

# **Supporting Information**

## **Multistimulus-Responsive Multilayer Coating for Treatment of Device-Associated Infections**

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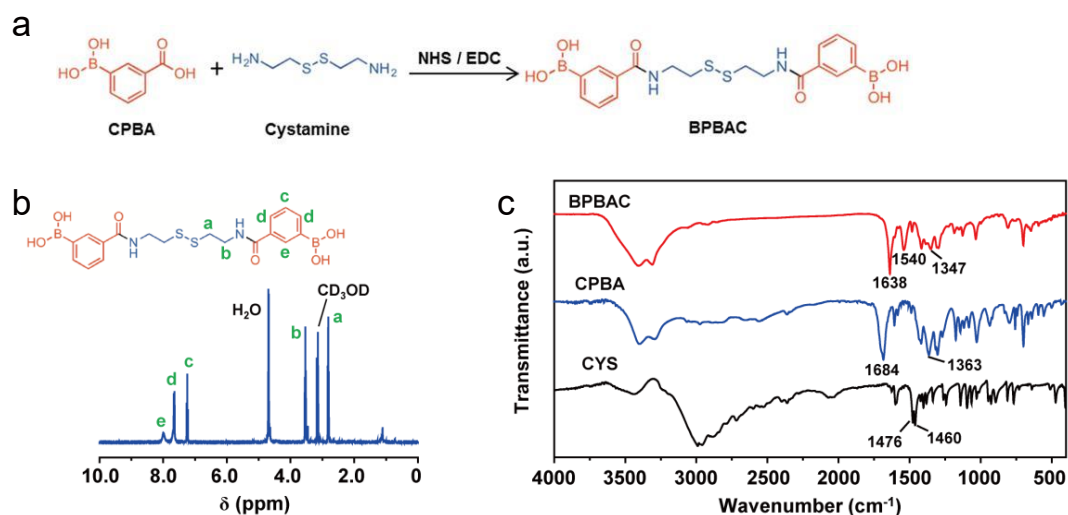


Figure S1. (a) Chemical structural formula of BPBAC; (b)  $^1\text{H}$ -NMR spectrums of BPBAC; (c) FT-IR absorbance spectrums of CPBA, CYS, and BPBAC.

