Electronic Supplementary Material (ESI)

Supporting information

Ferrous Ions Doped Layered Double Hydroxide：Smart 2D Nanotheranostic Platform with Imaging-Guided Synergistic Chemo/Photothermal Therapy for Breast Cancer

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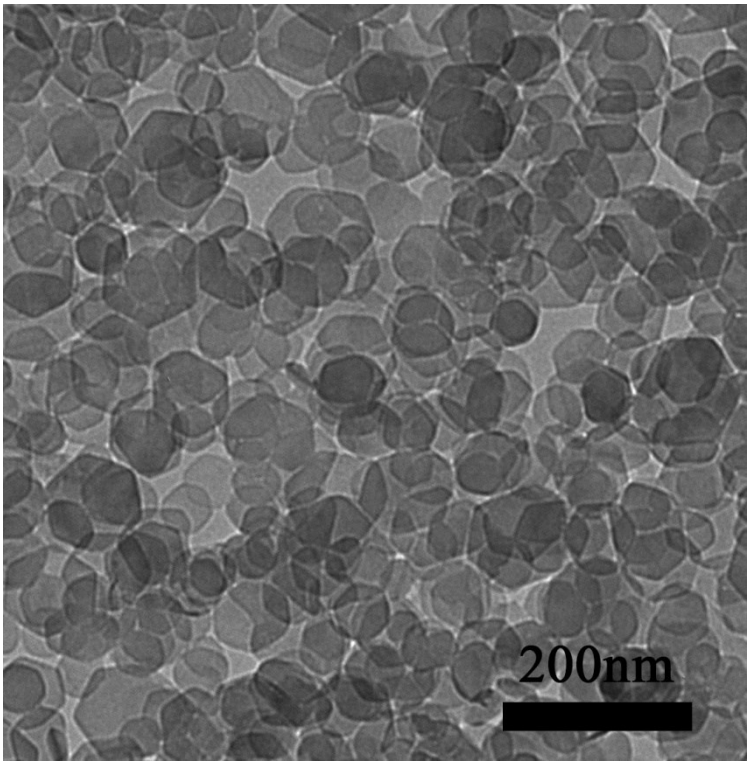

Fig. S1. TEM images of as-synthesized MgAl-LDH NPs

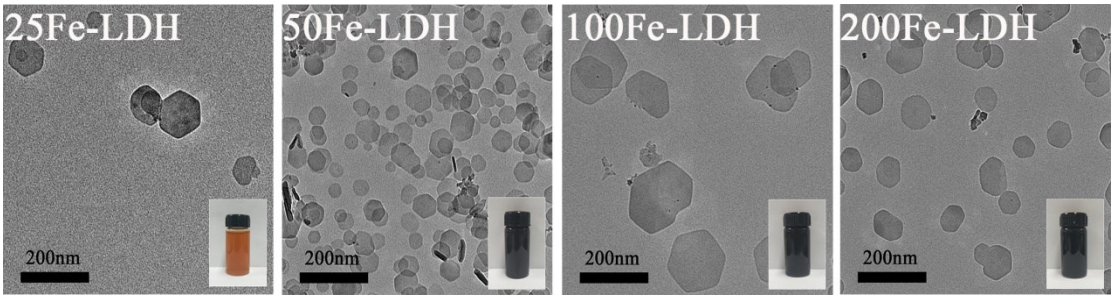

Fig. S2. TEM images of Fe-LDH NPs after addition of Fe^{2+} with various concentrations (0.25 mmol, 0.5 mmol, 1.0 mmol, 2.0 mmol) named as Fe_{25}-LDH, Fe_{50}-LDH, Fe_{100}-LDH, Fe_{200}-LDH corresponding with photographs.

