Electronic Supplementary Information

H_2O_2/Acid Self-Supplying Double-Layer Electrospun Nanofibers based on ZnO_2 and Fe_3O_4 nanoparticles for Efficient Catalytic Therapy of Wound Infection

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Supplementary Figures

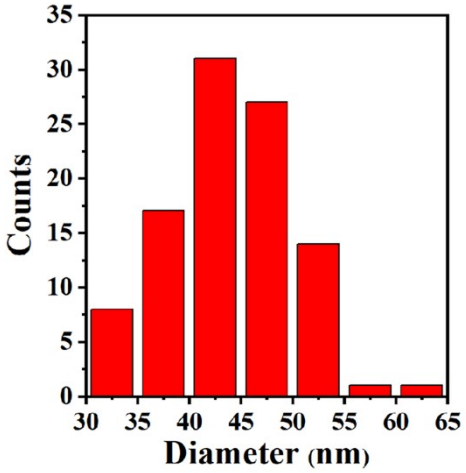

Fig. S1 Particle size statistics of ZnO_2 NPs based on TEM images.

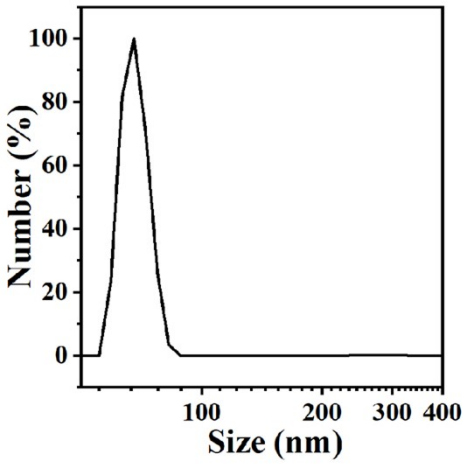

Fig. S2 DLS characterization of ZnO_2 NPs.

