Electronic Supplementary Information

Self-Assembly of Paramagnetic Amphiphilic Copolymers for Synergistic Therapy

Zhiliang Gao,[a,1] Weiwei Mu,[c,1] Yuan Tian,[a] Yimao Su,[a] Huanli Sun,[d] Gaorui Zhang,[e] Anning Li,[e] Dexin Yu,[e] Na Zhang,[c] Jingcheng Hao,[a] Yongjun Liu,*[,c] and Jiwei Cui*[,a,b]

[a]Key Laboratory of Colloid and Interface Chemistry of the Ministry of Education, School of Chemistry and Chemical Engineering, Shandong University, Jinan, Shandong 250100, China

[b]State Key Laboratory of Microbial Technology, Shandong University, Qingdao, Shandong 266237, China

[c]Key Laboratory of Chemical Biology of the Ministry of Education, School of Pharmaceutical Sciences, Shandong University, Jinan, Shandong 250012, China

[d]Jiangsu Key Laboratory of Advanced Functional Polymer Design and Application, College of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou, Jiangsu 215123, China

[e]Department of Radiology, Qilu Hospital, Shandong University, Jinan, Shandong 250012, China

[1]These authors contributed equally to this work.

***Correspondence authors:**

E-mail: jwcui@sdu.edu.cn

E-mail: liuyongjun@sdu.edu.cn

Contents of Supporting Information

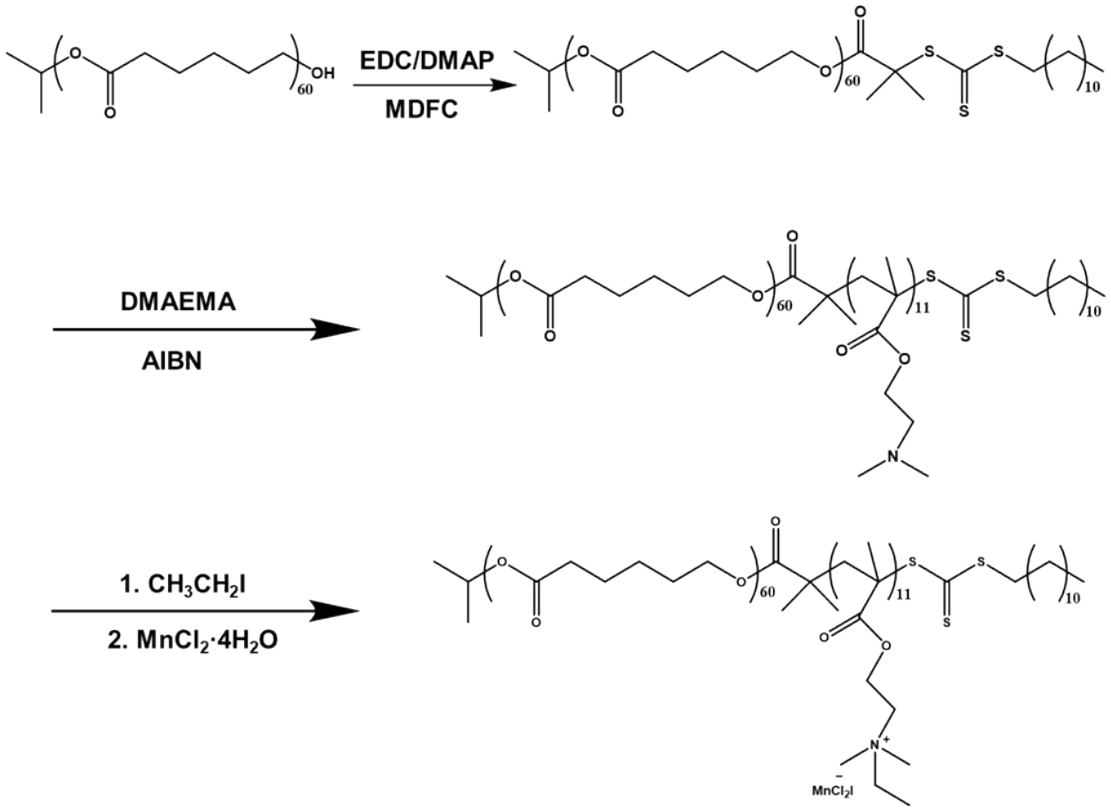


Fig. S1. Synthesis of PCL-*b*-PIEtMn.

