

Supporting Information

AgBr Nanoparticles in Situ Growth on 2D MoS₂ Nanosheets for Rapid Bacteria-Killing and Photodisinfection

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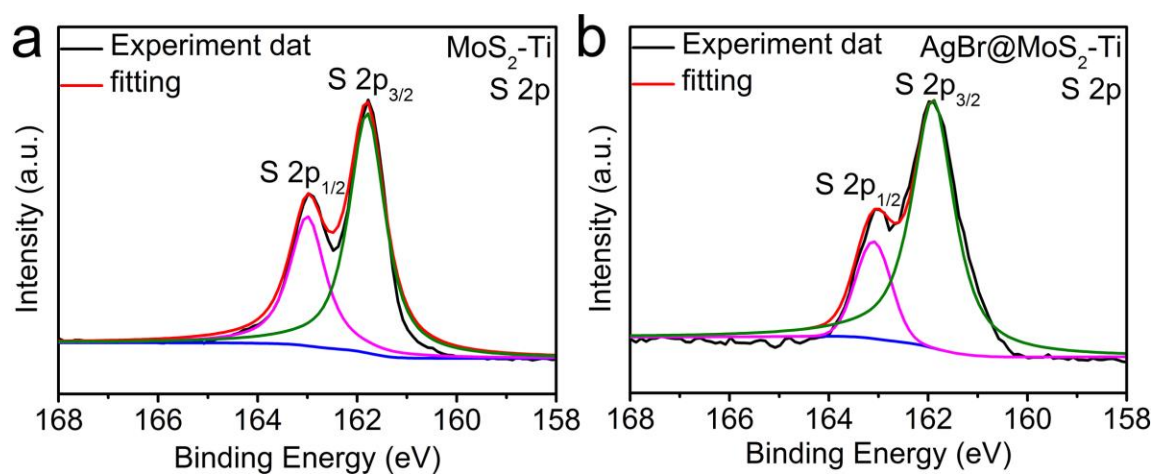


Figure S1. (a) The high-resolution S 2p spectra of MoS₂-Ti. (b) The high-resolution spectrum of S 2p in AgBr@MoS₂-Ti.

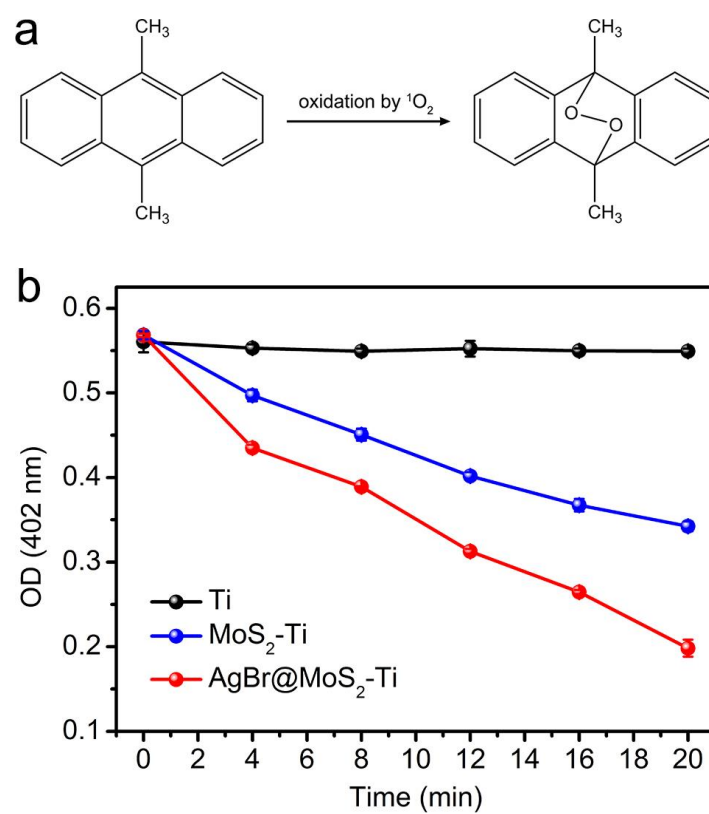


Figure S2. (a) DMA reaction with $^1\text{O}_2$ forming an endoperoxide. (b) Decay curves of the absorption of DMA as the irradiation time

