

## Supporting information

### Aptamer modified Zr-based porphyrinic nanoscale metal-organic frameworks for active-targeted chemo-photodynamic therapy of tumor

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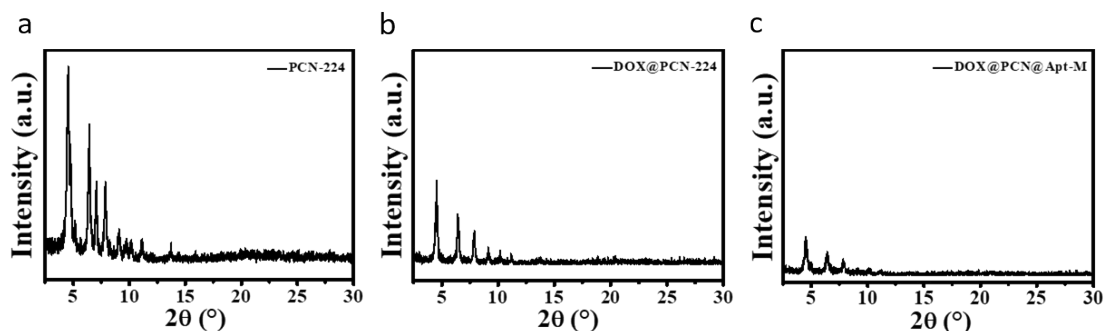
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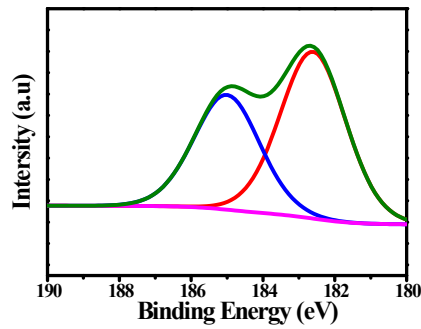
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**Table S1.** DNA sequences used in this study

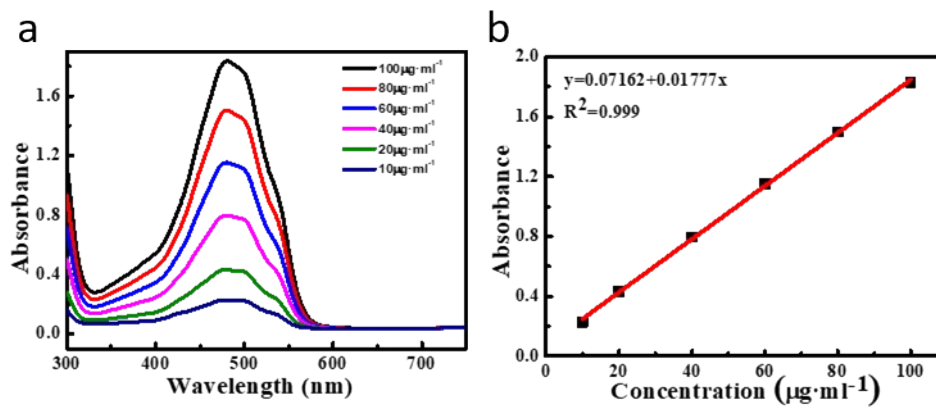
Oligonucleotide	Sequence (5' to 3')
Apt-M	HOOC-GCAGTTGATCCTTTGGATACCCTGGTTTTTTTTTT
Apt-C	HOOC-ATTGCACTTACTATATTGCACTTACTATATTGCAC
Apt-MF	HOOC-GCAGTTGATCCTTTGGATACCCTGGTTTTTTTTTT -(6-FAM)
Apt-CF	HOOC-ATTGCACTTACTATATTGCACTTACTATATTGCAC -(6-FAM)



