Supplementary Information for

A pH and Magnetic Dual-responsive Hydrogel for Synergistic Chemo-Magnetic Hyperthermia Therapy of Tumor

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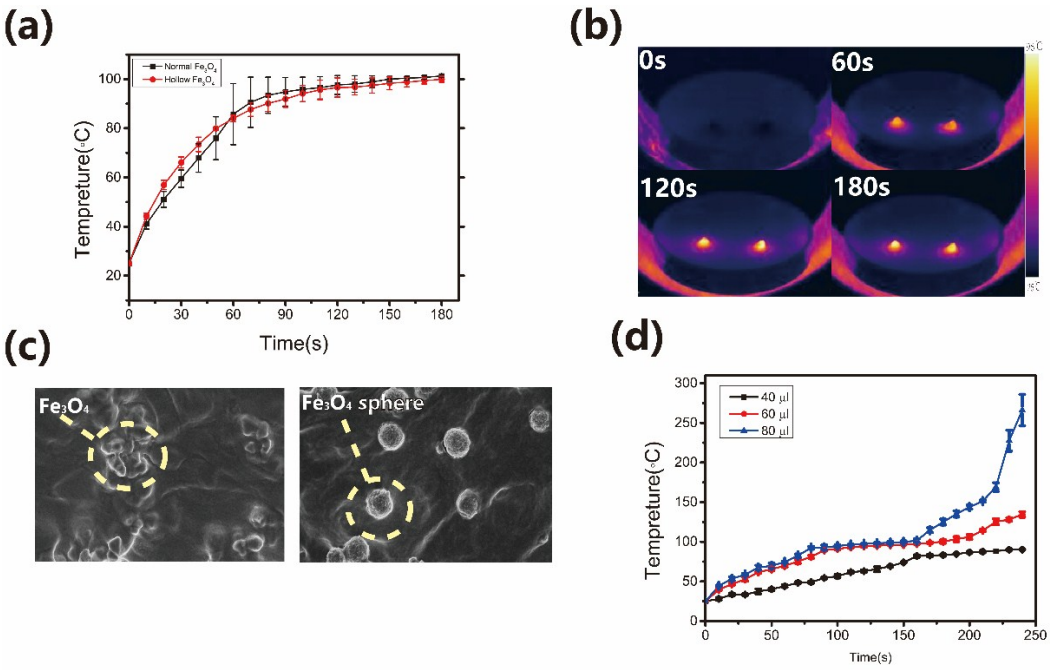

Fig S1. a) The temperature rising curve of Fe_3O_4 spheres and Fe_3O_4 nanoparticles in the hydrogel respectively. The final temperature of the two Fe_3O_4 reached the same stage. b) The thermal images of Fe_3O_4 spheres and Fe_3O_4 nanoparticles in the hydrogel heating process in AMF respectively. The left is the Fe_3O_4 spheres and the right is the Fe_3O_4 nanoparticles in hydrogel. relatively c) Different distribution of normal Fe_3O_4 and Fe_3O_4 spheres in the HPMC/Fe_3O_4 hydrogel showed normal Fe_3O_4 nanoparticles gathered while Fe_3O_4 spheres dispersed in the hydrogel. d) Different volumes (40, 60, 80 μl) of HPMC/Fe_3O_4 hydrogel heating process and the 60 μl of HPMC/Fe_3O_4 hydrogel could reach the high temperature and more steady than the 80 μl