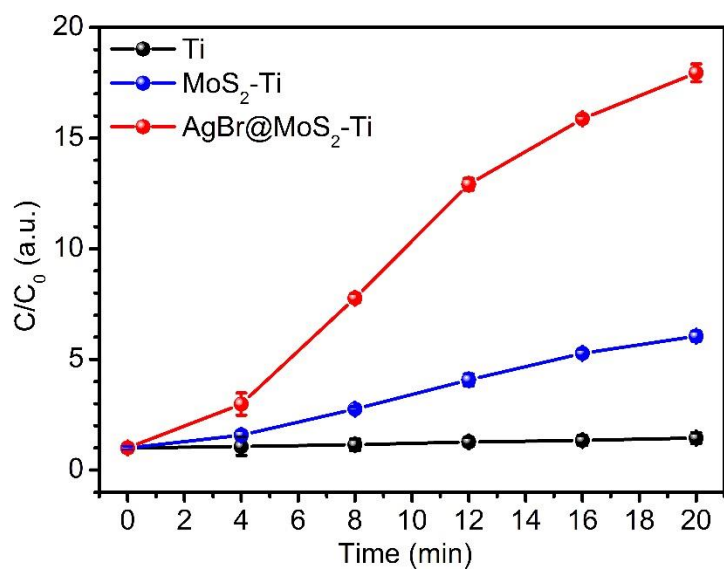


Figure S3. The fluorescence intensity of DCF at 525 nm with different samples of Ti, MoS₂-Ti and AgBr@MoS₂-Ti after irradiated with 660 nm light. C: fluorescence intensity at different times, C₀: fluorescence intensity in initial value.

