Supporting Information

Biodegradable MoO_x@MB Incorporated Hydrogel as Light-Activated Dressing for Rapid and Safe Bacteria Eradication and Wound Healing

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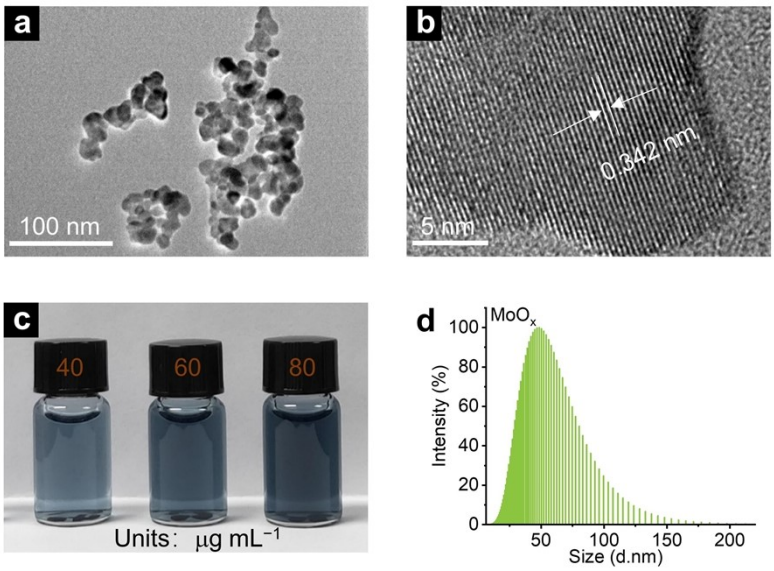

Fig. S1 (a) TEM and (b) HR-TEM images of MoO_x NPs. (c) Photographs of MoO_x NPs water solutions with different concentrations. (d) DLS pattern of MoO_x NPs solutions.

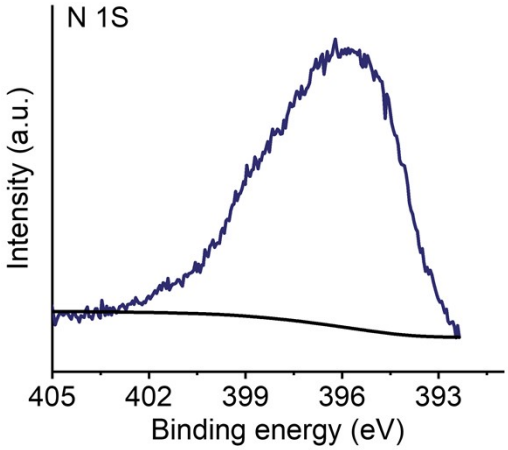

Fig. S2 XPS spectrum of N 1s.

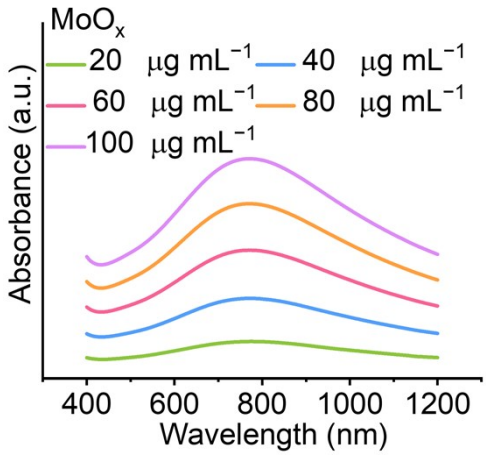

Fig. S3 UV–Vis-NIR absorption spectra of the MoO_x NPs water solutions.

