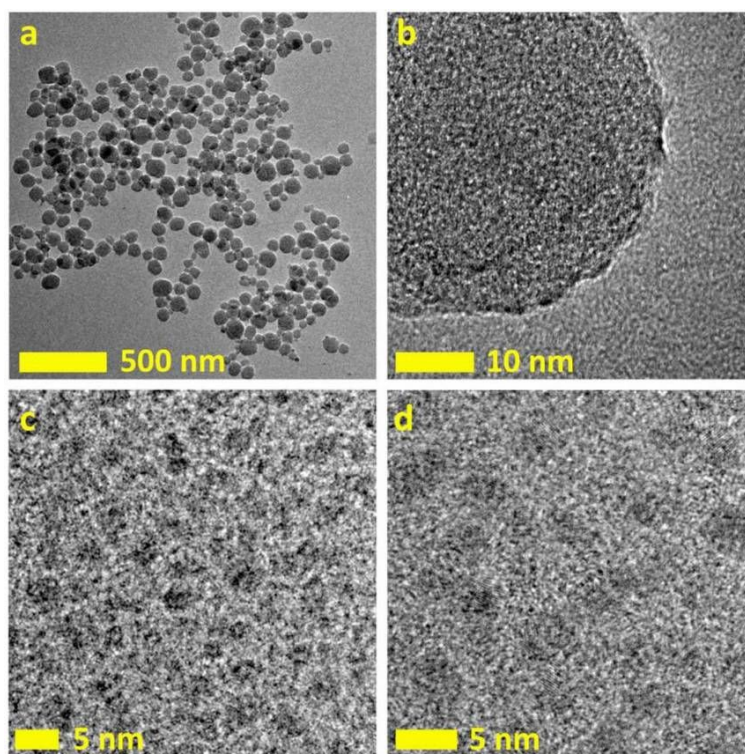


Figure S2. TEM image (a) and HR-TEM (b) image of PCN-224 NMOFs. HR-TEM images of PCN-224 QDs (c) and MOF QDs (d).

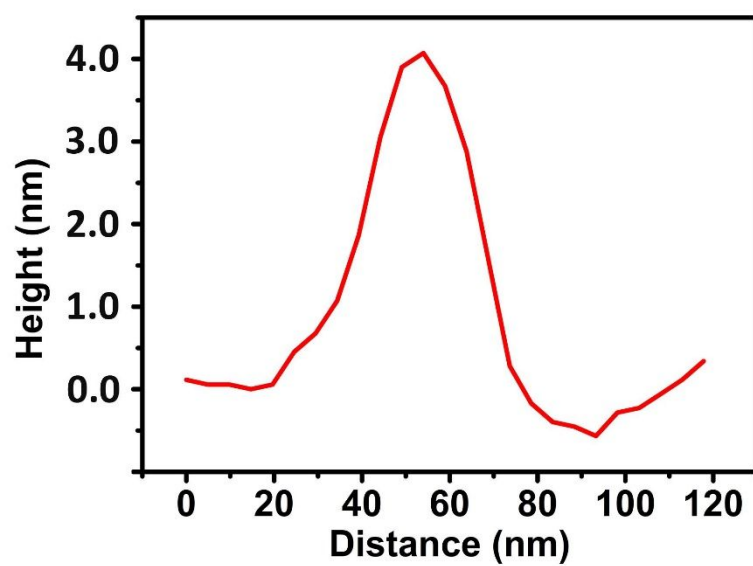


Figure S3. Height profile of MOF QDs in AFM image.

