

Supporting Information

Hollow Nanocapsules of NiFe Hydroxides to Enable Doxorubicin

Delivery and Combinational Tumour Therapy

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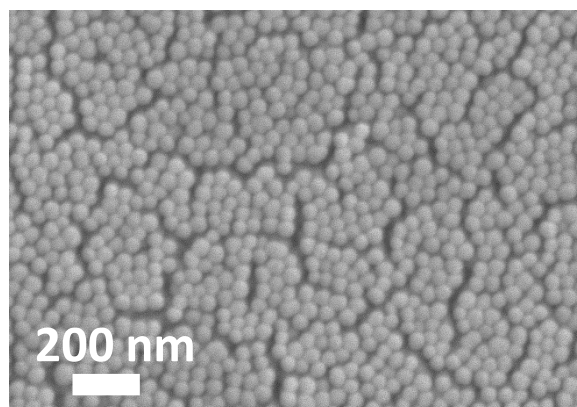


Figure S1. SEM image of SiO₂ nanoparticles as the template during the synthesis.

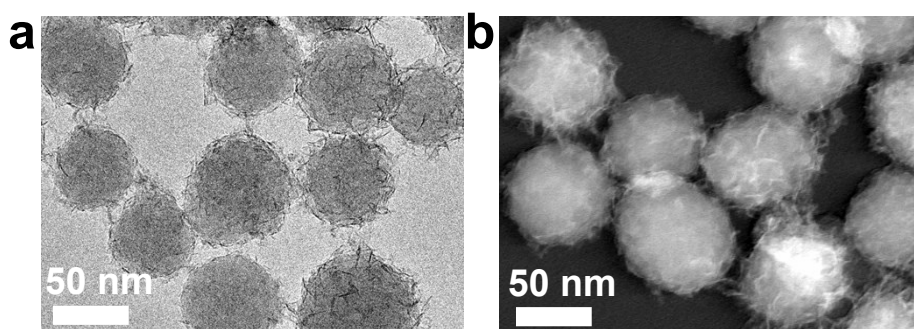


Figure S2. (a) TEM and (b) STEM image of SiO₂@NiFe(OH)_x nanoparticles.

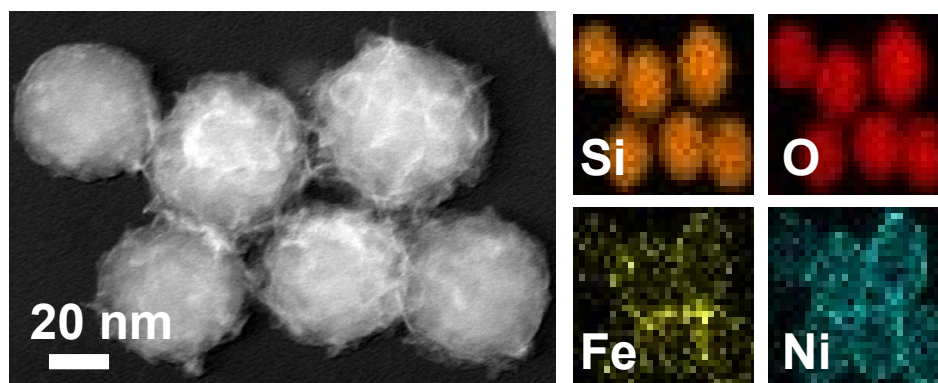


Figure S3. Elemental mapping of SiO₂@NiFe(OH)_x nanoparticles.

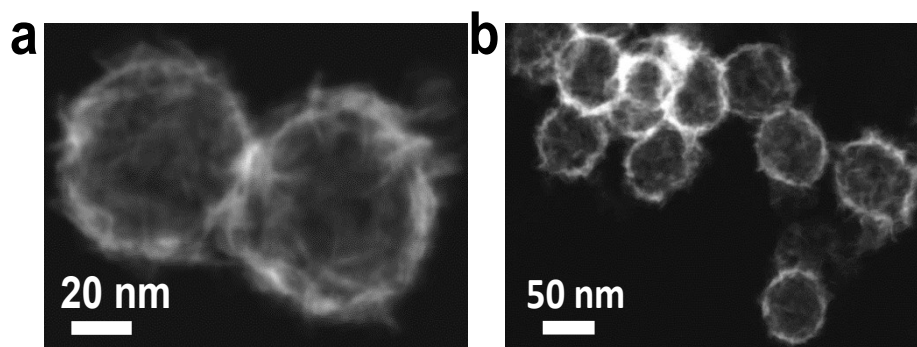


Figure S4. STEM images with (a) high and (b) low magnification of H-NiFe(OH)_x.