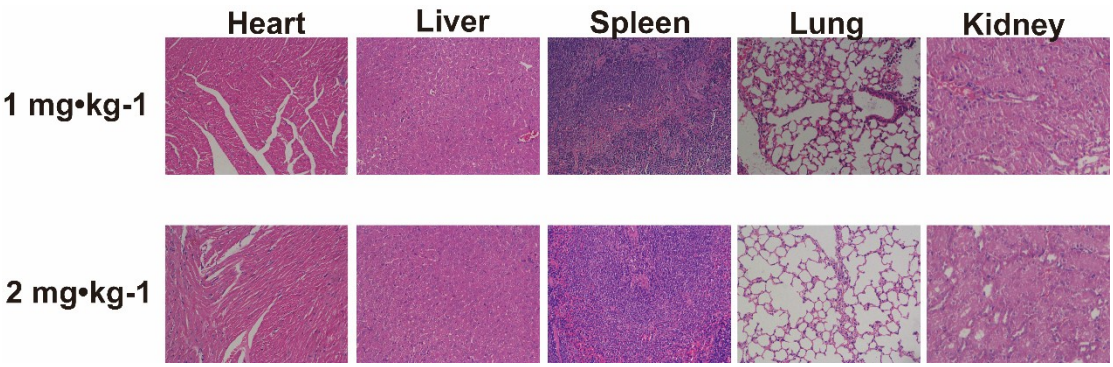

Fig S2. the H&E staining of mice at 14 days after the injection of the HPMC/Fe_3O_4 at 0.5 mg·kg^{-1} or 2 mg·kg^{-1}.