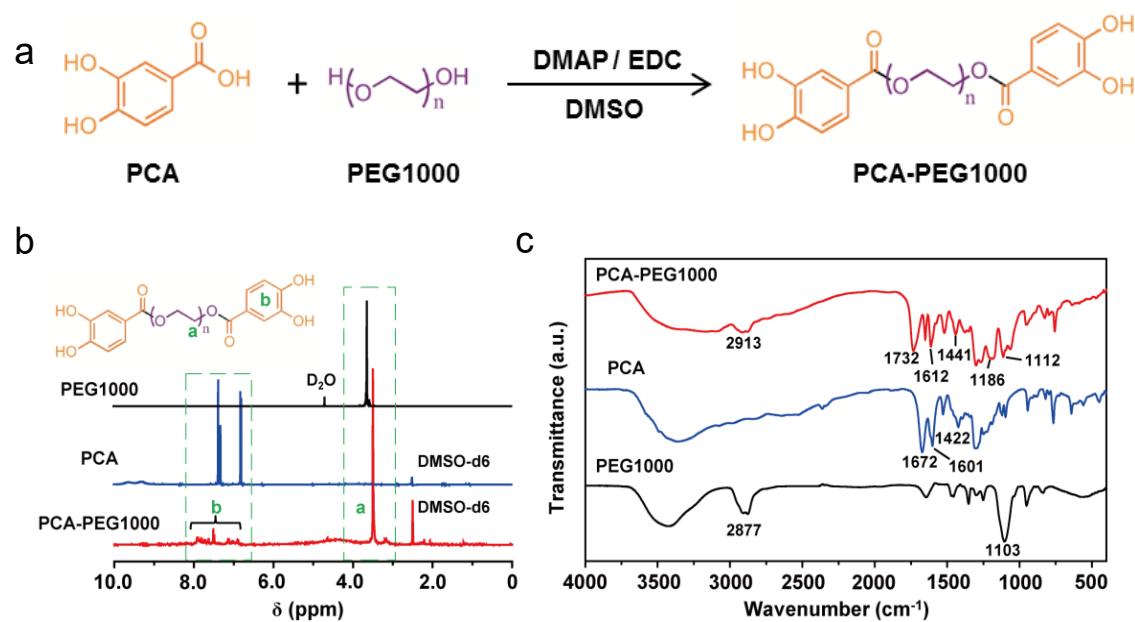


Figure S2. (a) Chemical structural formula of PCA-PEG1000; (b)  $^1\text{H}$ -NMR spectrums of PEG100, PCA, and PCA-PEG100; (c) FT-IR absorbance spectrums of PEG100, PCA, and PCA-PEG100.

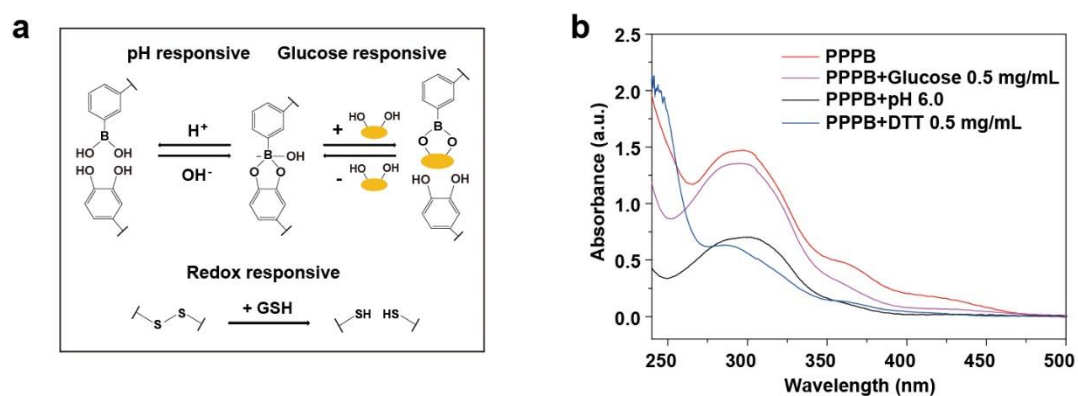


Figure S3 a) The responsive mechanism of PPPB; (b) UV absorption spectrums of PPPB in PBS buffer (pH 6.0), glucose aqueous solution (0.5 mg/mL) and DTT aqueous solution (0.5 mg/mL).

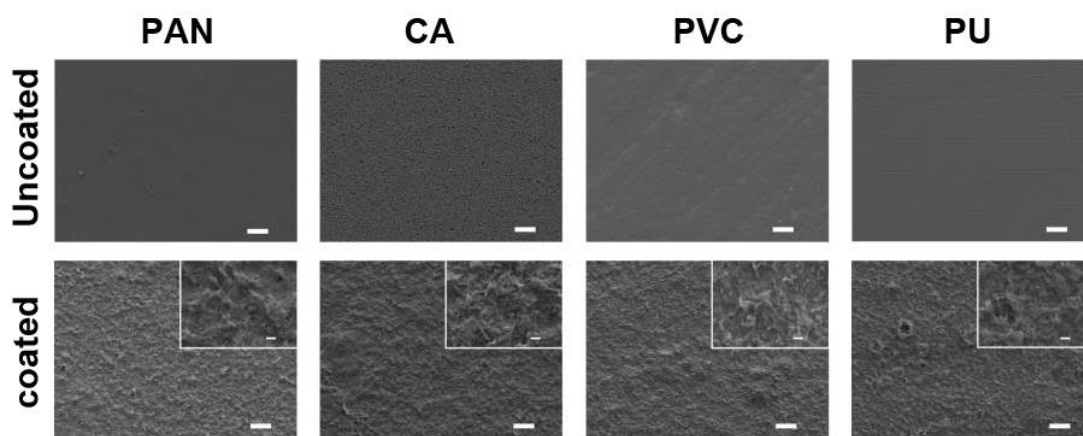


Figure S4 SEM images of the surfaces of CA, PAN, PVC and PU substrates coated and uncoated with (MMT-PPPB-CHA)<sub>3</sub>. Scale bar: 2  $\mu\text{m}$ .