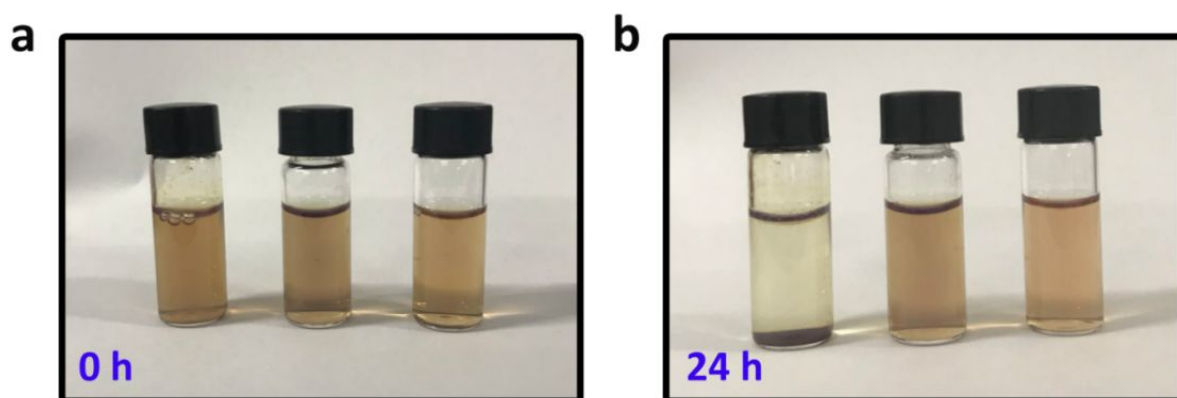


Figure S4. Time-dependent digital photographs of PCN-224 NMOFs, PCN-224 QDs, and MOF QDs with a concentration of $20 \mu\text{g mL}^{-1}$ in water. From left to right: PCN-224 NMOFs, PCN-224 QDs, and MOF QDs.

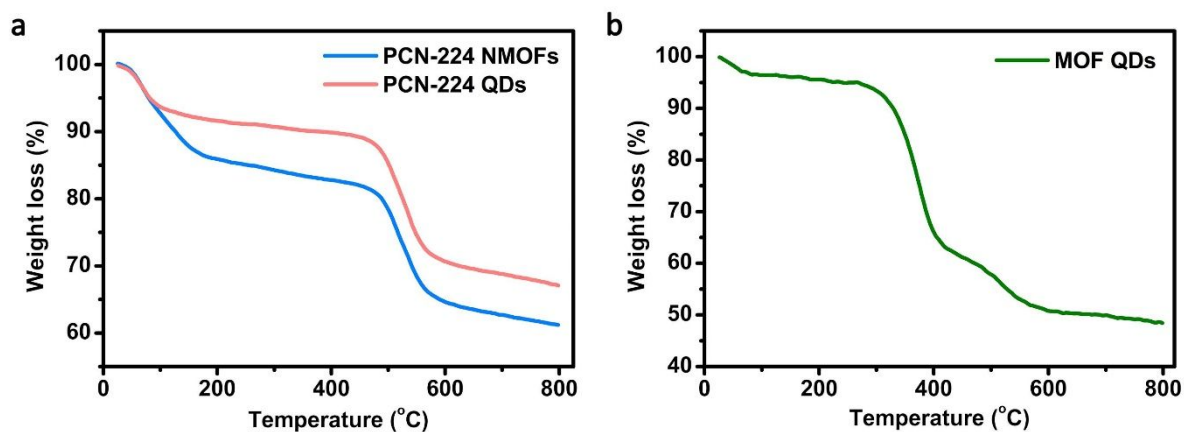


Figure S5. TG analysis of PCN-224 NMOFs and PCN-224 QDs (a), as well as MOF QDs (b).

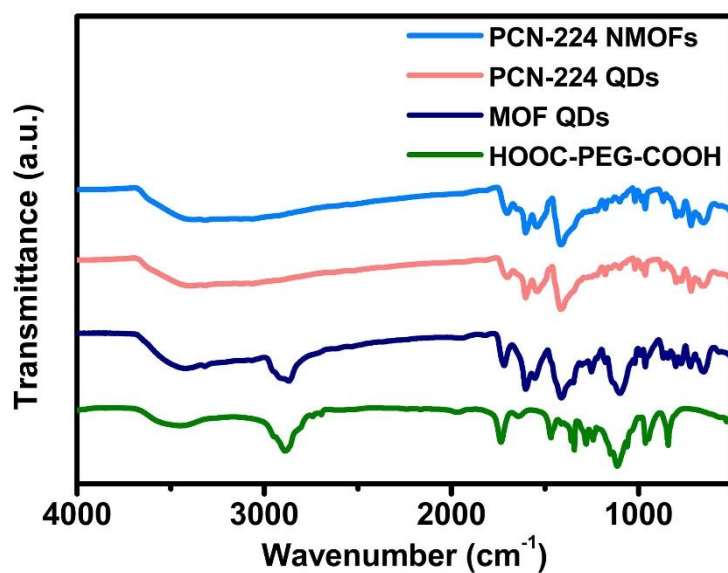


Figure S6. FT-IR spectra of PCN-224 NMOFs, PCN-224 QDs, MOF QDs, and carboxylated PEG.