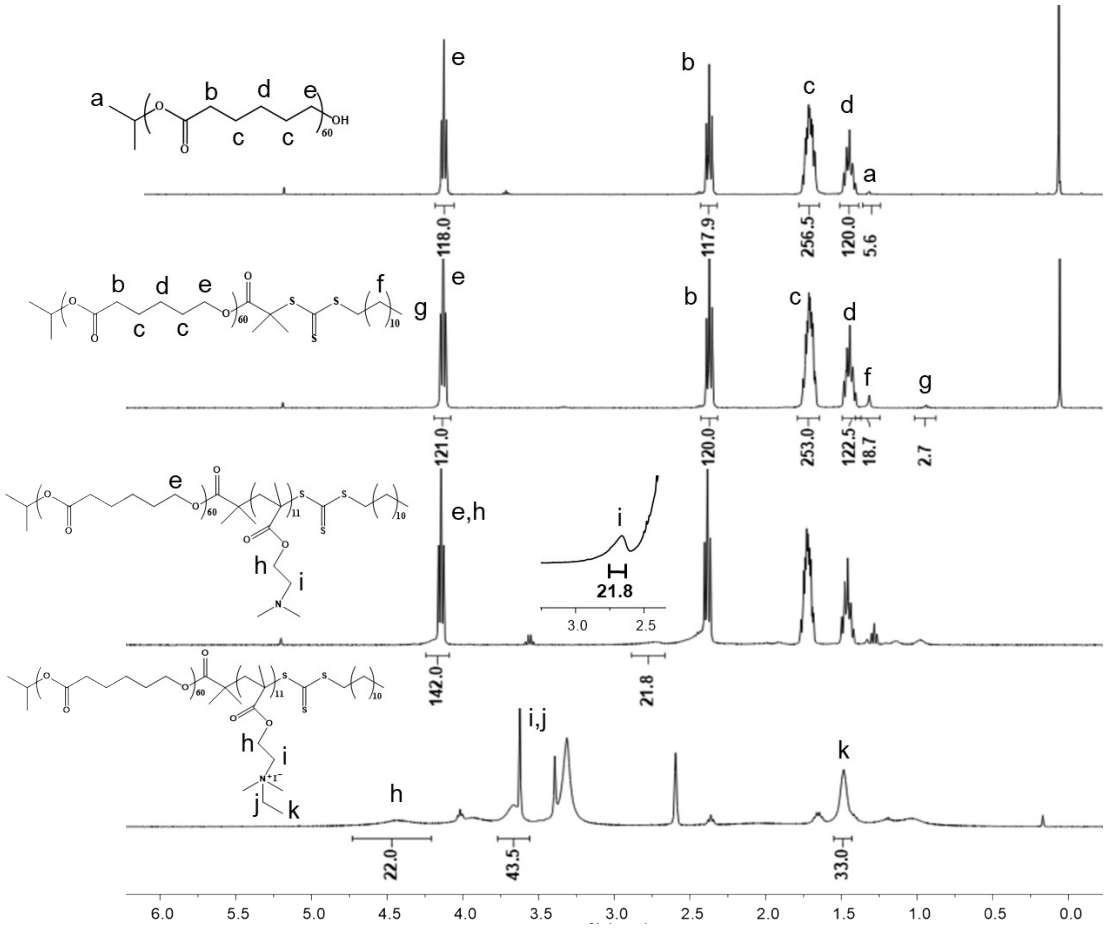


Fig. S2. ^{1}H NMR spectra (400MHz, $CDCl_3$) of PCL, PCL-MDFC, PCL-*b*-PDMAEMA and PCL-*b*-PIEt.

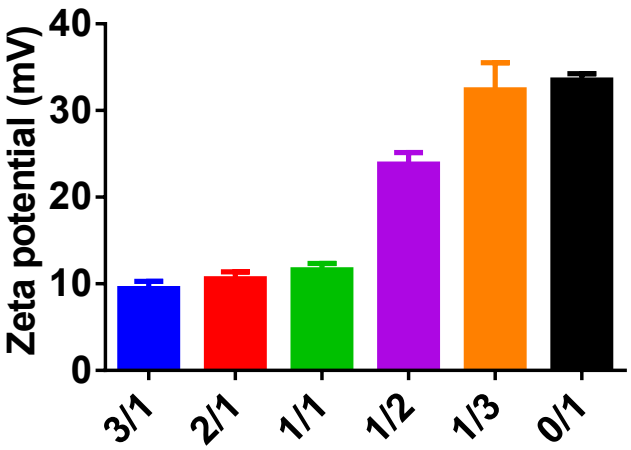


Fig. S3. Zeta potential of NPs with different mass ratio of PCL-*b*-PEG and PCL-*b*-PIEtMn.