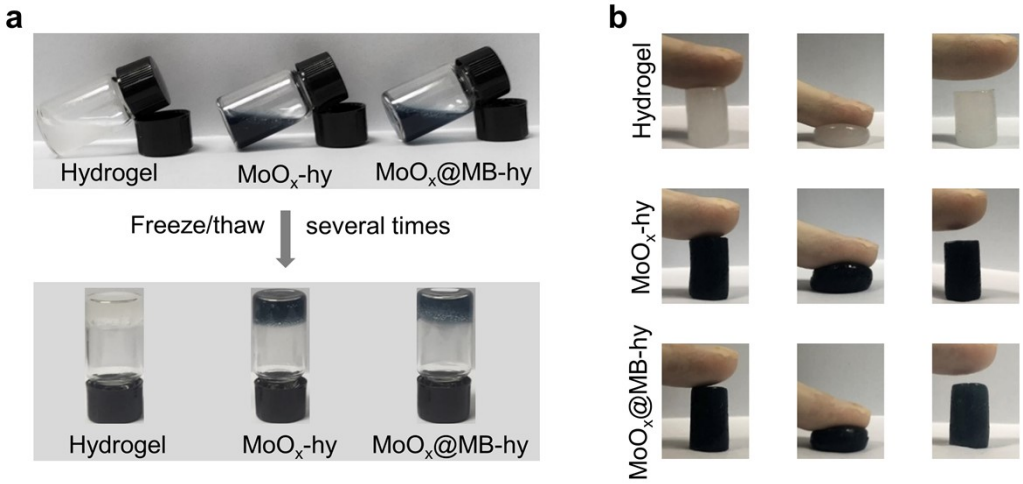

Fig. S4 (a) The synthetic processes of hydrogels. (b) Compression photographs of pure hydrogel, MoO_x-hy and MoO_x @MB-hy.

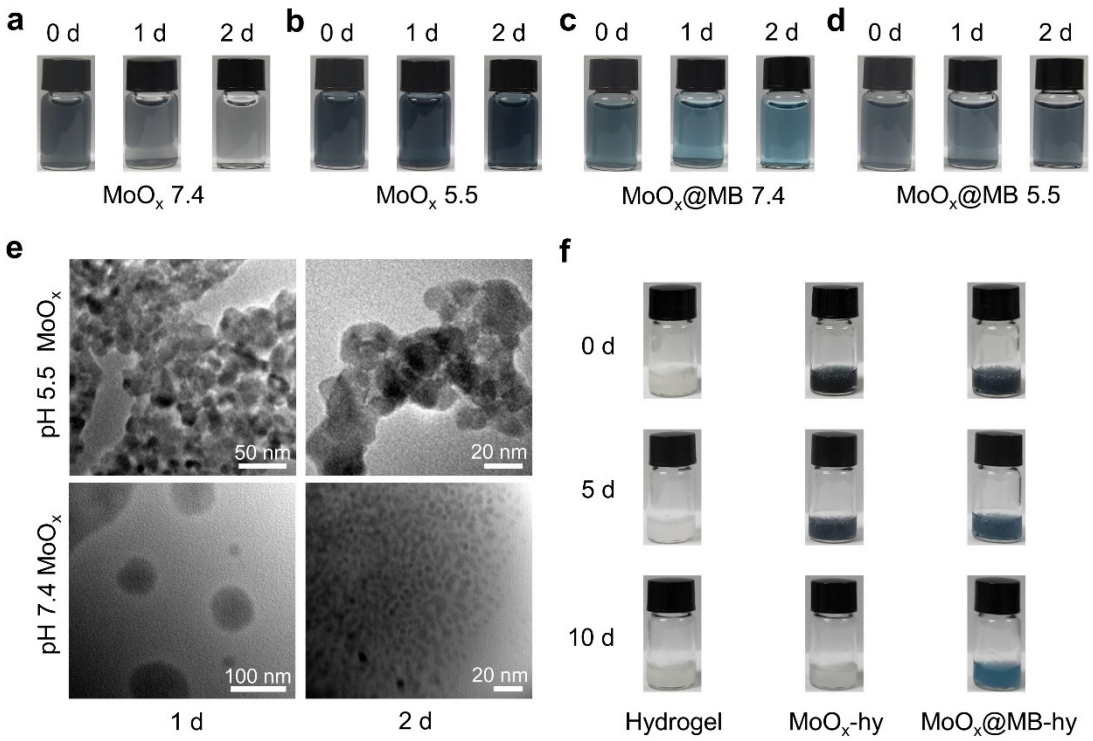

Fig. S5 Photographs of color changes during the degradation process of MoO_x NPs in (a) pH=7.4 and (b) pH=5.5 buffer solutions at fixed time intervals 0 d, 1 d and 2d. Photographs of color changes during the degradation process of MoO_x @MB NPs in (c) pH=7.4 and (d) pH=5.5 buffer solutions at fixed time intervals 0 d, 1 d and 2d. (e) TEM images of MoO_x NPs during the degradation process in pH=7.4 and PH=5.5 buffer solutions at fixed time intervals 1 d and 2d. (f) Photographs of color changes of pure hydrogel, MoO_x-hy and MoO_x@MB-hy during the degradation process with fixed time intervals 0 d, 5 d and 10 d.