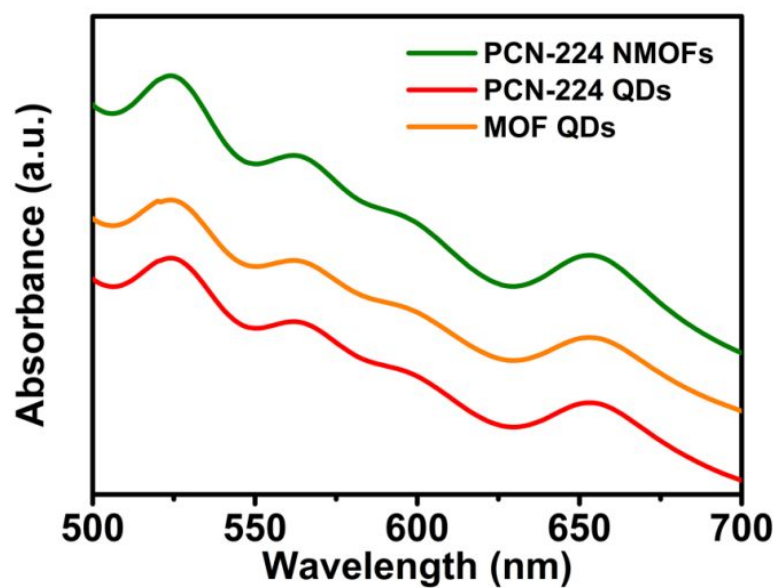


Figure S7. UV-vis spectra of PCN-224 NMOFs, PCN-224 QDs, and MOF QDs.

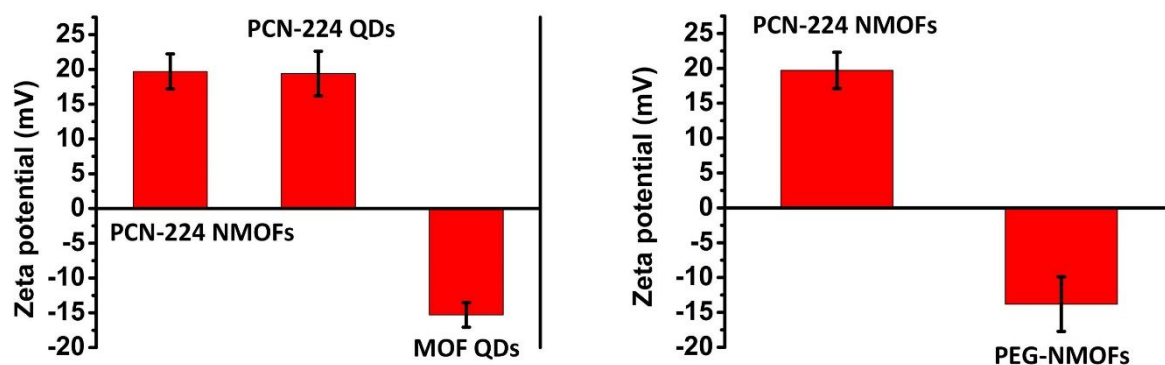


Figure S8. ζ potential results of PCN-224 NMOFs, PCN-224 QDs, PEG-NMOFs, and MOF QDs.

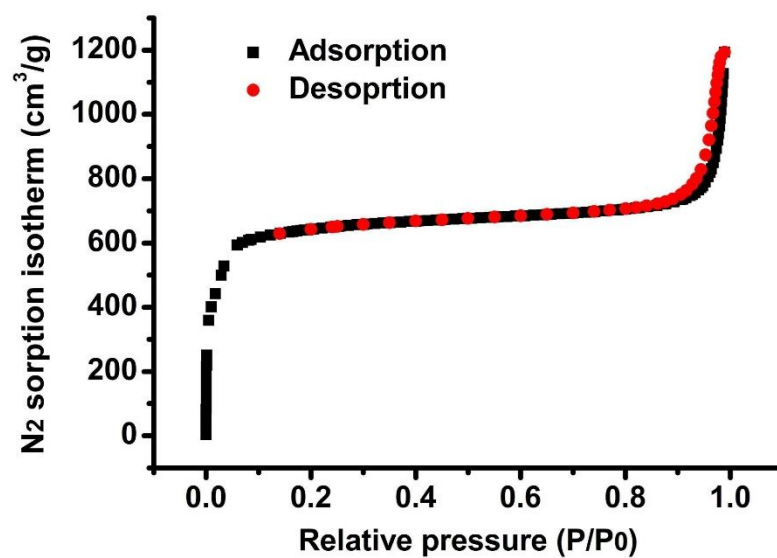


Figure S9. N₂ adsorption-desorption isotherms of PCN-224 NMOFs.