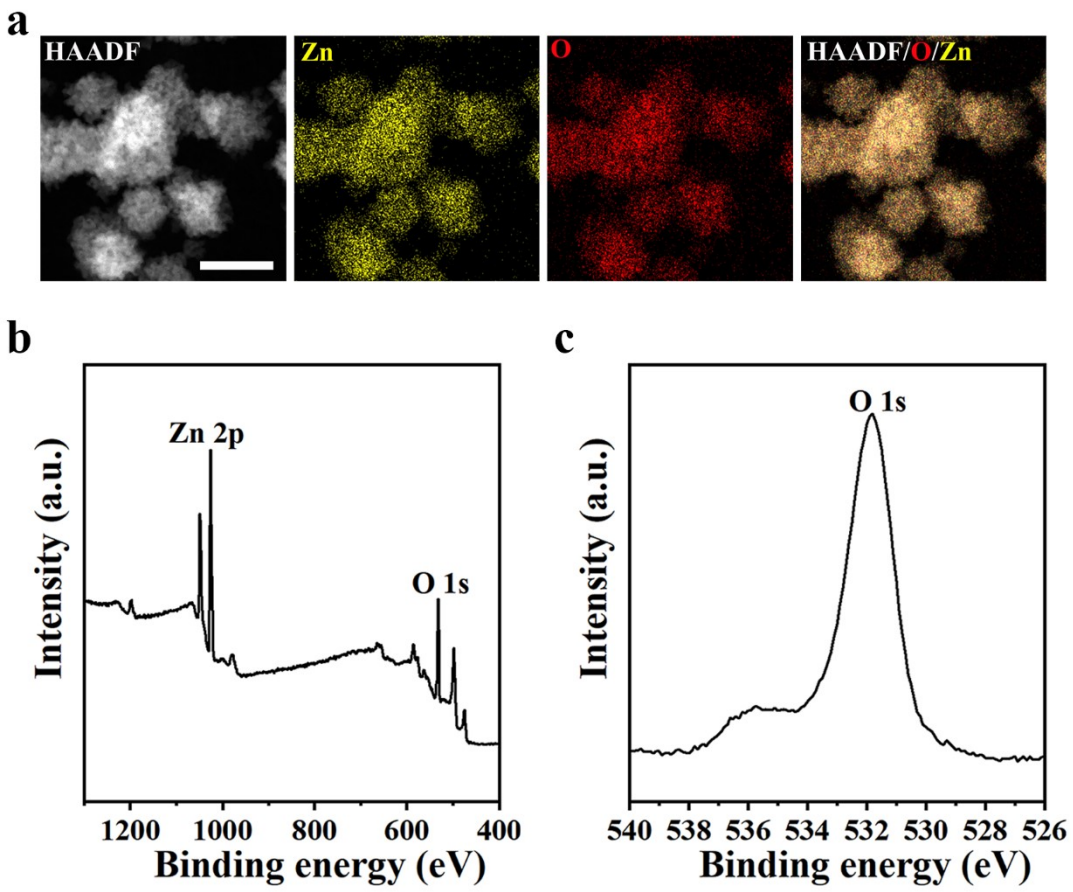

Fig. S3 (a) HAADF-STEM image of ZnO_2 NPs and elemental mapping images of Zn and O. Scale bar is 50 nm. (b) XPS pattern of the ZnO_2 NPs. (c) High-resolution XPS spectra of O 1s orbital for the ZnO_2 NPs.

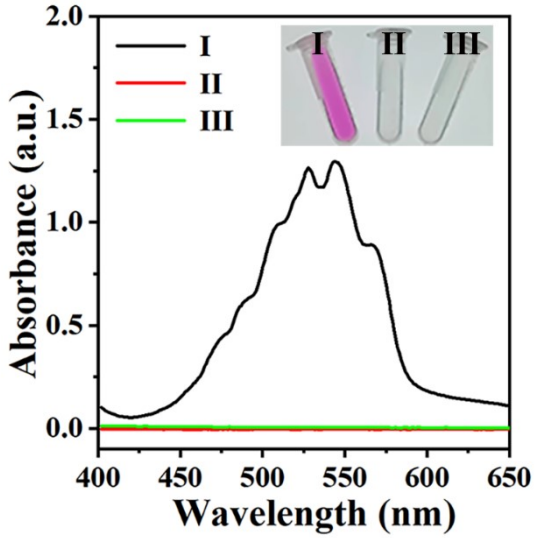

Fig. S4 Colorimetric assay of the peroxy groups in ZnO_2 NPs. (I: $KMnO_4$; II: H_2O_2 + $KMnO_4$; III: ZnO_2 NPs + $KMnO_4$).

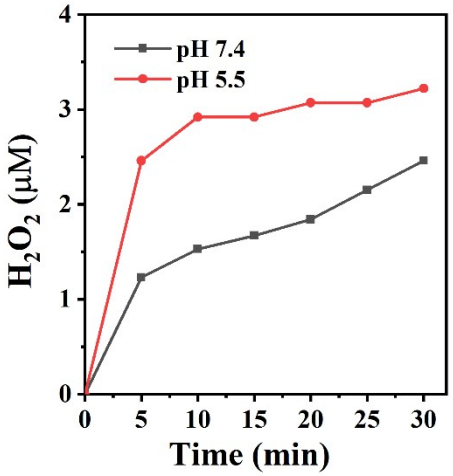

Fig. S5 Generation of H_2O_2 in ZnO_2 NPs solution at different pH conditions.

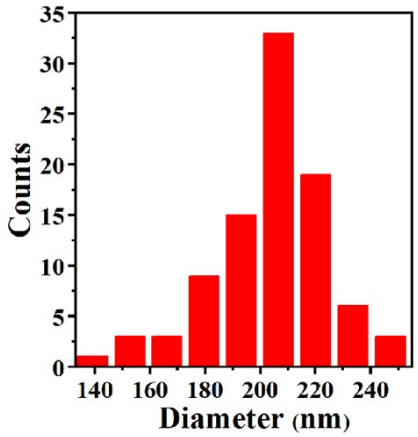

Fig. S6 Particle size statistics of Fe_3O_4 NPs based on TEM images.

