Supporting Information

Intradermal delivery of an angiotensin II receptor blocker by personalized microneedle patch for treatment of hypertrophic scar

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Table S1. Different material compositions of microneedle patches.

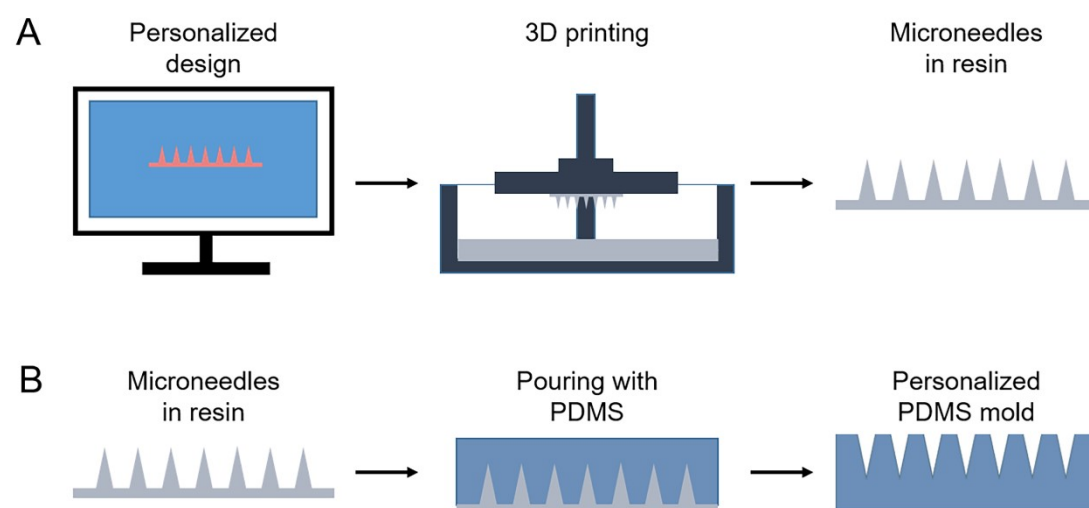| Name	Gelatin (m/v)	Starch (m/v)	Hydroxyapatite (m/v)
M1	5%	5%	0
M3	5%	5%	2%

Fig. S1 Preparation of personalized PDMS molds. (A) 3D printing of microneedle array with photocurable resin by stereolithography. (B) Fabrication process of personalized PDMS mold from the-above printed microneedle array in resin.
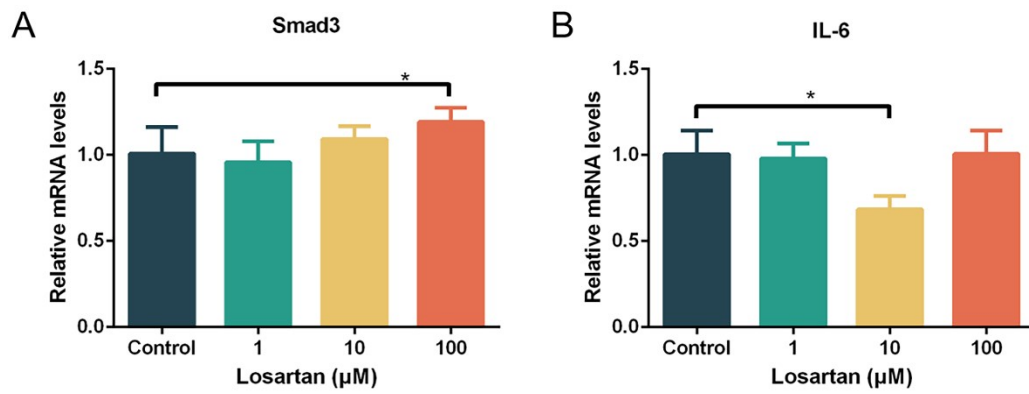
Fig. S2 Relative mRNA expressions of Smad3 (A) and IL-6 (B) in HSFs. HSFs are treated by different concentrations of losartan for 24 h. * $P < 0.05$.
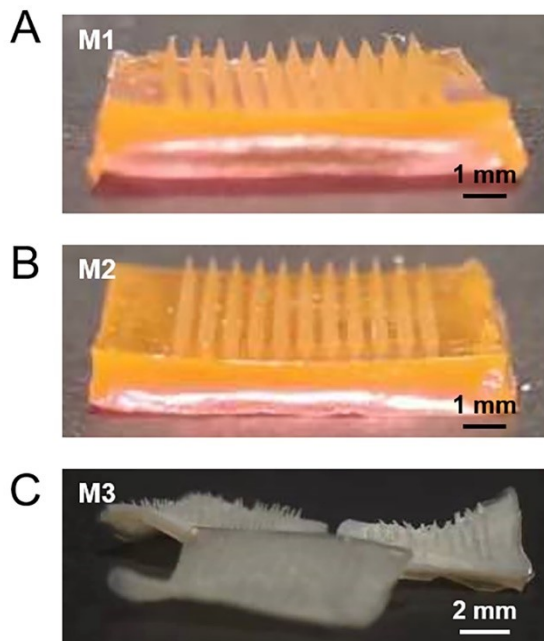
Fig. S3 Optical images of microneedle patches prepared with different materials, including materials of M1 (A), M2 (B), and M3 (C), respectively.
