

Supporting Information

A silver metal organic cage with antibacterial activity for wound healing

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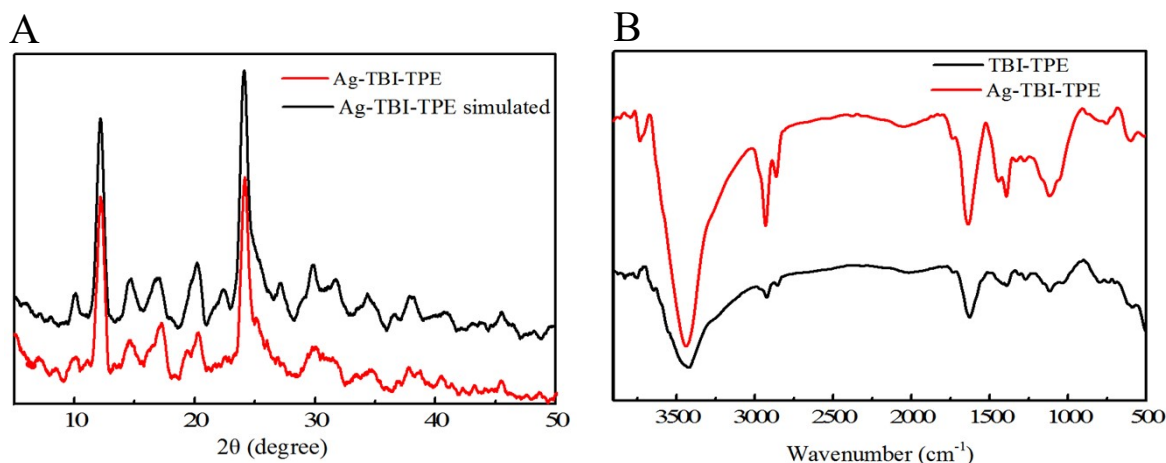


Figure S1 (A) The PXRD patterns of Ag-TBI-TPE cage. (B) The FTIR spectrum of TBI-TPE and Ag-TBI-TPE cage.