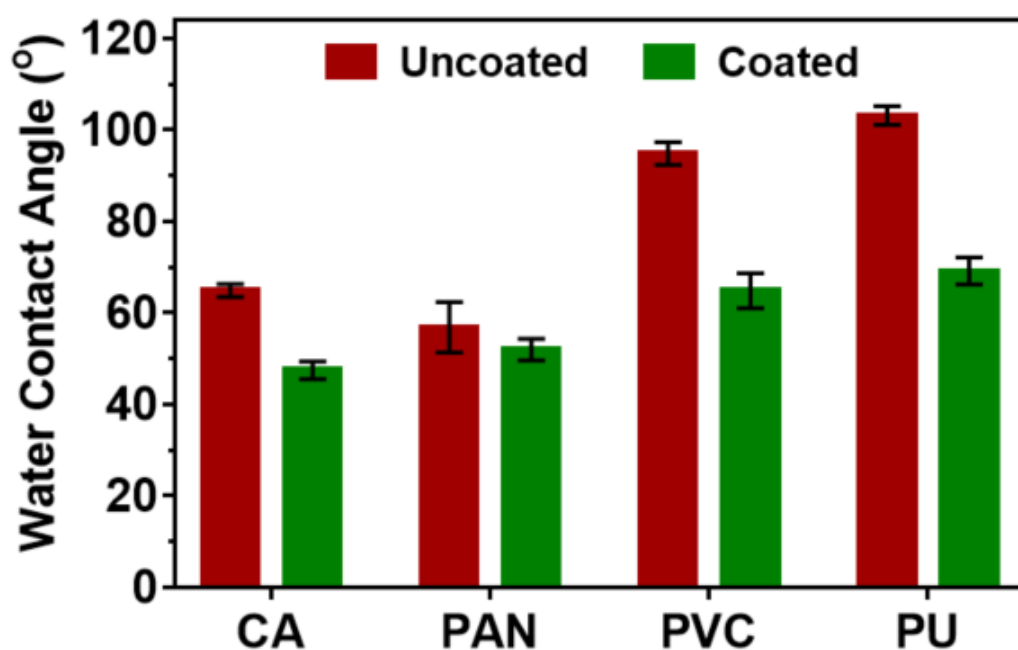


Figure S5 Water contact angles on the surfaces of CA, PAN, PVC and PU substrates uncoated and coated with (MMT-PPPB-CHA)<sub>3</sub>.

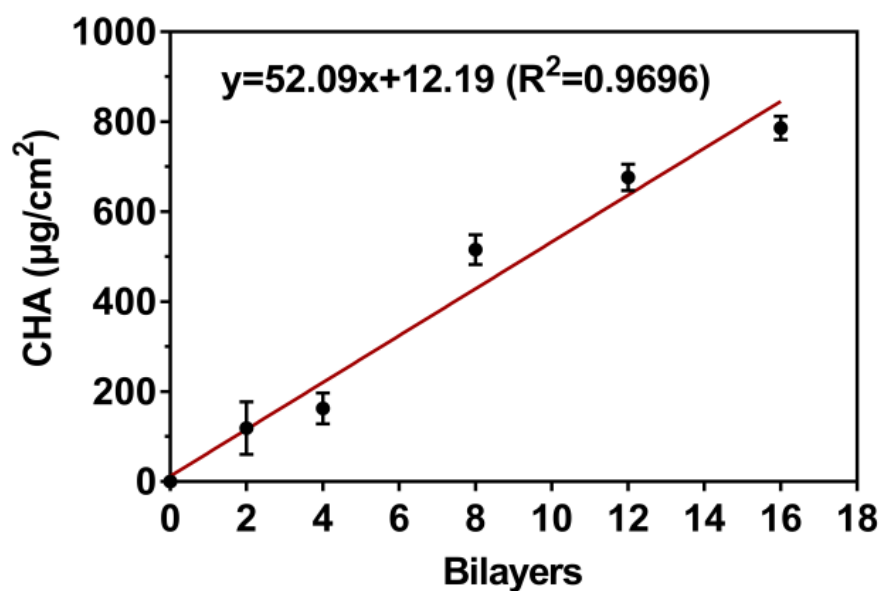


Figure S6 The relationship between drug loading and the number the (MMT-PPPB-CHA)<sub>3</sub> bilayers