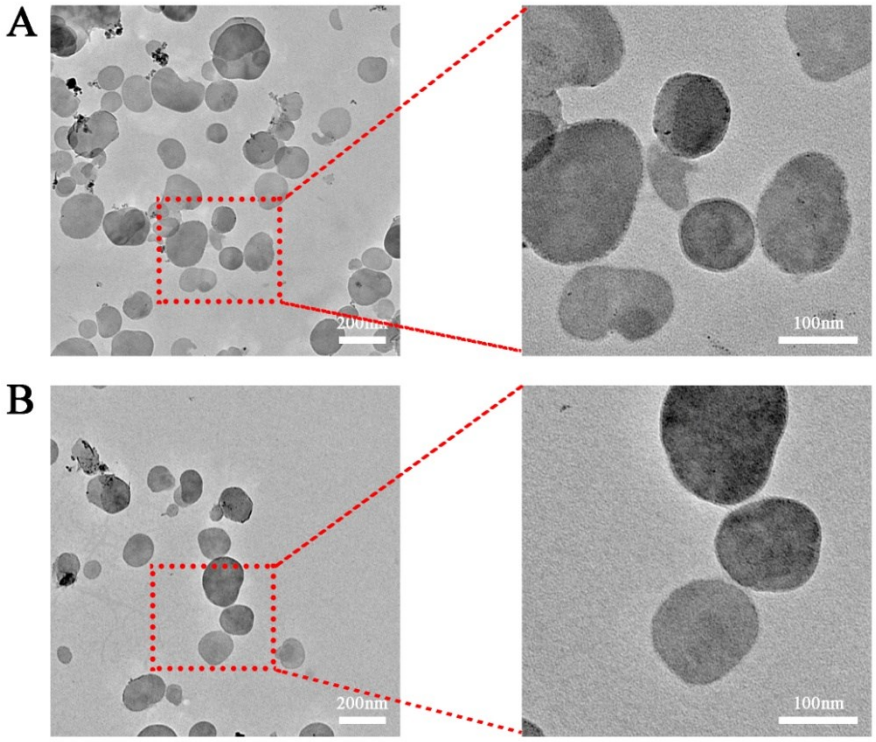

Fig. S3. TEM images of (A) Fe_{200}-LDH and (B) Fe_{200}-LDH/DOX NPs with different magnifications.