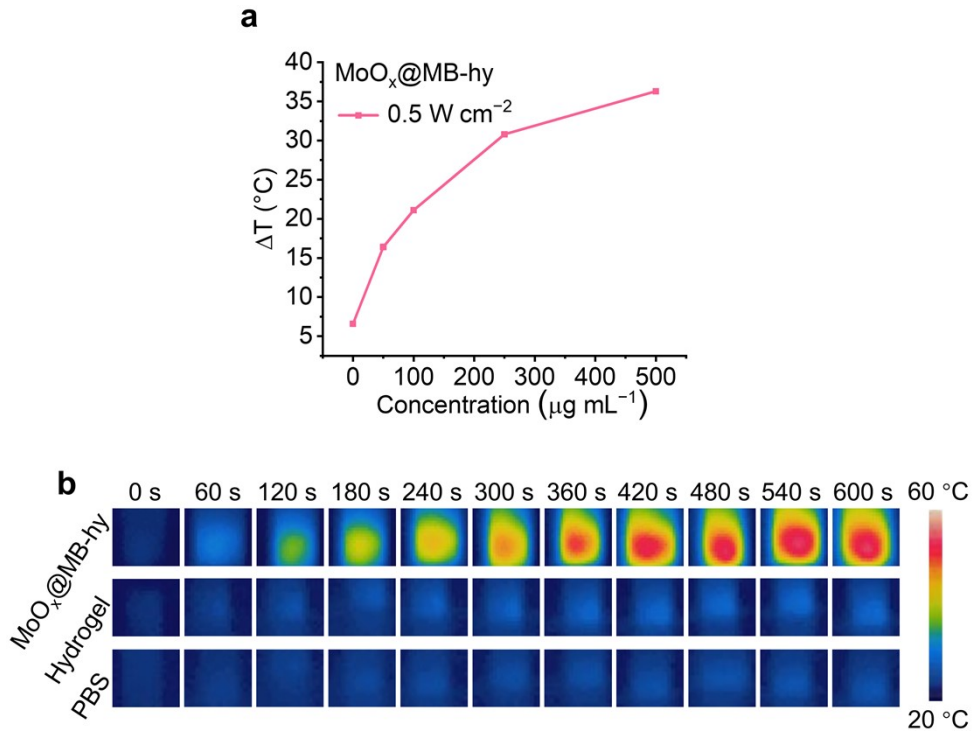

Fig. S6 (a) Temperature change of MoO_x@MB-hy at different concentrations under 1064 nm laser irradiation for 600 s. (b) Infrared thermography of PBS, pure hydrogel, and MoO_x@MB-hy (250 μg mL^{-1}) under 1064 nm laser irradiation (0.5 W cm^{-2}).