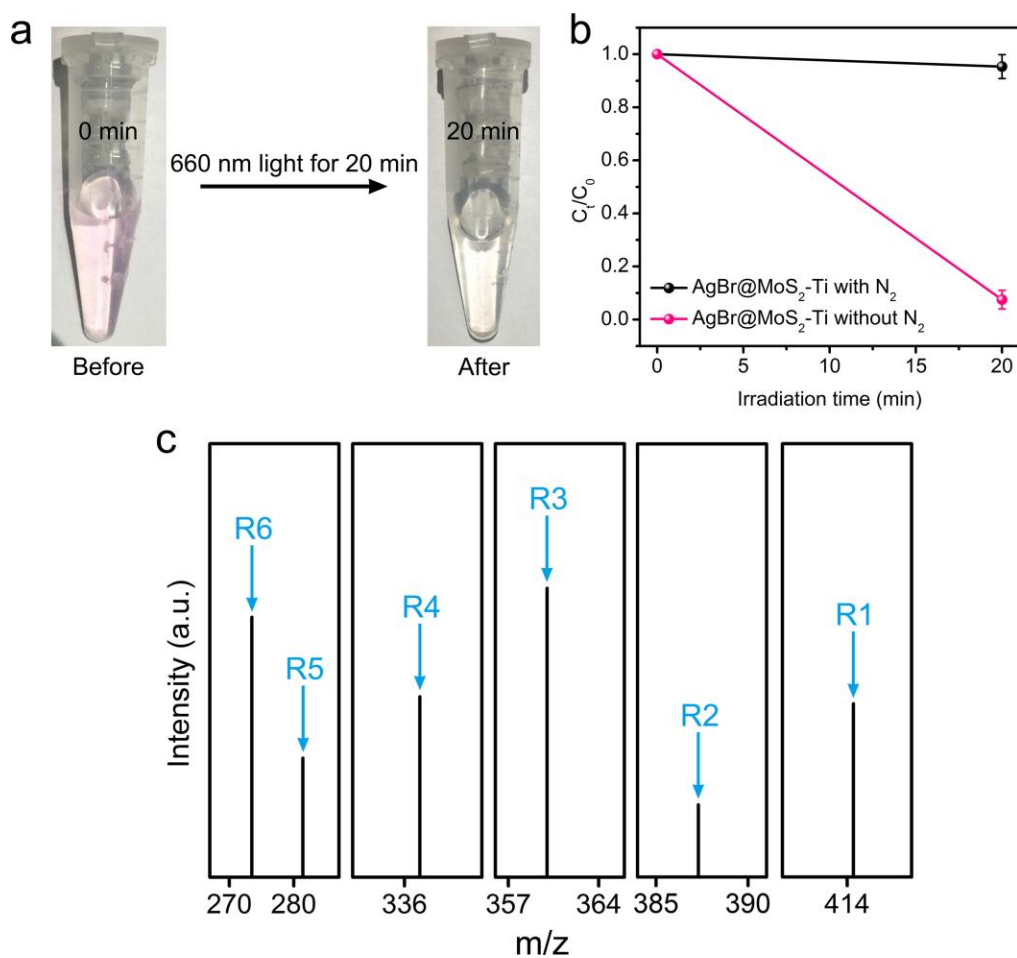


Figure S4. (a) The image of RhB solution before and after 660 nm light. (b) Photocatalytic degradation of RhB on AgBr@MoS₂-Ti with N₂ or without N₂. (c) LC-MS spectra of degradation products of RhB by AgBr@MoS₂-Ti.

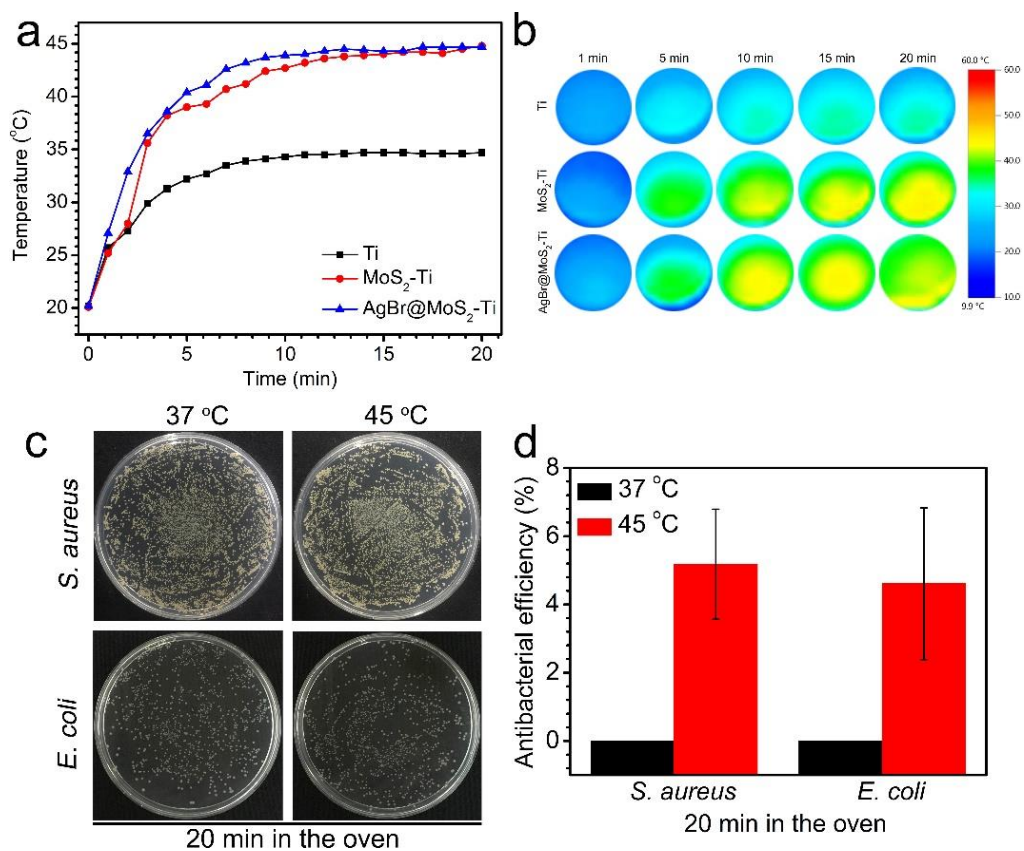


Figure S5. (a) The temperature change curve and (b) Infrared thermography of Ti, MoS₂-Ti, and AgBr@MoS₂-Ti irradiated by 660 nm light for 20 min. (c) The surface plate results and (d) antibacterial efficiency of *S. aureus* and *E. coli* cultured at 37 °C and 42 °C in the oven for 20 min.

