

Supplementary information

of

**Fe-based cyclically catalyzing double free radical
nanogenerator for tumor-targeted chemodynamic therapy**

Yang Wang^{a,1}, Chunquan Zhu^{b,c,1}, Xiaohui Fan^{a,1}, Yuanyuan Yang^a, Zhaoxia Chen^{a,d*},
Li Yu^{b,*}, Yuhong Zhang^{a,*}

^aHubei Collaborative Innovation Center for Advanced Organic Chemical Materials,
Ministry of Education Key Laboratory for the Synthesis and Application of Organic
Functional Molecules, College of Chemistry and Chemical Engineering, Hubei
University, Wuhan 430062, China.

^bDepartment of Orthopedics Trauma and Microsurgery, Zhongnan Hospital of Wuhan
University, Wuhan 430071, China.

^cDepartment of orthopedics, Wuhan Fourth Hospital, Puai Hospital, Wuhan 430000,
China.

^dHubei Key Laboratory of Plasma Chemistry and Advanced Materials, School of
Materials Science and Engineering, Wuhan Institute of Technology, Wuhan 430205,
China.

¹ *These authors contributed equally to this work*

* To whom correspondence should be addressed. E-mail: chenzhaoxia@hubu.edu.cn
(Z.X. Chen), yzorthopedics@whu.edu.cn (L. Yu), zhangyuhong@hubu.edu.cn (Y.H.
Zhang)

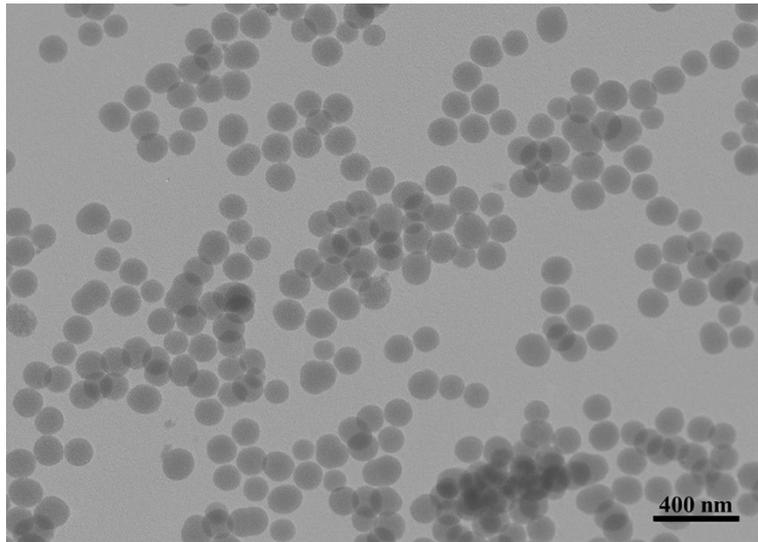


Fig. S1. TEM image of MSN (Scale bar = 400 nm).

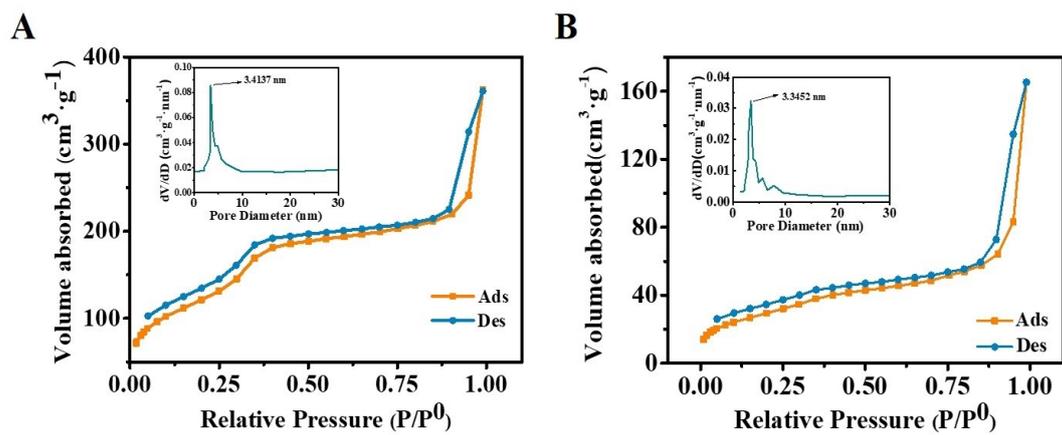


Fig. S2. BET and BJH curves of (A) MSN and (B) MSN-NH₂.

