

Supplementary Information

Zwitterionic polymer coated sorafenib-loaded Fe₃O₄ composite nanoparticles induced ferroptosis for cancer therapy

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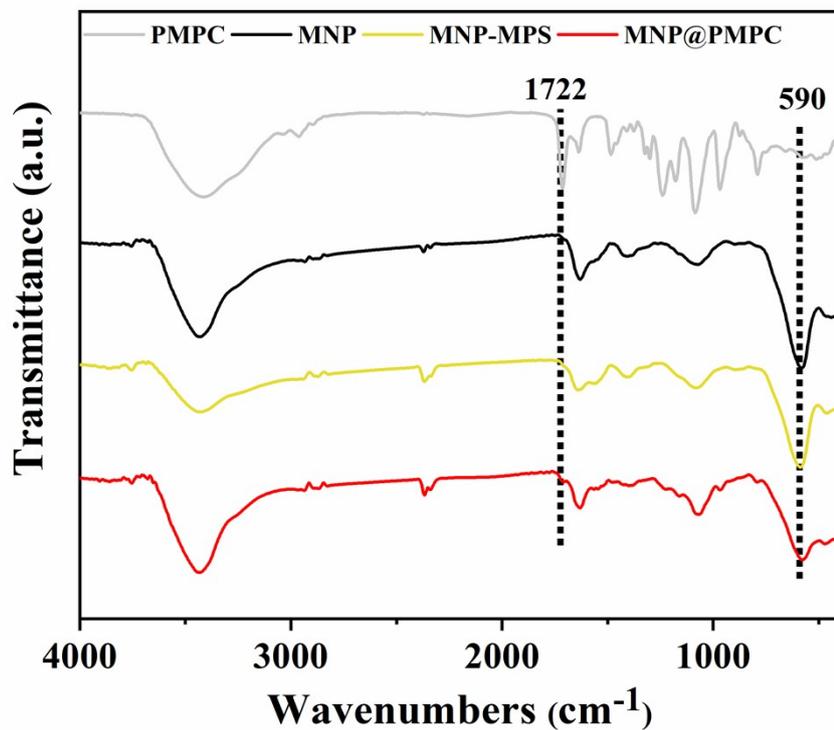


Figure S1. The Fourier transform infrared spectra of the PMPC, MNP, MNP-MPS and MNP@PMPC. The peak at 1722 cm^{-1} belongs to C=O bonds. The peak at 590 cm^{-1} belongs to Fe-O bond.

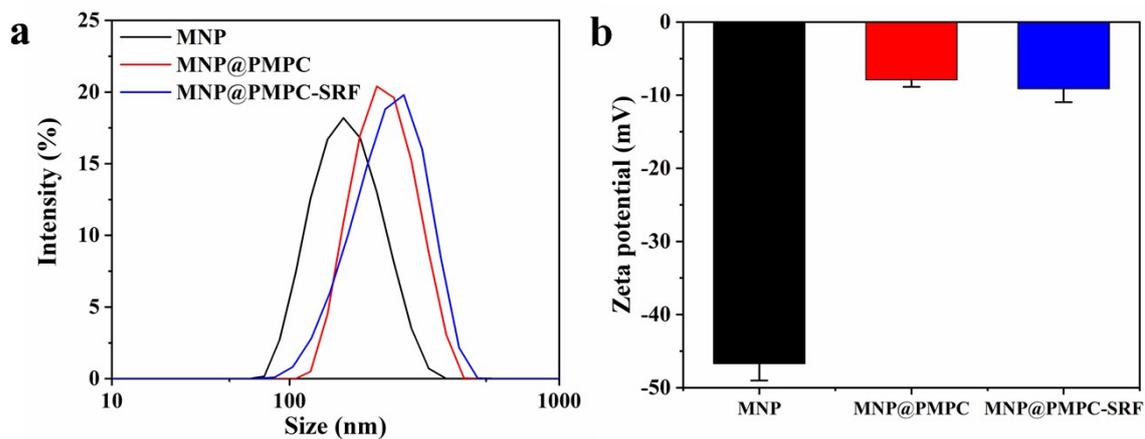


Figure S2. The (a) hydrodynamic diameter and (b) surface charge of MNP, MNP@PMPC and MNP@PMPC-SRF dispersed in water.