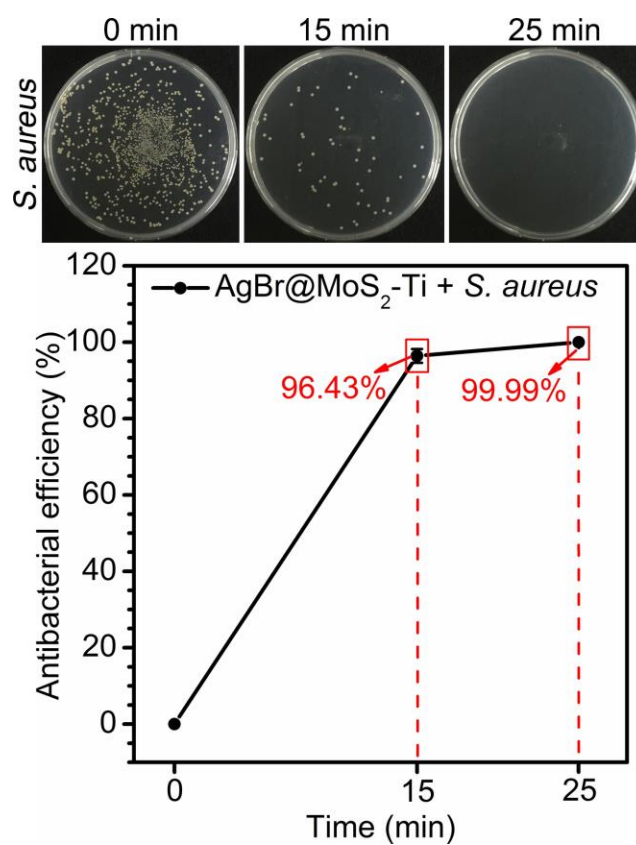


Figure S6. The surface plate and the antibacterial efficiency of *S. aureus* after 660 nm light irradiation for 0, 15 and 25 min.

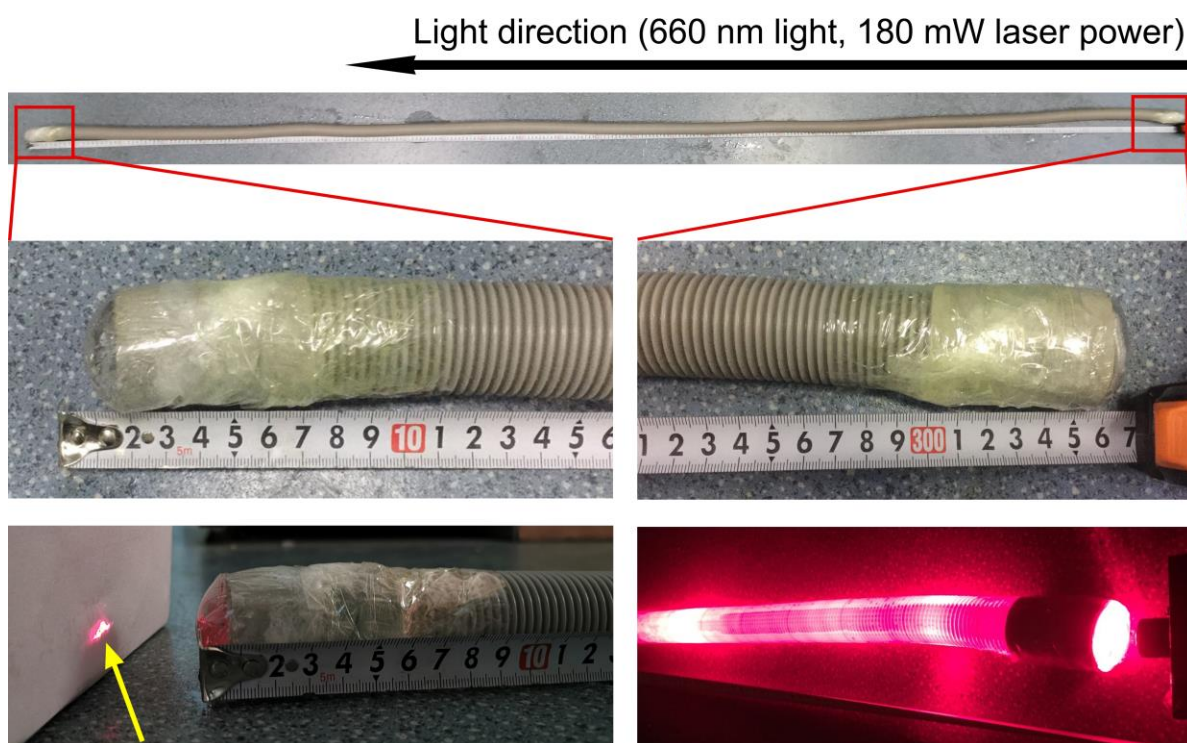


Figure S7. The penetrating distance of 660 nm light in water.

