

Supplementary Material for

Nanoscale Two-dimensional Fe^{II}- and Co^{II}-Based Metal–Organic Frameworks of Porphyrin Ligand for the Photodynamic Therapy of Breast Cancer

Qing Li ^{1,‡}, Bo-Wei Xu ^{1,‡}, Yi-Min Zou ², Ru-Jie Niu ¹, Jin-Xiang Chen ^{2,*}, Wen-Hua Zhang ^{1,*} and David J. Young ³

¹ College of Chemistry, Chemical Engineering, and Materials Science, Soochow University, Suzhou 215123, China

² NMPA Key Laboratory for Research and Evaluation of Drug Metabolism, Guangdong Provincial Key Laboratory of New Drug Screening, School of Pharmaceutical Sciences, Southern Medical University, Guangzhou 510515, China

³ College of Engineering, Information Technology & Environment, Charles Darwin University, Darwin, Northern Territory 0810, Australia

[‡] These authors contributed equally to this work

^{*} Correspondence: whzhang@suda.edu.cn (W.-H.Z.); jxchen@smu.edu.cn (J.-X.C.)

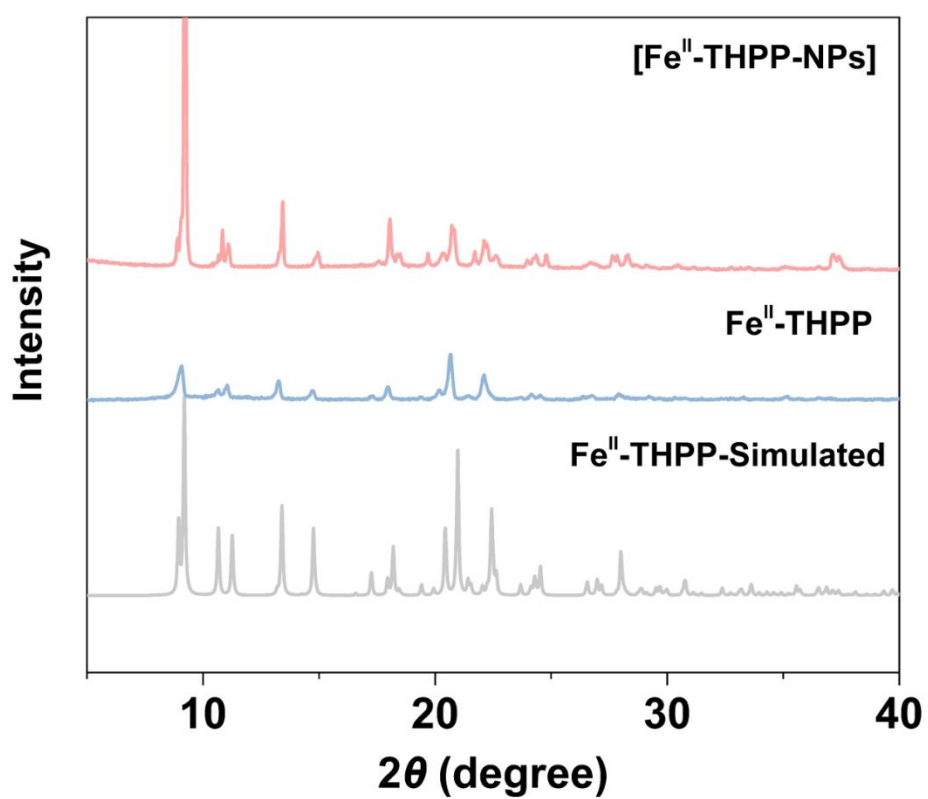


Figure S1. The PXRD patterns of the $[\text{Fe}^{\text{II}}\text{-THPP-NPs}]$ (light-red), $\text{Fe}^{\text{II}}\text{-THPP}$ (experimental, light-blue), and $\text{Fe}^{\text{II}}\text{-THPP}$ (simulated, gray), showing the good consistency of these diffraction patterns and thus the shared structure connectivity of these materials.