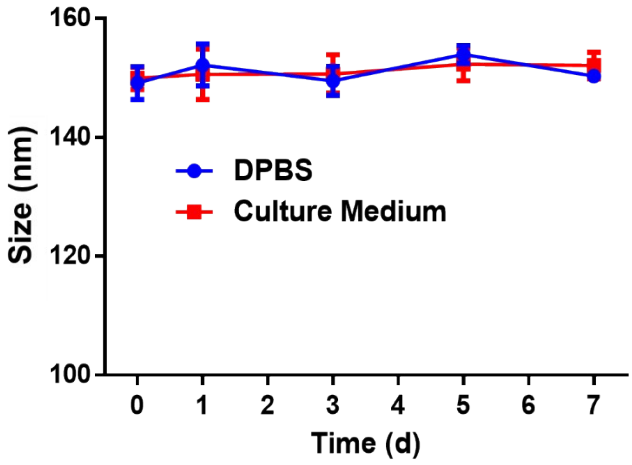
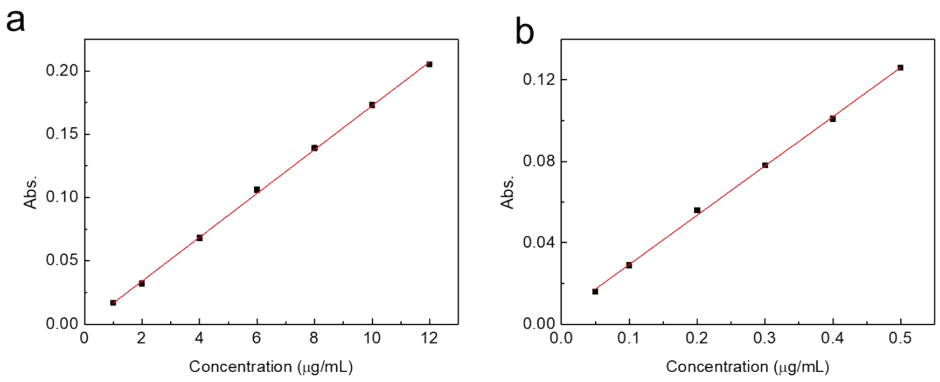


Fig. S4. Stability of paramagnetic NPs in DPBS and culture medium.



DLC_{DOX} = (weight of loaded drug / weight of polymer) = 5.3%

DLC_{IR780} = (weight of loaded drug / weight of polymer) = 2.0%

Fig. S5. Standard curve and drug loading contents (DLC) of (a) DOX and (b) IR-780.