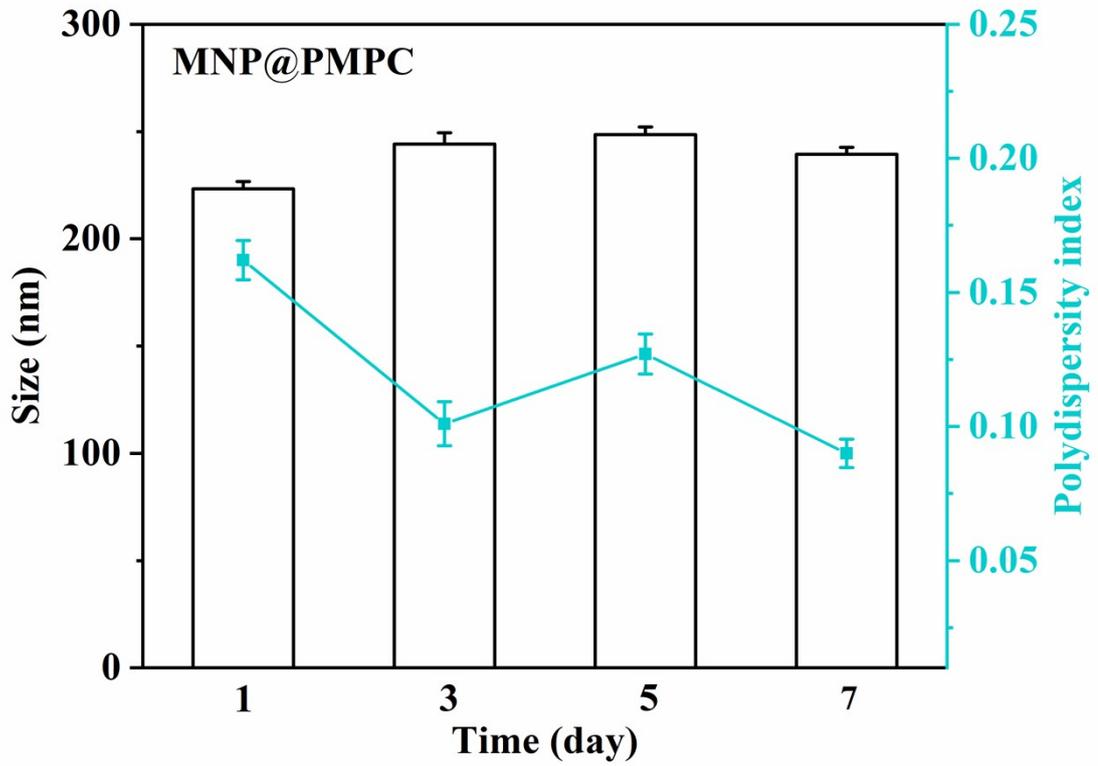


Figure S3. The hydrodynamic size and PDI of MNP@PMPC dissolved in water for different time.

