Supporting information

Mussel-inspired multifunctional hydrogel dressing with hemostasis, hypoglycemic, photothermal antibacterial on diabetic wounds

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Results

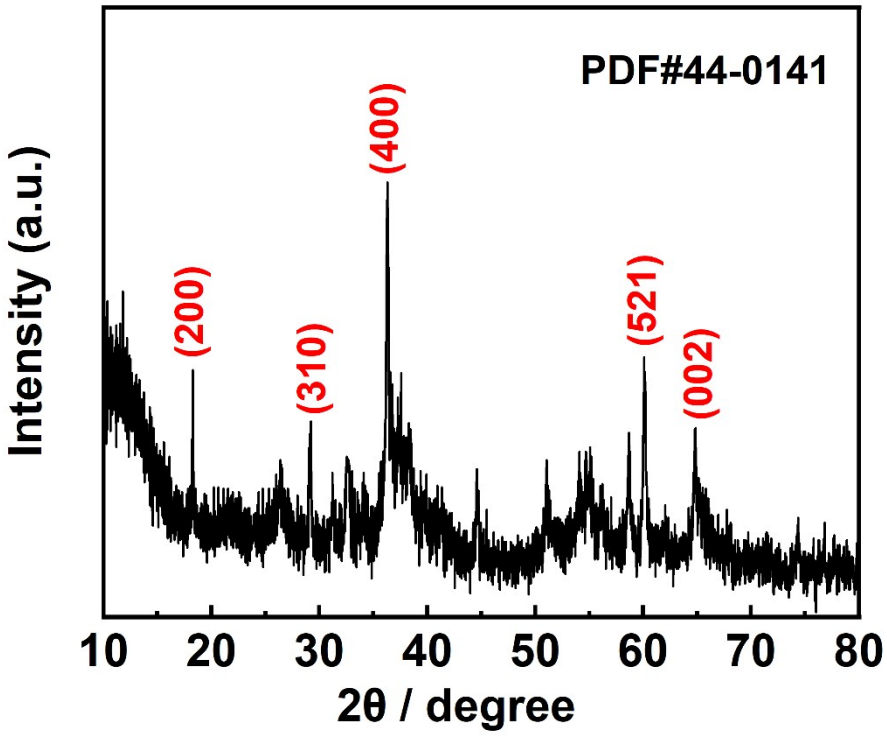

Fig. S1 Powder XRD patterns of as-prepared MnO_2. The XRD patterns of the MnO_2 nanoparticles showed clear and broad reflections at ca. 36° and 65°, suggesting that MnO_2 nanoparticles in a weakly crystalline state with a short range crystallographic form belong to α-MnO_2 (JCPDS no. 44-0141).

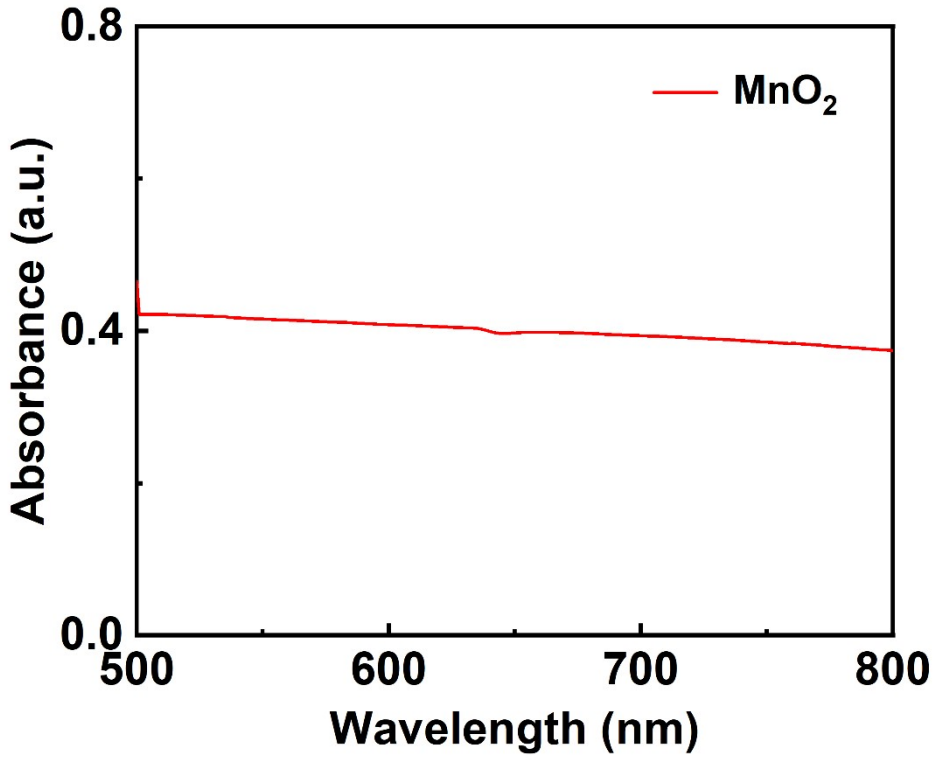

Fig. S2 UV-vis-NIR absorption spectrum of MnO_2 dispersed in water.