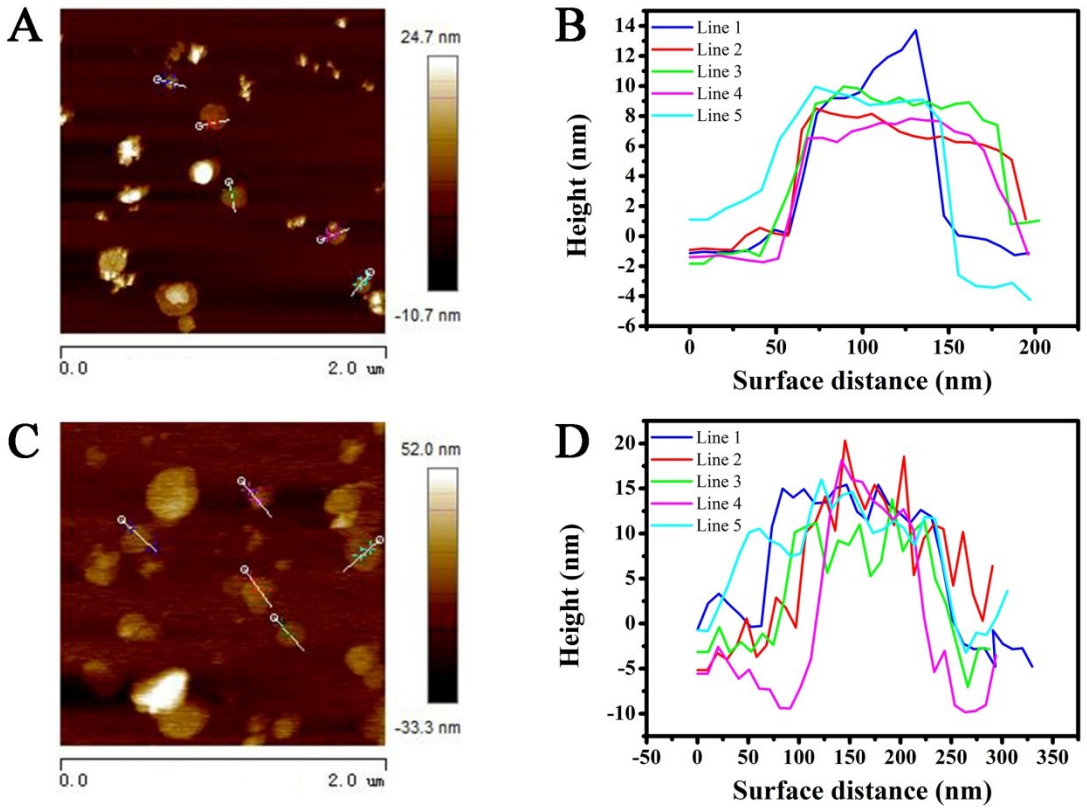

Fig. S4. AFM images of (A) Fe_{200}-LDH and (C) Fe_{200}-LDH/DOX NPs and thickness of (B) Fe_{200}-LDH and (D) Fe_{200}-LDH/DOX NPs measured from AFM image.

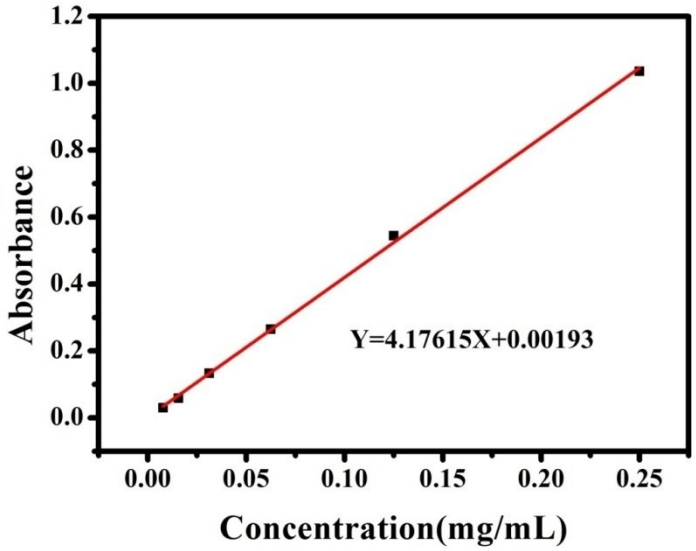

Fig. S5. Standard curve determined by UV-vis absorbance of DOX standard solutions with varied known concentrations

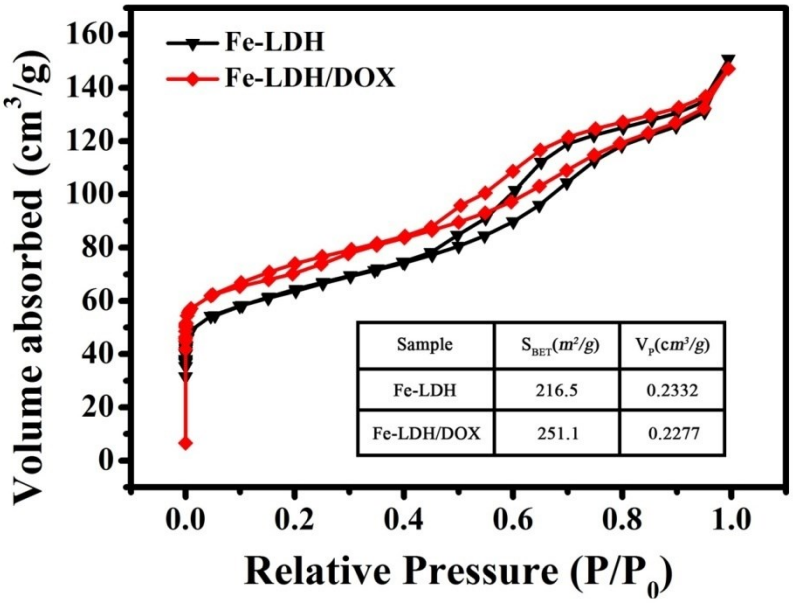

Fig. S6. N_2 adsorption−desorption isotherms of Fe-LDH and Fe-LDH/DOX nanocomposite