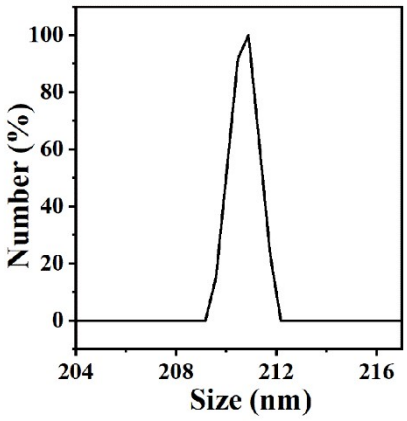

Fig. S7 DLS characterization of Fe_3O_4 NPs.

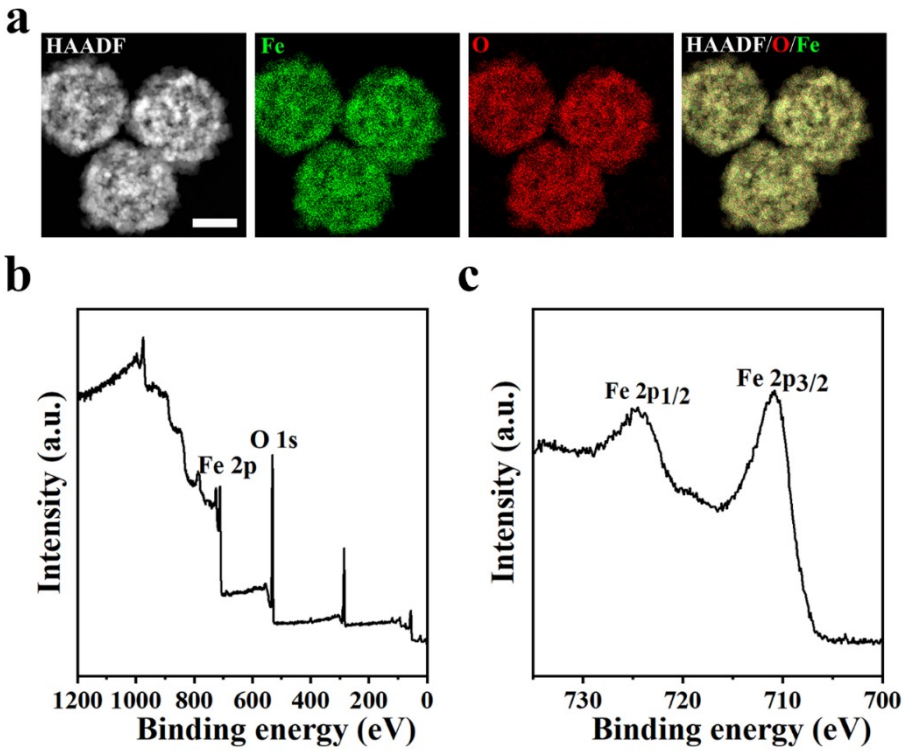

Fig. S8 (a) HAADF-STEM image of Fe_3O_4 NPs and elemental mapping images of Fe and O. Scale bar is 50 nm. (b) XPS pattern of the Fe_3O_4 NPs. (c) High-resolution XPS spectra of Fe 2p orbital for the Fe_3O_4 NPs.