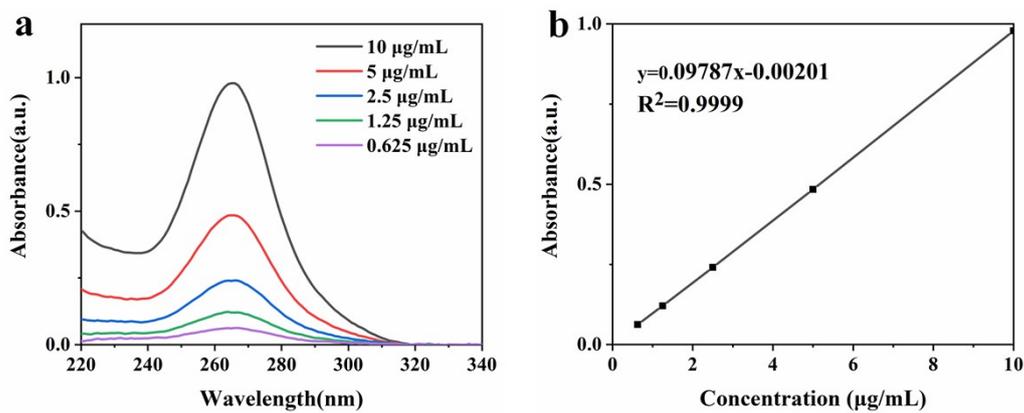


Figure S4. The (a) absorbance and (b) standard curve of SRF in mixed solution of EtOH and H₂O (1:1 v/v).

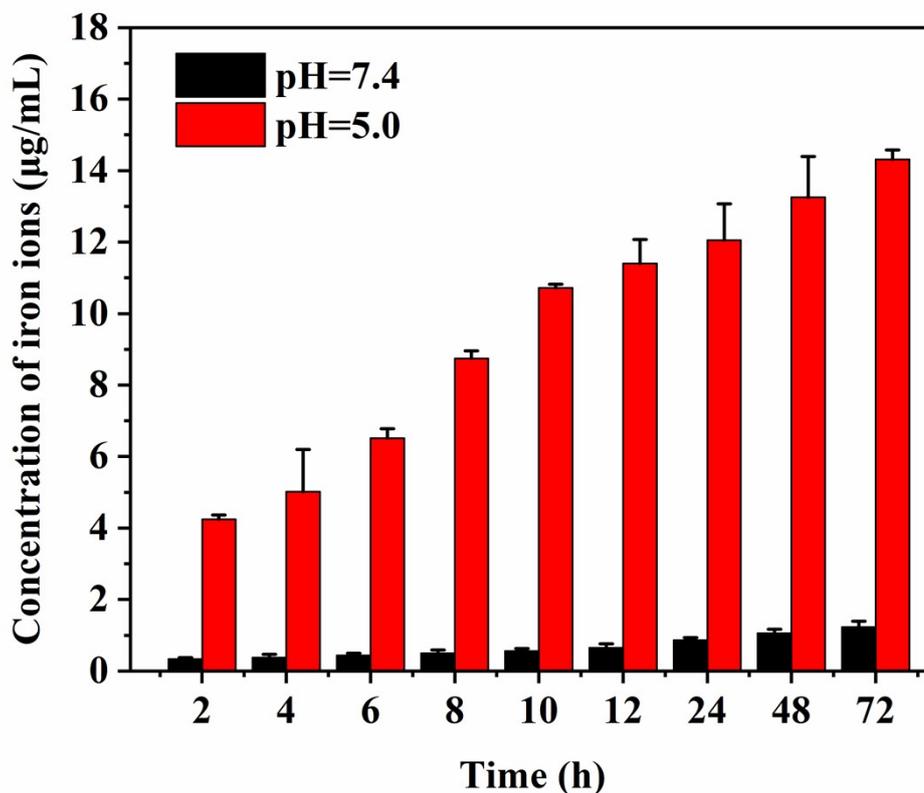


Figure S5. The degradation property of MNP dispersed in PBS at pH 5.0 and pH 7.4.