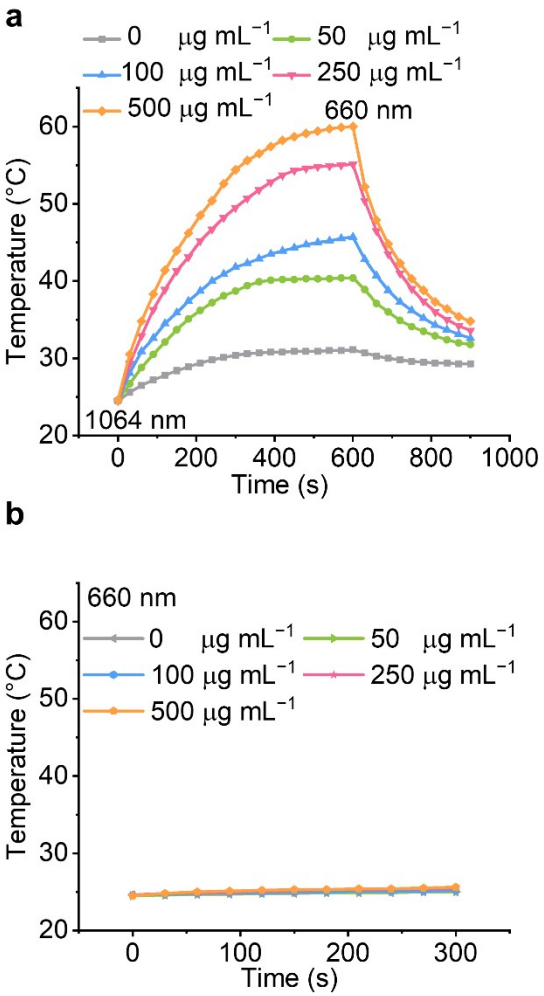

Fig. S7 (a) Temperature elevation of MoO_x@MB-hy with various concentrations under NIR-II laser irradiation (0.5 W cm^{-2}) and 660 nm laser irradiation (100 mW cm^{-2}). (b) Temperature elevation of MoO_x@MB-hy with various concentrations under 660 nm (100 mW cm^{-2}) laser irradiation.

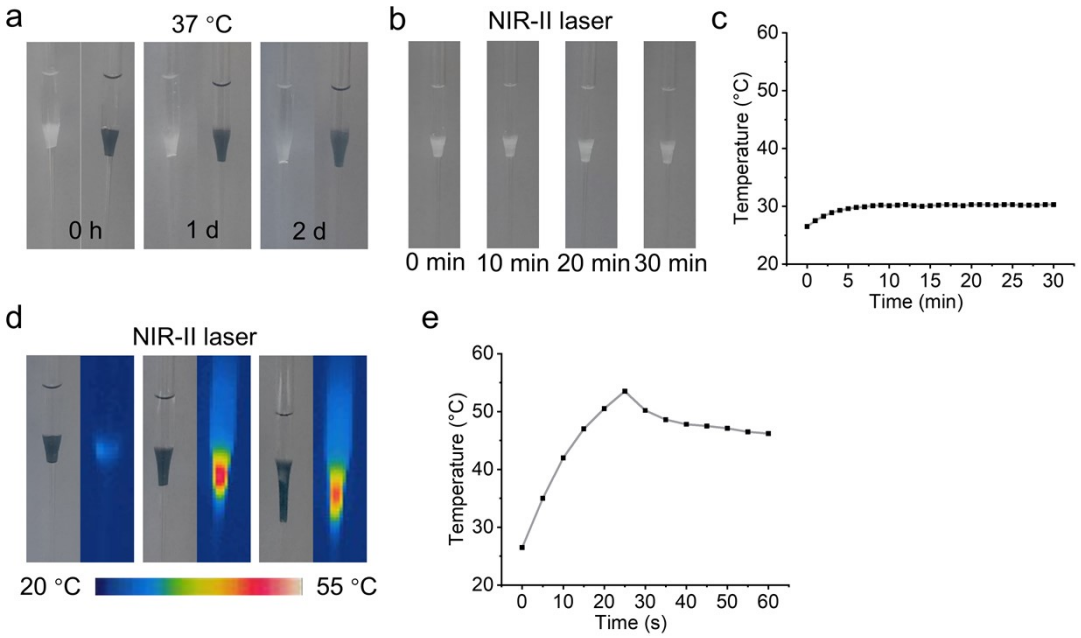

Fig. S8 Visualization of the pure hydrogel and MoO_x@MB-hy placed in the glass pipettes for stability and liquefaction studies; (a) Pure hydrogel and MoO_x@MB-hy were robust and stable at 37 °C for 2 days. (b) Pure hydrogel irradiated by NIR-II laser at 0.5 W cm^{-2} for 30 min and (c) temperature was recorded. (d) Snapshot images illustrating evolution of temperature within the MoO_x@MB-hy upon NIR-II irradiation at 0.5 W cm^{-2} and ensuing material liquefaction for MoO_x@MB-hy. (e) Quantification of temperature of the MoO_x@MB-hy upon NIR-II irradiation.