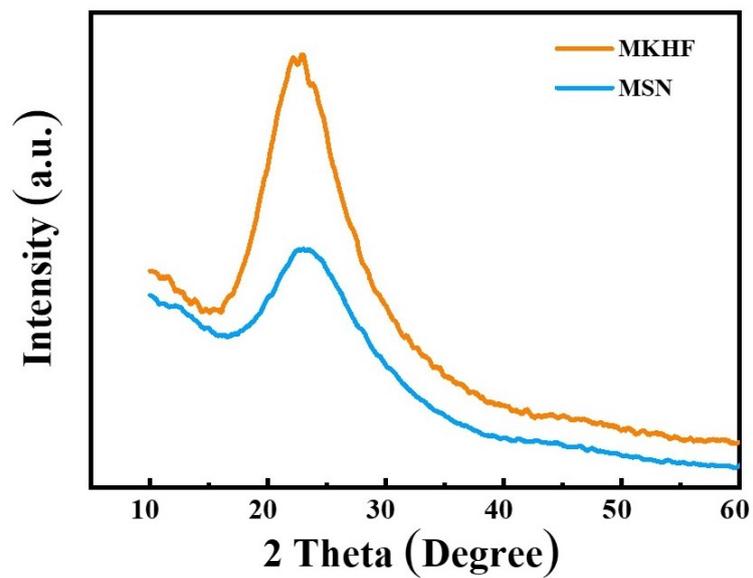


Fig. S3. XRD pattern of MSN and MKHF.

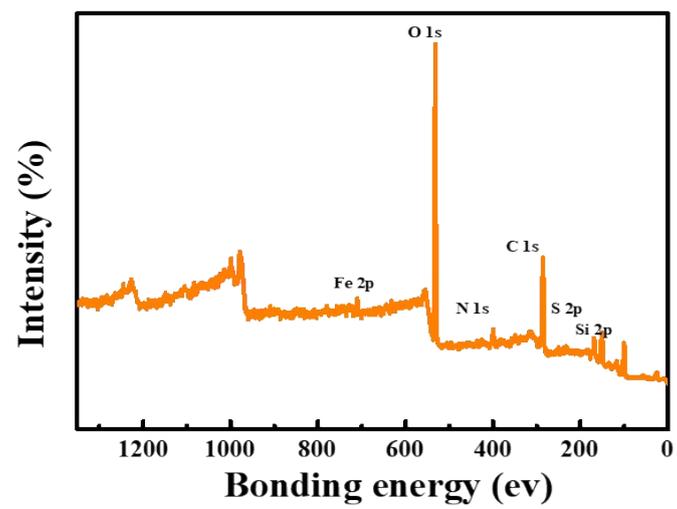


Fig. S4. Over-all XPS spectrum of MKHF.