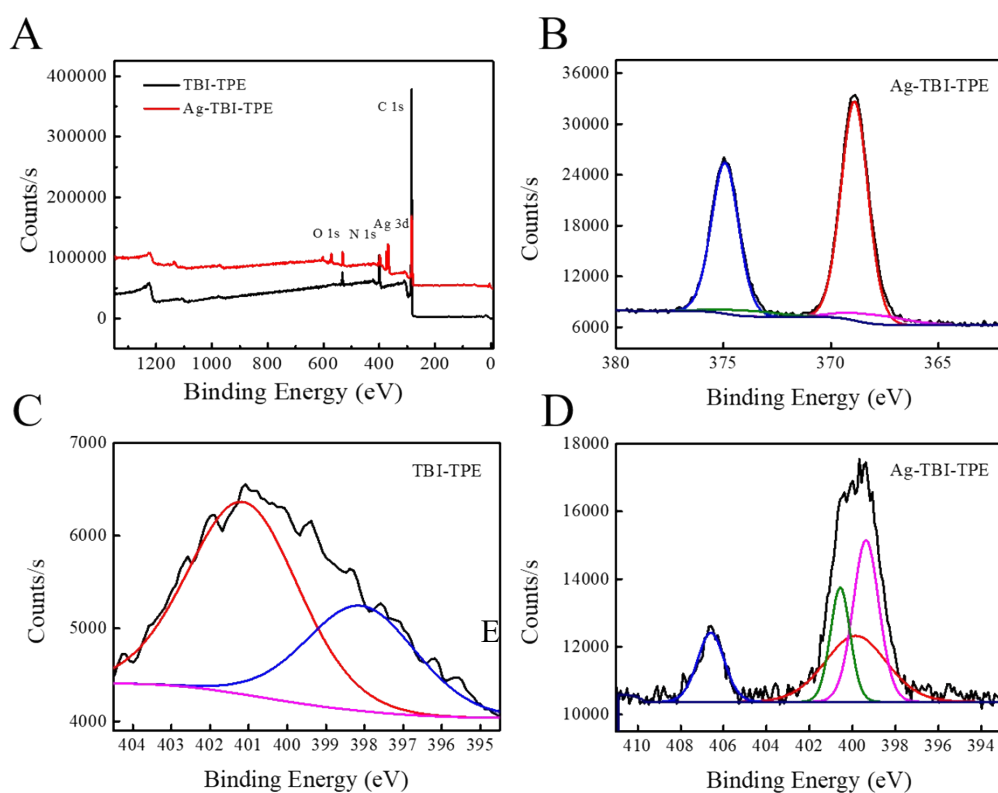


Figure S2 The XPS spectra of (A) Survey. (B) Ag 3d of Ag-TBI-TPE cage. (C) N 1s of TBI-TPE. (D) N 1s of Ag-TBI-TPE.

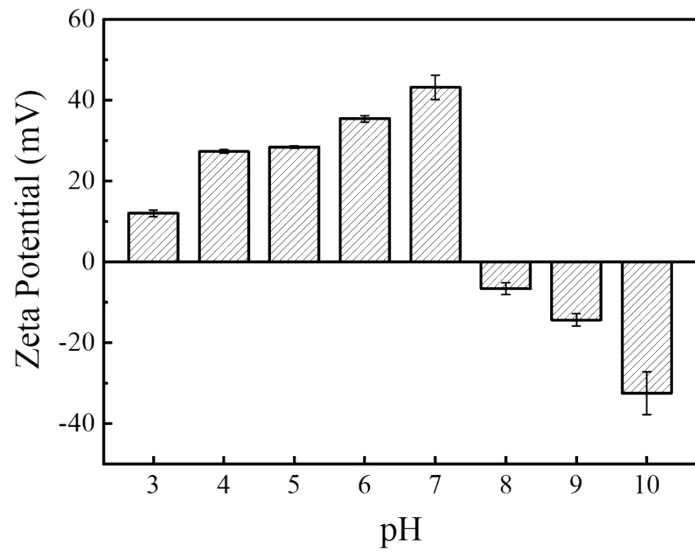


Figure S3 The zeta potential of Ag-TBI-TPE cage in different pH value. (0.1 mol/L Tris HCl)

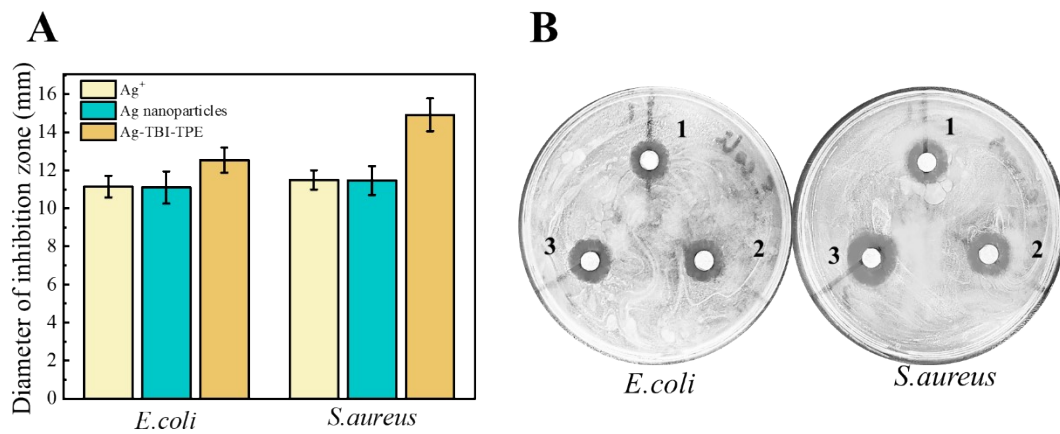


Figure S4 (A) The diameter of inhibition zone on *E. coli* and *S. aureus*. (B) The antibacterial effect of (1) Ag⁺, (2) Ag nanoparticles and (3) Ag-TBI-TPE cage on *E. coli* and *S. aureus*.