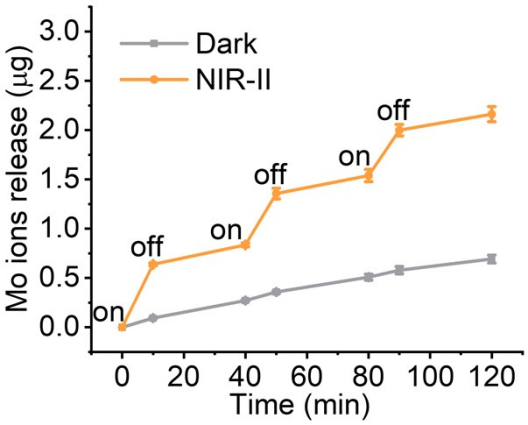

Fig. S9 NIR-II-triggered Mo ions release from MoO_x@MB-hy. The MoO_x@MB-hy was irradiated with NIR-II laser (0.5 W cm^{-2}) for 10 min followed by an interval of 30 min each time.

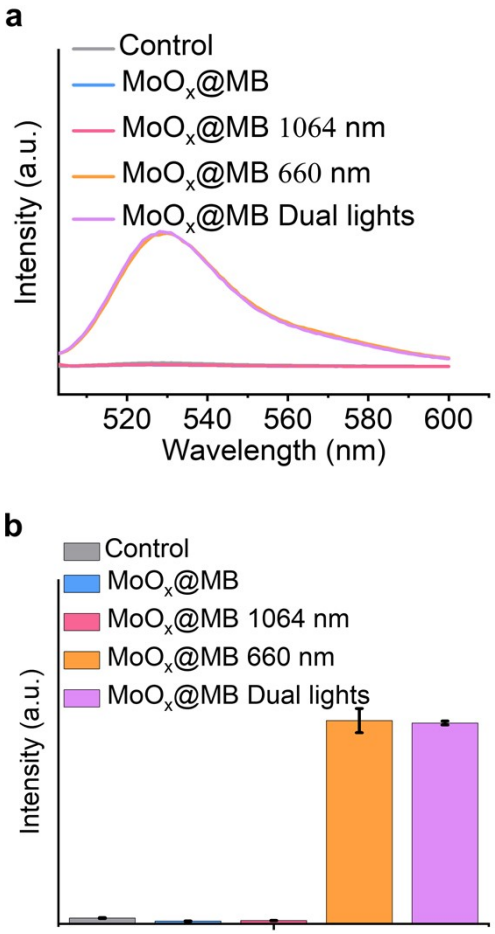

Fig. S10 (a,b) Fluorescence spectra and corresponding intensities of SOSG after various treatments.

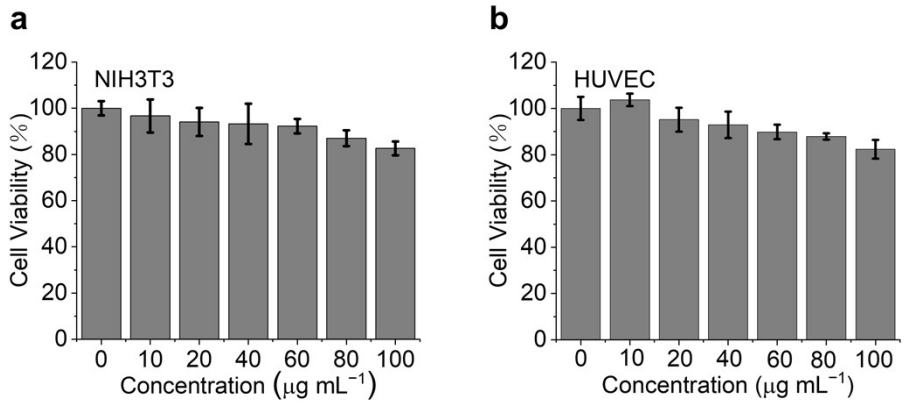

Fig. S11 (a,b) Cell viabilities of NIH3T3 and HUVEC cells after being cultivated (24 h) with MoO_x@MB NPs with different concentrations.