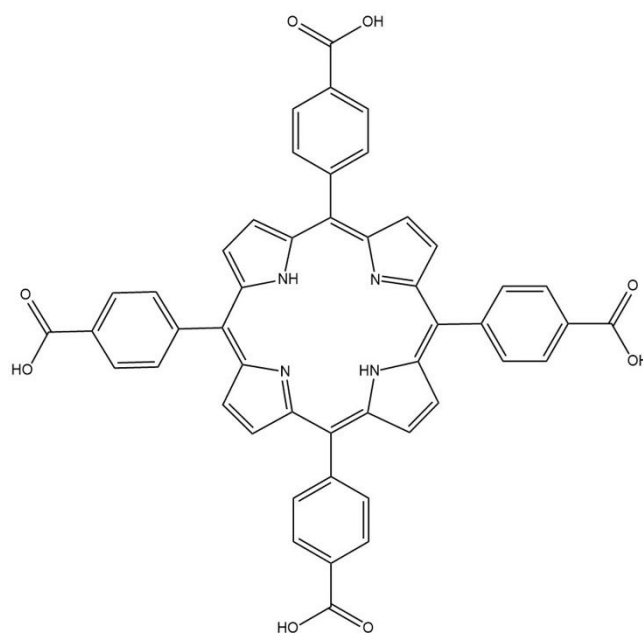


Figure S10. The chemical structure of TCPP.

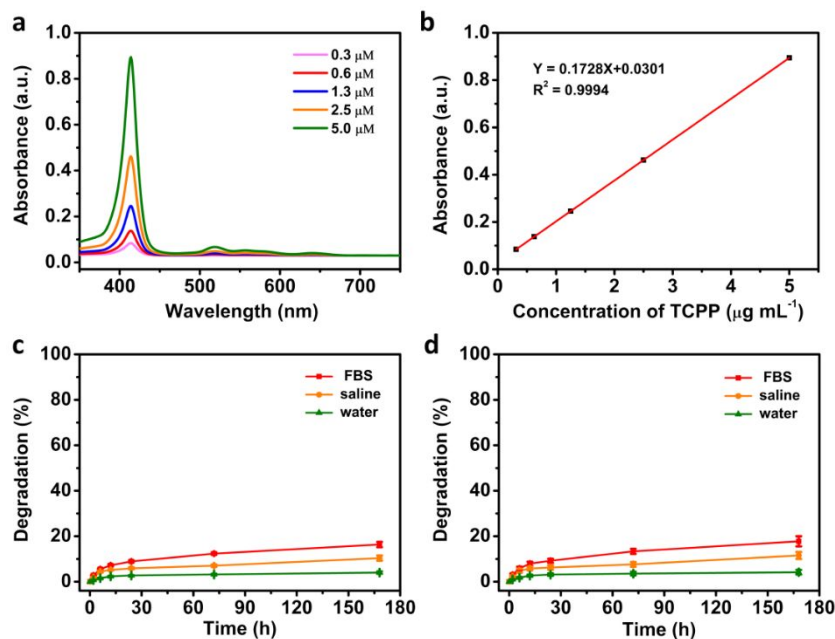


Figure S11. Concentration-dependent UV-vis absorbance spectra of TCPP ligands (a). Calibration curve based on the absorbance at 416 nm and the concentration of TCPP (b). Degradation of MOF QDs under different conditions determined via UV-vis spectroscopy (c) and ICP-OES (d).

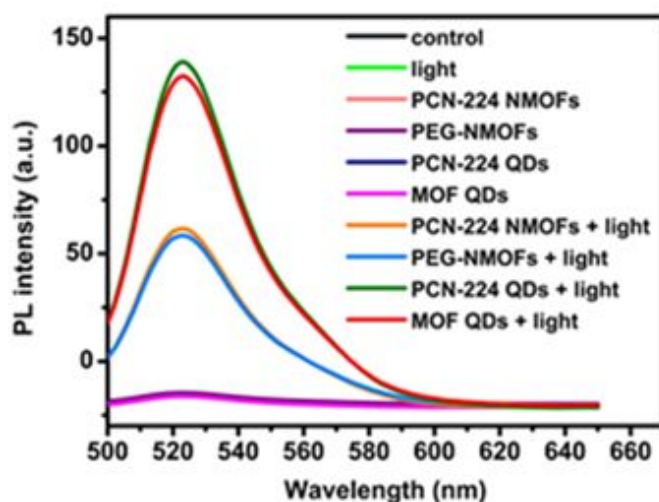


Figure S12. Fluorescence spectra of DCFH-DA incubated with PCN-224 NMOFs, PEG-NMOFs, PCN-224 QDs, and MOF QDs in the presence or absence of a 650 nm laser irradiation.