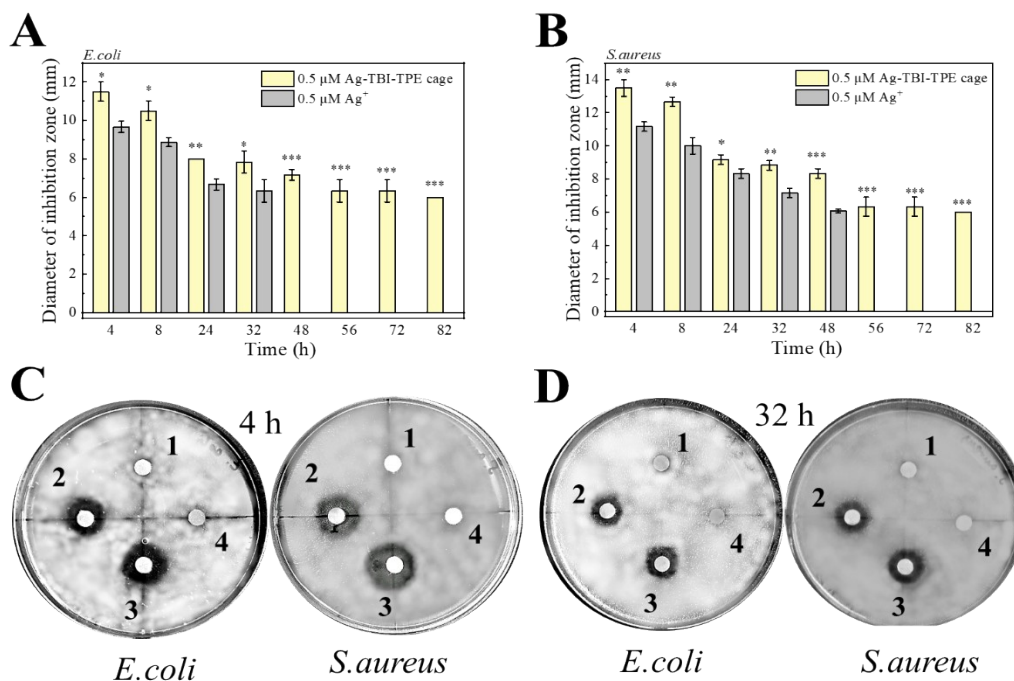


Fig S5 The antibacterial effect of Ag-TBI-TPE cage and Ag⁺ on (A) *E. coli* and (B) *S. aureus* respectively by calculating the diameter of inhibition zone with time. (* compared with Ag⁺, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$); The photographic images of the zone of inhibition on *E. coli* and *S. aureus* at (C) 4 hour and (D) 32 hour. (1: DMF : H₂O (1:100), 2: Ag⁺, 3: Ag-TBI-TPE cage, 4: TBI-TPE)