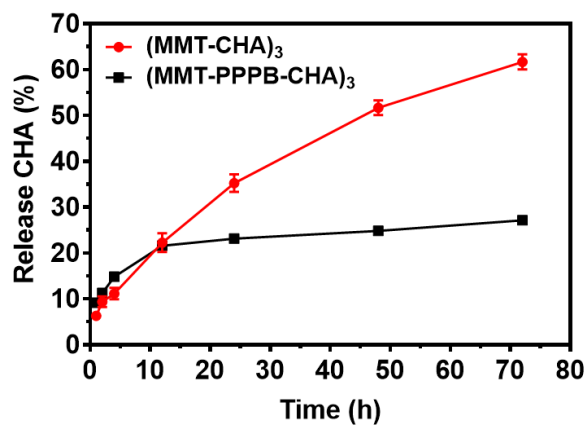


Figure S7. CHA release curves of (MMT-CHA)<sub>3</sub> and (MMT-PPPB-CHA)<sub>3</sub> coating in 72 hours.

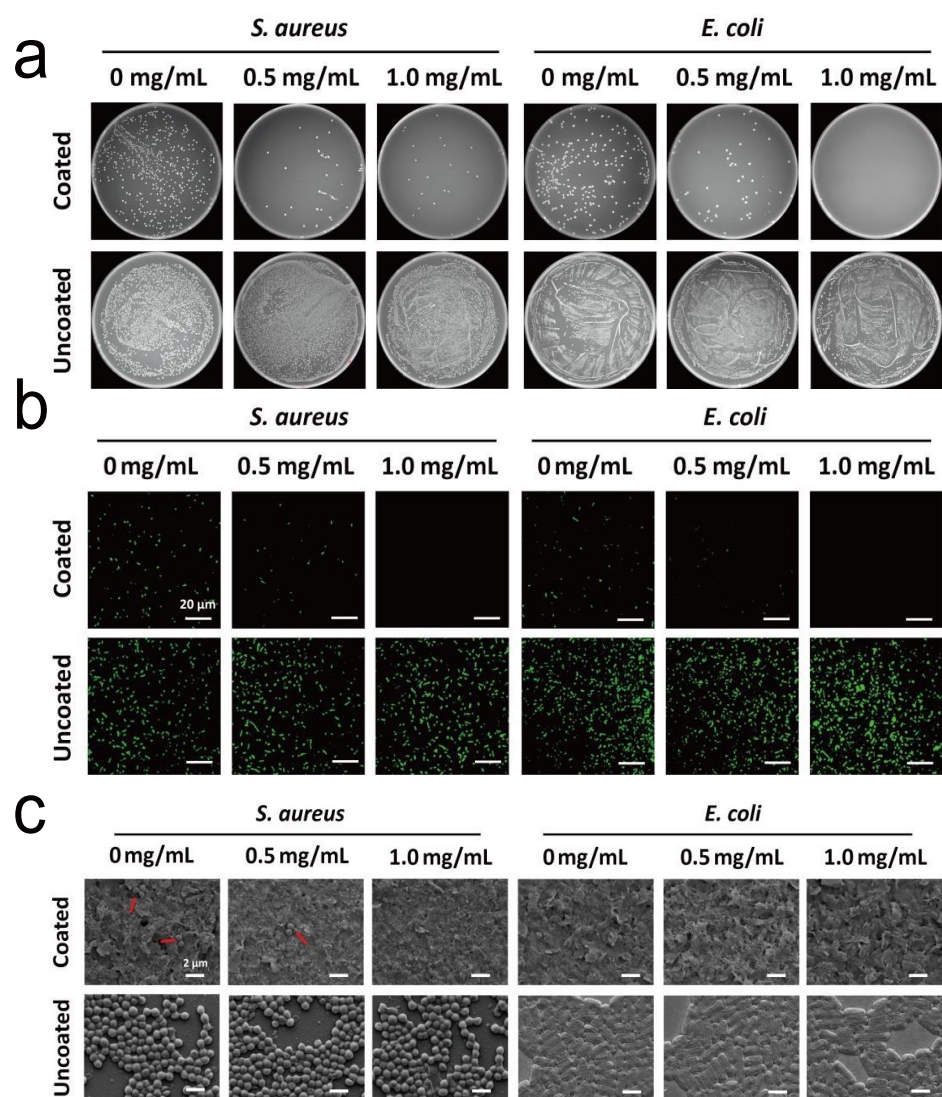


Figure S8 (a) Images of bacterial clones on the agar plates after treatment with (MMT-

PPPB-CHA)<sub>3</sub> coating for 2 h in glucose solutions (0, 0.5, 1.0 mg/mL); (b) CLSM diagrams and (c) SEM images of bacterial adhesion on the (MMT-PPPB-CHA)<sub>3</sub> coating for 2 h in glucose solutions (0, 0.5, 1.0 mg/mL).