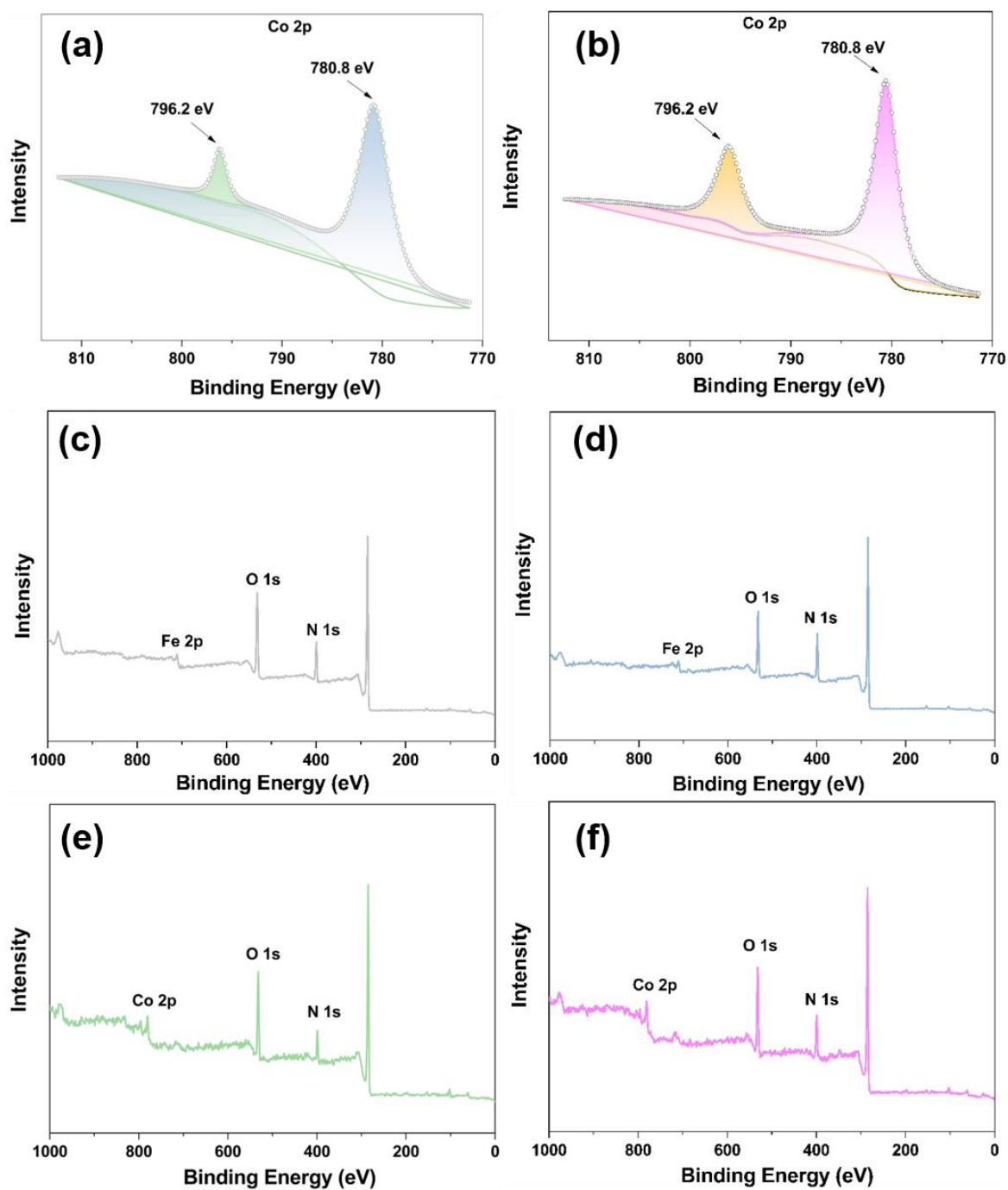


Figure S2. The Co 2p XPS spectra of [Co^{II}-THPP-flower] (a) and [Co^{II}-THPP-film] (b), showing binding energies at 780.8 eV (Co 2p_{3/2}) and 796.2 eV (Co 2p_{1/2}) (a, b). The full XPS spectra of Fe^{II}-THPP (c), [Fe^{II}-THPP-NPs] (d), [Co^{II}-THPP-flower] (e) and [Co^{II}-THPP-film] (f).