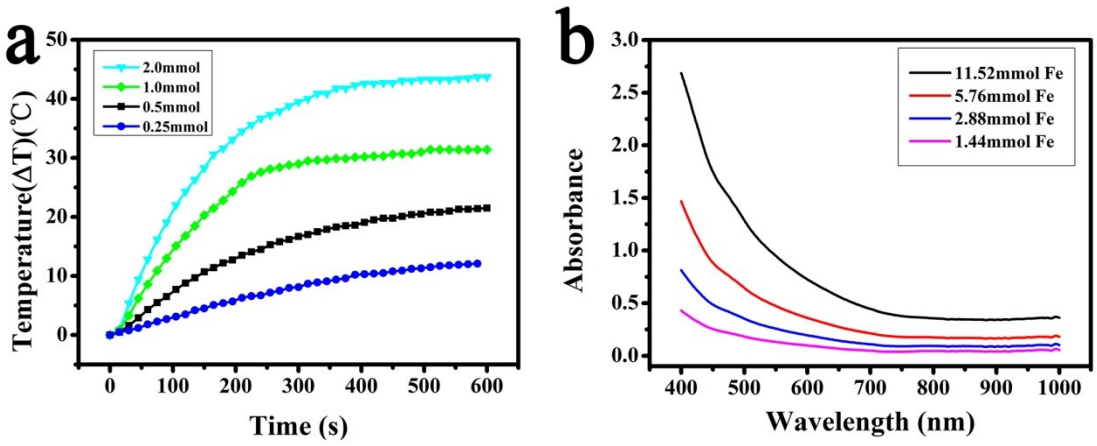

Fig. S7. (a) Photothermal heating curves of Fe_{25}-LDH, Fe_{50}-LDH, Fe_{100}-LDH, Fe_{200}-LDH NPs with same mass concentration. (b) The absorbance of Fe_{200}-LDH NPs with different Fe concentrations.

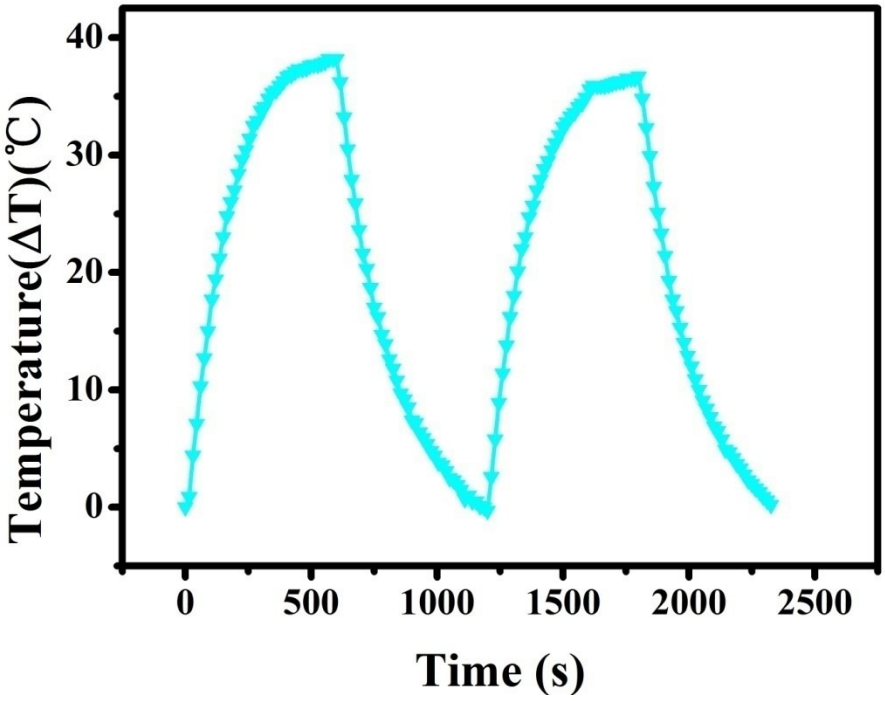

Fig. S8. (a) Photothermal heating curves of Fe_{200}-LDH NPs under 808 nm laser irradiation for two cycles.