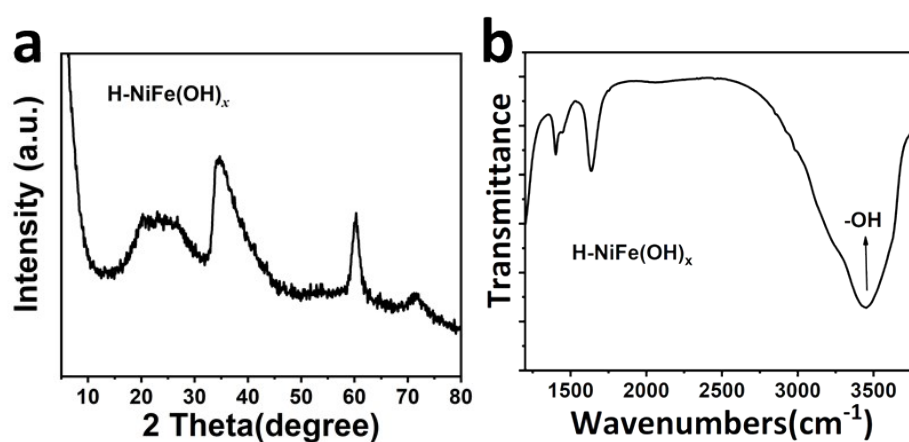


Figure S5. (a) XRD pattern and (b) FTIR spectrum of H-NiFe(OH)_x nanocapsules.

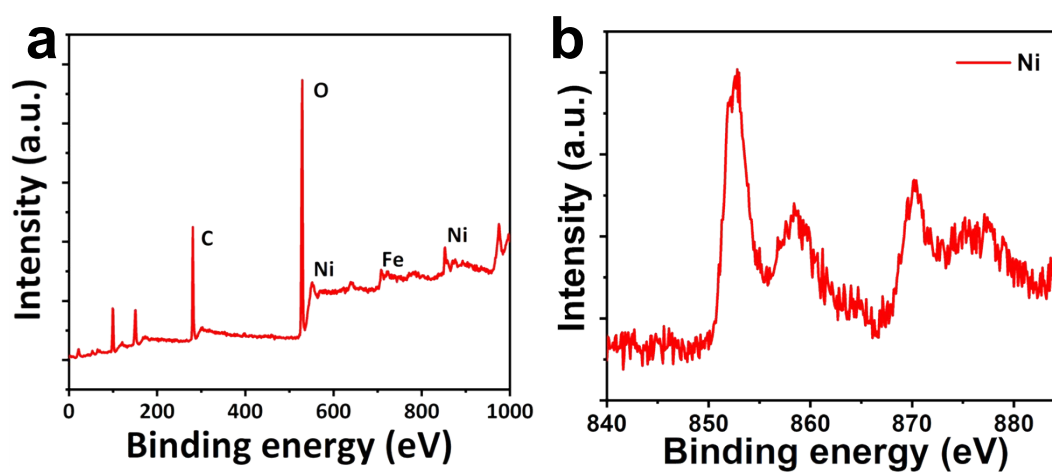


Figure S6. XPS (a) survey and (b) Ni 2p spectrum of H-NiFe(OH)_x.

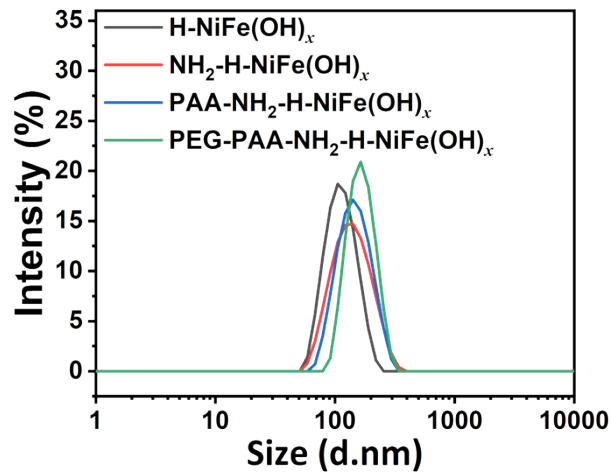


Figure S7. Size distribution of H-NiFe(OH)_x during surface modification.