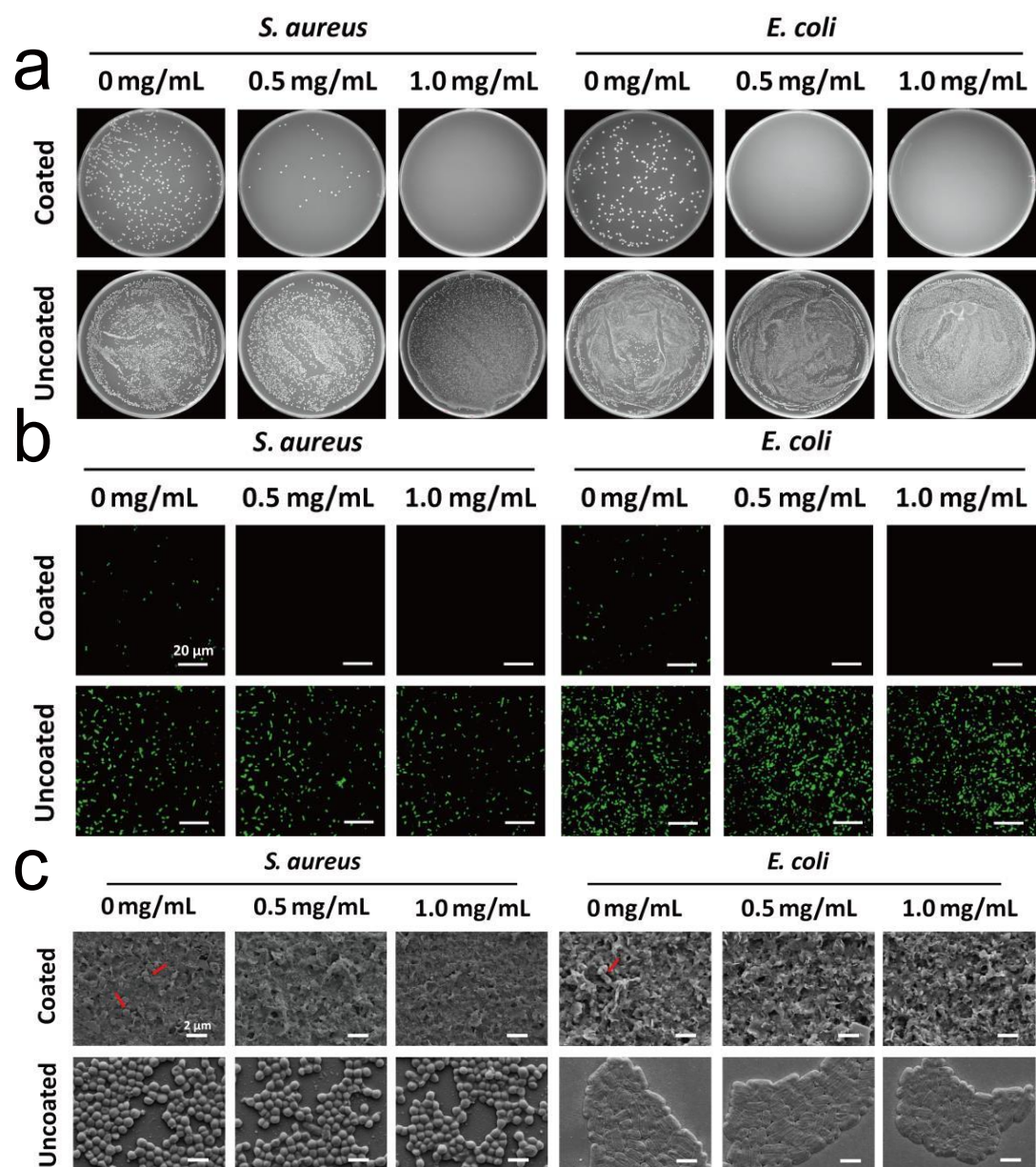


Figure S9 (a) Images of bacterial clones on the agar plates after treatment with (MMT-PPPB-CHA)<sub>3</sub> coating for 2 h in DTT solutions (0, 0.5, 1.0 mg/mL); (b) CLSM diagrams and (c) SEM images of bacterial adhesion on the (MMT-PPPB-CHA)<sub>3</sub> coating