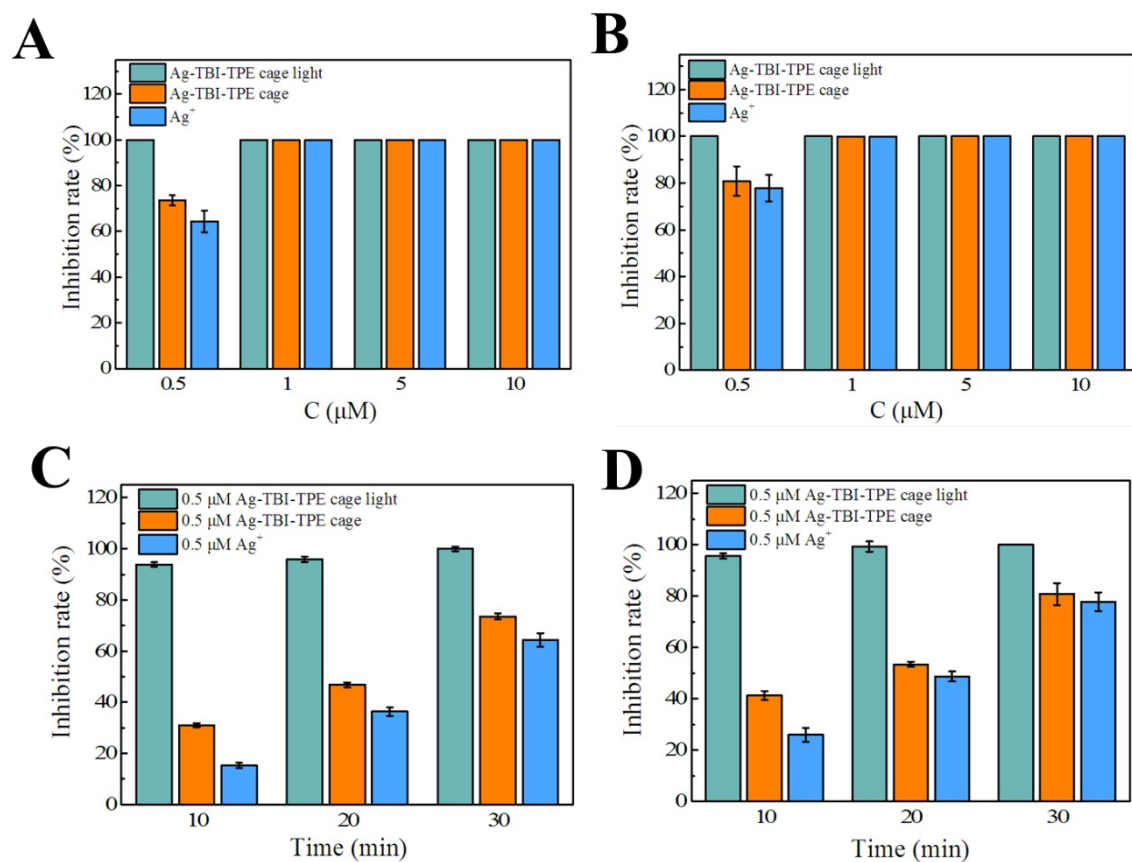


Figure S6 The concentration-dependent inhibition rate of Ag⁺ and Ag-TBI-TPE cage to (A) *E.coli* and (B) *S.aureus* in 30 min. The time-dependent inhibition rate of 0.5 μM Ag⁺ and Ag-TBI-TPE cage to (C) *E.coli* and (D) *S.aureus*.

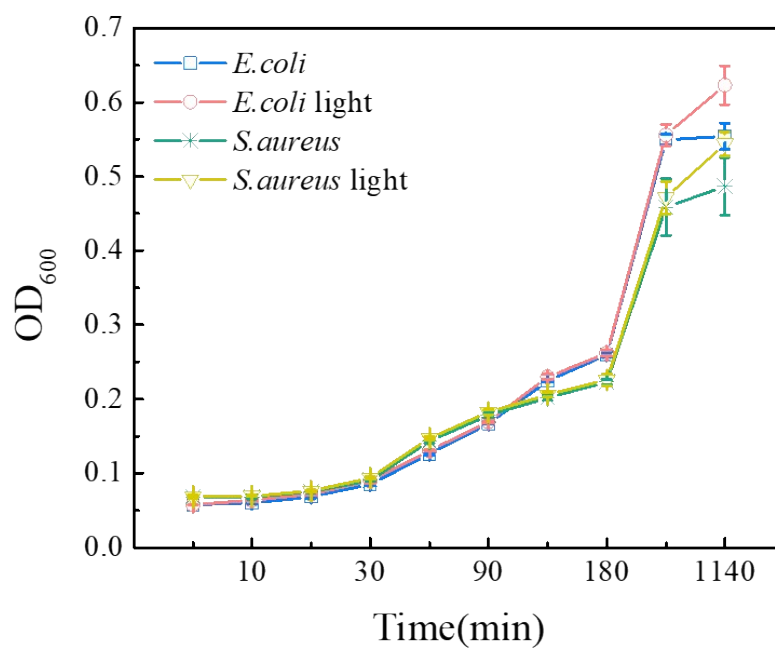


Figure S7 The UV-Vis absorbance of *E. coli* and *S. aureus* at 600 nm before and after light irradiation.

