Supplementary information

Piezocatalytic microneedle platform for biocompatible and antibacterial ROS therapy of infected wounds

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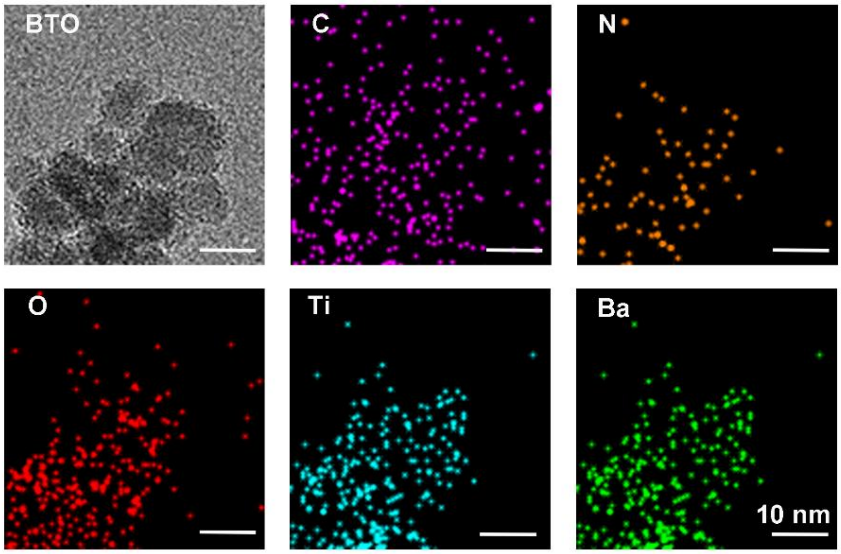


Figure S1. TEM mapping of BTO nanosheets. Scale bars: 10 nm.