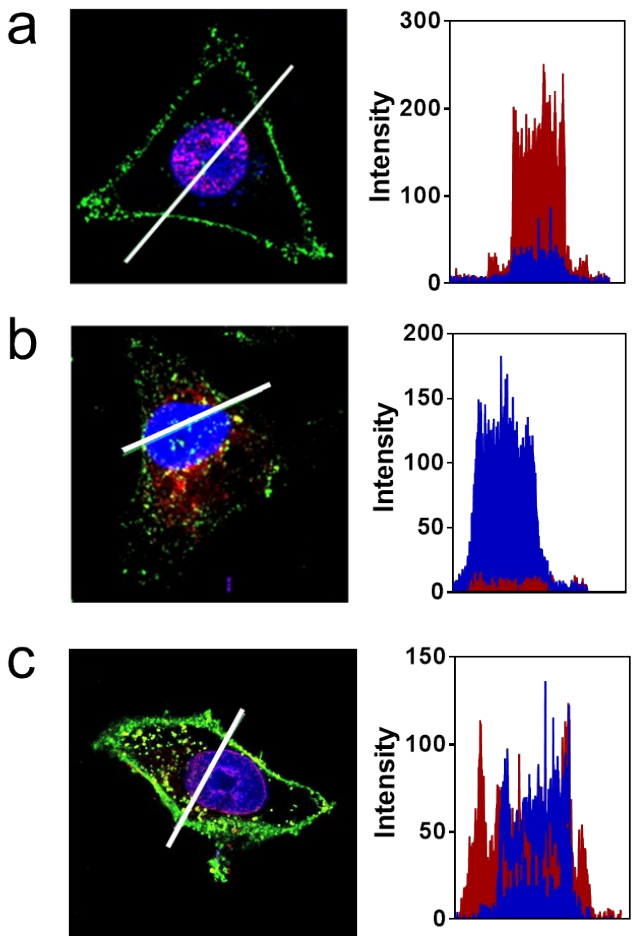


Fig. S6. CLSM images and fluorescence intensity analysis of MCF-7 cells after incubation with free (a) DOX, (b) DOX&IR-780@NPs L-, and (c) DOX&IR-780@NPs L+, respectively.

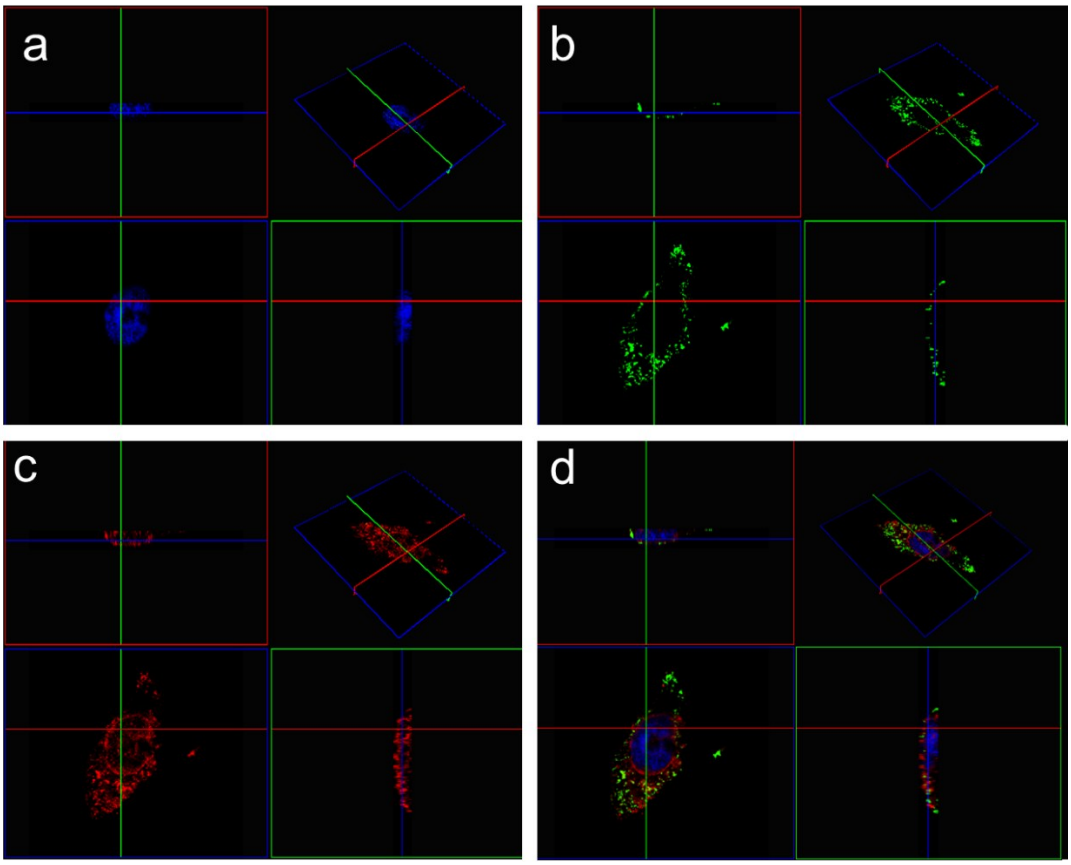


Fig. S7. Cross-section CLSM images of MCF-7 cells after incubation with DOX&IR-780@NPs L+. (a) Nucleus, (b) cell membrane, (c) DOX, and (d) overlay.

