Electronic Supplementary Material (ESI) for Nanoscale Horizons.

Supporting Information

A Tumor Treatment Strategy Based on Biodegradable BSA@ZIF-8 for Simultaneous Ablating Tumor and Inhibiting Infection

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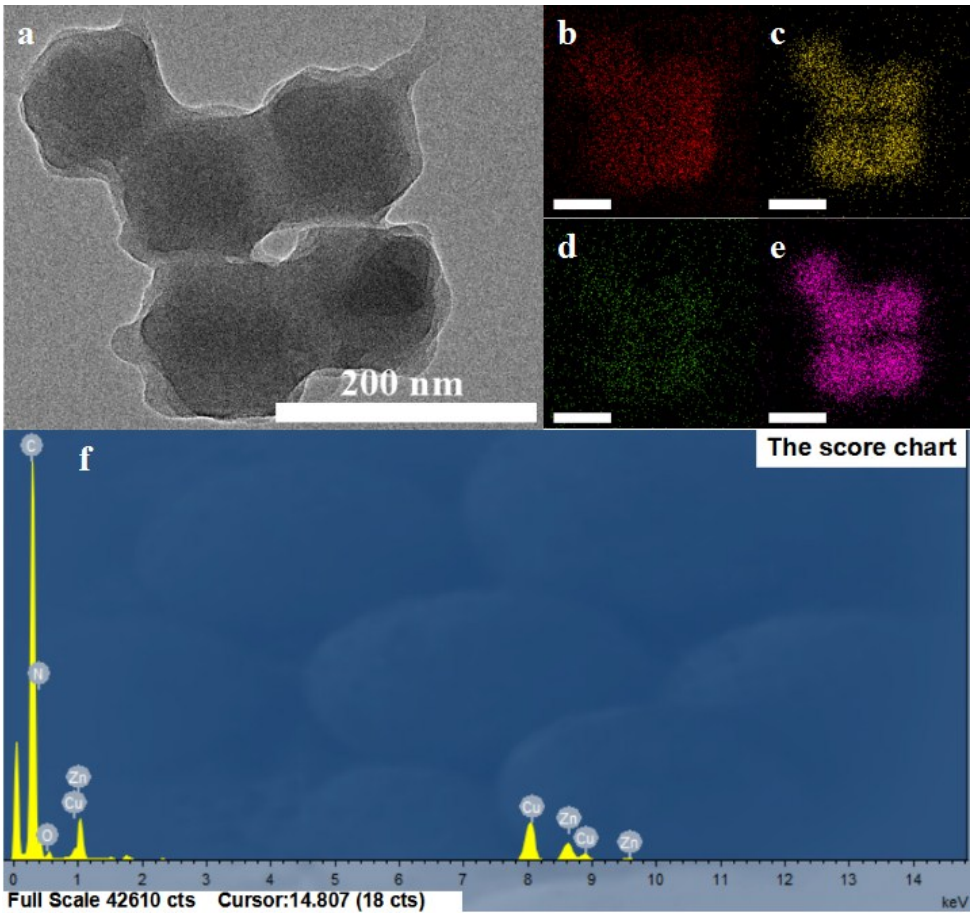

Figure S1. (a) TEM image of BSA@ZIF-8. (b-e) Element mapping for b) carbon, c) nitrogen, d) oxygen, and e) zinc, scale bar is 100 nm. (f) TEM EDS of BSA@ZIF-8.