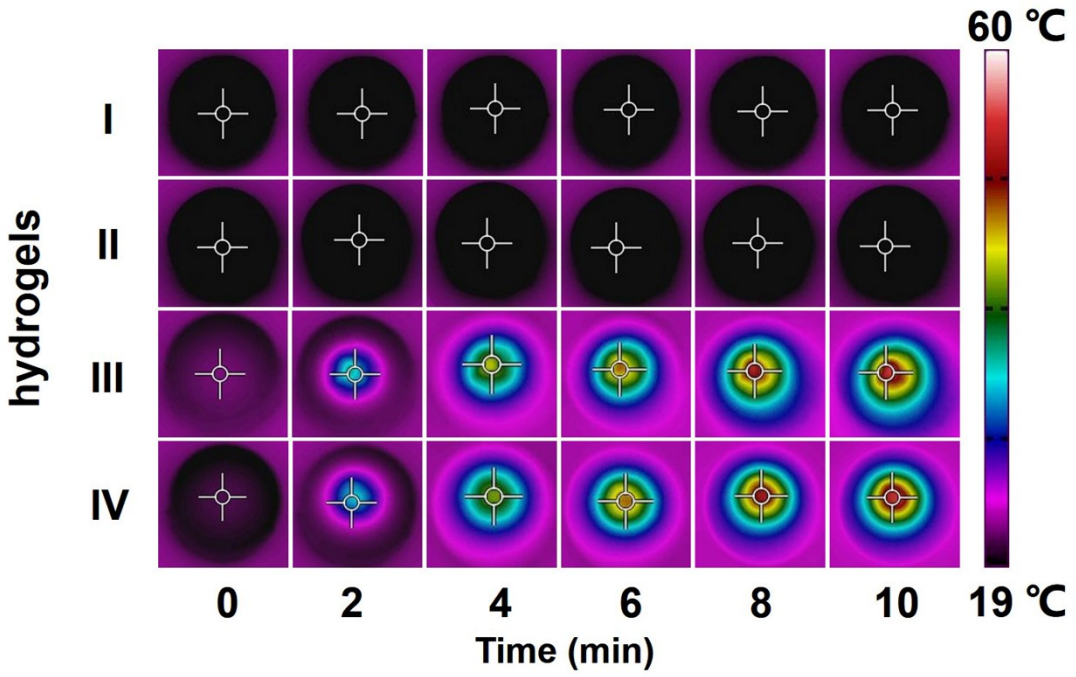

Fig. S3 Photothermal effects of MnO_2. a) Infrared thermal images of I) PDA/AM hydrogel+NIR, II) PDA/AM/GO*x* hydrogel+NIR, III) PDA/AM/MnO_2 hydrogel+NIR, IV) PDA/AM/GO*x*/MnO_2 hydrogel+NIR. (NIR laser: 808 nm, power density: 1 W cm^{-2}, irradiation time: 10 min).

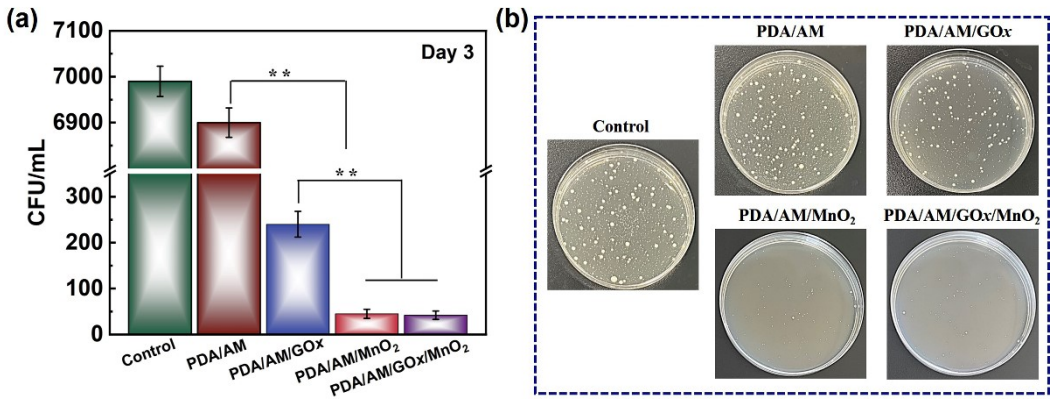

Fig. S4 (a) The colony-forming units of bacteria in the control, PDA/AM, PDA/AM/GO*x*, PDA/AM/MnO_2 and PDA/AM/GO*x*/MnO_2 hydrogel on day 3 in vivo. (b) Photos of the colonies on the LB agar plates of bacteria in the control, PDA/AM, PDA/AM/GO*x*, PDA/AM/MnO_2 and PDA/AM/GO*x*/MnO_2 hydrogel on day 3 in vivo.

