

Fe₃O₄@MnO₂@PPy nanocomposites overcome hypoxia: magnetic targeting assisted controlled chemotherapy and enhanced photodynamic/photothermal therapy

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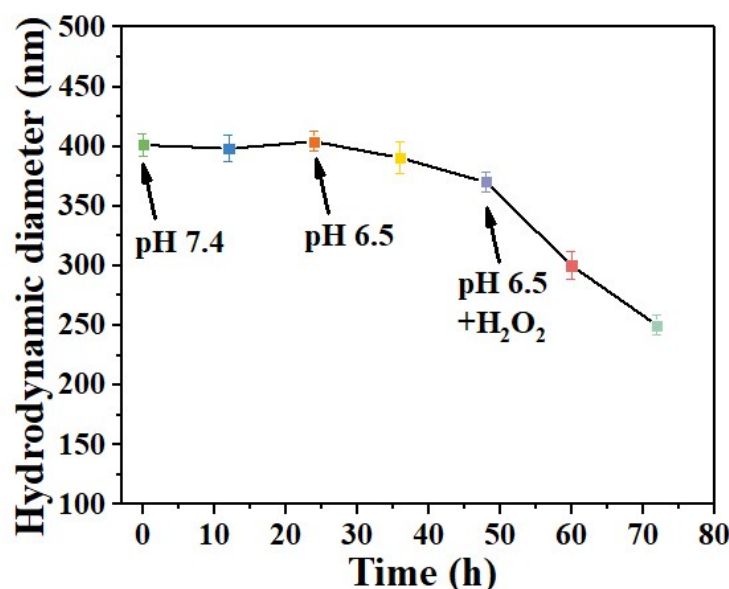


Fig. S1 The changes in hydrodynamic size of Fe₃O₄@MnO₂@PPy in medium at various conditions (0-24 h: pH 7.4, 24-48 h: pH 6.5, 48-72 h: pH 6.5+0.03% H₂O₂) measured by the DLS test.

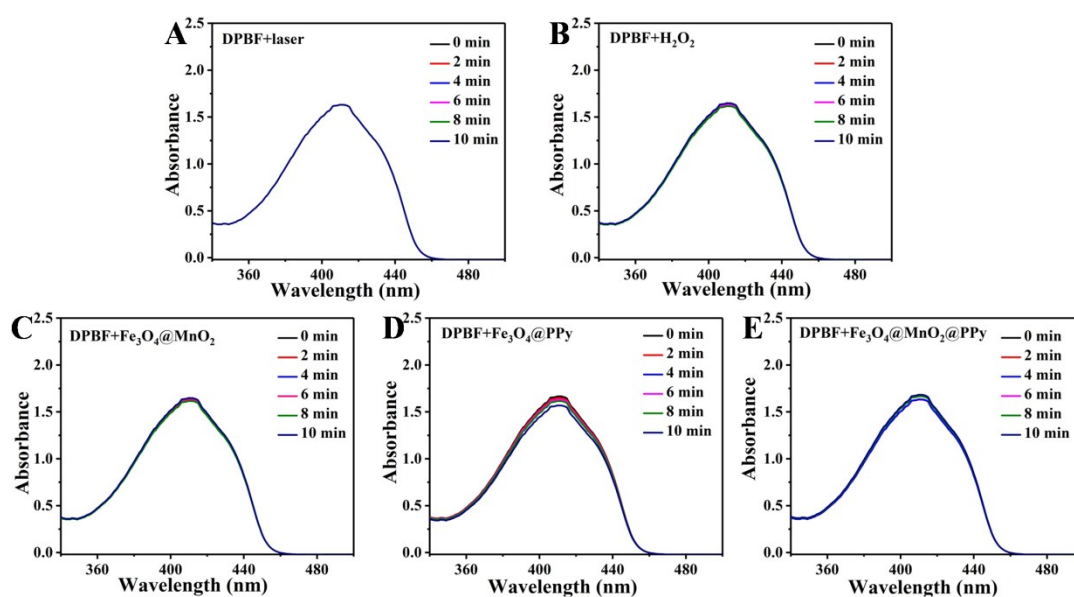


Fig. S2 Absorption spectra of DPBF-containing solutions of (A) nothing under a 638nm laser irradiation (1.0 W·cm⁻²), (B) H₂O₂, (C) Fe₃O₄@MnO₂, (D) Fe₃O₄@PPy and (E)

$\text{Fe}_3\text{O}_4@\text{MnO}_2@\text{PPy}$ without irradiation.