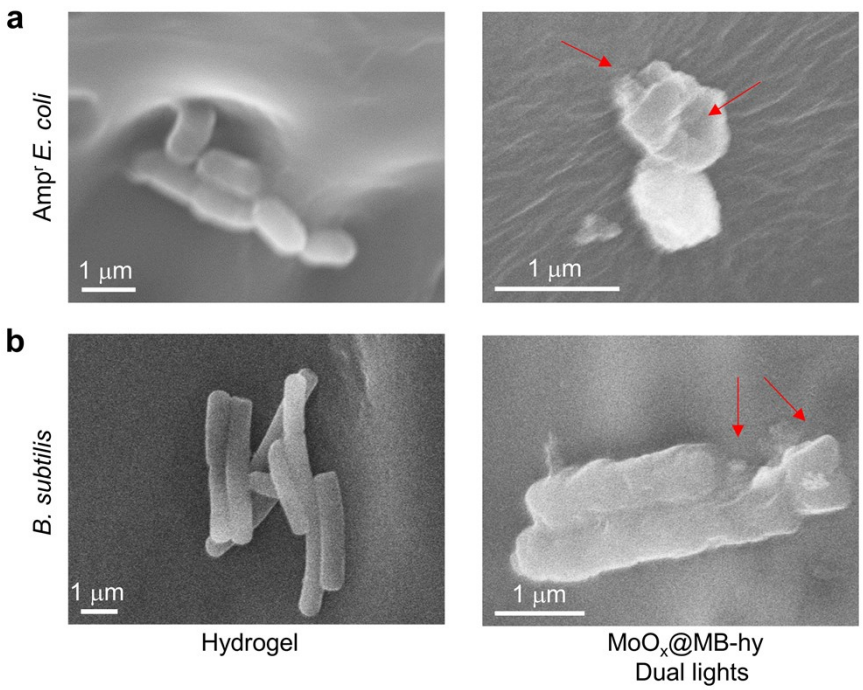

Fig. S12 Morphologies observation of (a) Amp^r *E. coli* and (b) *B. subtilis* adhere to the pure hydrogel and MoO_x@MB-hy by FE-SEM.