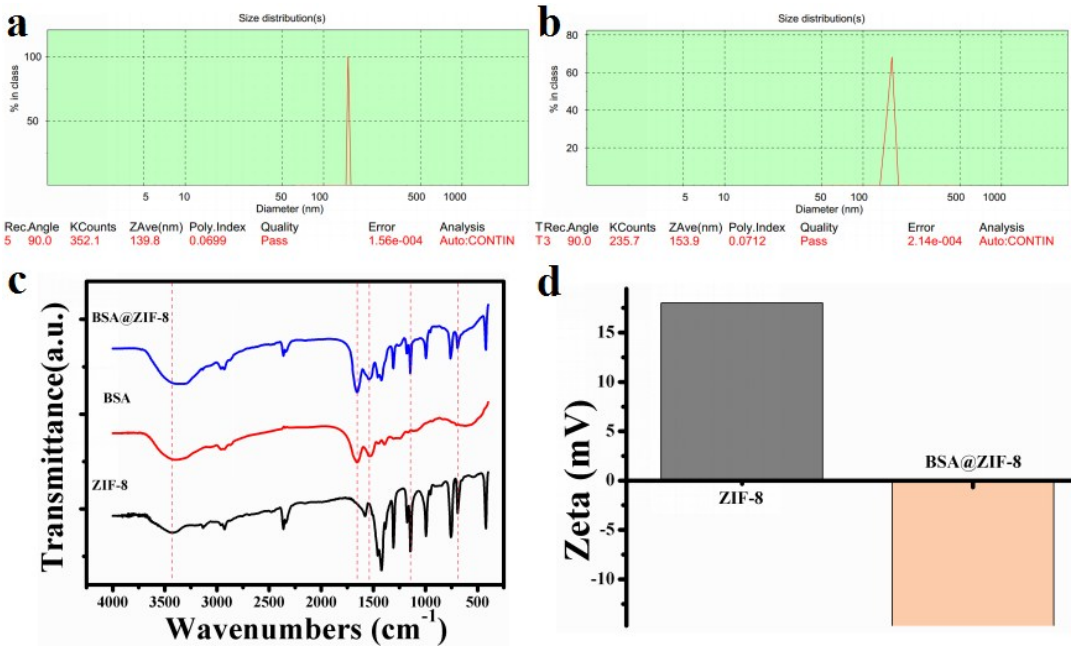

Figure S2. (a) Hydrodynamic size of ZIF-8. (b) Hydrodynamic size of BSA@ZIF-8. (c) Fourier transform infrared spectrometry of ZIF-8, BSA, and BSA@ZIF-8. (d) The zeta-potentials of ZIF-8 and BSA@ZIF-8.

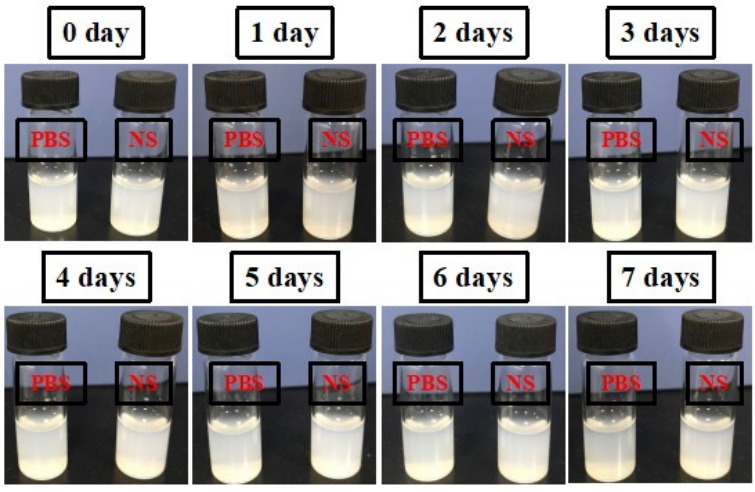

Figure S3. The photographs of BSA@ZIF-8 dispersion in PBS solutions and normal saline for 0 day, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, and 7 days.