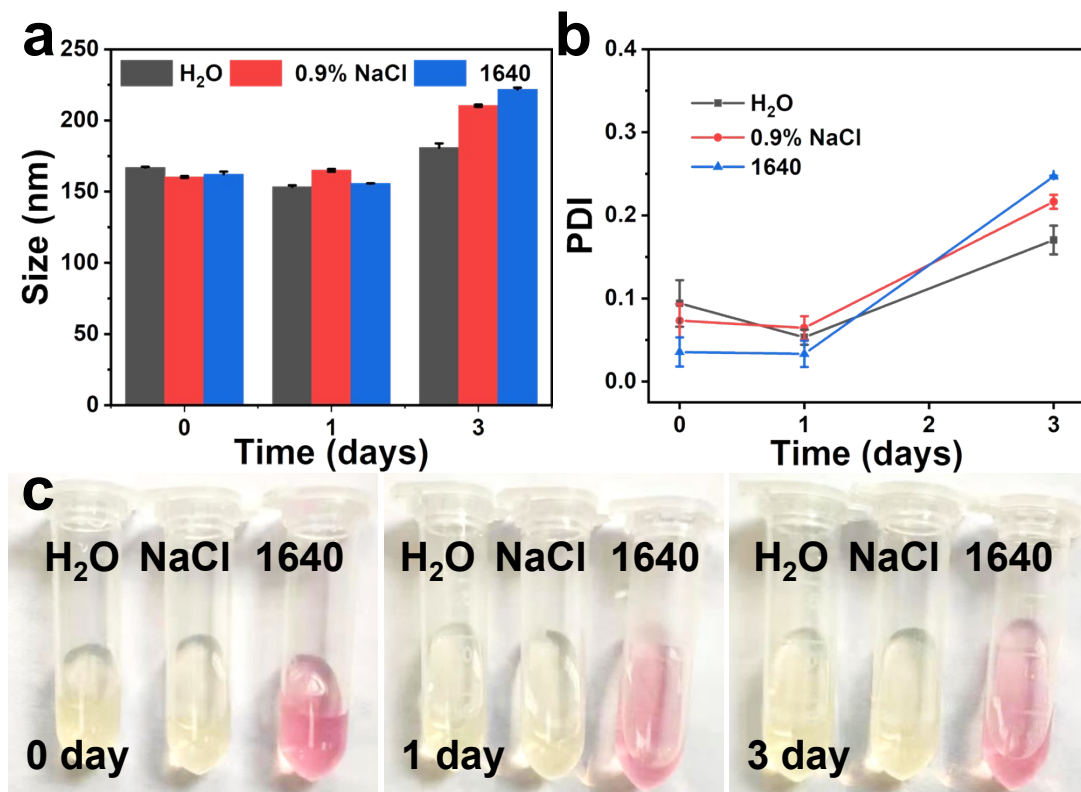


Figure S8. (a) Size distribution and (b) polymer dispersity index(PDI) of H-NiFe(OH)_x in water, normal saline (0.9% NaCl) and cell culture medium (1640) at 0, 1, 3 day. And (c) corresponding digital photographs.

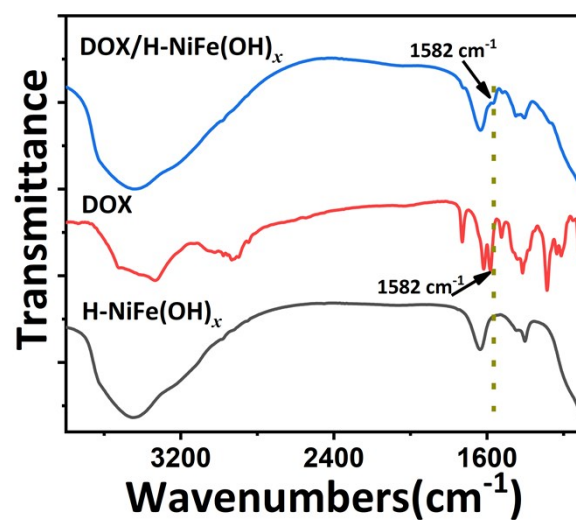


Figure S9. FTIR spectrum of H-NiFe LDH, DOX and DOX/H-NiFe(OH)_x.