for 2 h in DTT solutions (0, 0.5, 1.0 mg/mL).



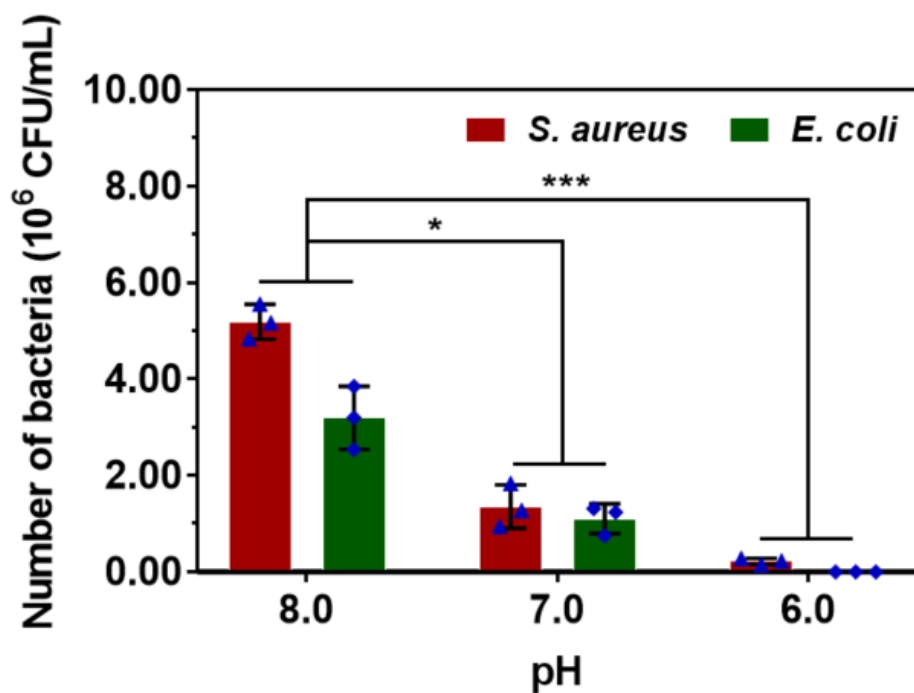


Figure S10 Concentrations of *S. aureus* and *E. coli* after incubating with (MMT-PPPB-CHA)<sub>3</sub> at different pH values (6.0, 7.0, 8.0) for 2 h. \* $p < 0.05$ , \*\*\* $p < 0.001$