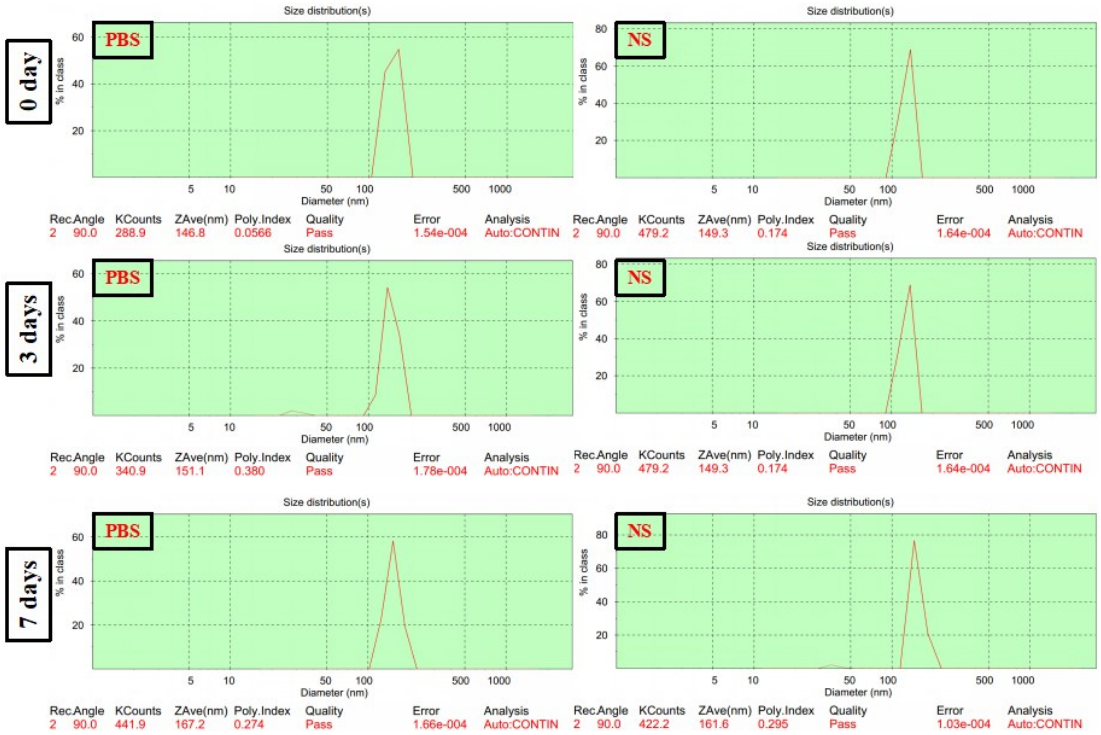

Figure S4. The hydrodynamic diameter of BSA@ZIF-8 in PBS solutions and normal saline for 0 day, 3 days, and 7 days.

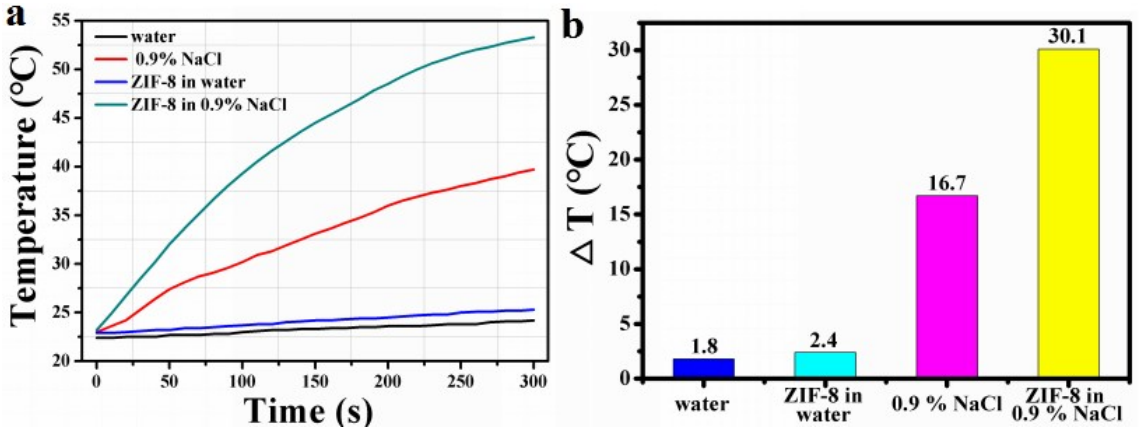

Figure S5. (a) The heating curves of the ZIF-8 in water and saline solution at 10 mg mL^{-1} under 5 min 1.8 W and 450 MHz microwave irradiation. (b) Temperature change values of different solutions based on (a).