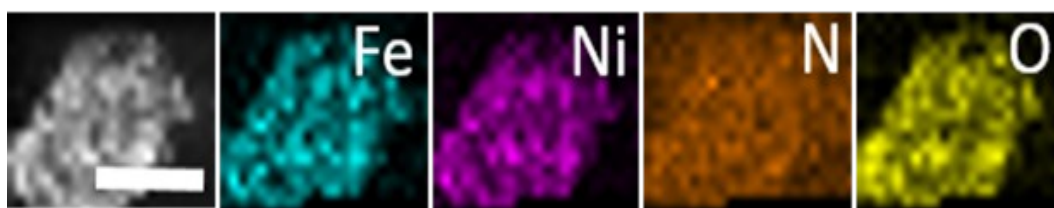


Figure S10. Elemental mapping images of H-NiFe(OH)_x (scale bar 50 nm).

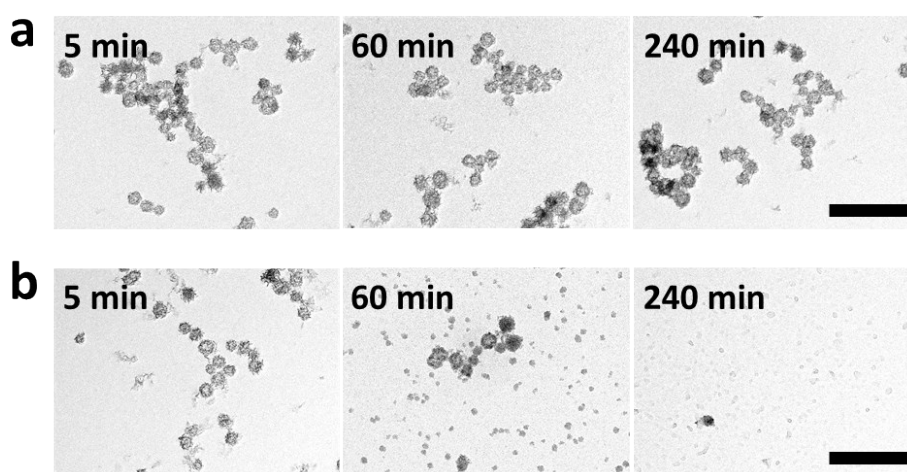


Figure S11. TEM images of H-NiFe(OH)_x nanocapsules in PBS with (a) pH 7.4 and (b) pH 5.5 for varied periods of time (scale bar 500 nm).

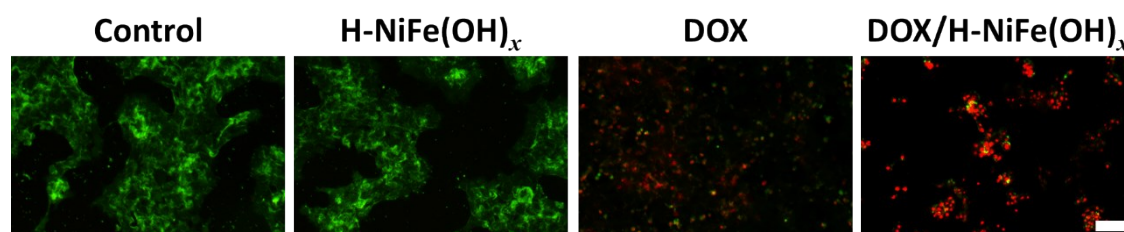


Figure S12. Fluorescence images of 4T1 cells stained with calcein-AM (green, live cells) and propidium iodide (red, dead cells) after treatments with various drugs. Scale bar: 200 μm .

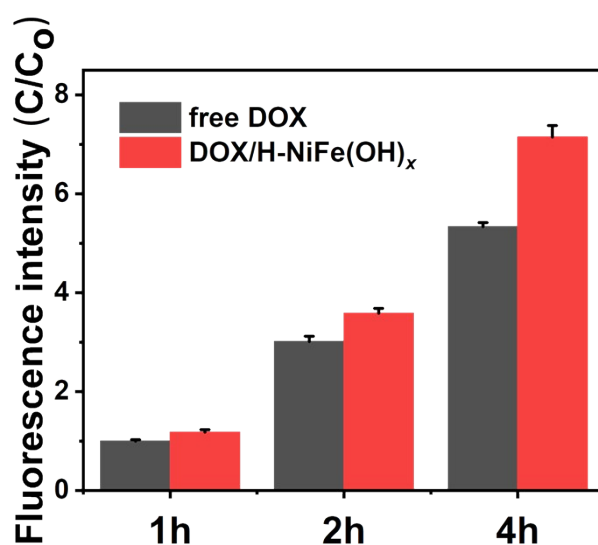


Figure S13. The fluorescence intensity of 4T1 cells incubated with DOX and DOX/H-NiFe(OH)_x quantified by flow cytometry.