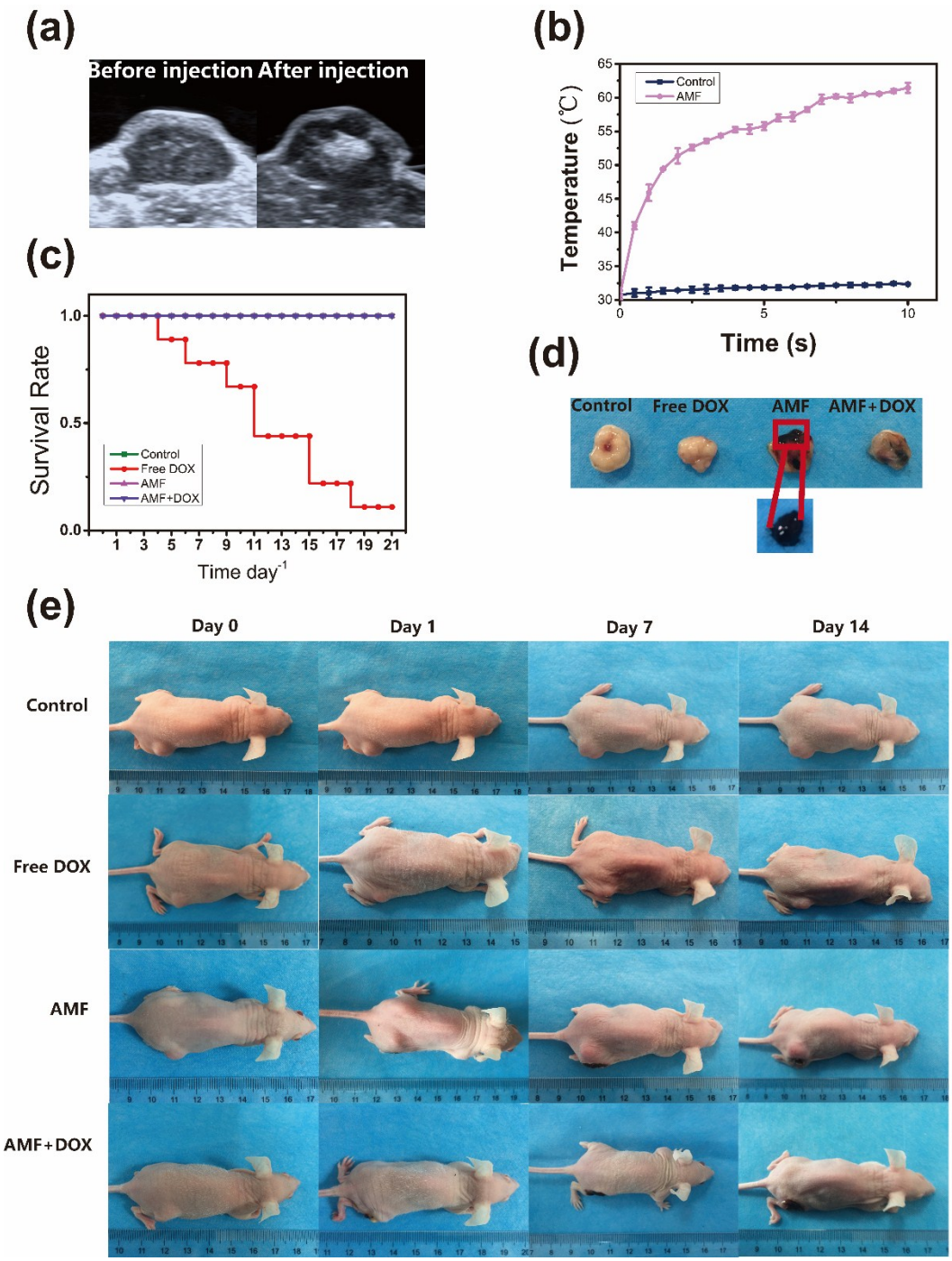

Fig S3. a) The HPMC/Fe_3O_4 was injected into the center of the tumor under ultrasound guidance. b) Temperature curve of control group and AMF group. c) The survival ratio of each group. d) The digital images of tumor after treatment 3 days showed the tumors in each group decreased in the treatment group. And the hydrogel gelated after AMF. e) The continuous macrograph of mice in control group, free dox

group, AMF group before treatment and after treatment 7 days exhibited recurrences in AMF group and free DOX treatment failed to restrain the tumor growth.

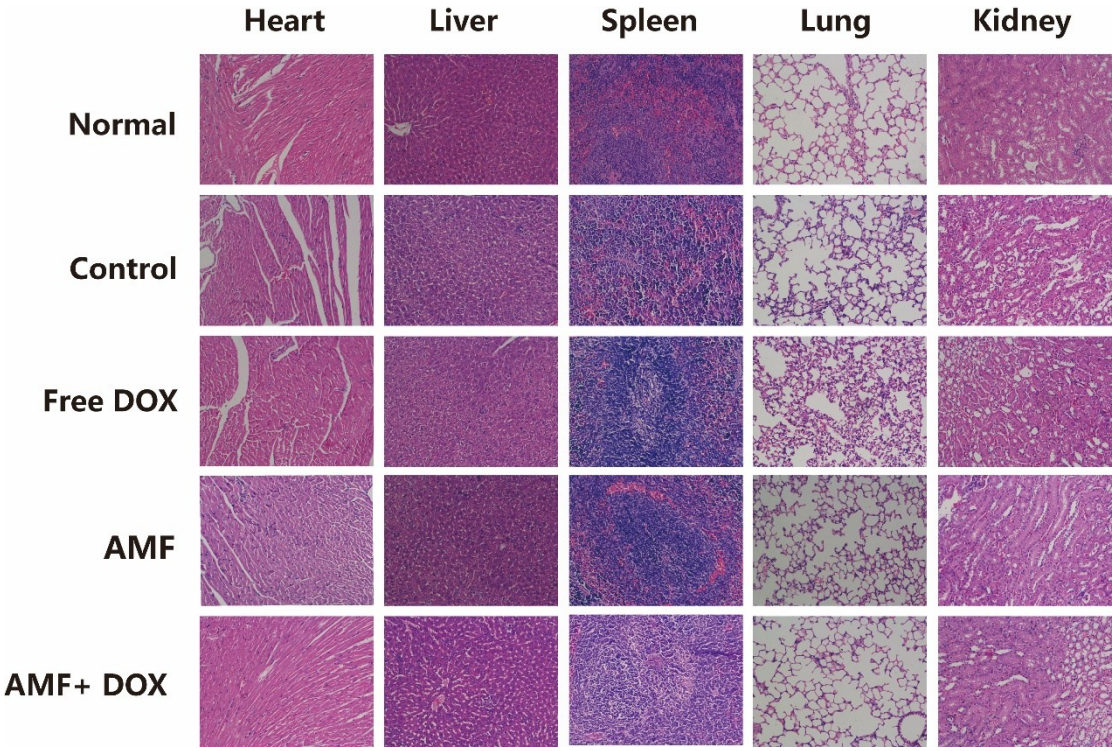

Fig S4. H&E staining images of normal nude mouse and tumor-bearing nude mouse in control group, free dox group, AMF group and AMF+DOX group showed no tumor metastasis occurred in all group.