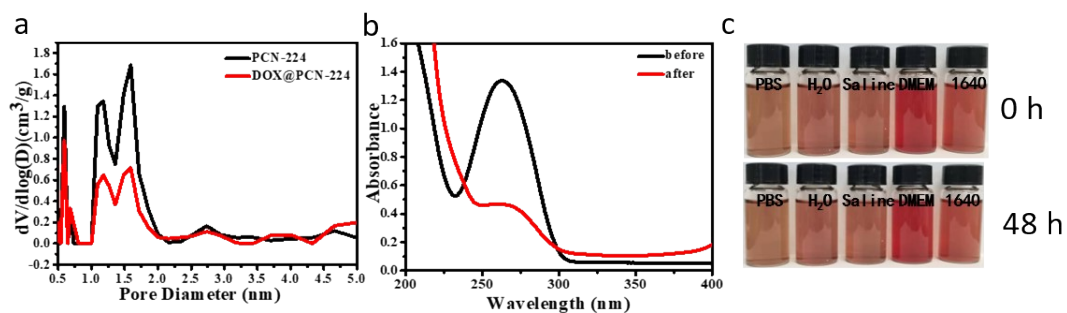
**Fig. S1** PXRD patterns of (a) PCN-224, (b) DOX@PCN-224 and (c) DOX@PCN@Apt-M.



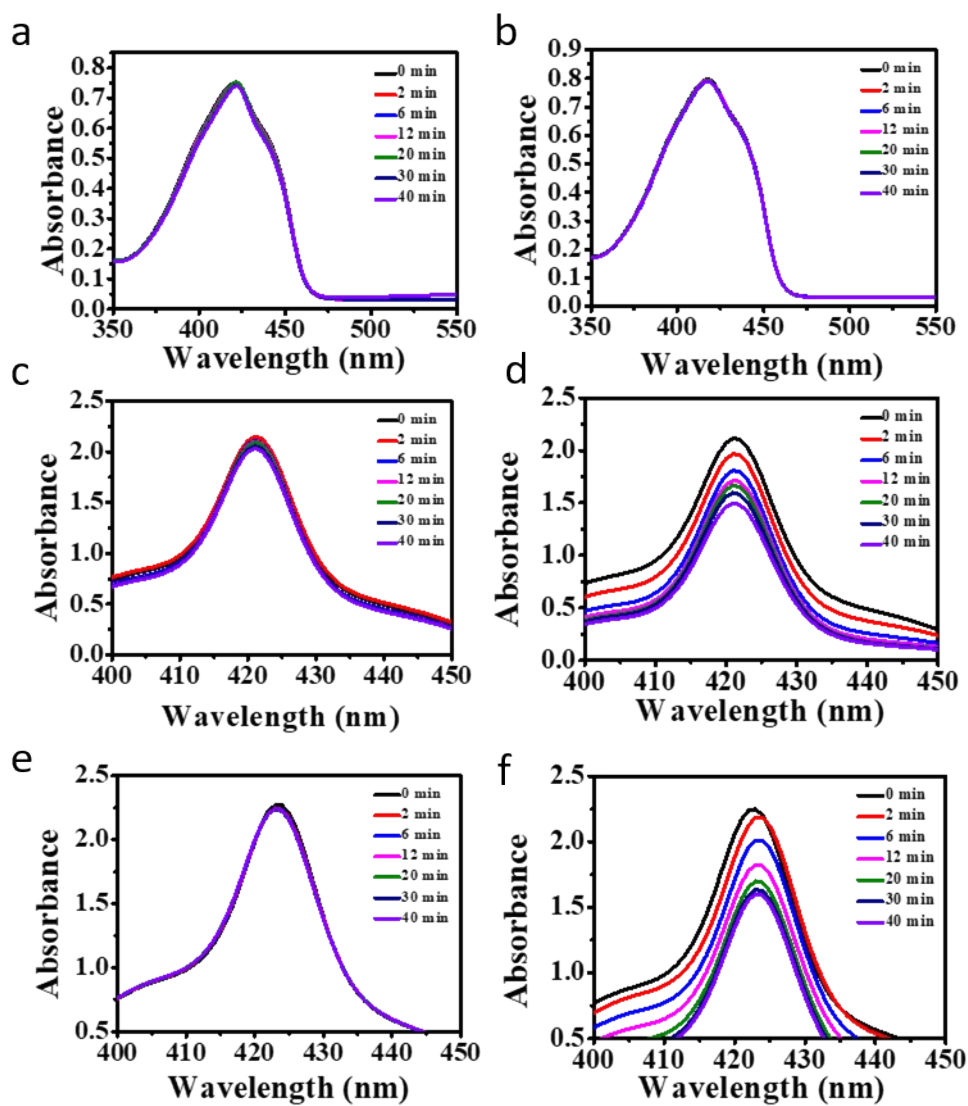
**Fig. S2** High-resolution XPS spectra of Zr 3d of PCN-224.