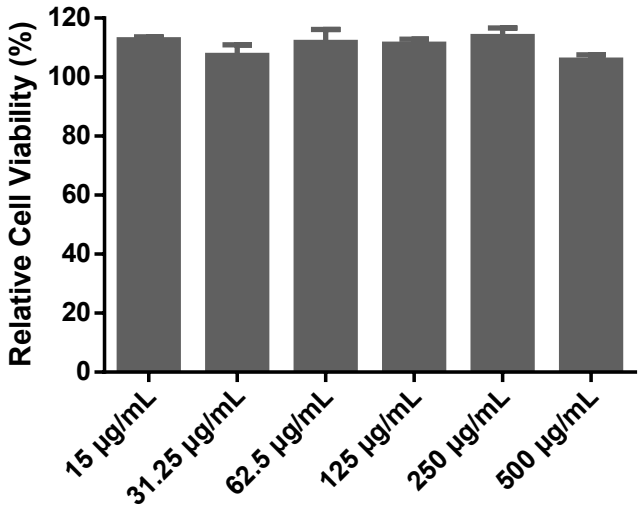


Fig. S8. Cytotoxicity of paramagnetic NPs. MCF-7 cells were incubated with paramagnetic NPs for 48 h before the ATPlite assay.

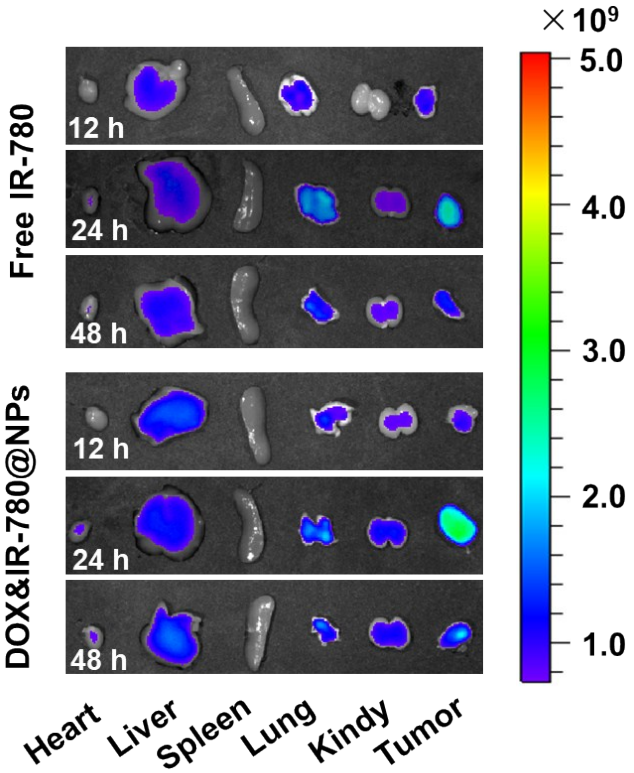


Fig. S9. Biodistribution of IR-780 in 4T1 tumor-bearing mice after intravenous injection of free IR-780 and DOX&IR-780@NPs at different time points.