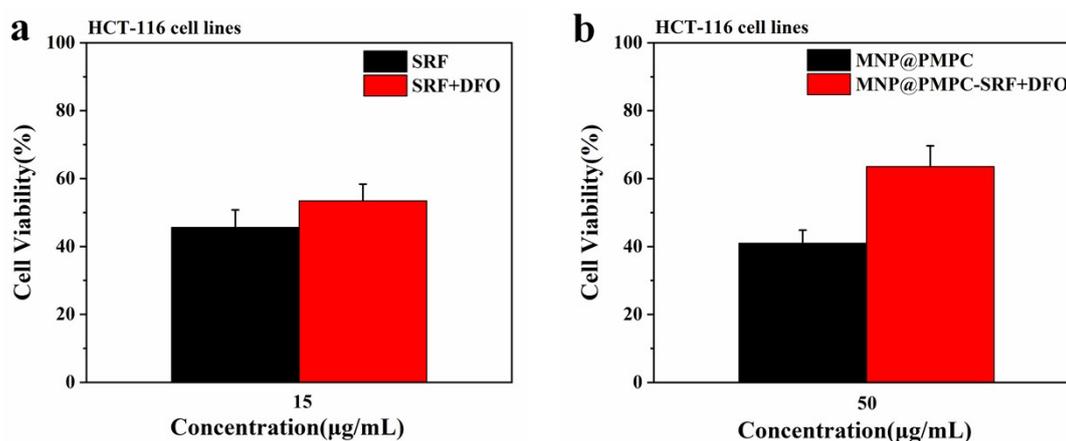


Figure S6. Cell viability of HCT-116 cells after 24 h incubation with (a) SRF or SRF + DFO and (b) MNP@PMPC-SRF or MNP@PMPC-SRF + DFO.

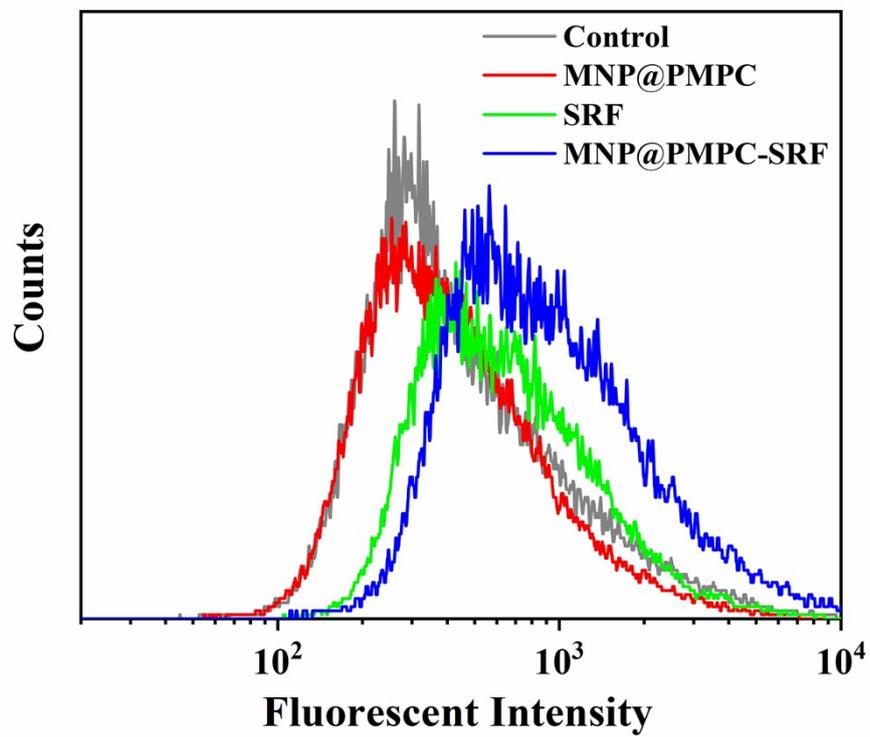


Figure S7. Flow cytometry analyses of LPO generation in HCT116 cells detected by C11-BODIPY.