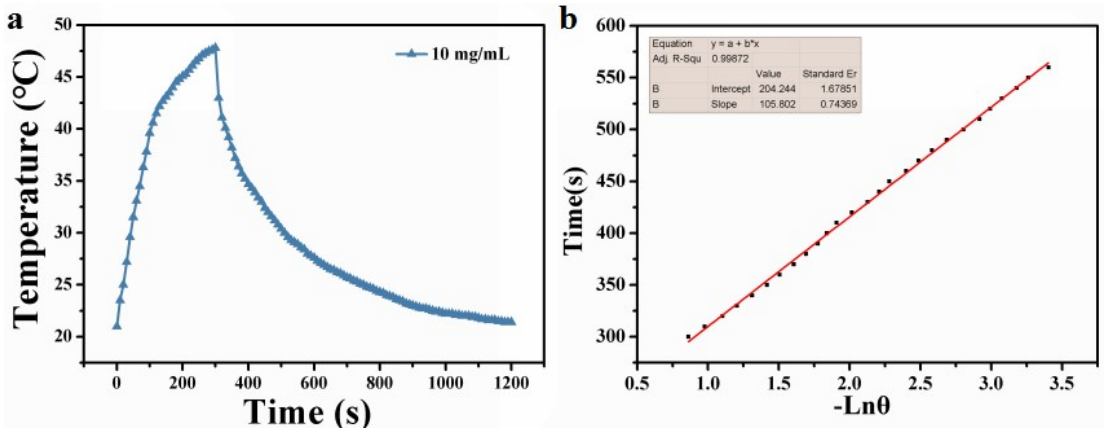

Figure S6. (a) The heating curve of the BSA@ZIF-8 in saline water with 1.8 W microwave irradiation for 5 min at 10 mg mL^{-1} and then the laser was shut off. (b) Linear time data versus–Lnθ obtained from the cooling period.

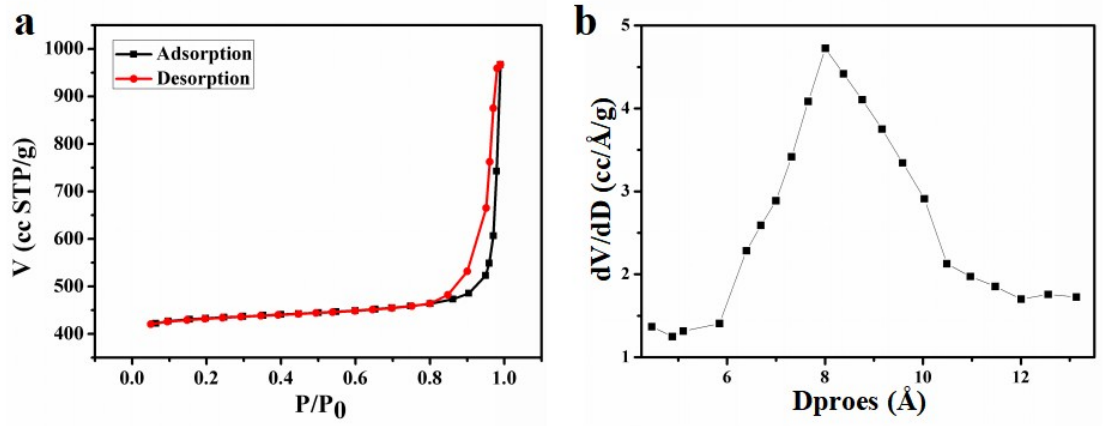

Figure S7. (a) N_2 isothermal adsorption–desorption and (b) micropore size distribution curves of ZIF-8.