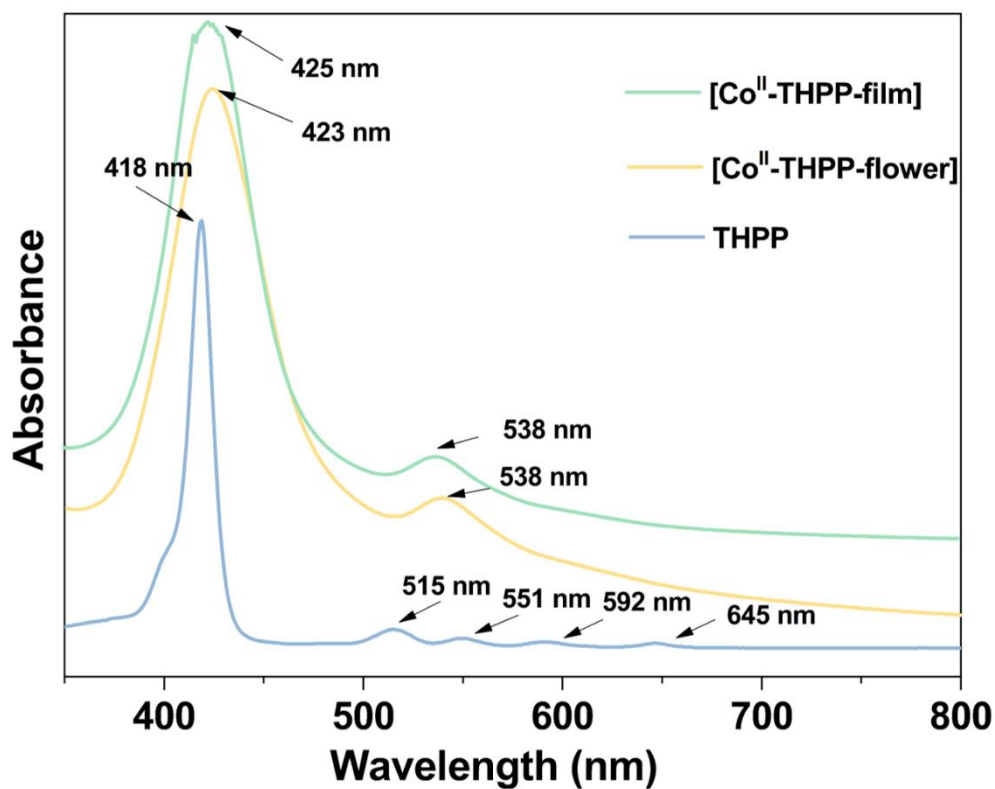


Figure S3. UV-Vis absorption spectra of the free-based ligand THPP (light-blue), [Co^{II}-THPP-flower] (light orange) and [Co^{II}-THPP-film] (light green) in MeOH solution.