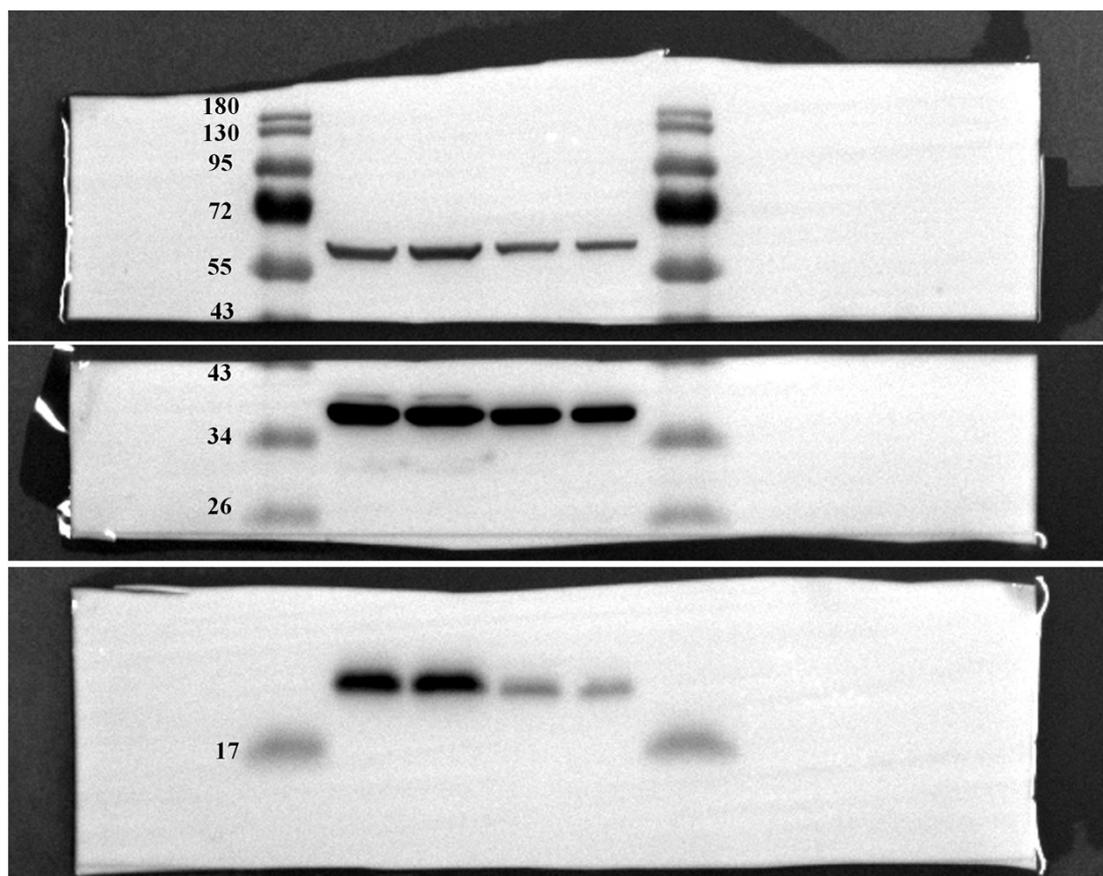


Figure S8. Intracellular XcT and GPX4 expression of HCT116 cells treated with different formulations including control, MNP@PMPC, SRF, and MNP@PMPC-SRF (from left to right). Untreated HCT116 cells were taken as a control.

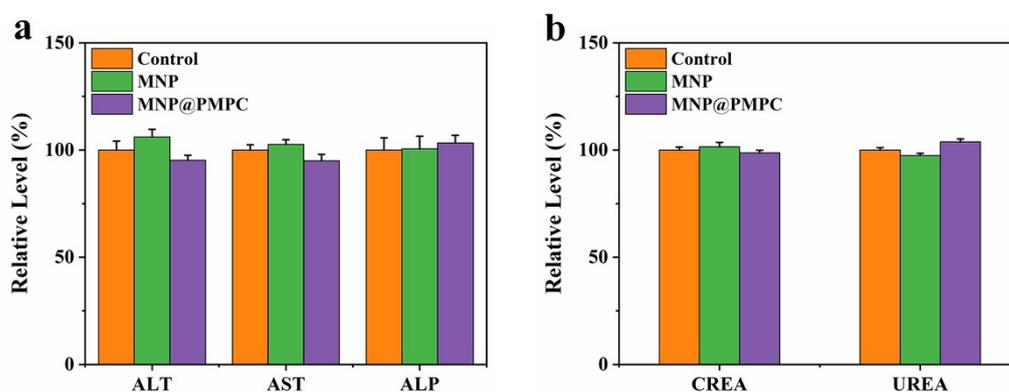


Figure S9. Blood biochemistry indices of hepatic and renal function after 24 h injection (alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP) (a) creatinine (CREA) and UREA (b)).