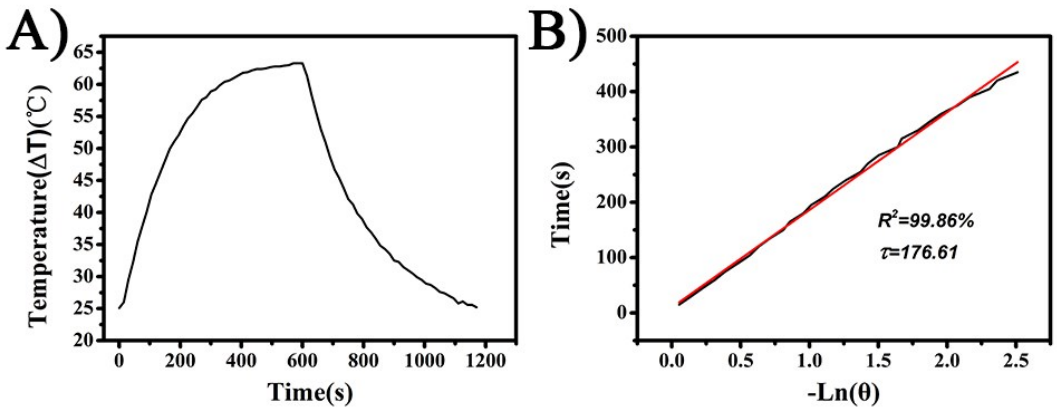

Fig. S9. (a) Photothermal heating curves of Fe_{200}-LDH under the irradiation of 808 nm laser for 10 minutes and turning off the laser (b) Calculation of the time constant using time and negative natural logarithm of the temperature from the cooling test.

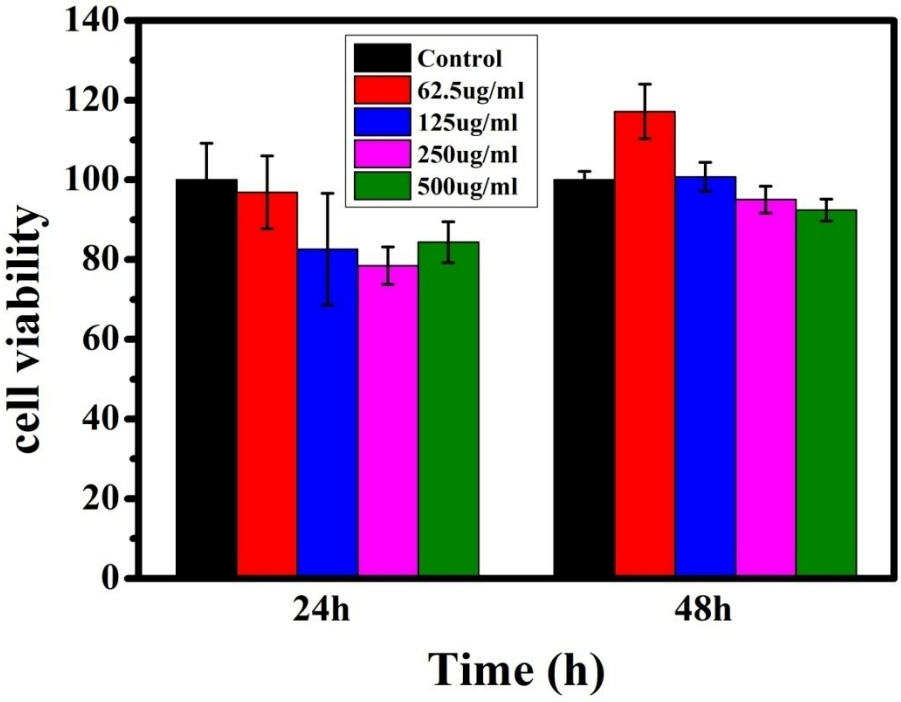

Fig. S10. Cell viability of L929 cells incubated with various concentrations of Fe_{200}-LDH NPs for 24 hours, 48 hours.