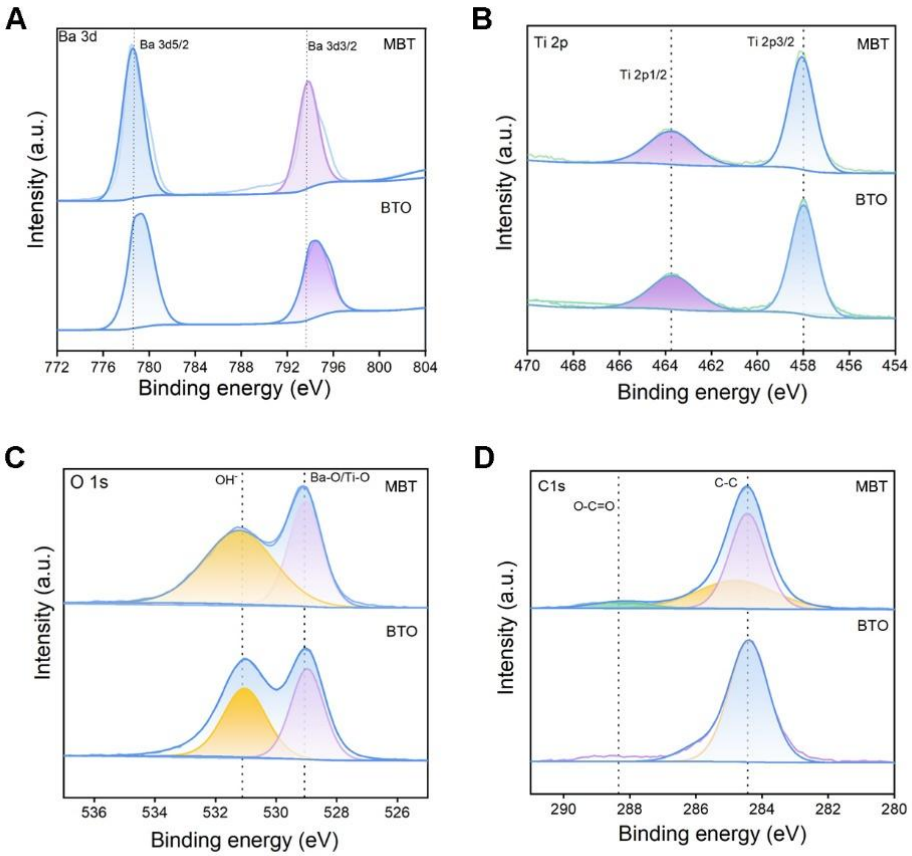


Figure S2. High-resolution XPS spectra of Ba 3d (A), Ti 2p (B), O 1s (C), and C 1s (D), respectively.

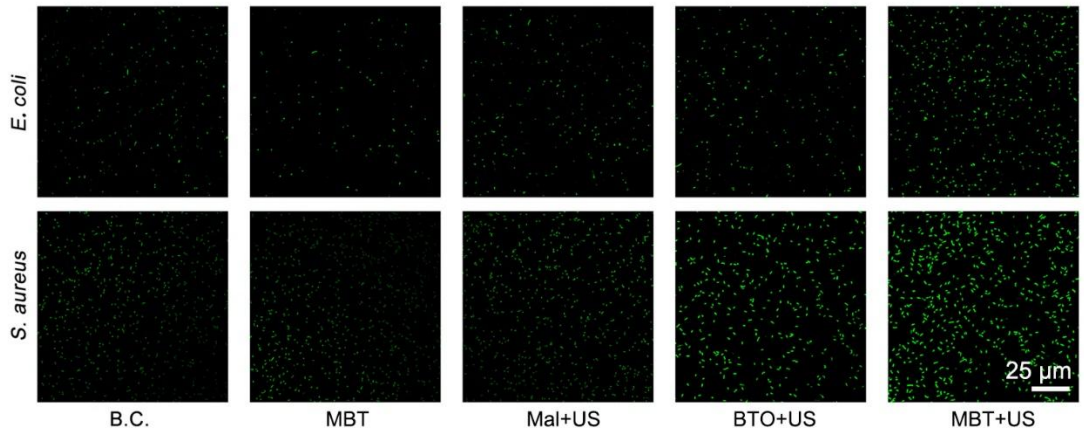


Figure S3. Fluorescence images of intracellular ROS levels detected by DCFH-DA probe. Scale bar: 25 μm.

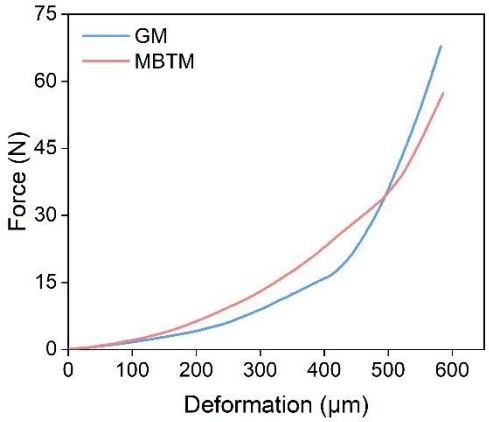


Figure S4. Compression test of microneedles.

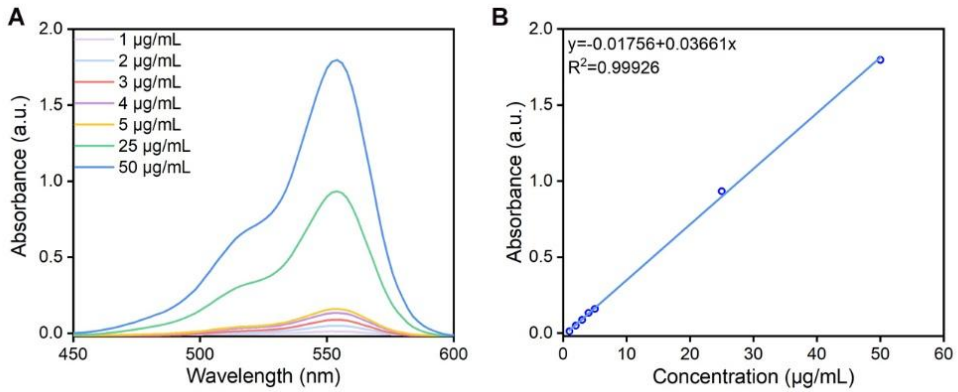


Figure S5. (A) UV-vis absorption spectra of Rh. B at standard concentrations; (B) Standard curve of Rh. B.