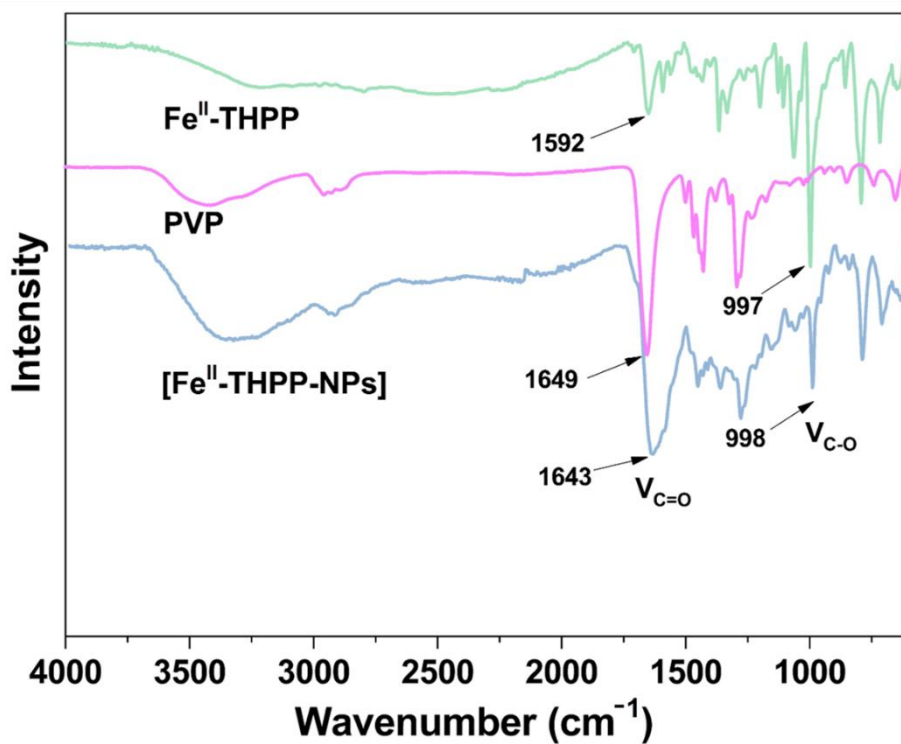


Figure S4. FT-IR spectra of PVP, Fe^{II}-THPP, and [Fe^{II}-THPP-NPs], showing the successful coating of PVP onto the surface of Fe^{II}-THPP.

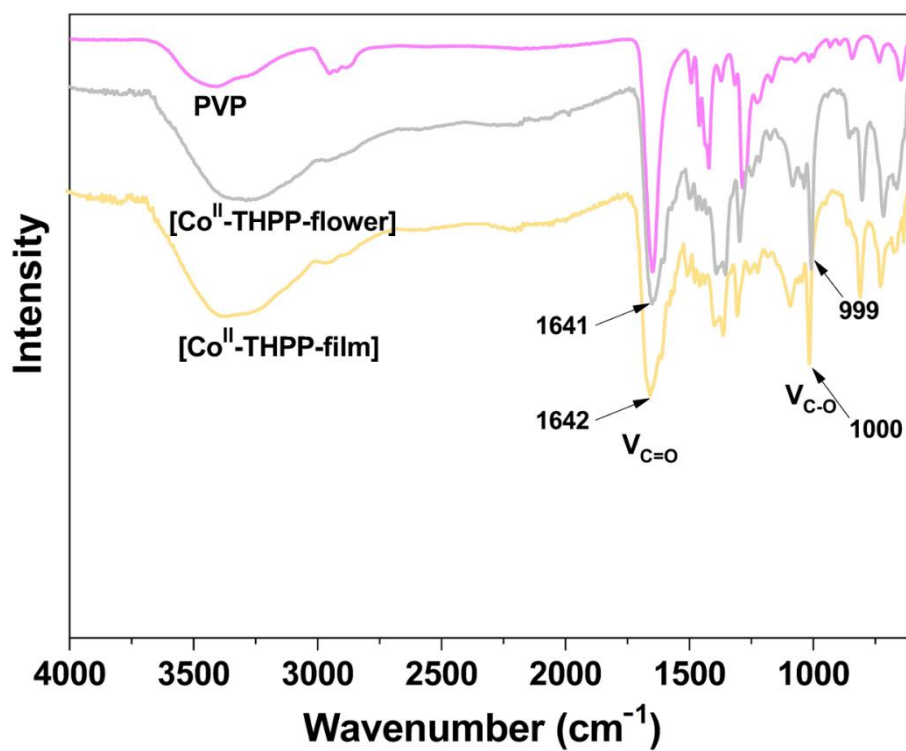


Figure S5. A comparison of the FT-IR spectra of PVP, [Co^{II}-THPP-flower] and [Co^{II}-THPP-film], showing the successful coating of PVP on the surface of [Co^{II}-THPP-flower] and [Co^{II}-THPP-film].