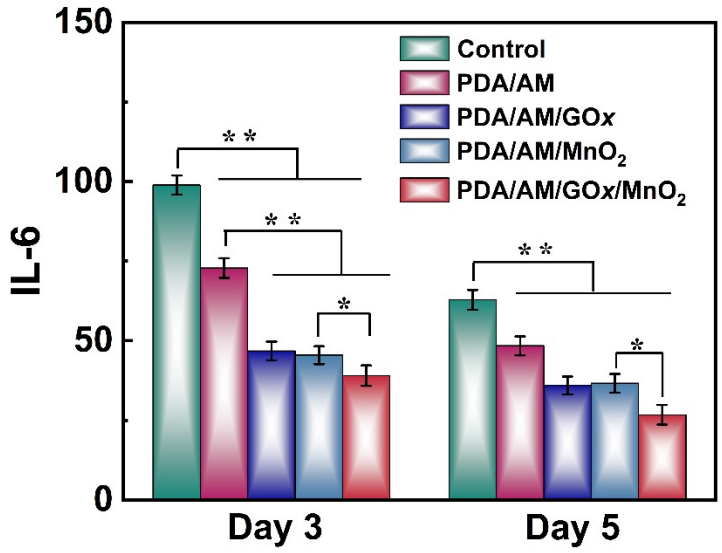

Fig. S5 Statistical data of relative expression of IL-6.

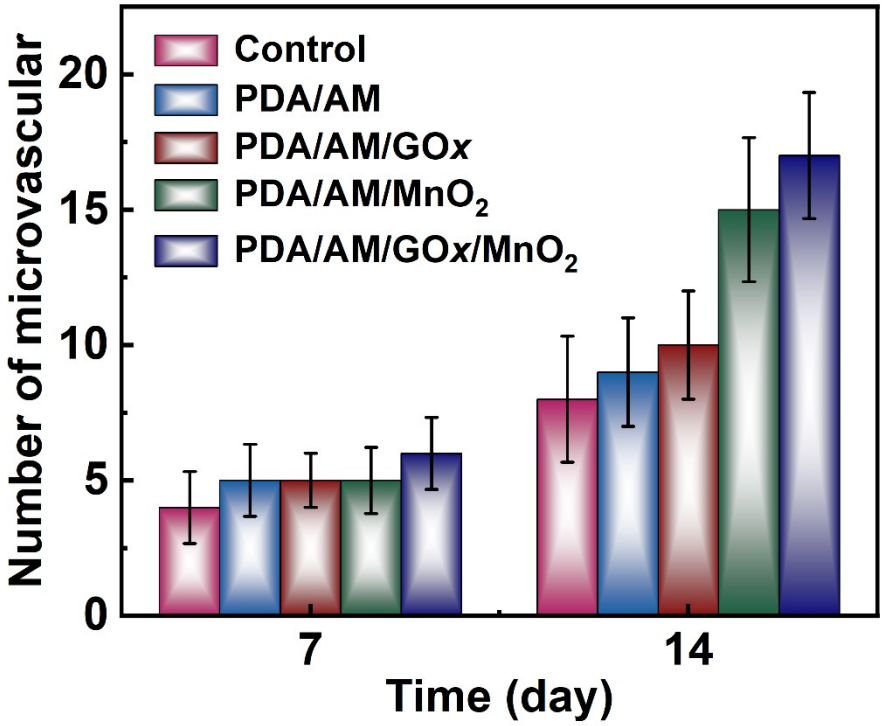

Fig. S6 Number of microvascular in the wounds on day 7, and 14 of the newly regenerated skin tissues treated by control, PDA/AM hydrogel+NIR, PDA/AM/GO*x* hydrogel+NIR, PDA/AM/MnO_2 hydrogel+NIR and PDA/AM/GO*x*/MnO_2 hydrogel+NIR group.

Table S1 Synthesis of PDA/PAM/GO*x*/MnO_2 hydrogels.

Hydrogel	**DA/AM (wt.%)**	**AM (g)**	**APS (g)**	**GO*x* (mg)**	**MnO_2 (mg)**	**BIS (mg)**	**TEMED (μL)**	**Water (mL)**
PDA/AM	0.6	2	0.16	0	0	10	20	10
PDA/AM/GOx	0.6	2	0.16	2.5	0	10	20	10
PDA/AM/MnO_2	0.6	2	0.16	0	5	10	20	10
PDA/AM/GO*x*/MnO_2	0.6	2	0.16	2.5	5	10	20	10