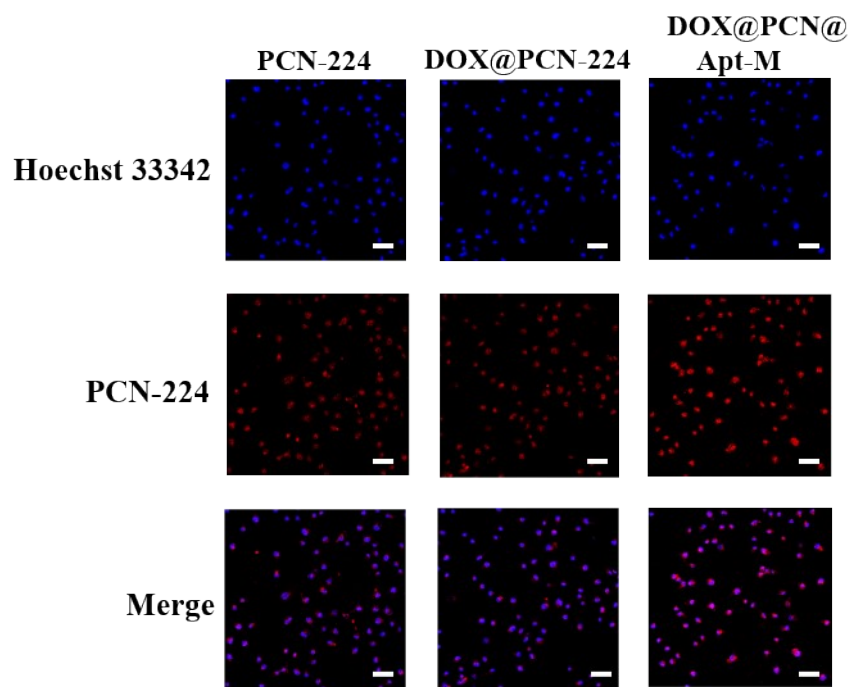
**Fig. S3** (a) The UV-Vis spectra of DOX (10, 20, 40, 60, 80, 100  $\mu\text{g mL}^{-1}$ ). (b) The calibration curve of absorbance at 480 nm and the concentration of DOX.