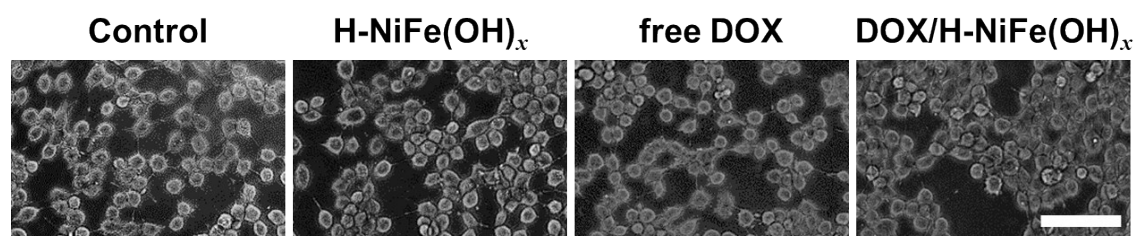


Figure S14. Bright filed images of 4T1 tumor cells incubated with DCFH-DA probe incubated with different drugs (Scale bar: 200 μm).

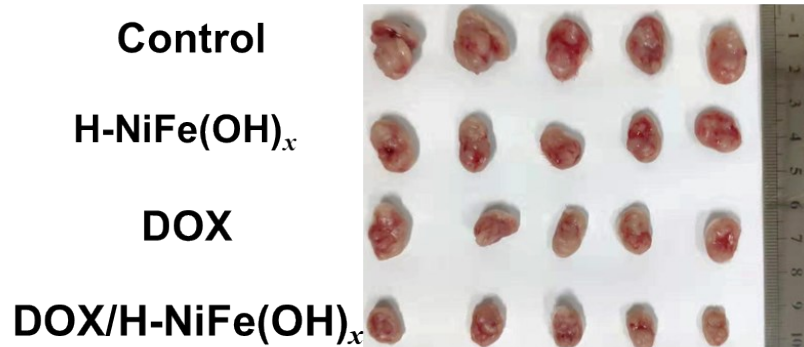


Figure S15. Digital photographs of tumours collected from mice after 15-day treatments.

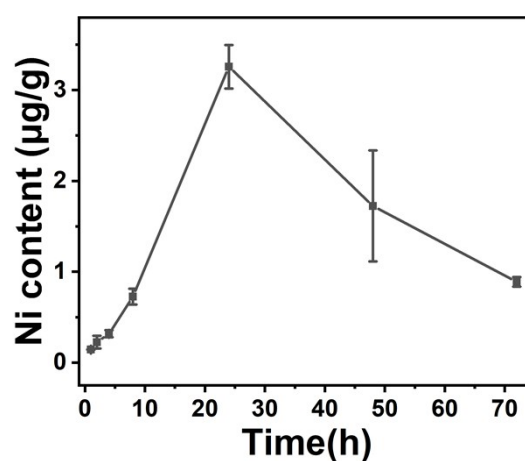


Figure S16. Ni content distribution (per unit tumor mass) after DOX/H-NiFe(OH)_x injection at different time points.

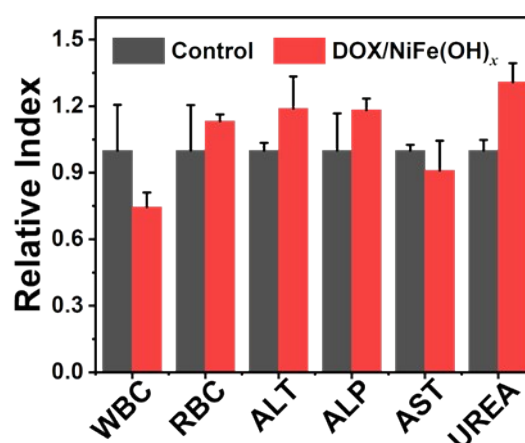


Figure S17. Acute and chronic toxicity assays of DOX/ H-NiFe(OH)_x after 30-day intravenous administrations.