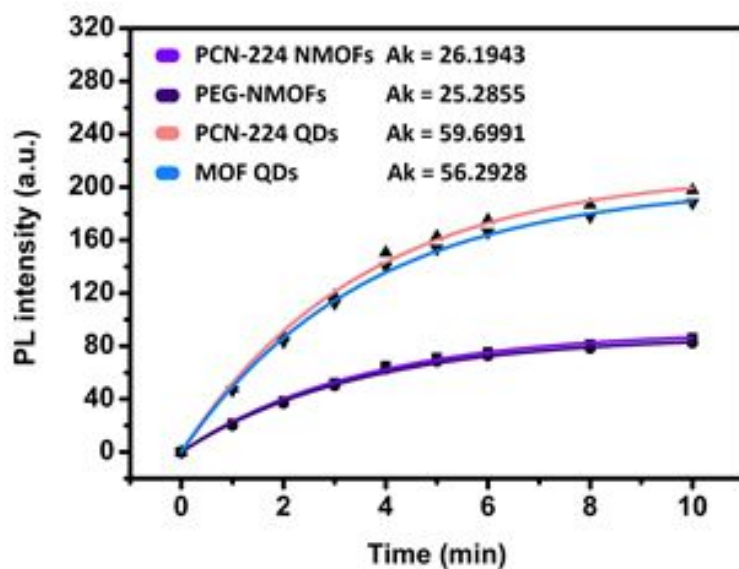


Figure S13. Time-dependent light-induced $^1\text{O}_2$ generations from PCN-224 NMOFs, PEG-NMOFs, PCN-224 QDs, and MOF QDs under a 650 nm laser irradiation by using SOSG as a typical sensor.

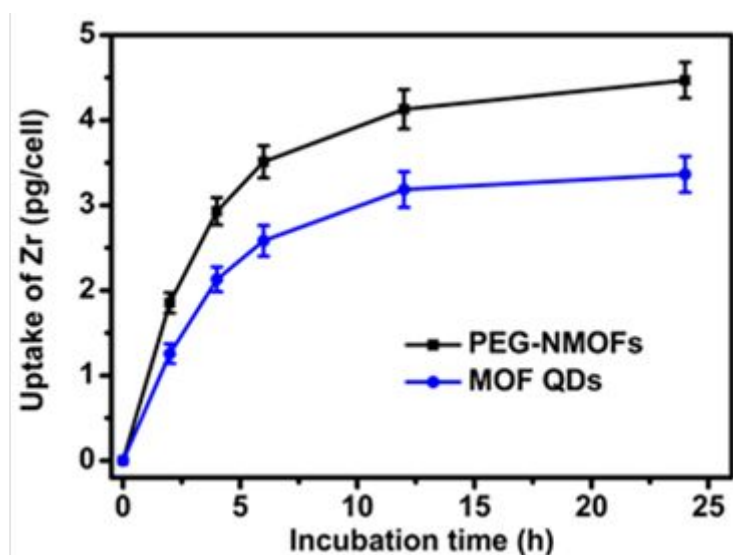


Figure S14. Cellular uptakes of PEG-NMOFs and MOF QDs by Hela cells at different time points analyzed by ICP-OES. Error bars represented standard deviation from the mean (n=5).