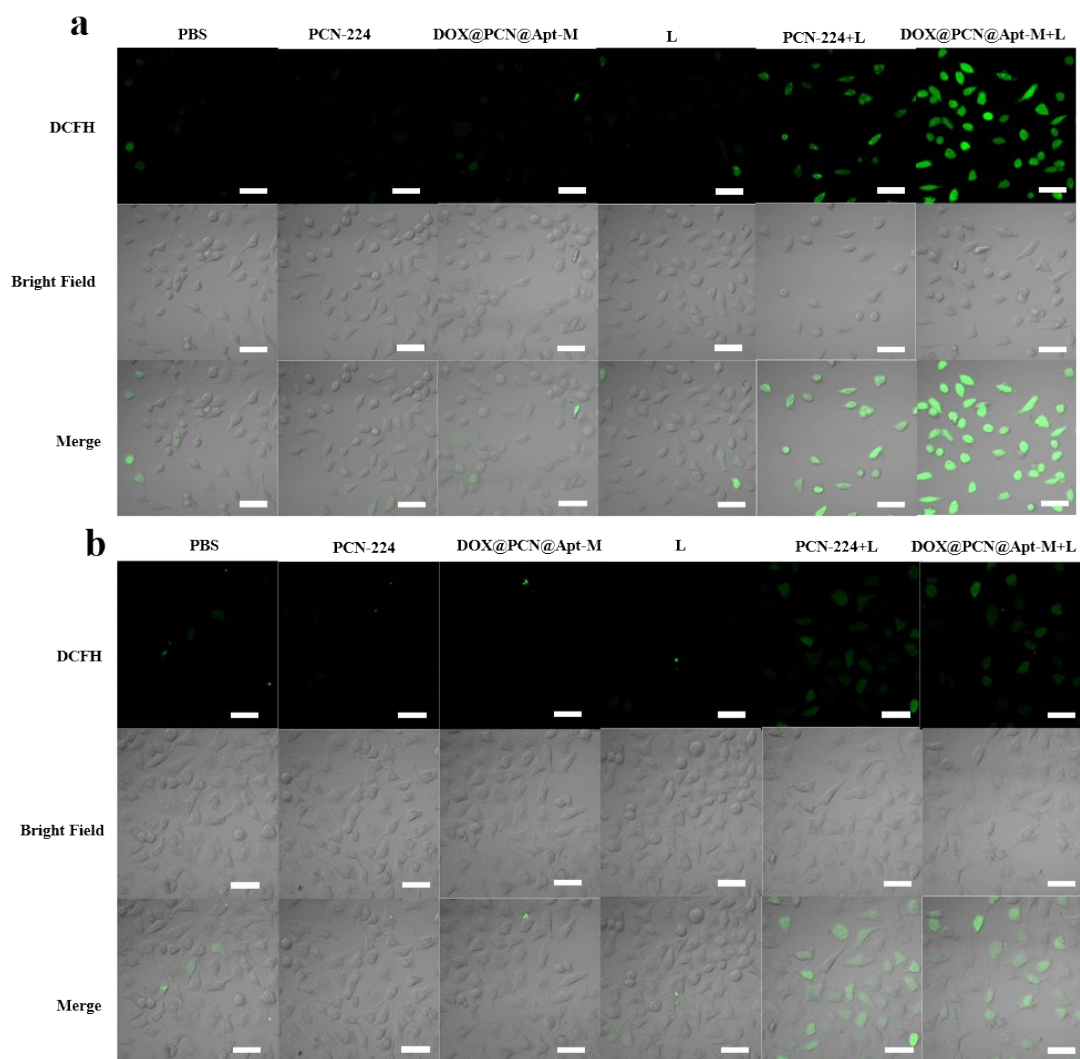
**Fig. S4** (a) The pore size distribution of the PCN-224 and DOX@PCN-224. (b) UV-vis absorbance spectra of DNA before (black) and after (red) modification with DOX@PCN-224. (c) Stability of DOX@PCN@Apt-M in different solutions.



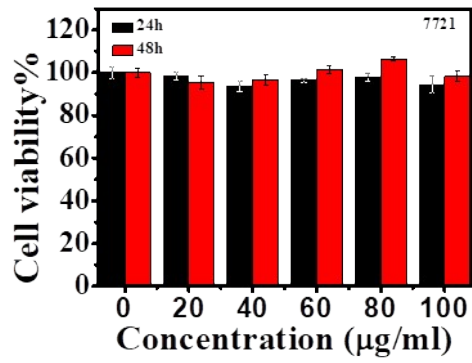
**Fig. S5** UV-vis spectra of (a) DPBF, (b) DPBF + laser (L), (c) DPBF + PCN-224, (d) DPBF + PCN-224 + L, (e) DPBF + DOX@PCN@Apt-M, (f) DPBF + DOX@PCN@Apt-M + L. Laser involved groups were exposed to 808 nm at 2 W cm<sup>-2</sup> for 15 min.