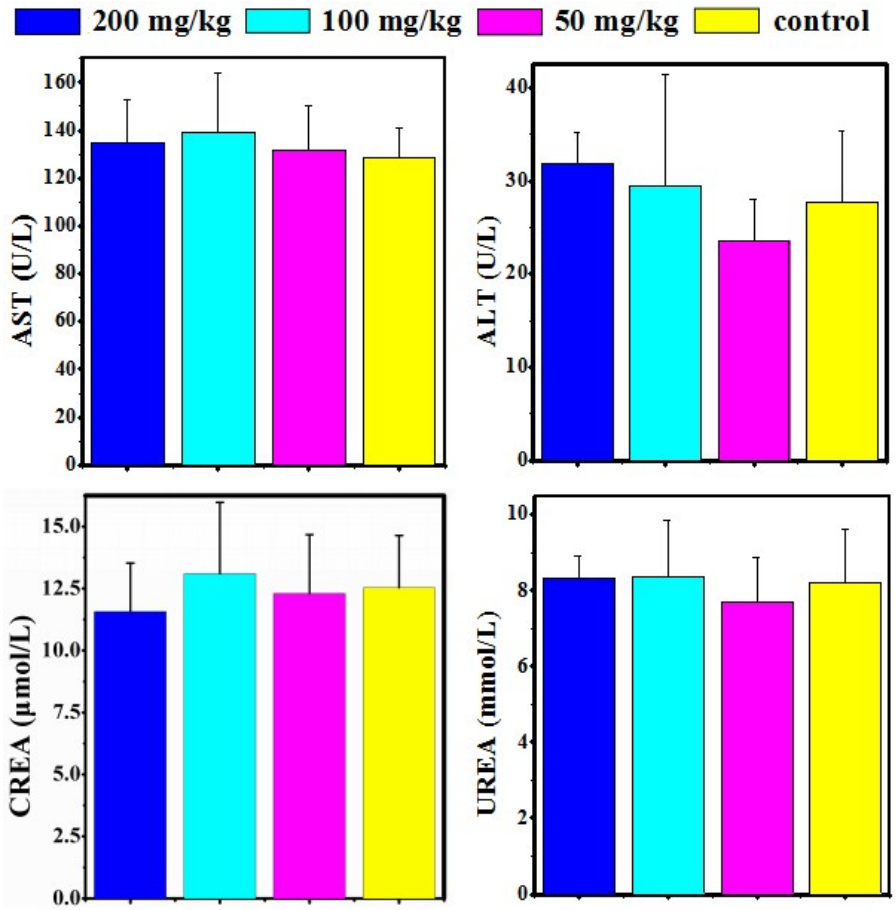

Figure S8. Blood biochemical analysis including AST, ALT, CREA, and UREA of each group for BSA@ZIF-8 (0, 50, 100, and 200 mg kg^{-1}) via tail vein injection in vivo.