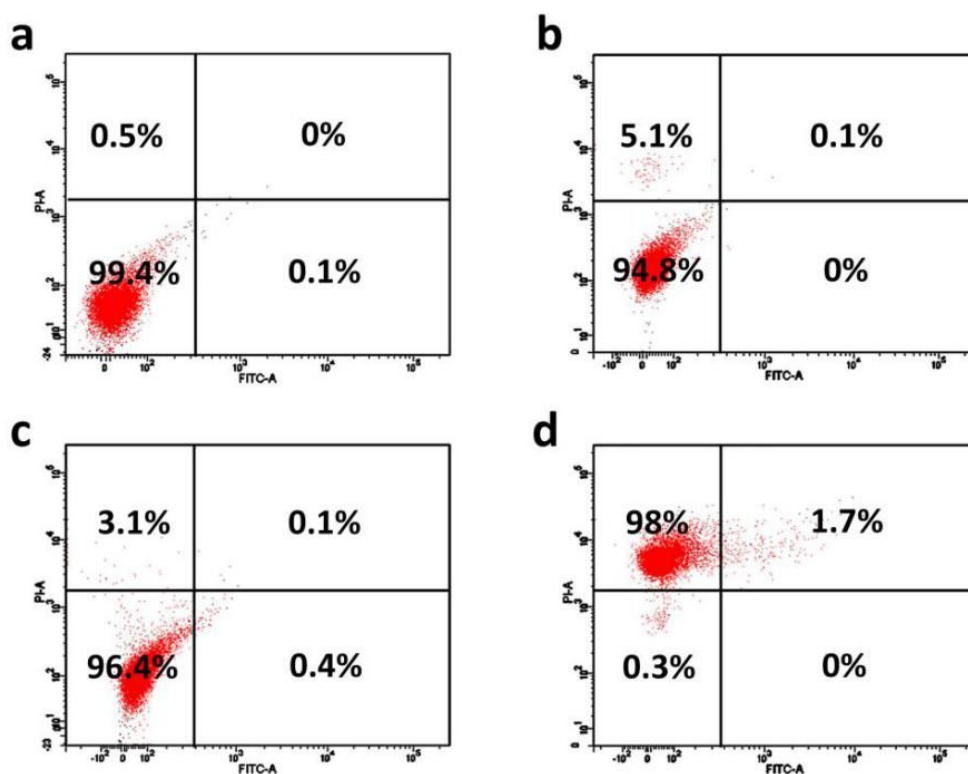


Figure S15. Flow cytometry analysis of apoptosis cells after different treatments: control (a), light alone (b), MOF QDs alone (c), and MOF QDs+light (d).

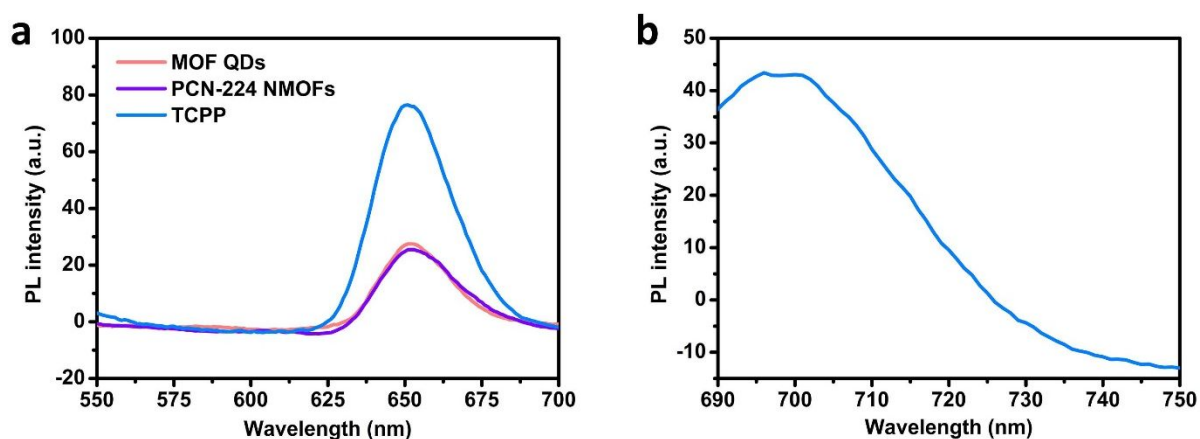


Figure S16. (a) Fluorescence spectra of TCPP molecules, PCN-224 NMOFs, MOF QDs with the same TCPP concentration ($\lambda_{\text{ex}} = 420$ nm). (b) Fluorescence spectra of Cy5.5-MOF QDs ($\lambda_{\text{ex}} = 680$ nm).

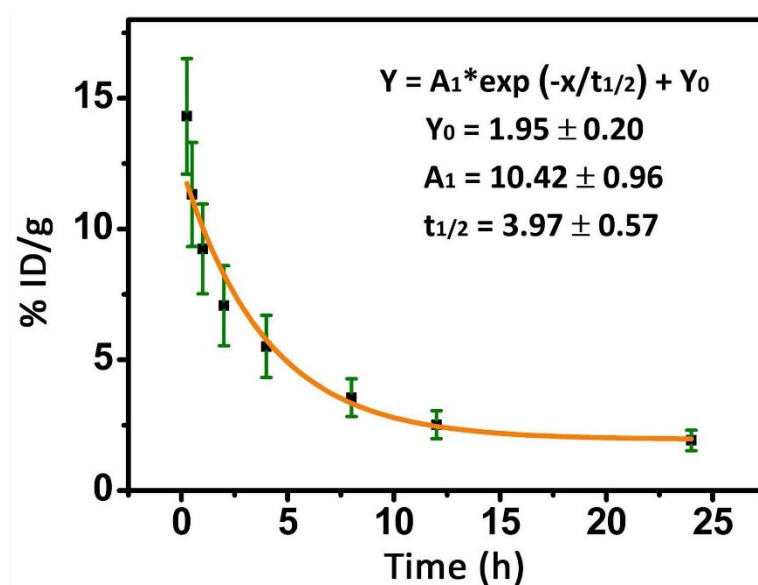


Figure S17. Pharmacokinetics of PEG-NMOFs from tumor-bearing mice after intravenous injection. Error bars represented standard deviation from the mean (n=5).