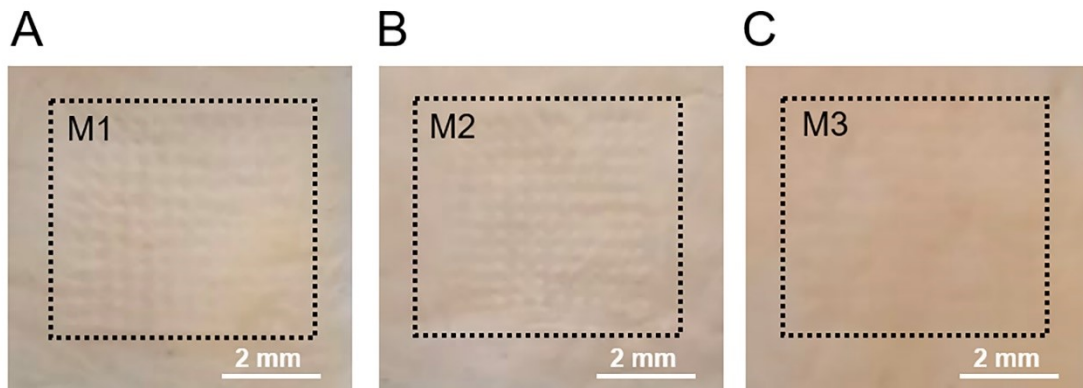
Fig. S4 Puncture assay of different microneedle patches to porcine skins. Microneedle patches include M1 (A), M2 (B), and M3 (C), respectively.
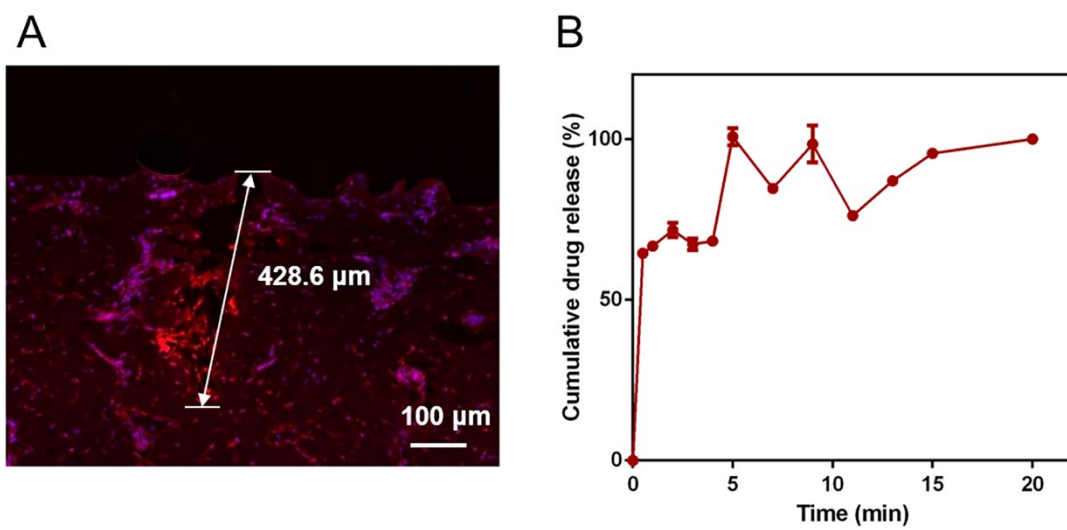
Fig. S5 (A) Confocal image of porcine skin after insertion with rhodamine 6G-loaded microneedle patch. The arrow indicates a deep microchannel formed in the porcine skin. (B) *In vitro* drug release profile from rhodamine 6G-loaded microneedles.