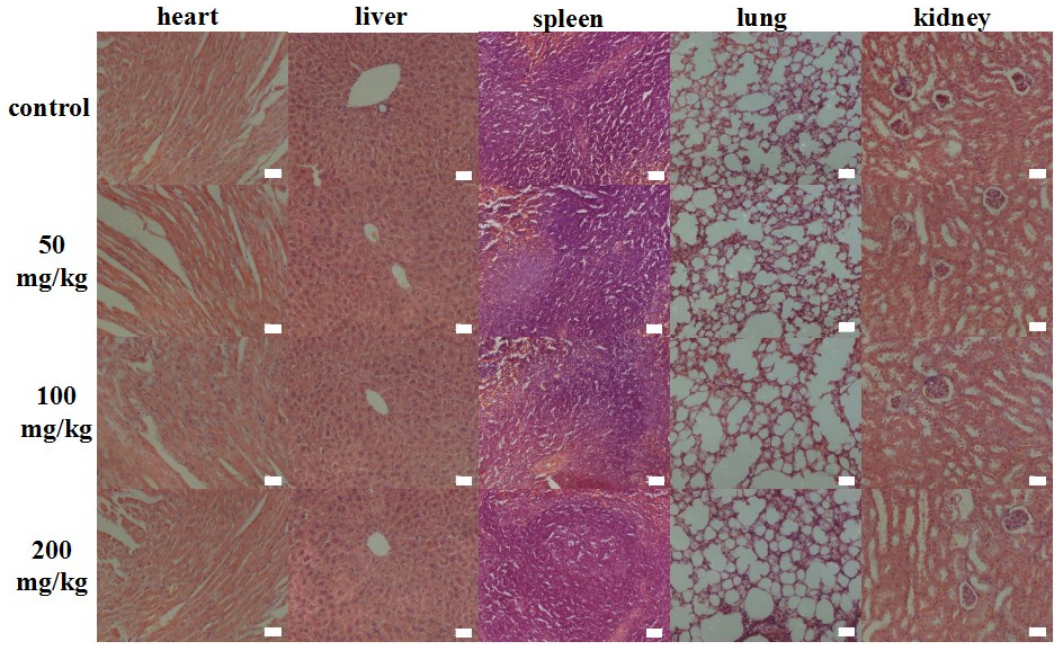

Figure S9. H&E staining images of various organs (heart, liver, spleen, lung, and kidney) of each experimental group (0, 50, 100, 200 mg kg^{-1}). (Scale bar 50 μm for all images).

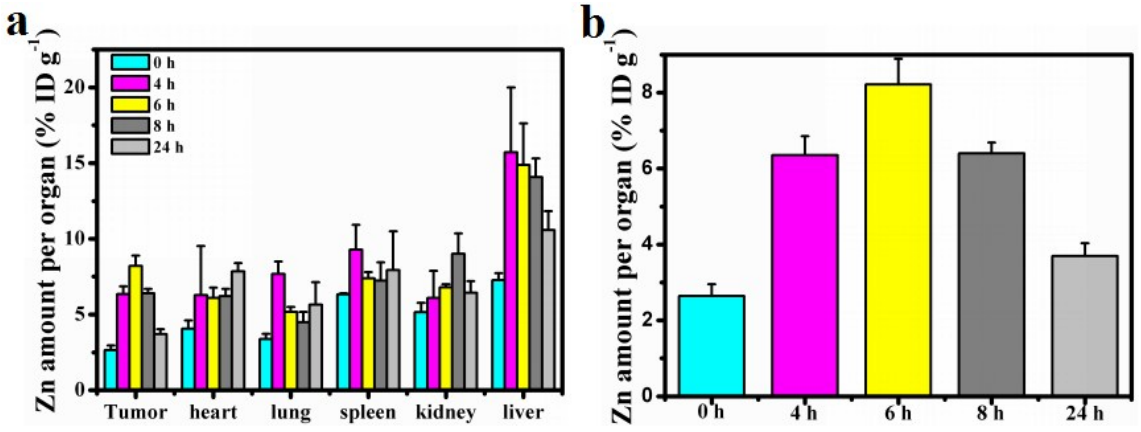

Figure S10. (a) Content of Zn in per organ after intravenous injection of BSA@ZIF-8 (50 mg kg^{-1}) at different times (0, 4, 6, 8, and 24 h). (b) Content of Zn in tumor after intravenous injection of BSA@ZIF-8 (50 mg kg^{-1}) at different times (0, 4, 6, 8, and 24 h).