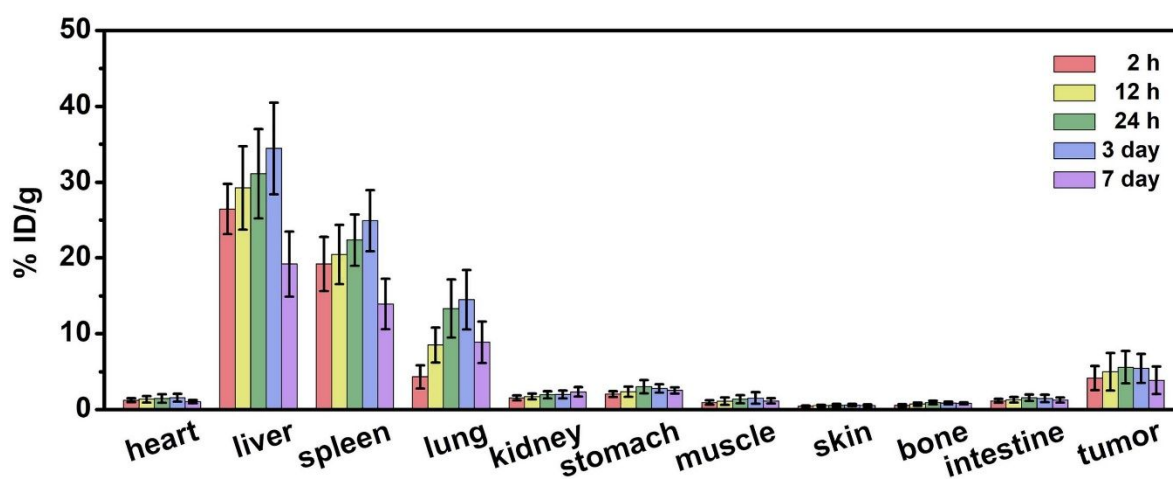


Figure S18. Bio-distribution of PEG-NMOFs from tumor-bearing mice after intravenous injection. Error bars represented standard deviation from the mean (n=5).

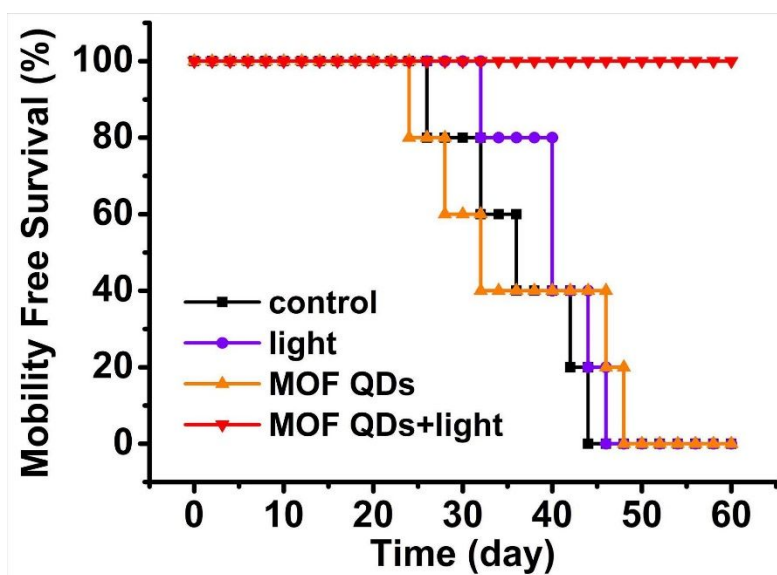


Figure S19. Survival curves of the mice after different treatments.