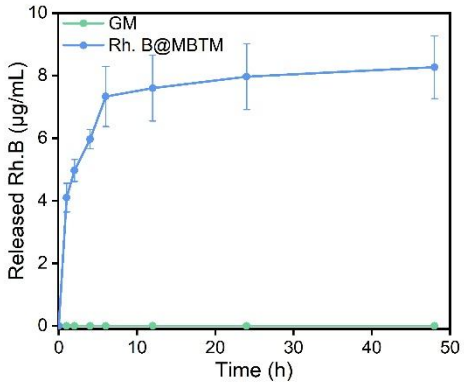


Figure S6. The releasing dynamics of Rh. B (n = 3 biological replicates).

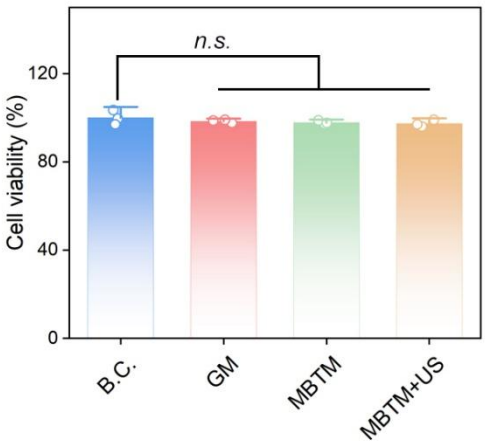


Figure S7. Quantitative results of MTT assay (n = 3 biological replicates). All data are presented as the mean ± SD. Statistical significance was determined using one-way ANOVA. For inter-group comparison, *n.s.* indicates no significance.

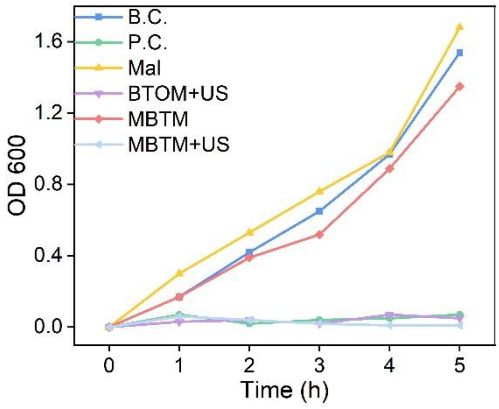


Figure S8. Proliferation curves of MRSA.

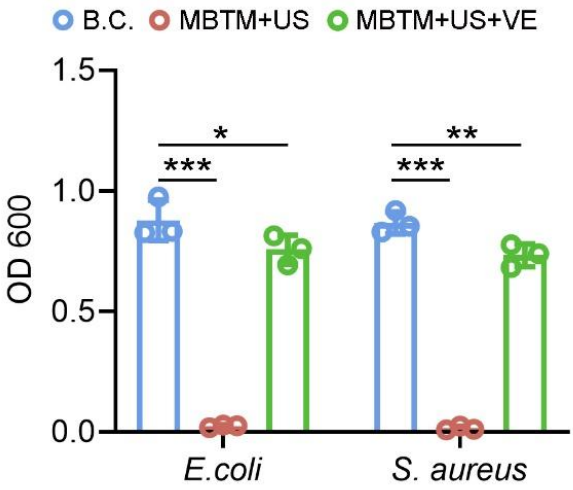


Figure S9. Rescue assay by vitamin E (n = 3 biological replicates). All data are presented as the mean ± SD. Statistical significance was determined using one-way ANOVA. Compared to B.C. group, **P* < 0.05, ****P* < 0.001.