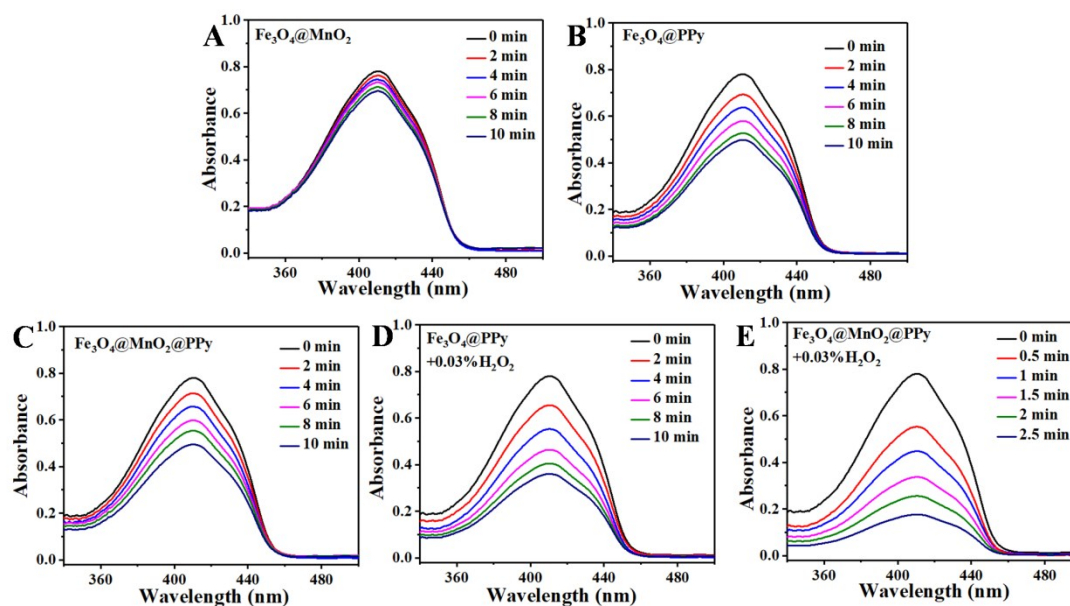


Fig. S3 Absorption spectra of a DPBF-containing solution of (A) $\text{Fe}_3\text{O}_4@\text{MnO}_2$, (B) $\text{Fe}_3\text{O}_4@\text{PPy}$, (C) $\text{Fe}_3\text{O}_4@\text{MnO}_2@\text{PPy}$, (D) $\text{Fe}_3\text{O}_4@\text{PPy}+0.03\%\text{H}_2\text{O}_2$ and (E) $\text{Fe}_3\text{O}_4@\text{MnO}_2@\text{PPy}+0.03\%\text{H}_2\text{O}_2$ under a 638nm laser irradiation ($1.0 \text{ W}\cdot\text{cm}^{-2}$), respectively.

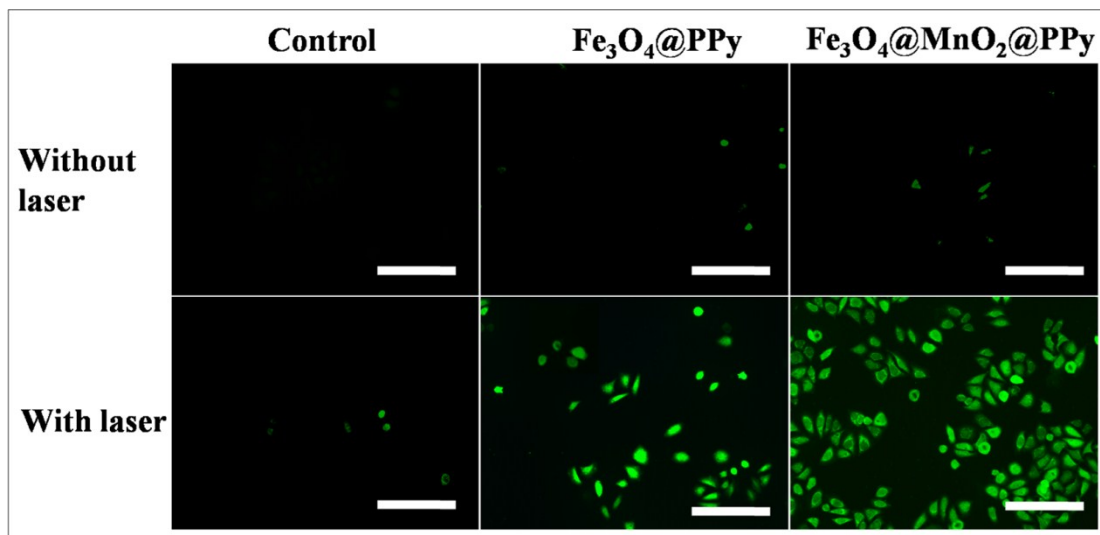


Fig. S4 Fluorescence microscopy images of HepG2 cells that received different treatment as indicated. Green color represents $^1\text{O}_2$ indicator DCFH-DA (scale bar= $100 \mu\text{m}$).