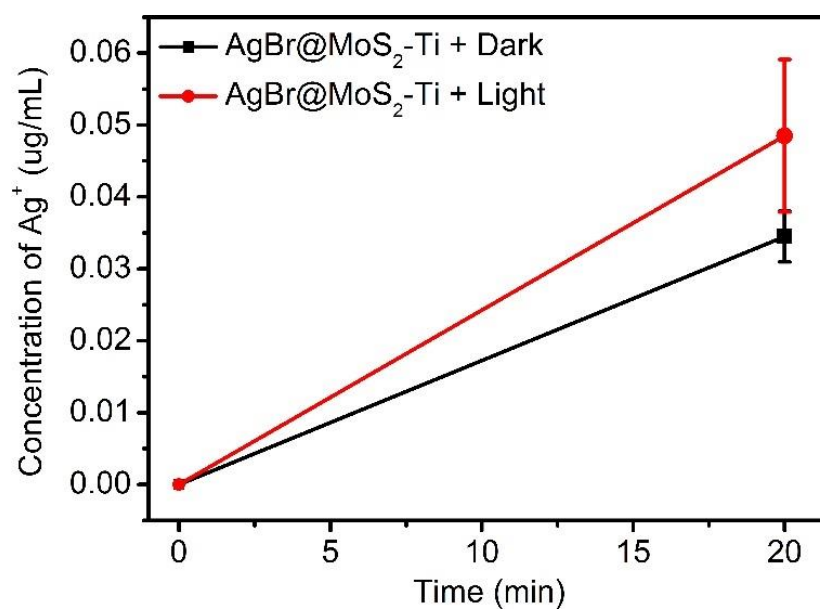


Figure S8. The Ag^+ release curves obtained by immersion of AgBr@MoS₂-Ti in PBS after 20 min 660 nm light irradiation or in darkness for 20 min.

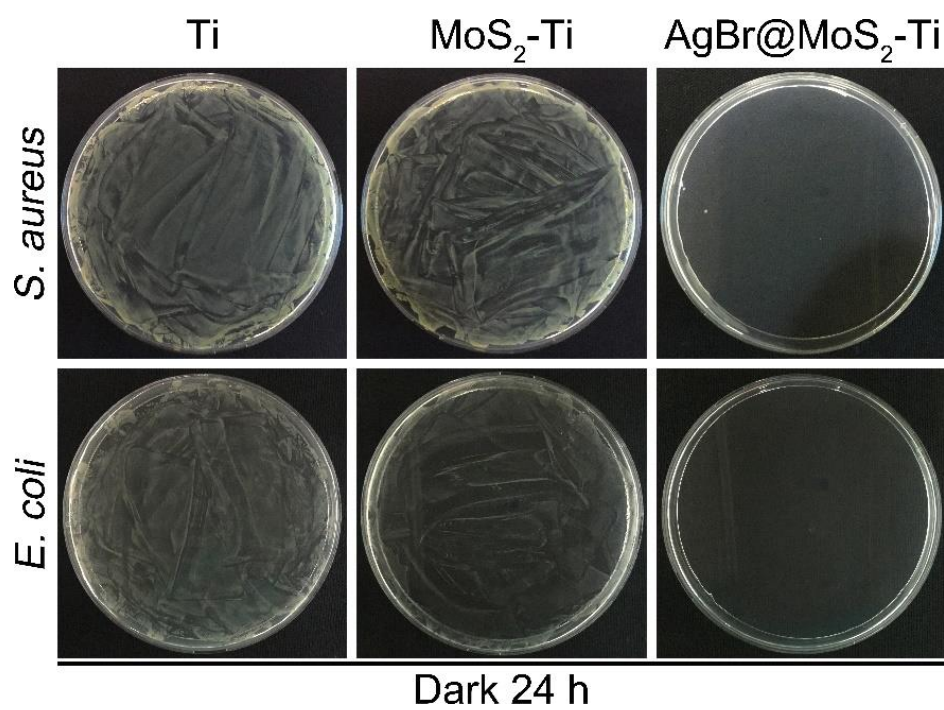


Figure S9. The surface plate of *S. aureus* and *E. coli* of Ti, MoS₂-Ti and AgBr@MoS₂-Ti in darkness for 24 h.