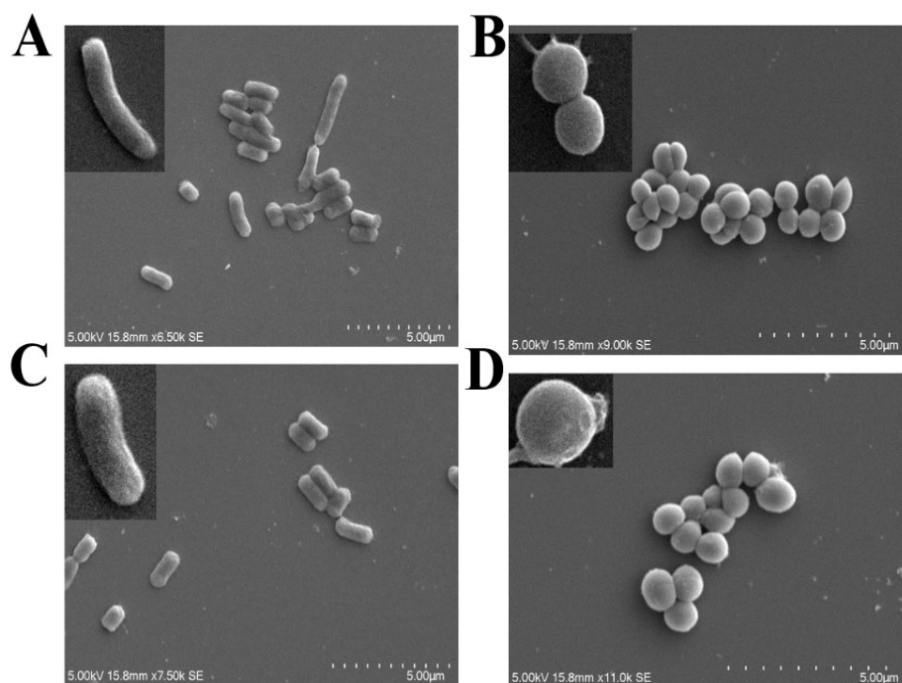


Figure S8 The SEM images of native (A) *E. coli*, (B) *S. aureus* and after light irradiation (C) *E. coli*, (D) *S. aureus*.

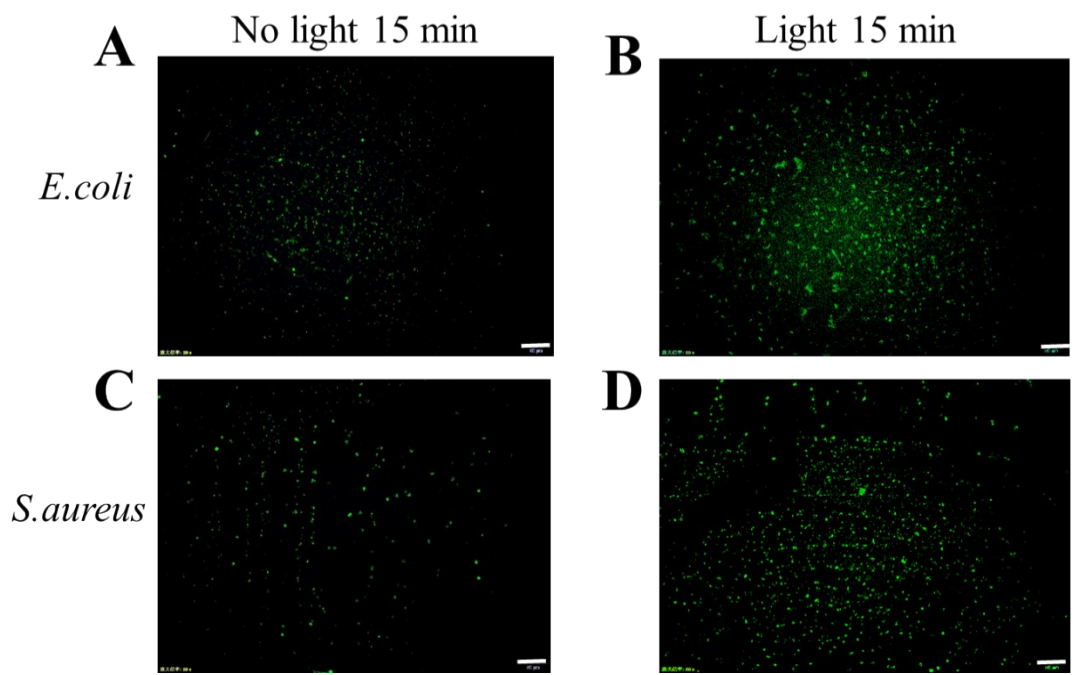


Figure S9 DCFH-DA assay for measurement of intracellular ROS production: *E.coli* (A) Ag-TBI-TPE cage with *E.coli*; (B) Ag-TBI-TPE cage with *E.coli* after light irradiation. *S.aureus* (C) Ag-TBI-TPE cage with *S.aureus*; (D) Ag-TBI-TPE cage with *S.aureus* after light irradiation. Scale bar: 50 μm .