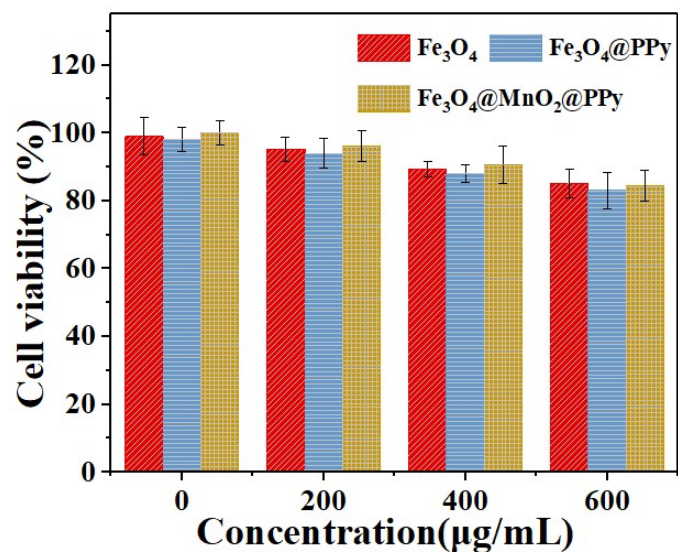


Fig. S5 Relative viabilities of HepG2 cells after incubation with Fe₃O₄, Fe₃O₄@PPy and Fe₃O₄@MnO₂@PPy at different concentration (0 µg/mL, 200 µg/mL, 400 µg/mL, 600 µg/mL).

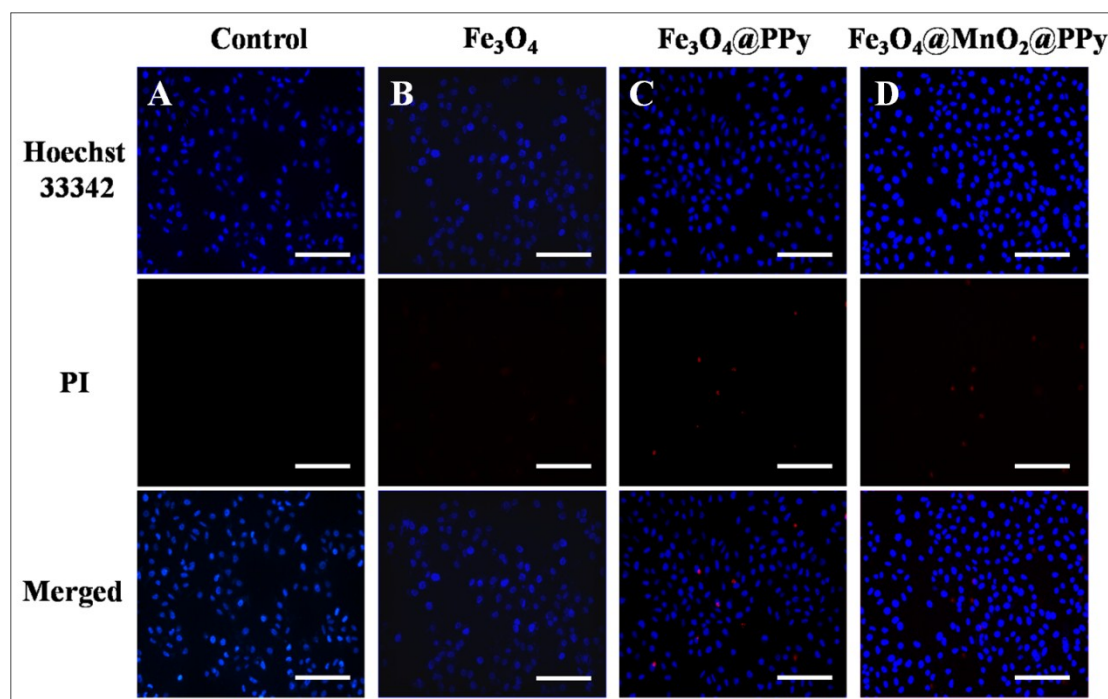


Fig. S6 Fluorescence microscopic images of HepG2 cells incubated with (A) medium, (B) Fe₃O₄, (C) Fe₃O₄@PPy and (D) Fe₃O₄@MnO₂@PPy. HeGp2 cells were dyed in blue by Hoechst 33342, red by PI and the merged images are also shown, respectively. The scale bars are 200 µm.