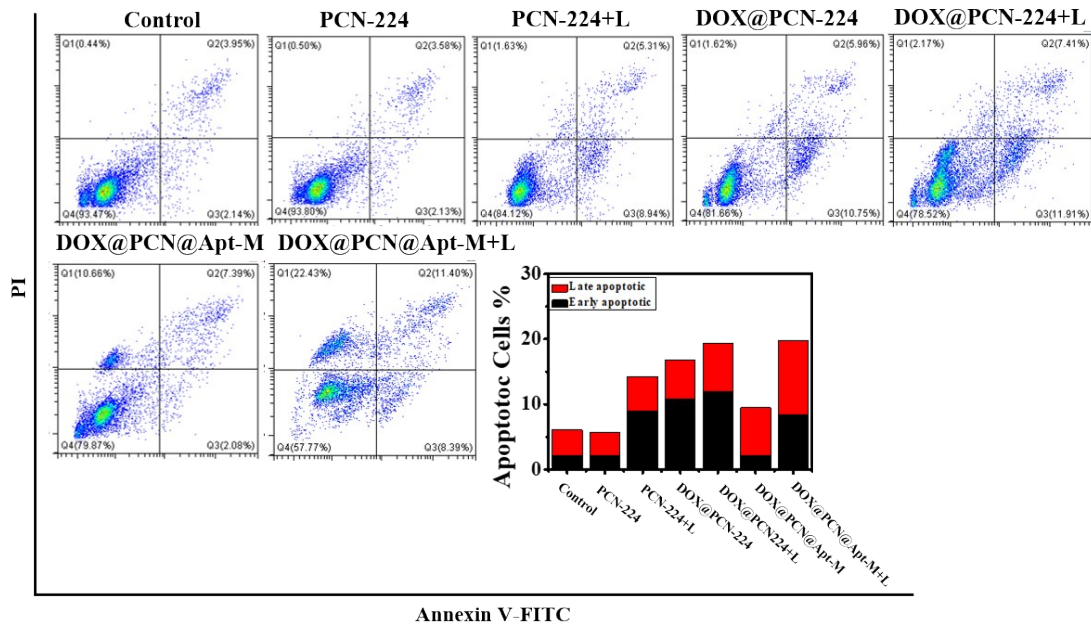
**Fig.S6** CLSM images of MCF-7 cells treated with PCN-224, DOX@PCN-224 and DOX@PCNApt-M for 4 hours. PCN-224 excitation wavelength = 543 nm and emission wavelength =  $650 \pm 35$  nm. Scale bar: 50  $\mu$ m.



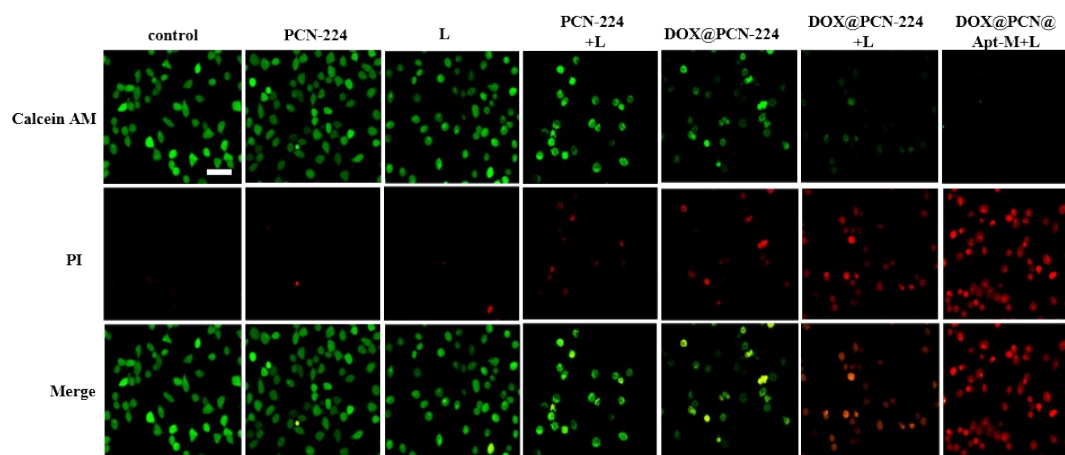
**Fig. S7** Intracellular  $^1\text{O}_2$  detection under laser irradiation using DCFH-DA as the indicator. CLSM images of (a) MCF-7 cells and (b) HepG-2 cells after treatment with (1) PBS, (2) PCN-224, (3) DOX@PCN@Apt-M, (4) Laser (L), (5) PCN-224+L, (6) DOX@PCN@Apt-M +L. Scale bar: 50  $\mu\text{m}$ . Cells in laser involved groups were exposed to 808 nm laser irradiation at 2  $\text{W cm}^{-2}$  for 15 min.



**Fig. S8** The cell viability of 7721 after treatment with PCN-224 for 24 and 48 h at various concentrations.



**Fig. S9** Flow cytometry analysis of HepG-2 cell apoptosis after different treatments. Cells in laser involved group were exposed to 808 nm laser irradiation at 2 W cm<sup>-2</sup> for 15 min.



**Fig. S10** CLSM assay of Calcein/PI stained MCF-7 cells after different treatments. Red: dead cells, green: live cells. Scale bar is 50  $\mu\text{m}$ .