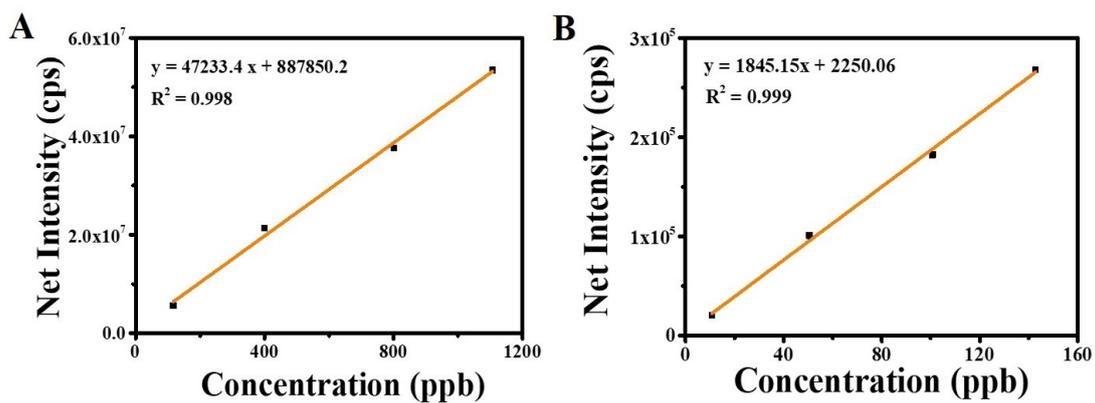


Fig. S5. ICP-MS standard curves of (A) K⁺ and (B) Fe.

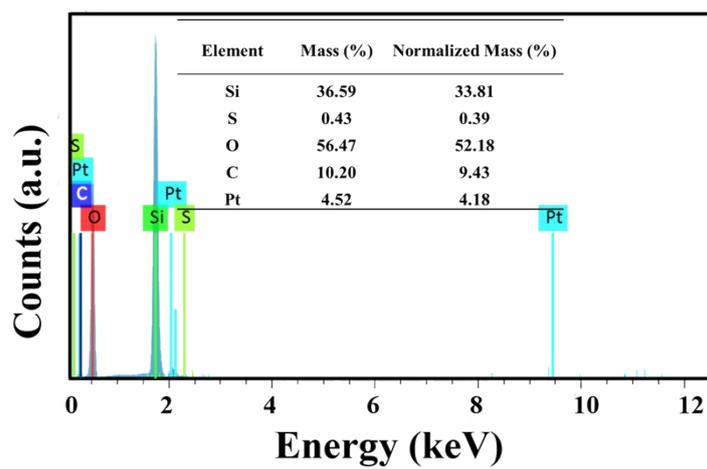


Fig. S6. EDS and element ration of Si, S, O, C and Pt of MKH. Displaying the existence of some part in MKH.

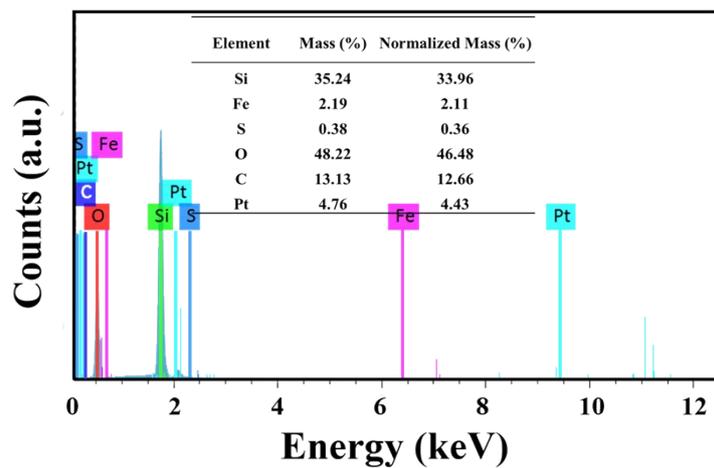


Fig. S7. EDS and element ration of Si, Fe, S, O, C, and Pt of MKHF. Displaying the existence of some part in MKHF.