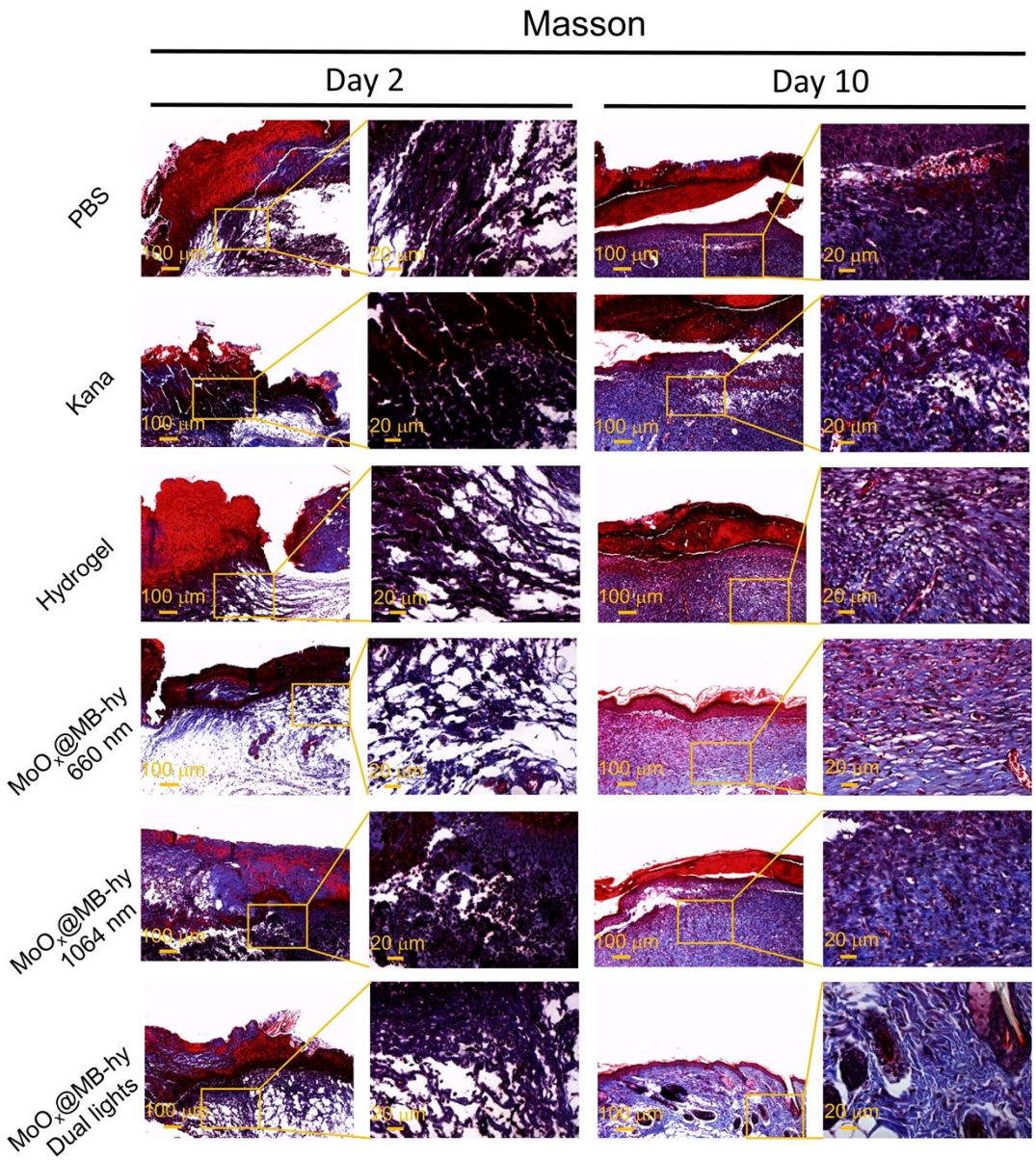

Fig. S13 Masson staining images of infected wound tissues after various treatments.

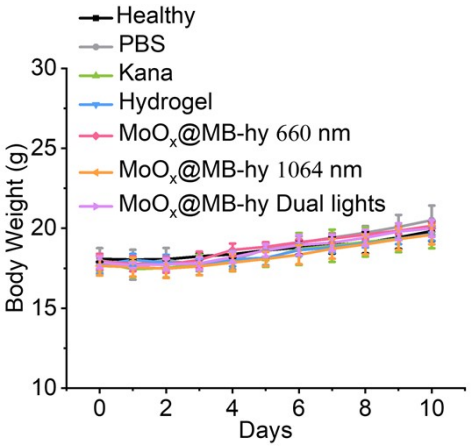

Fig. S14 Body weights of mice after different treatments.