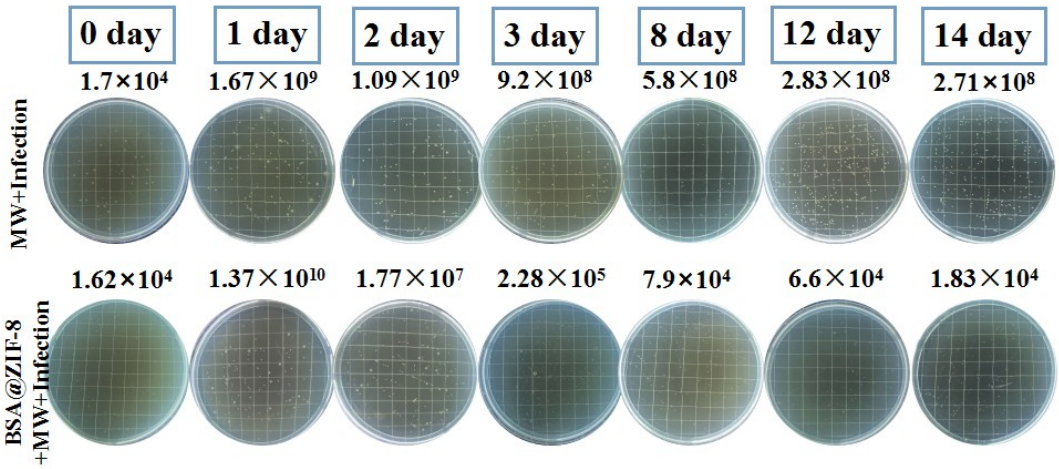

Figure S11. The bacterial colony spread plate photos of MW+infection group and BSA@ZIF-8+MW+infection group for 14 days.

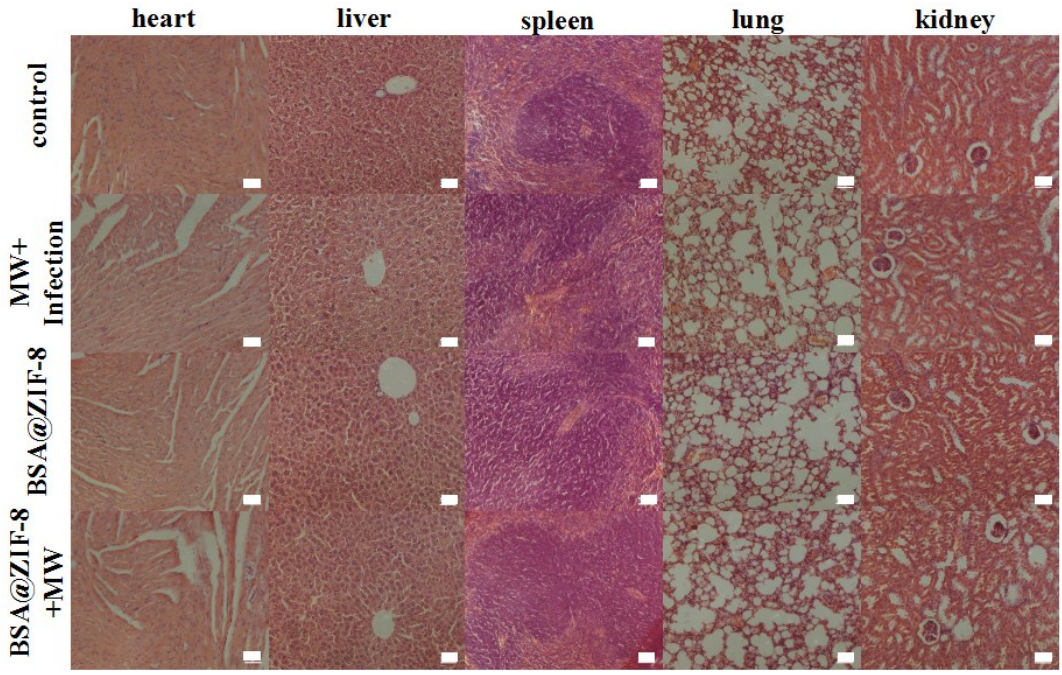

Figure S12. Representative histology H&E staining images of various organs (heart, liver, spleen, lung, and kidney) of different treated groups. (Scale bar 50 μm for all images).