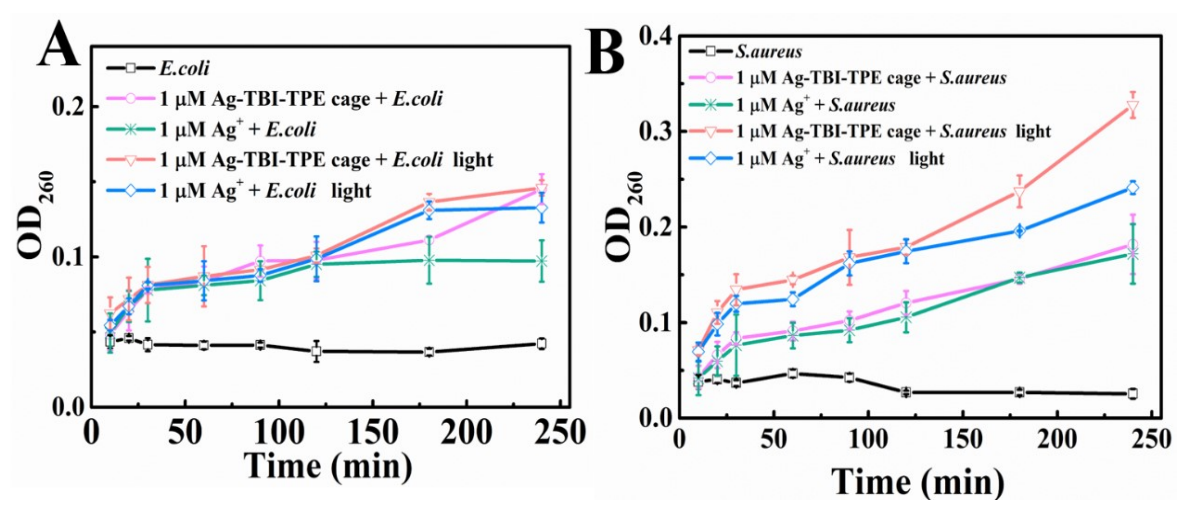


Figure S10 The characteristic UV adsorption spectrum of DNA at 260nm in different conditions (A) *E.coli* (B) *S.aureus*.

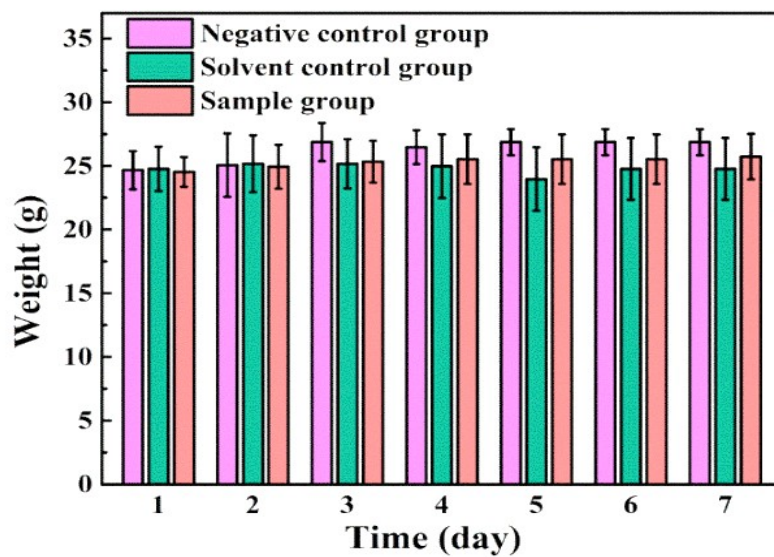


Figure S11 The acute toxicity test of Ag-TBI-TPE cage was experimented on Kunming mice. n=10