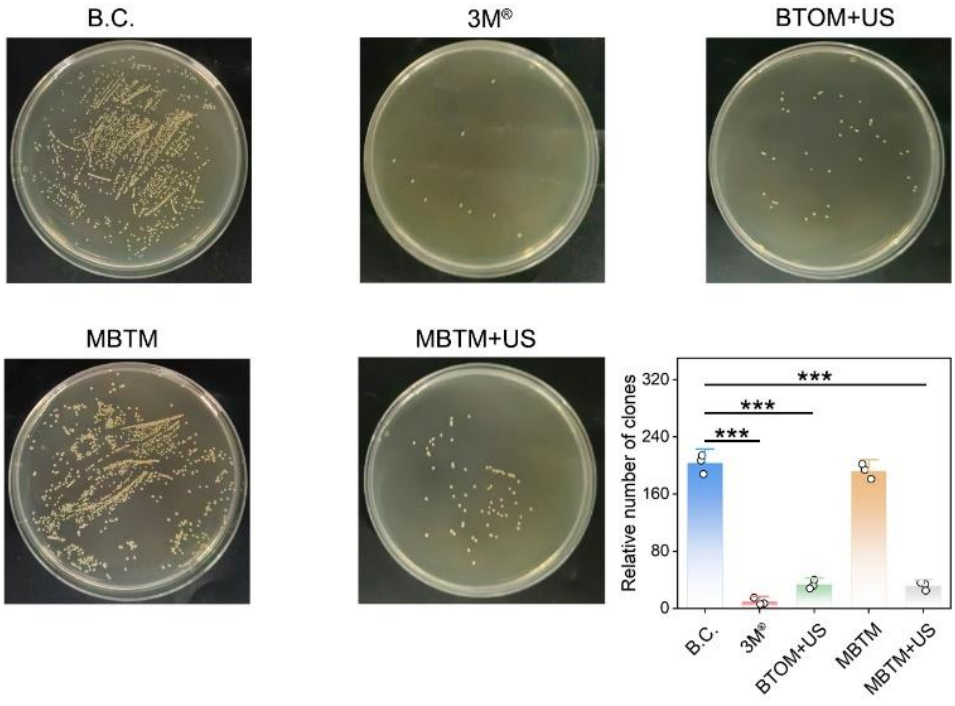


Figure S10. Antibacterial evaluation *in vivo* (n = 3 biological replicates). All data are presented as the mean ± SD. Statistical significance was determined using one-way ANOVA. Compared to B.C. group, ****P* < 0.001.

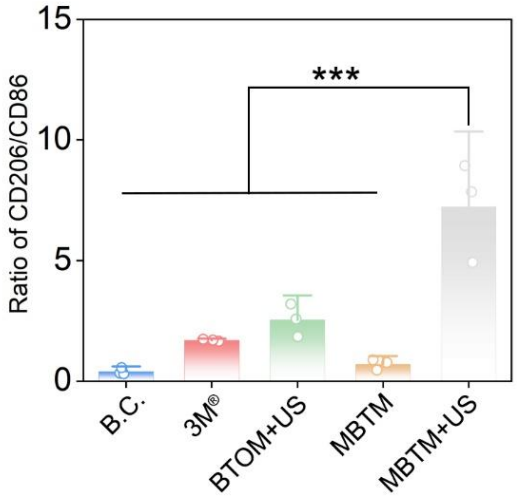


Figure S11. The quantitative ratio of $CD206^{+}/CD86^{+}$ cells (n = 3 biological replicates). All data are presented as the mean ± SD. Statistical significance was determined using one-way ANOVA. Compared to GBTM+US group, ***$P < 0.001$.