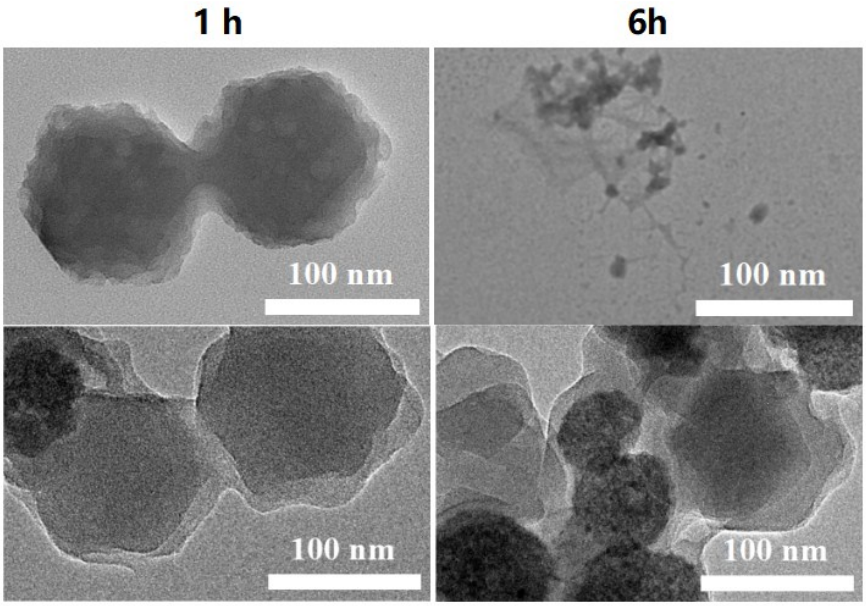

Figure S13. Degradation of ZIF-8 and BSA@ZIF-8 at different time periods in acidic condition (pH 5.5 phosphate-buffered saline) in vitro.

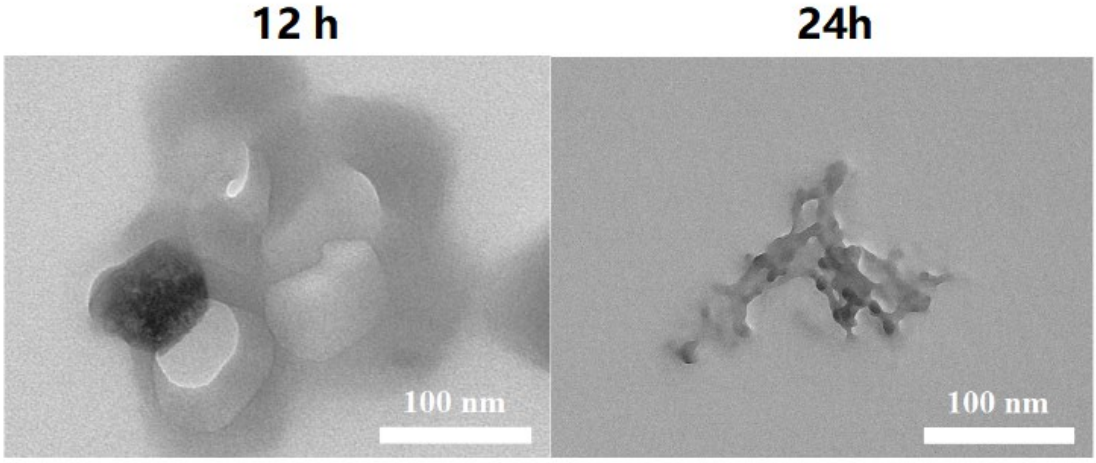

Figure S14. Degradation of BSA@ZIF-8 at different time periods in acidic condition (pH 5.5 phosphate-buffered saline) in vitro.