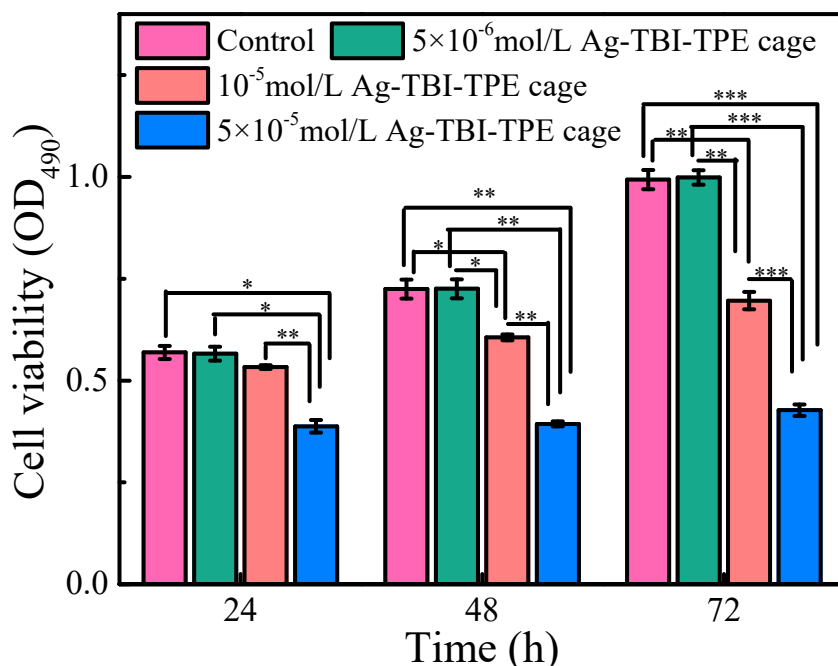


Figure S12 The MTT experiment was measured by ISO10993-5 standard test (L929 cells) to detect the toxicity of the Ag-TPE to animal cells (n=5, *p < 0.05, ** p < 0.01, *** p < 0.001).

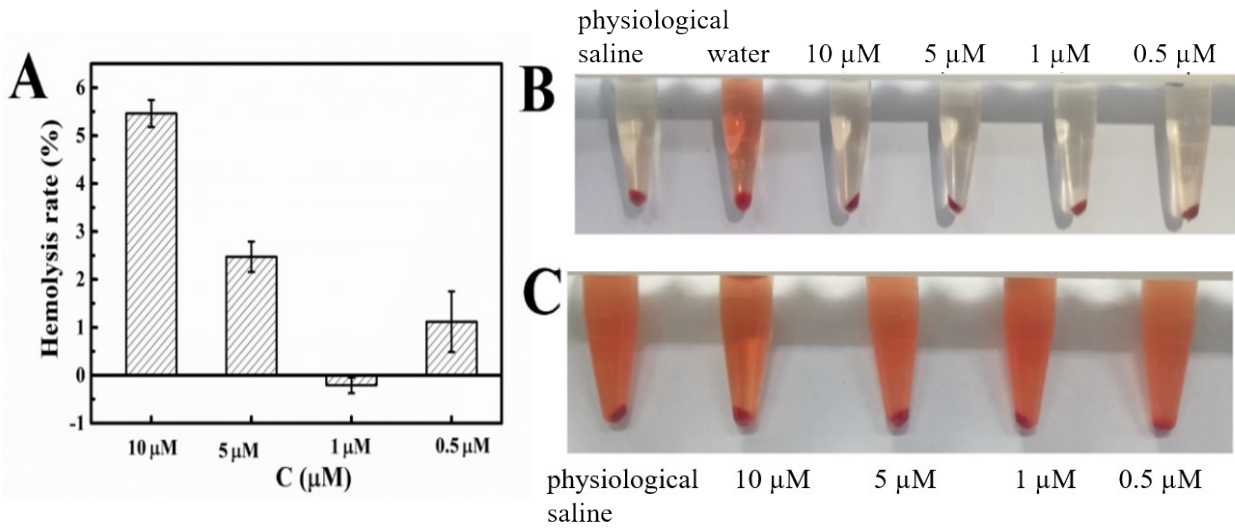


Figure S13 (A) Hemolysis rate of 0.5 μM -10 μM Ag-TBI-TPE cage. (B) The picture of erythrocytes after treating with water, physiological saline, Ag-TBI-TPE cage. (C) The photographs of physiological saline and Ag-TBI-TPE cage interacted erythrocytes after shaking and placing for a while.