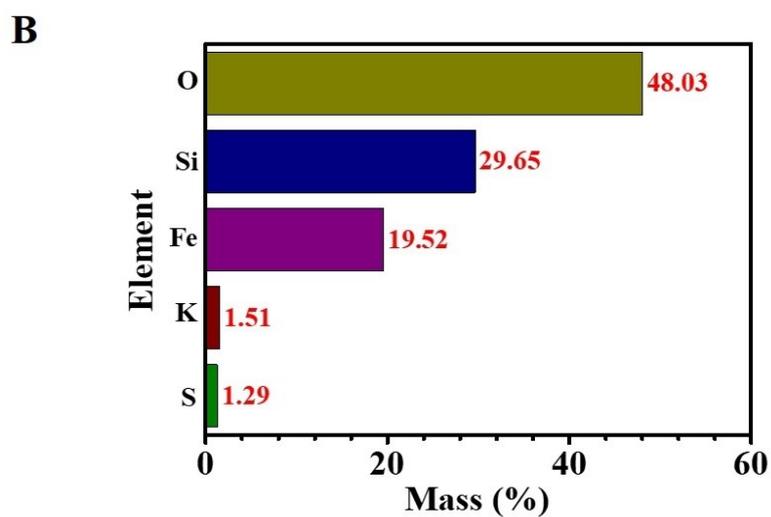
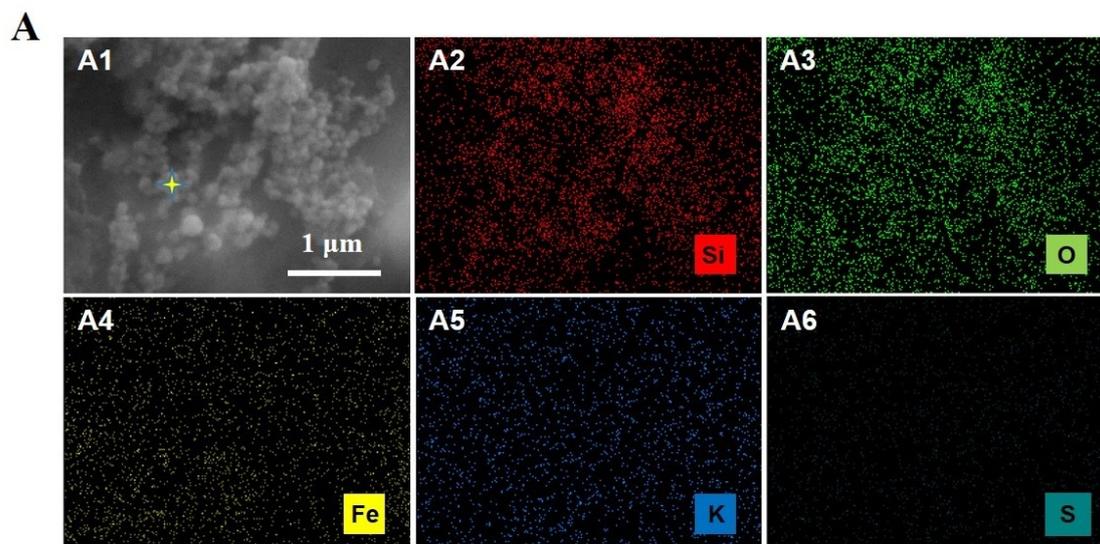


Fig. S8. (A) EDS Mapping image and the corresponding element mapping of MKHF.

(B) The relative content of each element (O, Si, Fe, K, and S).

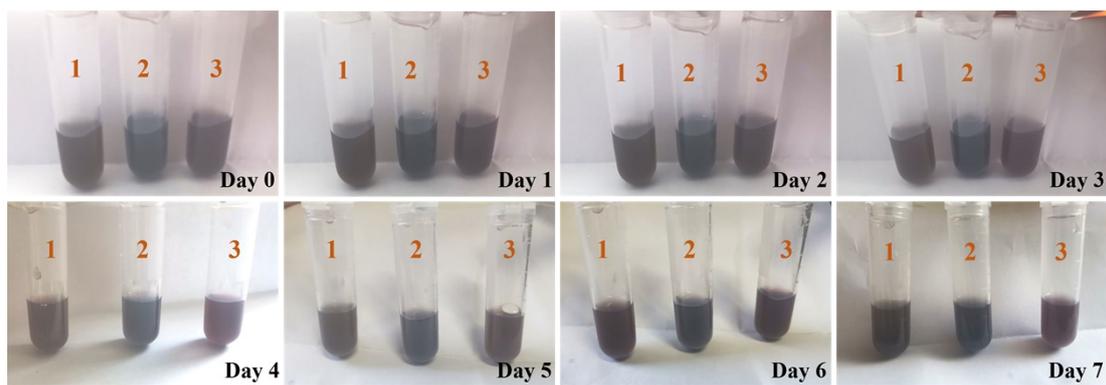


Fig. S9. The stability of MKHF dispersed in different solutions for 7 days. Different groups: (1) PBS, (2) DI water, (3) RPMI 1640.