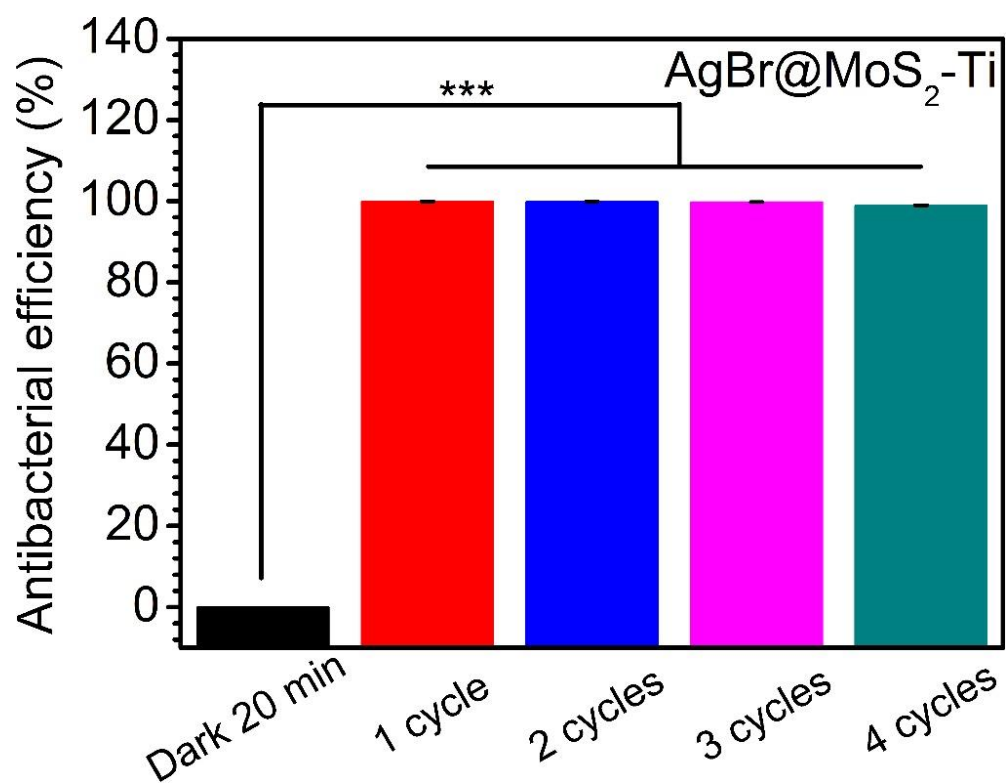


Figure S10. The abilities of AgBr@MoS₂-Ti to kill *S. aureus*. The AgBr@MoS₂-Ti were repeatedly challenged with *S. aureus* in the darkness and under 660 nm light for 20 min, respectively, repeatedly up to four times.

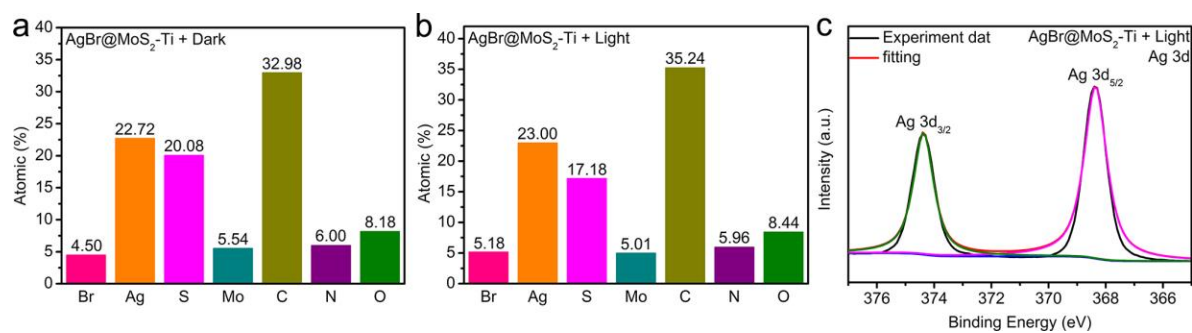


Figure S11. XPS analysis of the content of elements in AgBr@MoS₂-Ti (a) in the darkness or (b) after irradiation for 20 min. (c) The peak of Ag3d from AgBr@MoS₂-Ti after irradiation.