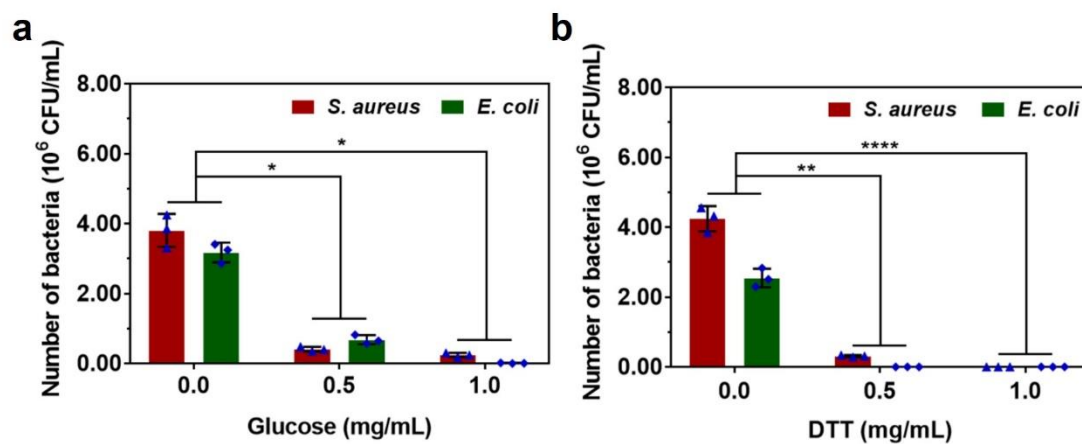


Figure S11 Concentrations of *S. aureus* and *E. coli* after incubating with (MMT-PPPB-CHA)<sub>3</sub> under different (a) glucose and (b) DTT concentrations (0, 0.5, 1.0 mg/mL) for 2 h. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , \*\*\*\* $p < 0.0001$ .

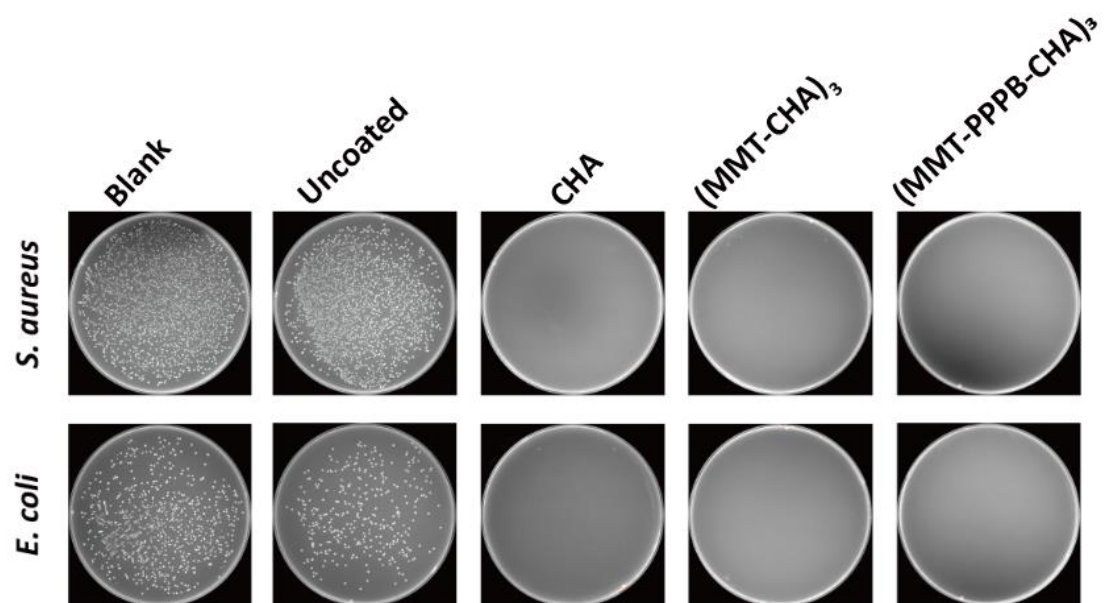


Figure S12 The growth of *S. aureus* and *E. coli* in infected wound tissues after 14 days of different treatments.