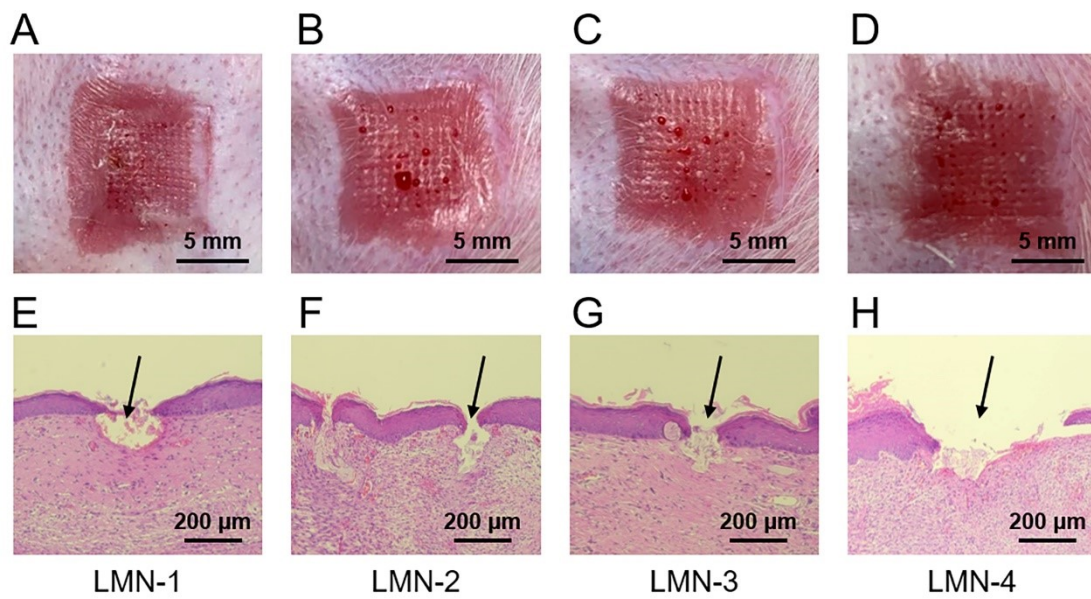
Fig. S6 Optical images (A-D) and relative H&E staining images (E-H) of postoperative HSs after insertion with different microneedle patches, including LMN-1 (A, E), LMN-2 (B, F), LMN-3 (C, G), and LMN-4 (D, H), respectively.
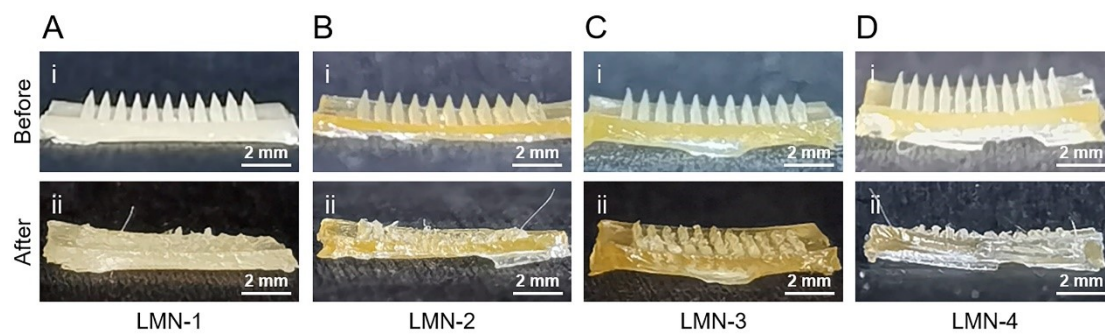
Fig. S7 Optical images of losartan-loaded microneedle patches before insertion and after 10-minute insertion into HSs. The microneedles include LMN-1 (A), LMN-2 (B), LMN-3 (C), and LMN-4 (D), respectively.
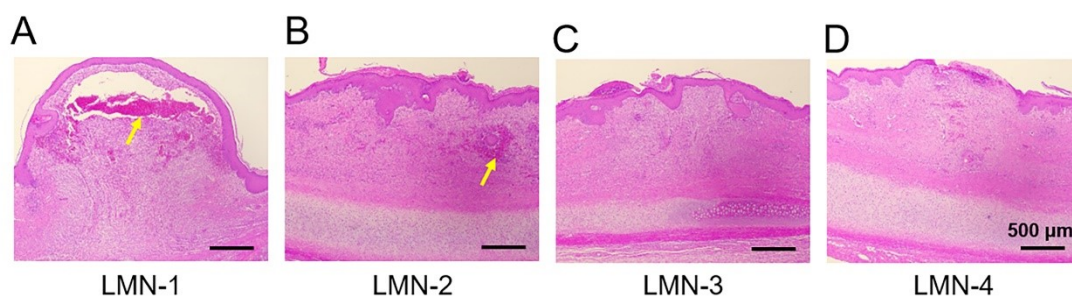
Fig. S8 H&E staining images of HSs treated with different losartan-loaded microneedle patches. The yellow arrows indicate the area of bleeding in HSs.