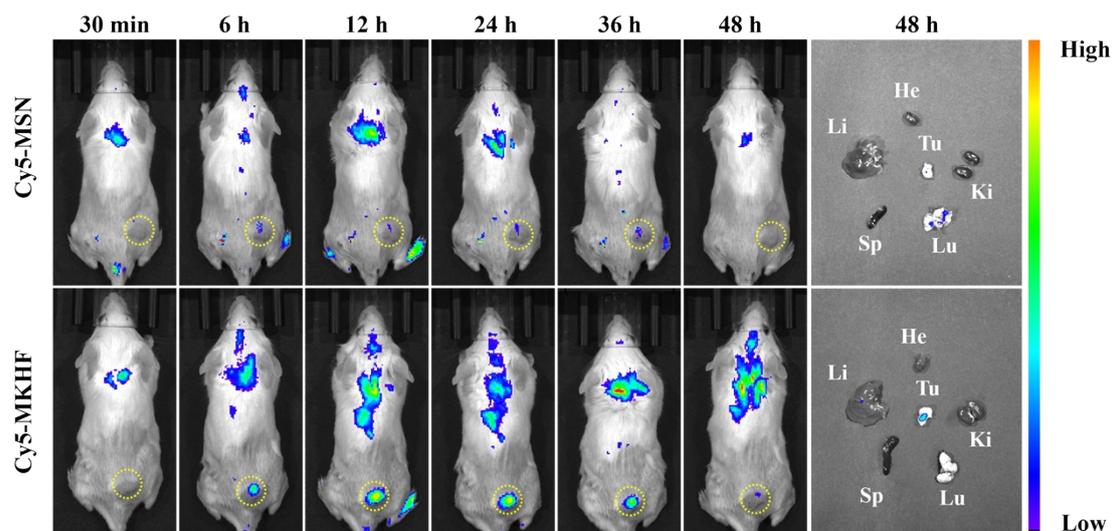


Fig. S10. Real-time fluorescence images of the CT26 tumor-bearing mice after tail intravenous injection with Cy5-MSN and Cy5-MKHF for 30 min, 6 h, 12 h, 24 h, 36 h, and 48 h, and ex vivo tissues imaging at 48 h post injection (heart, liver, spleen, lung, kidney, and tumor).

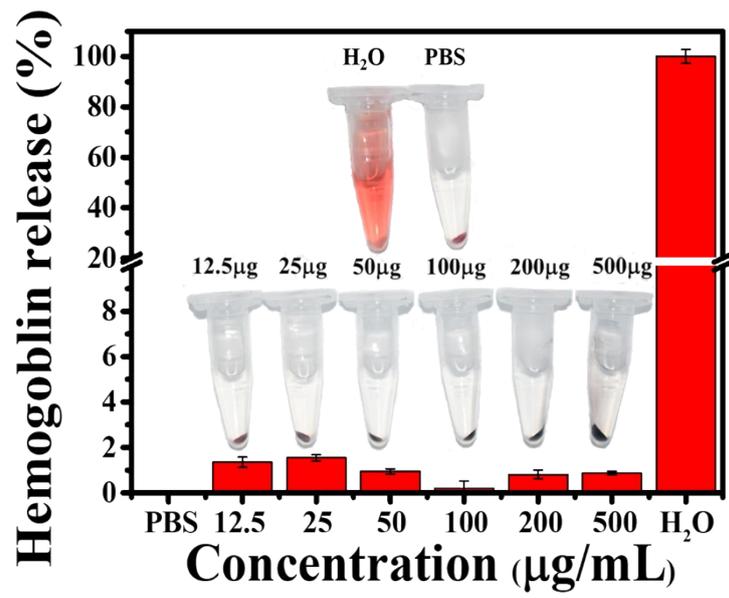


Fig. S11. The biocompatibility and hemolysis rate of MKHF.