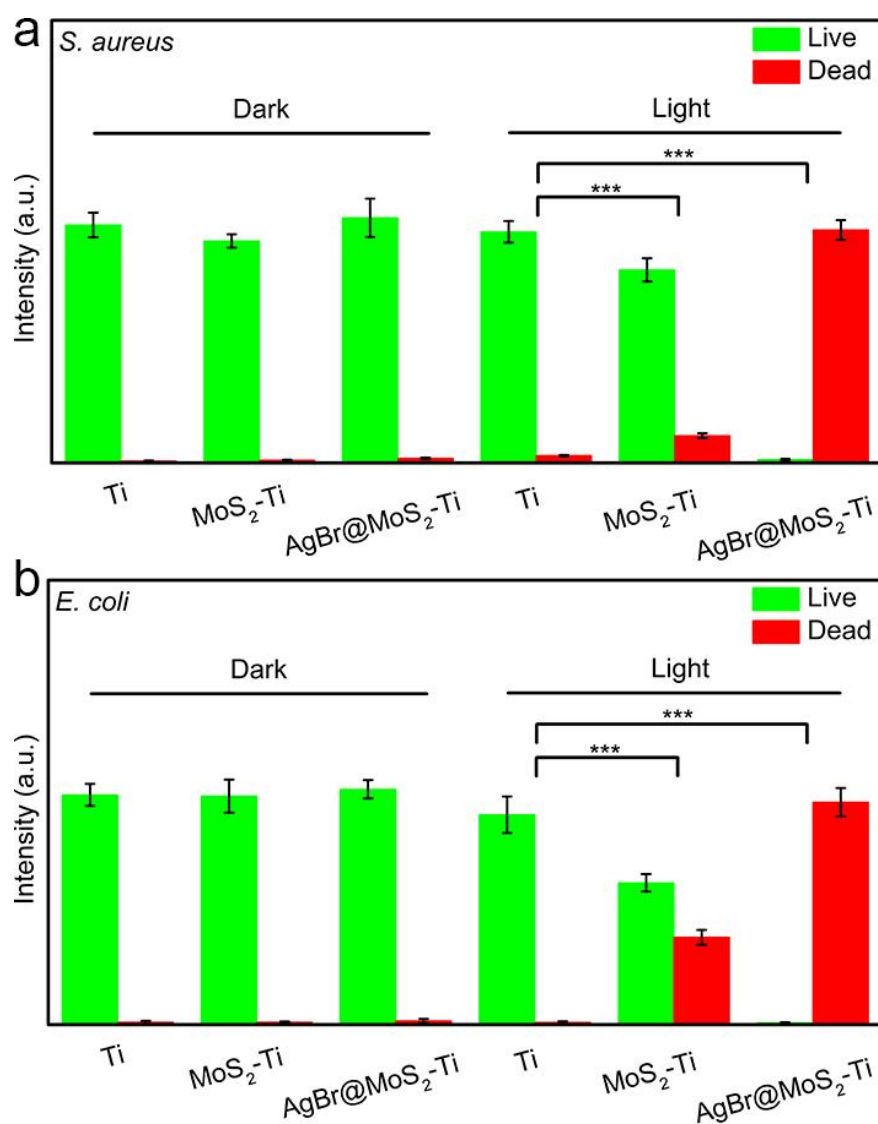


Figure S12. Quantitative analysis of the live/dead staining (a) *S. aureus* and (b) *E. coli* by using Image J software (n = 3, mean \pm SD: ***p < 0.001).