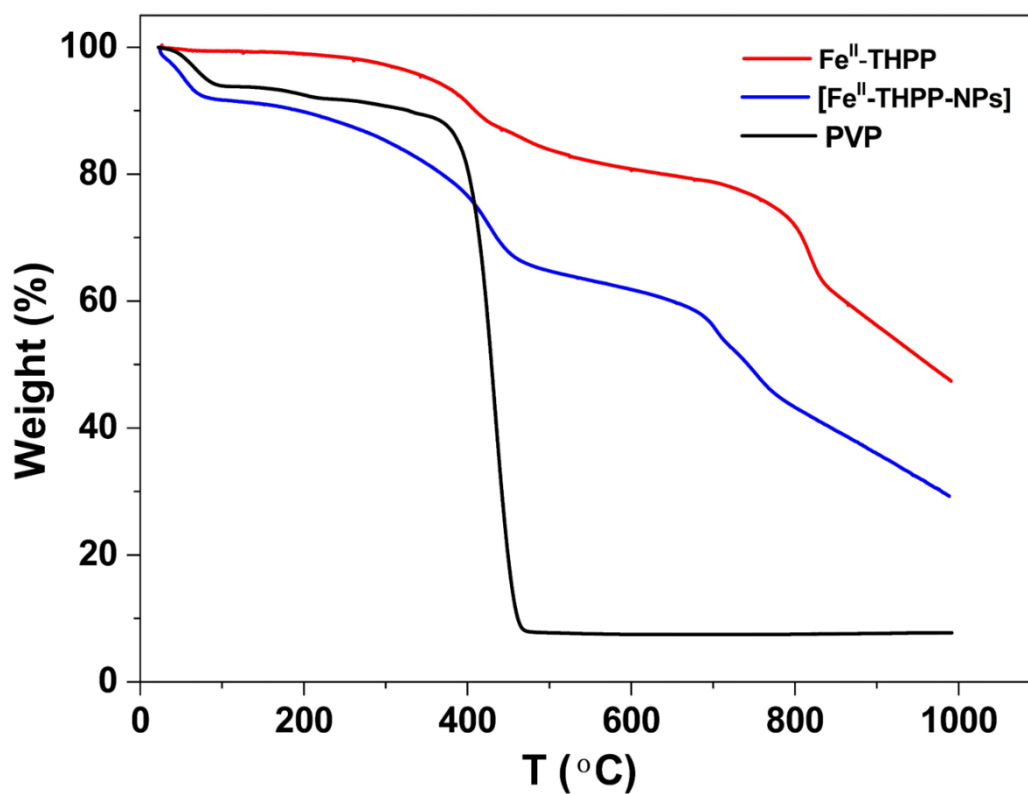


Figure S6. TGA curves of PVP (black), Fe^{II}-THPP (red), and [Fe^{II}-THPP-NPs] (blue) heated up to 1000°C.

