Electronic Supplementary Information

H₂O₂/Acid Self-Supplying Double-Layer Electrospun Nanofibers based on ZnO₂ and Fe₃O₄ 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$_2$O$_2$ + KMnO$_4$; III: ZnO$_2$ NPs + KMnO$_4$).

**Fig. S5** Generation of H$_2$O$_2$ in ZnO$_2$ NPs solution at different pH conditions.
**Fig. S6** Particle size statistics of Fe₃O₄ NPs based on TEM images.

**Fig. S7** DLS characterization of Fe₃O₄ NPs.
**Fig. S8** (a) HAADF-STEM image of Fe$_3$O$_4$ NPs and elemental mapping images of Fe and O. Scale bar is 50 nm. (b) XPS pattern of the Fe$_3$O$_4$ NPs. (c) High-resolution XPS spectra of Fe 2p orbital for the Fe$_3$O$_4$ 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$_2$O$_2$; III: TMB + Fe$_3$O$_4$ NPs; IV: TMB + H$_2$O$_2$ + Fe$_3$O$_4$ NPs).

Fig. S10 Fluorescence spectra of the solutions containing Fe$_3$O$_4$ NPs, H$_2$O$_2$, 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$_3$O$_4$ NPs; IV: TMB + ZnO$_2$ NPs + Fe$_3$O$_4$ NPs).

Fig. S12 The influence of PAA concentration on the cascade reaction of Fe$_3$O$_4$-ZnO$_2$ system using TMB as the substrate (Fe$_3$O$_4$ 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.