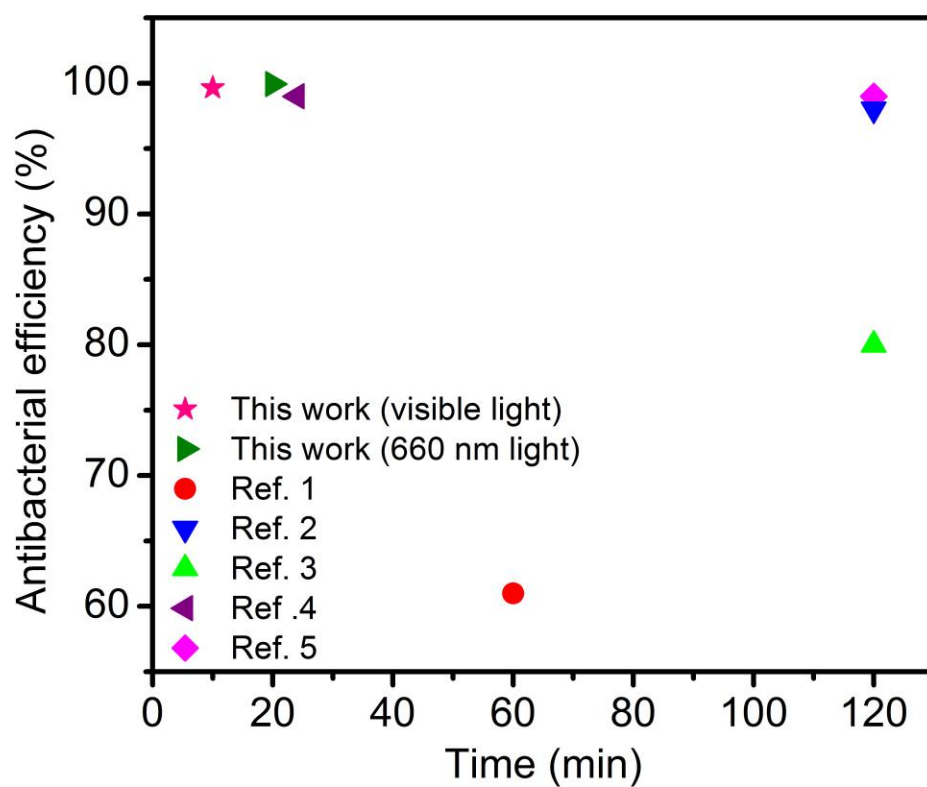


Figure S13. Antibacterial efficiency comparison among other recent MoS₂-based and AgBr-based photocatalysts.

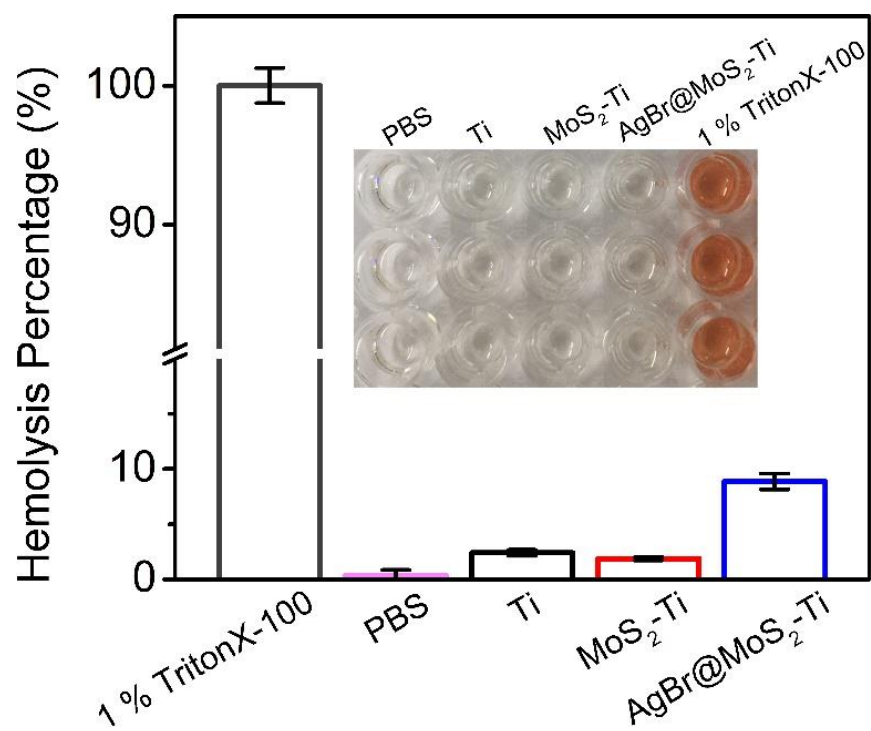


Figure S14. Hemolysis percentage of the samples and the corresponding images.

References

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