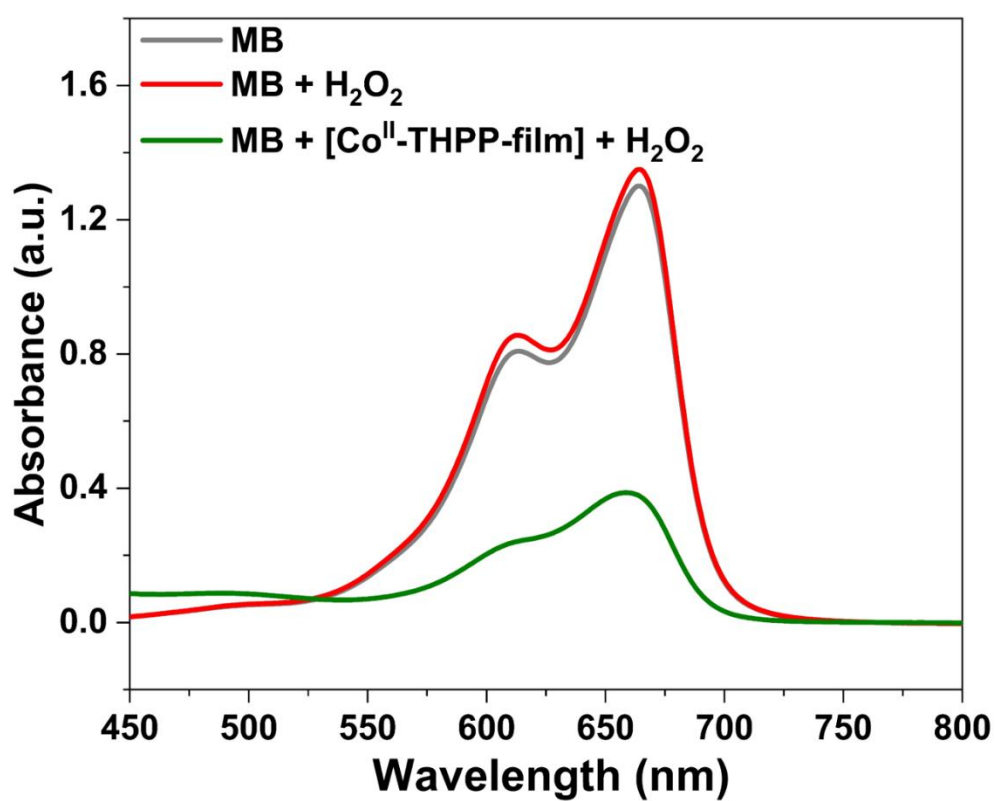


Figure S7. UV-Vis absorption spectra of MB, MB with H₂O₂, and MB with H₂O₂ in the presence of [Co^{II}-THPP-film] after incubation in PBS buffer for 30 min.