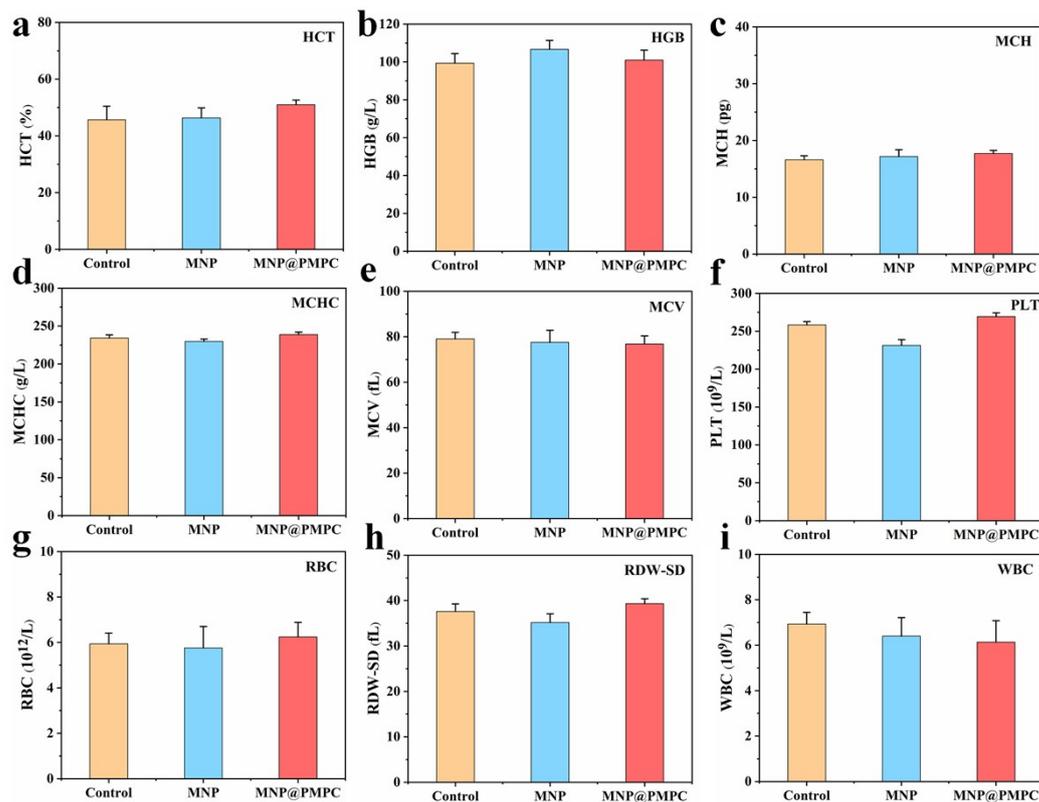


Figure S10. Whole blood panel analysis of nanoparticle-treated mice after 24 h injection. (a) HCT, hematocrit; (b) HGB, hemoglobin; (c) MCH, mean corpuscular hemoglobin; (d) MCHC, mean corpuscular hemoglobin concentration; (e) MCV, mean corpuscular volume; (f) PLT, platelets; (g) RBC, red blood cell; (h) RDW-SD, red blood distribution width; (i) WBC, white blood cell.