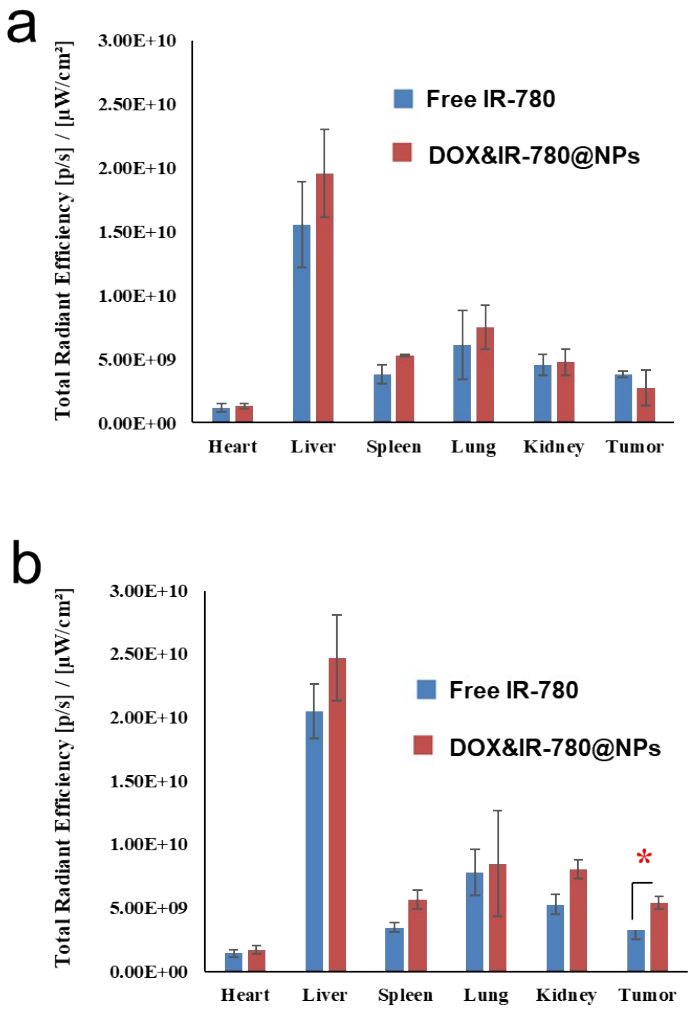


Fig. S10. Qualitative analysis of IR-780 intensities in different organs and tumors after injection of free IR-780 and DOX&IR-780@NPs at different time points. (a) 12 h, (b) 48 h.

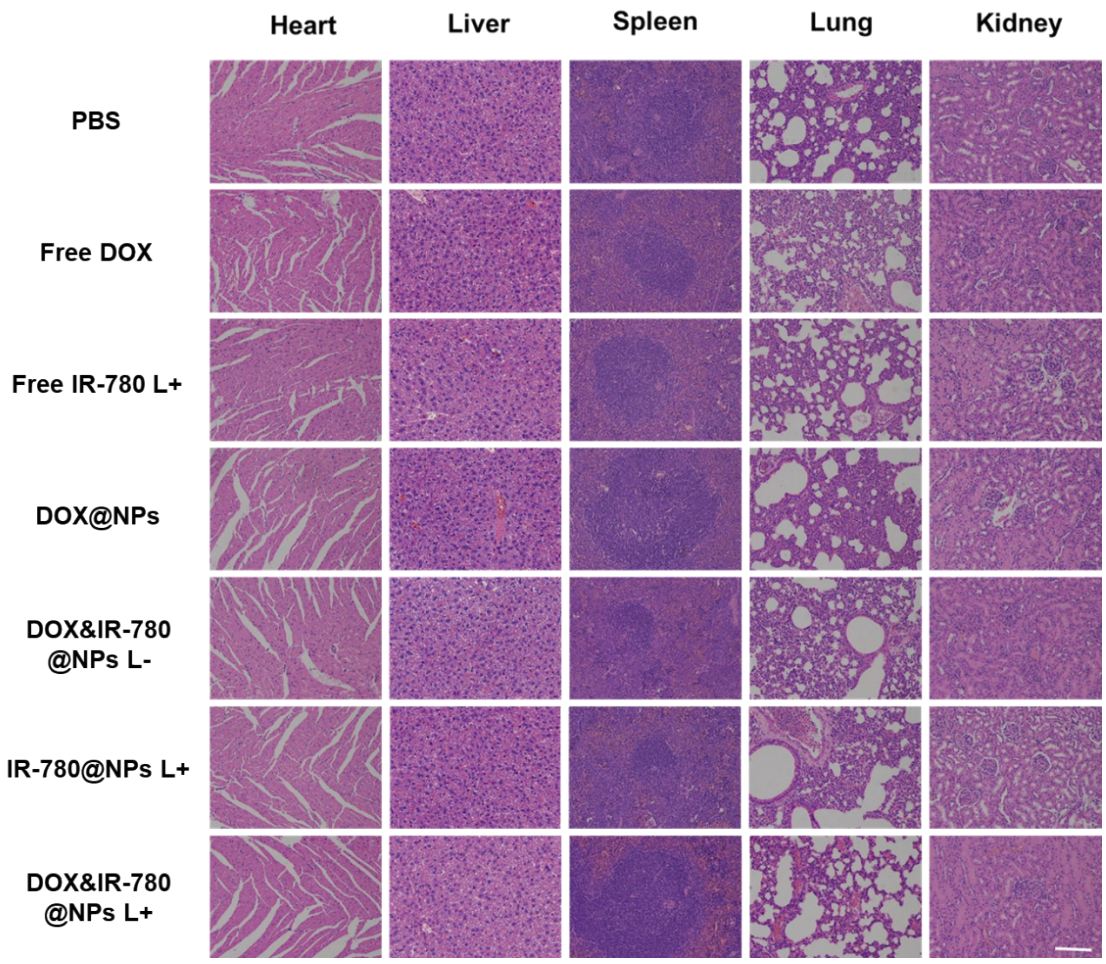


Fig. S11. H&E staining images of major organs after treatments. Scale bar is 100 μm.