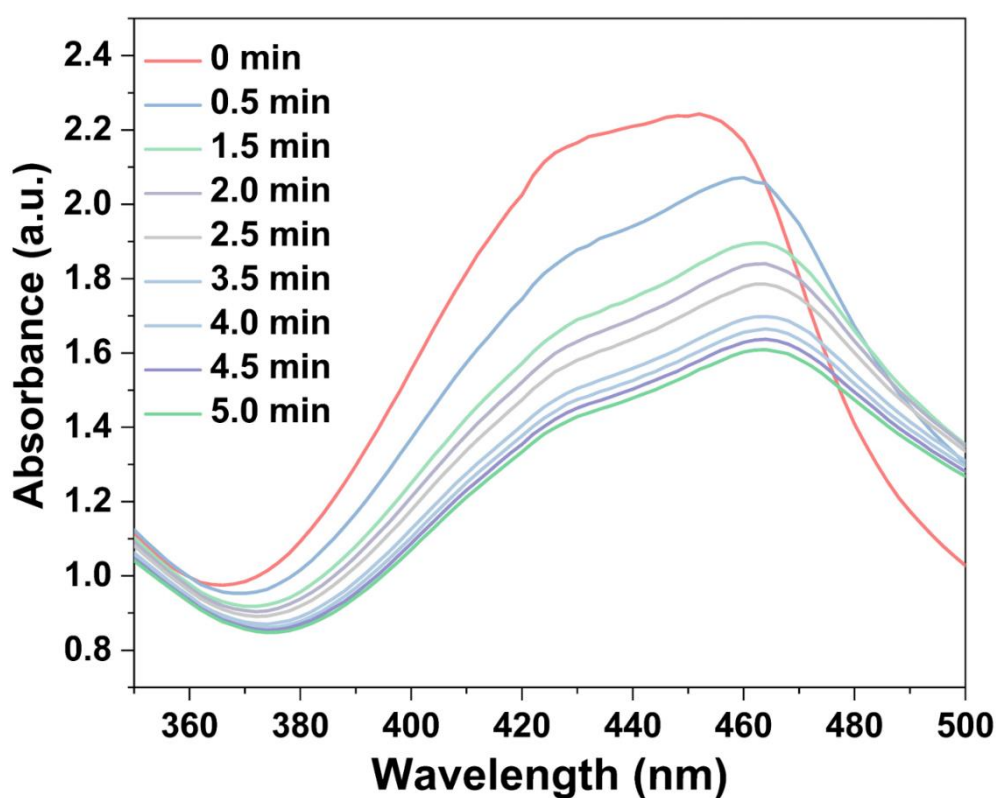


Figure S8. DPBF absorption changes in the presence of [Co^{II}-THPP-film].

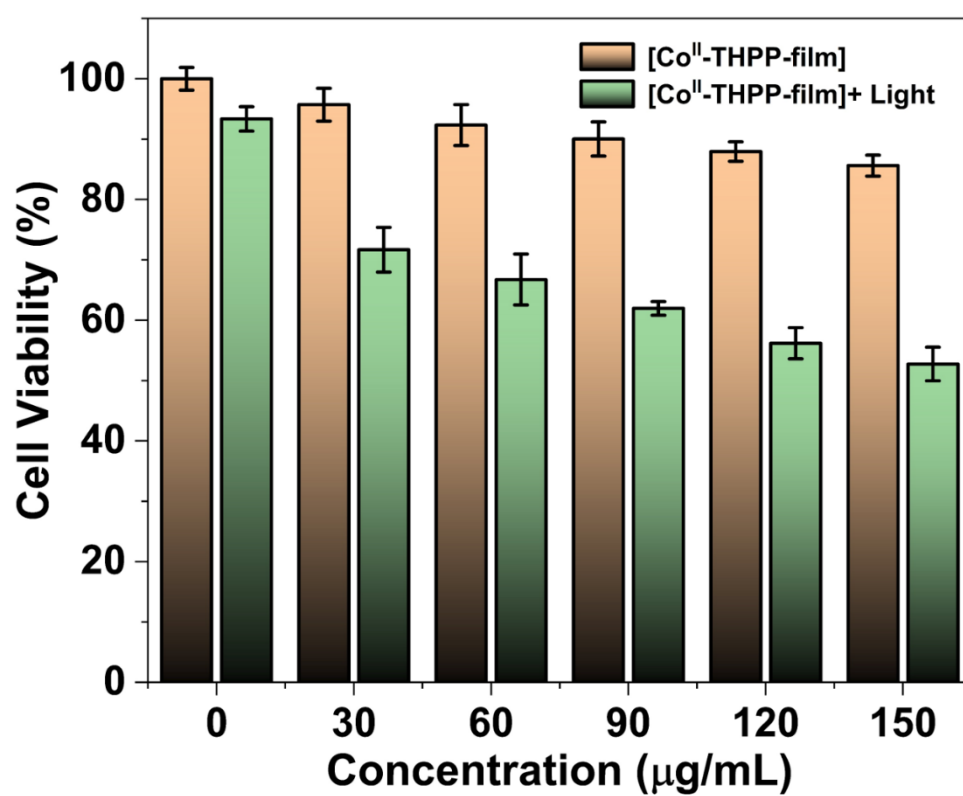


Figure S9. The cell viability of 4T1 cells treated with different concentrations of [Co^{II}-THPP-film] in the absence/presence of 660 nm laser (220 mW cm⁻²) irradiation. Data are represented as means \pm SD; n = 5.