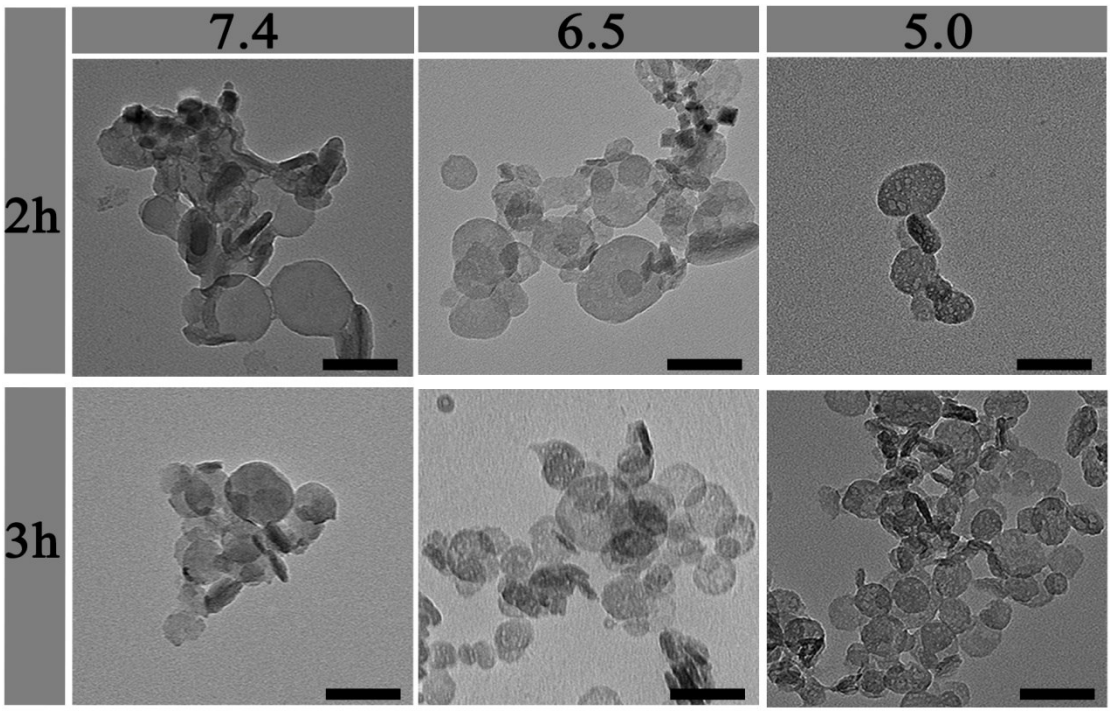

Fig. S11**.** Acidic etching performance of Fe_{200}-LDH NPs in a buffer solution of pH 7.4, 6.5, 5.0 for 2 hours and 3 hours; scale bar 100 nm