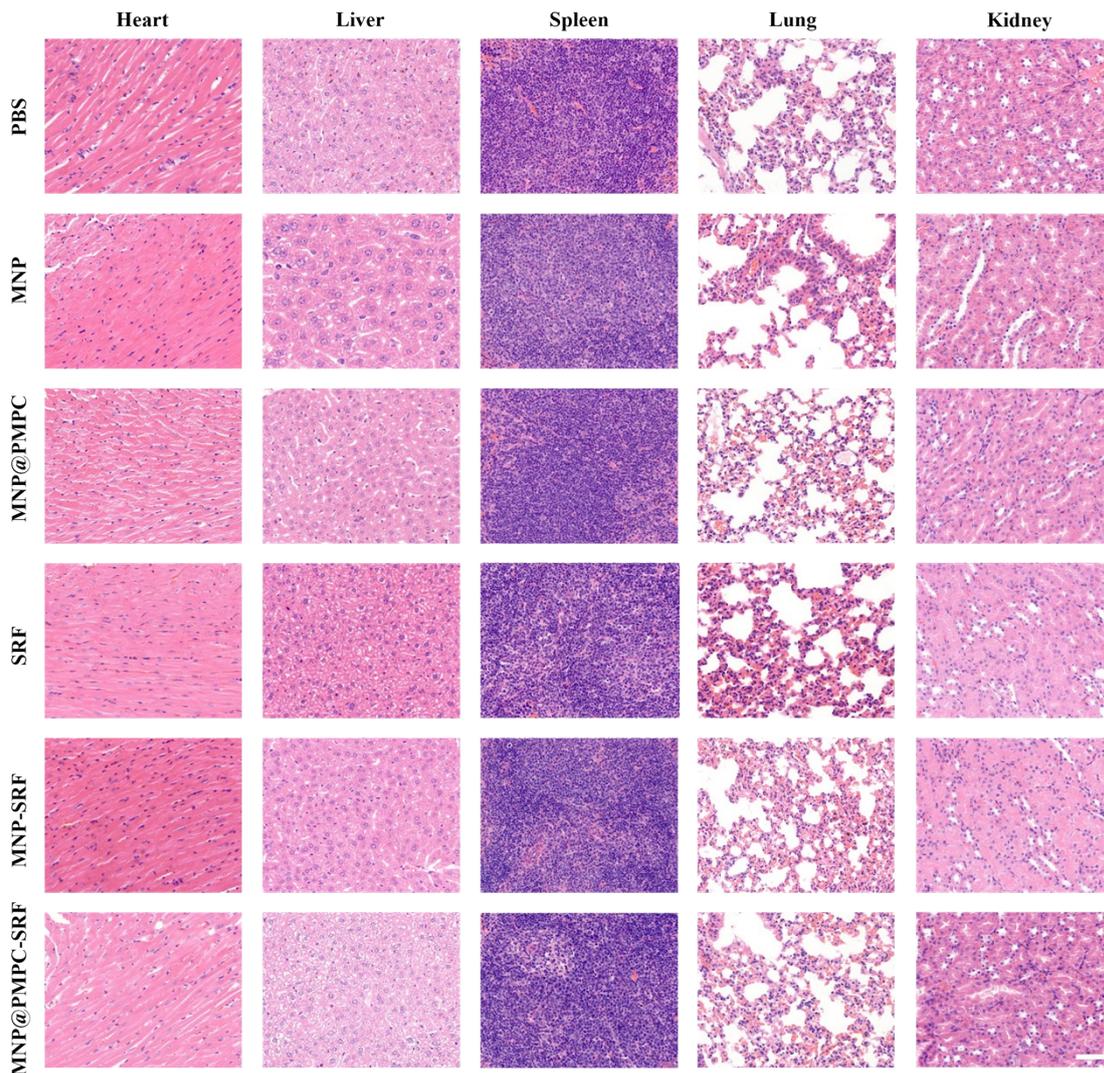


Figure S11. H&E-stained slices of major organs including heart, liver, spleen, lungs, and kidneys from each group. The scale bar was 50 μm .