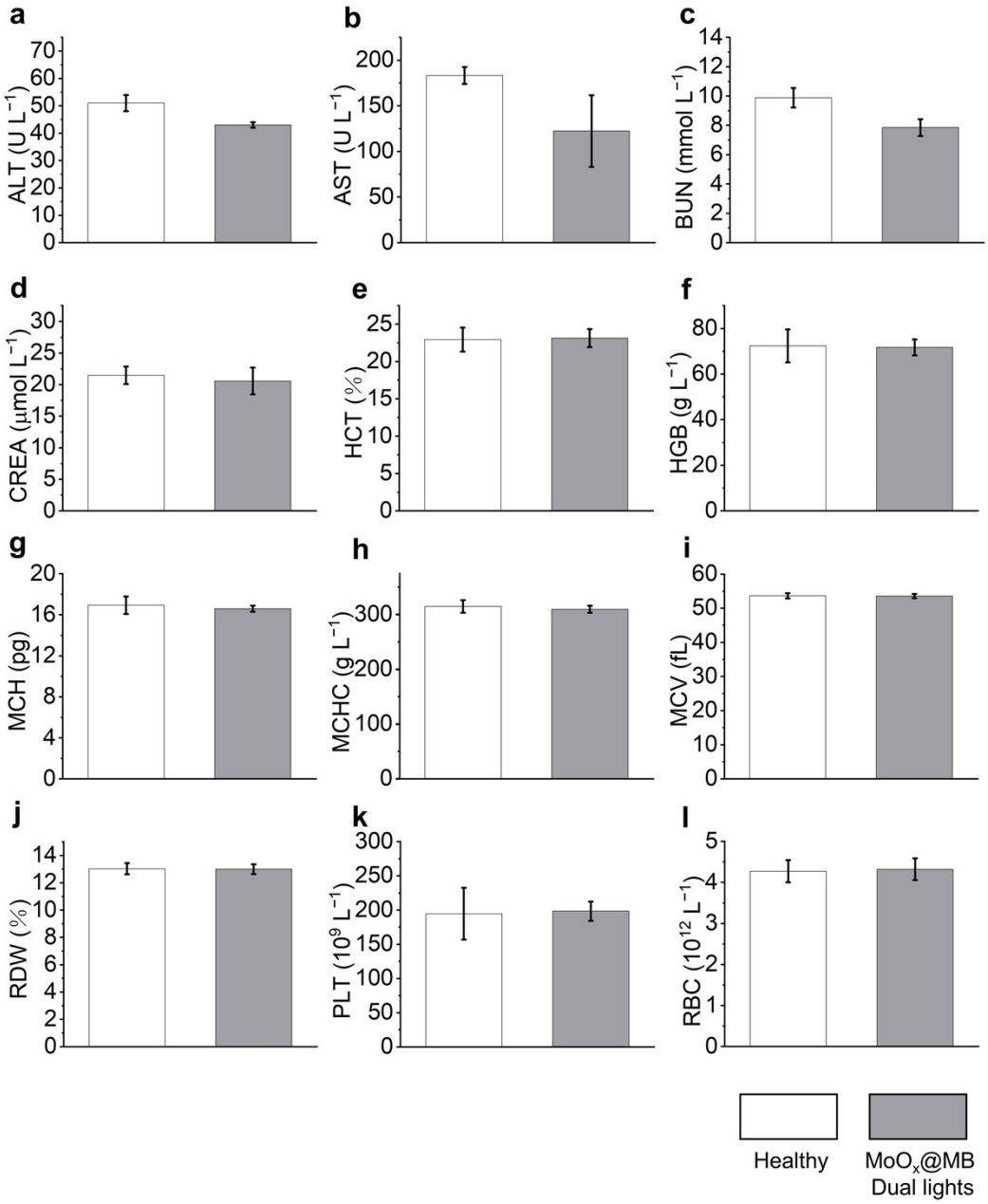

Fig. S15 Blood biochemical assay and hematology analysis of the mice at the tenth day. Alanine aminotransferase (ALT); aspartate aminotransferase (AST); blood urea nitrogen (BUN); creatinine (CREA); hematocrit (HCT); hemoglobin (HGB); mean corpuscular hemoglobin (MCH); mean corpuscular hemoglobin concentration (MCHC); mean corpuscular volume (MCV); red cell distribution width (RDW); platelet (PLT); red blood cells (RBC).

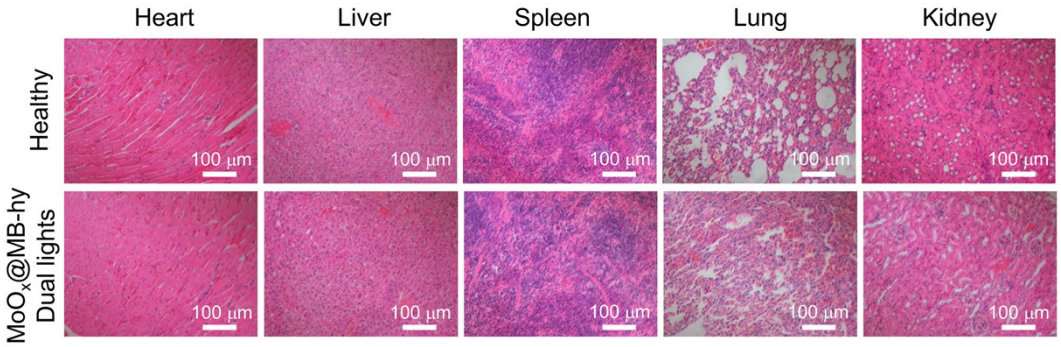

Fig. S16 H&E stained images of the main organs treated with different groups at the tenth day.