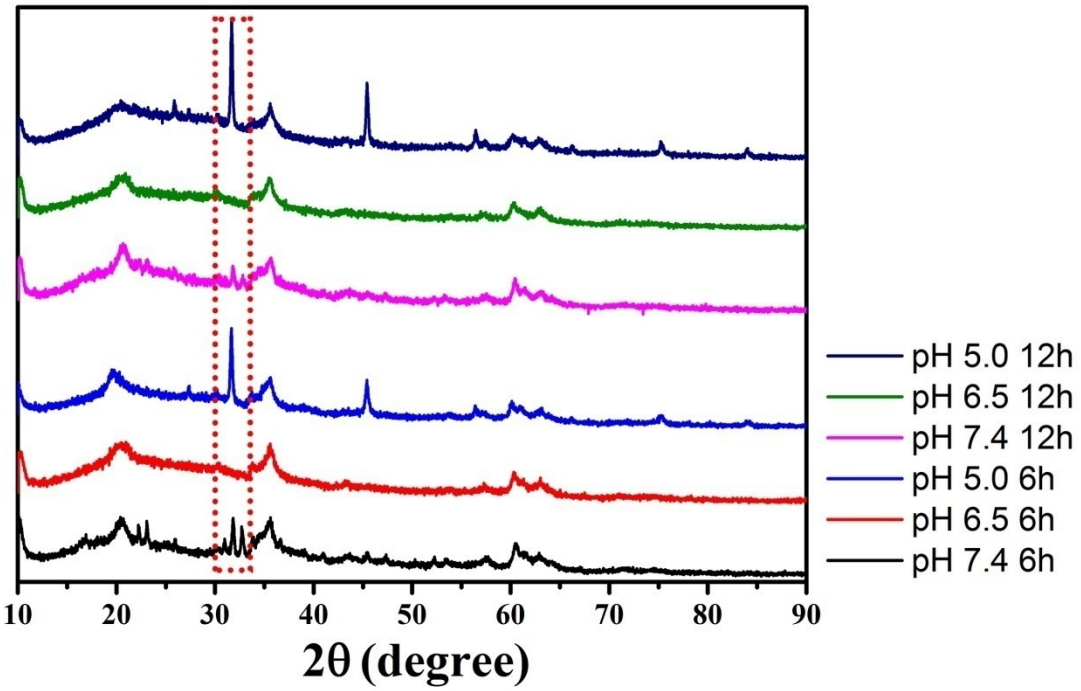

Fig. S12. XRD spectrum of Fe200-LDH in a buffer solution of pH 7.4, 6.5, 5.0 for 6 hours and 12 hours.

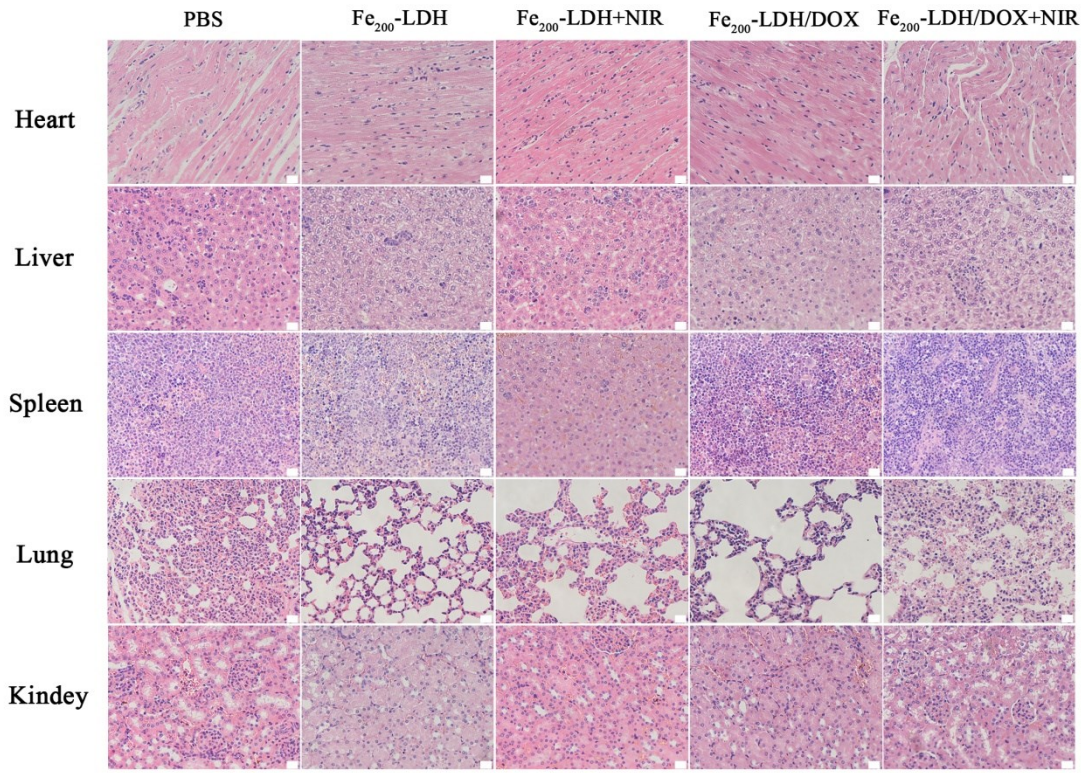

Fig. S13. HE staining histological images of major organs including heart, liver, spleen, lung, kindey after treatment with PBS, Fe_{200}-LDH, Fe_{200}-LDH + NIR, Fe_{200}-LDH/DOX, Fe_{200}-LDH/DOX + NIR respectively. Scale bar: 20μm.