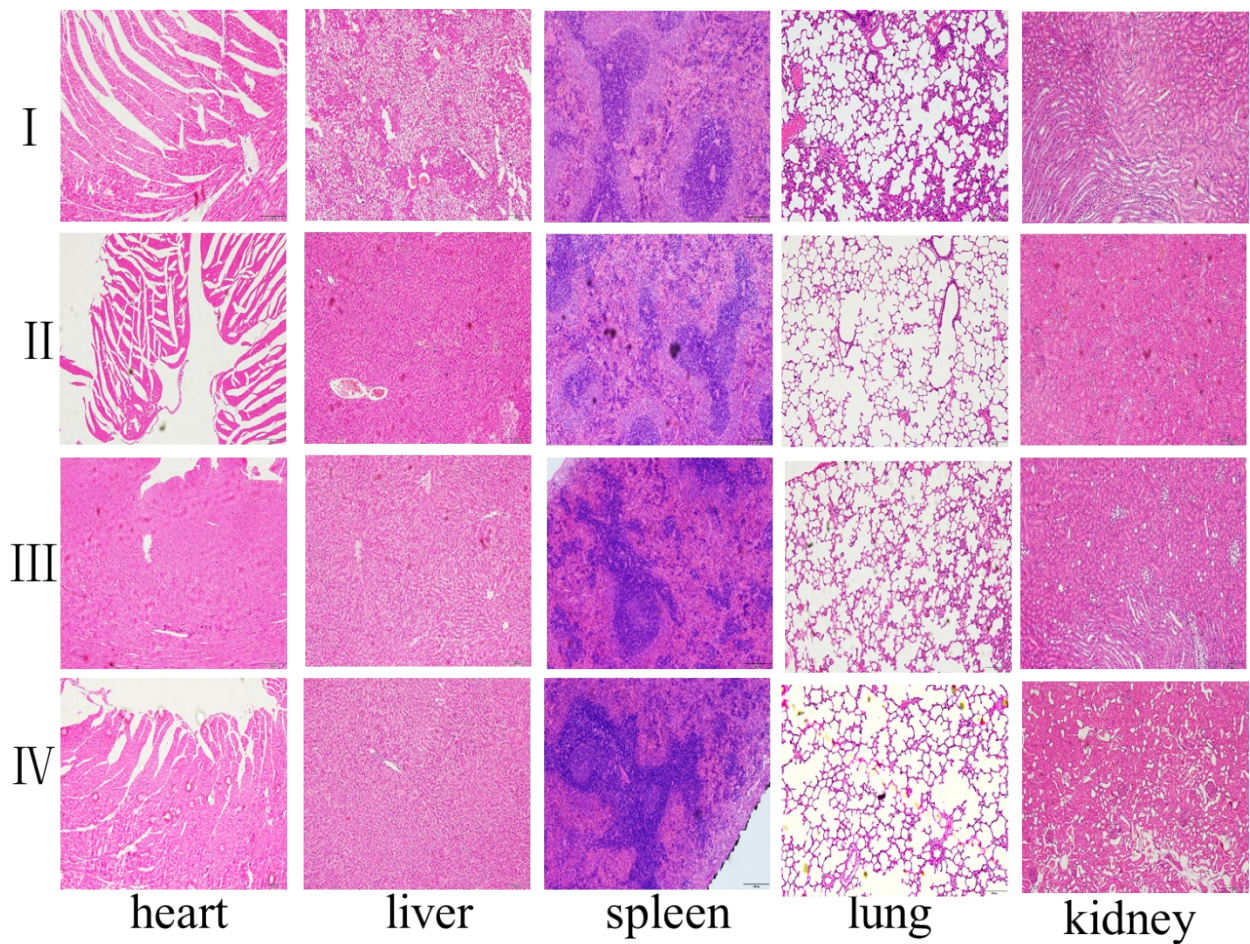


Figure S14 H&E stained tissue sections shown for the organ tissues (heart, liver, kidney, lung, and spleen) from the infection SD rat treated with Ag-TBI-TPE on day 14 in comparison with the infection SD rat without treatment. (magnification: 100×)