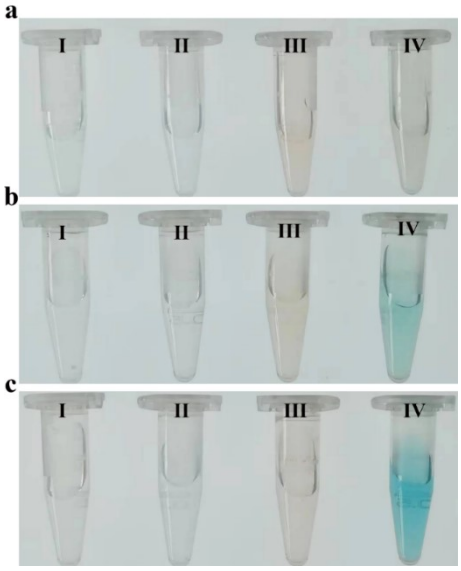

Fig. S9 Photographs of different solutions at (a) pH 7.0, (b) pH 5.5, and (c) pH 4.5. (I: TMB; II: TMB + H_2O_2; III: TMB + Fe_3O_4 NPs; IV: TMB + H_2O_2 + Fe_3O_4 NPs).

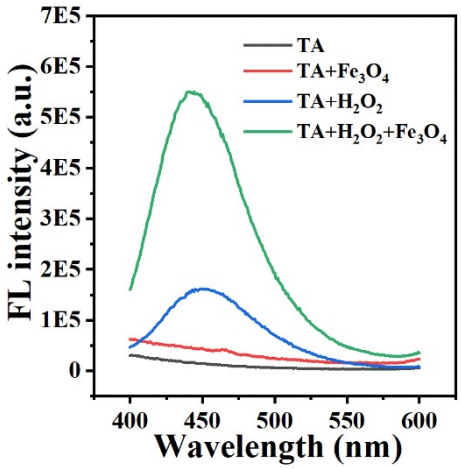

Fig. S10 Fluorescence spectra of the solutions containing Fe_3O_4 NPs, H_2O_2, and TA at pH 4.5.

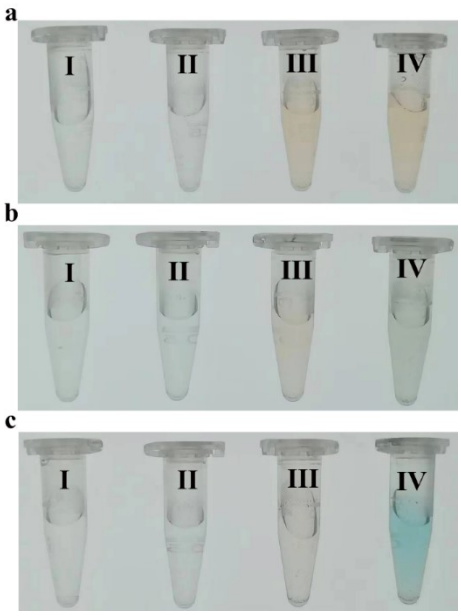

Fig. S11 Photographs of different solutions at (a) pH 7.0, (b) pH 5.5, and (c) pH 4.5. (I: TMB; II: TMB + ZnO_2 NPs; III: TMB + Fe_3O_4 NPs; IV: TMB + ZnO_2 NPs + Fe_3O_4 NPs).

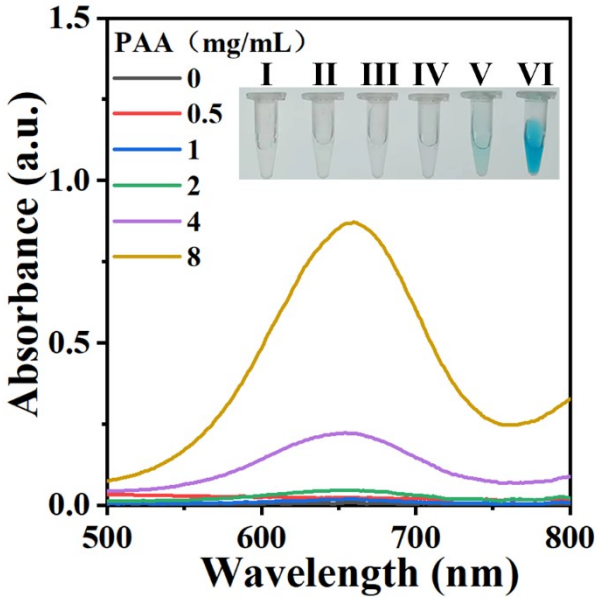

Fig. S12 The influence of PAA concentration on the cascade reaction of Fe_3O_4-ZnO_2 system using TMB as the substrate (Fe_3O_4 NPs: 10 μg/mL; ZnO_2 NPs: 30 μg/mL; PAA concentrations: I: 0 mg/mL; II: 0.5 mg/mL; III: 1 mg/mL; IV: 2 mg/mL; V: 4 mg/mL; VI: 8 mg/mL).