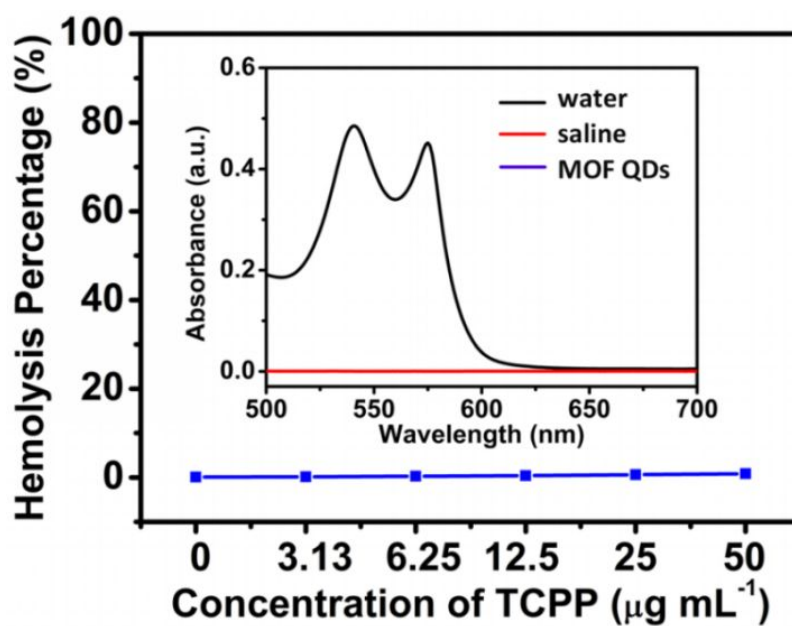


Figure S20. Concentration-dependent hemolysis of MOF QDs. Inset: UV-vis absorption spectra to detect the presence of hemoglobin after the treatment of MOF QDs ($50 \mu\text{g mL}^{-1}$).

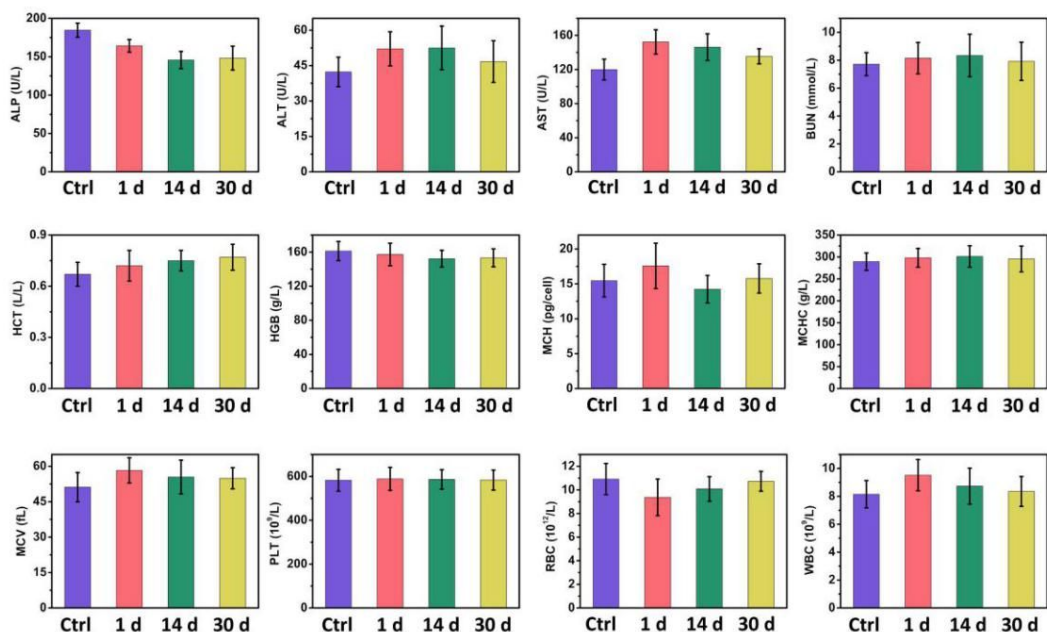


Figure S21. Blood biochemistry assay and hematology assay of the mice after different treatments. ALP: alkaline phosphatase; ALT: alanine aminotransferase; AST: aspartate aminotransferase; BUN: blood urea nitrogen; HCT: hematocrit; HGB: hemoglobin; MCH: mean corpuscular hemoglobin; MCHC: mean corpuscular hemoglobin concentration; MCV: mean corpuscular volume; PLT: platelets; RBC: red blood cells; WBC: white blood cells.

Table S1. Fitting parameters of $^1\text{O}_2$ generating rate.

	A	k (min ⁻¹)	R ²	Ak
PCN-224 NMOFs	91.7487	0.2855	0.9976	26.1943
PEG-NMOFs	88.0414	0.2872	0.9971	25.2855
PCN-224 QDs	212.0751	0.2815	0.9963	59.6991
MOF QDs	201.6939	0.2791	0.9982	56.2928