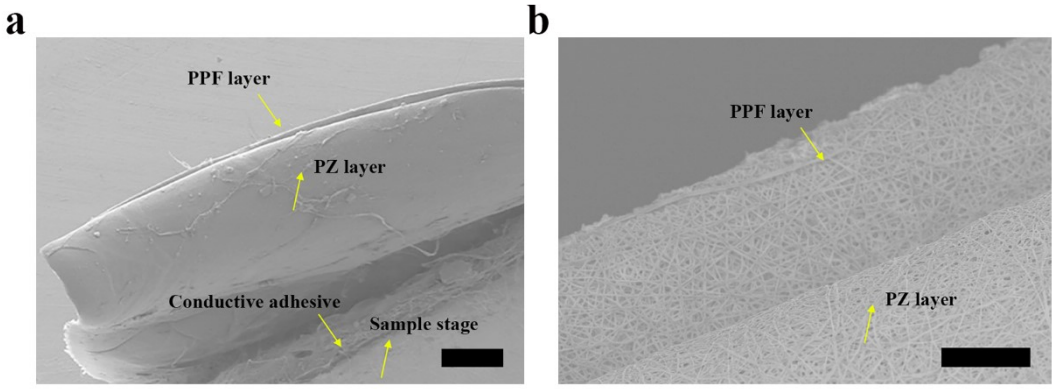

Fig. S13 SEM images of PPF/PZ NFs. (a) SEM image with low magnification. Scale bar is 300 μm. (b) SEM image of the cross-section with high magnification. Scale bar is 15 μm.

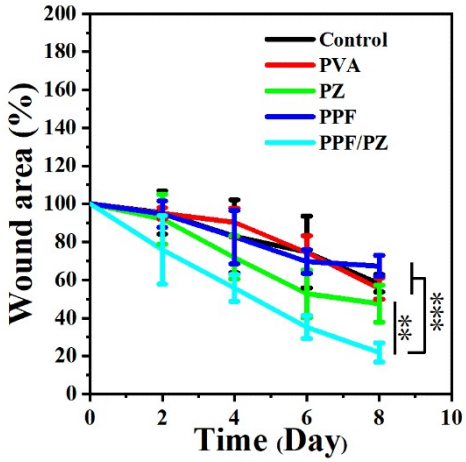

Fig. S14 Wound areas of MRSA-infected mice after different treatments.

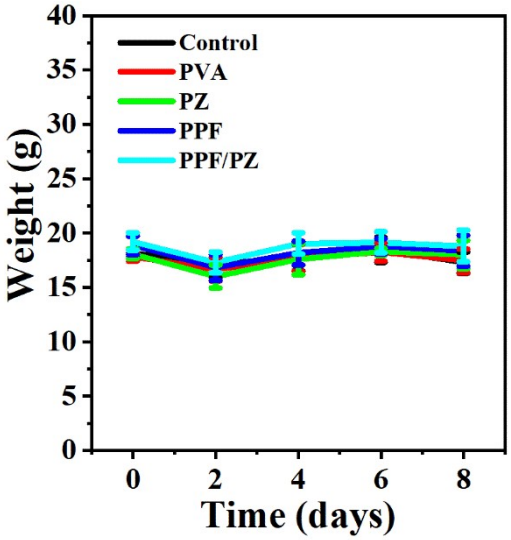

Fig. S15 Weight curves of MRSA-infected mice after different treatments.