

Supplementary Information for:

**Transdermal delivery of rapamycin with poor water-solubility by
dissolving polymeric microneedles for anti-angiogenesis**

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Supplementary Figures:

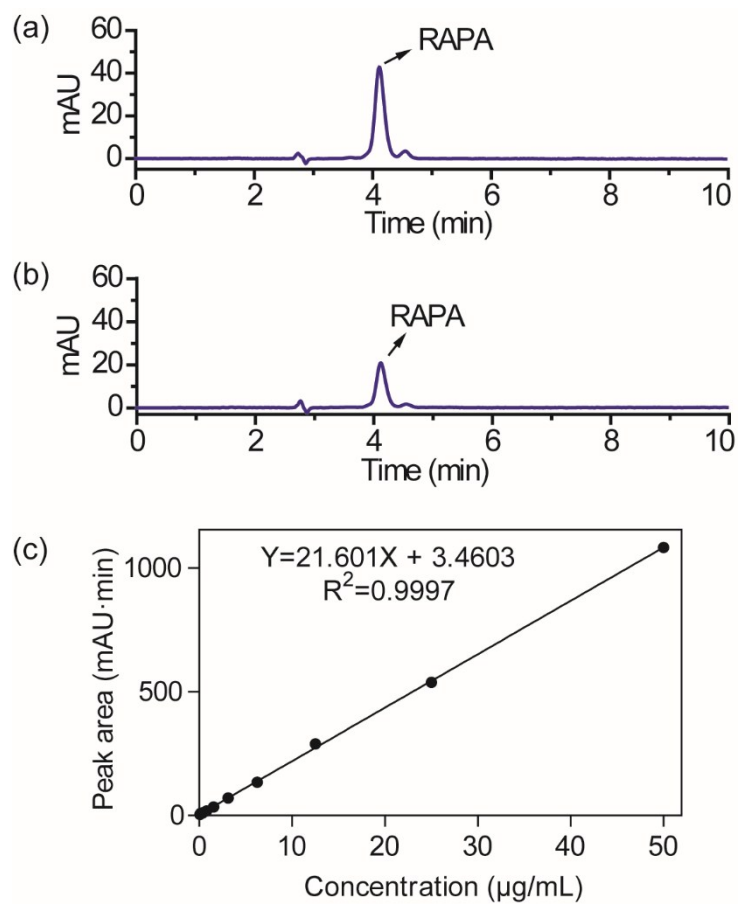


Fig. S1. HPLC results of RAPA. (a) Representative HPLC result of RAPA in its standard solution. (b) Representative HPLC result of RAPA in RAPA DMNs. The elution time of RAPA was approximately 4.12 minutes and the peak with an elution time around 2.8 minutes was the solvent peak of methanol in both (a) and (b). (c) Standard curve of RAPA by HPLC.

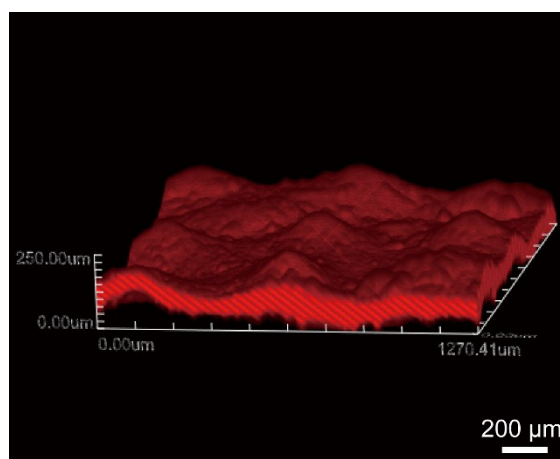


Fig. S2. Represented 3D confocal laser micrographs of the microchannels created by the insertion of Nile Red-loaded DMNs.

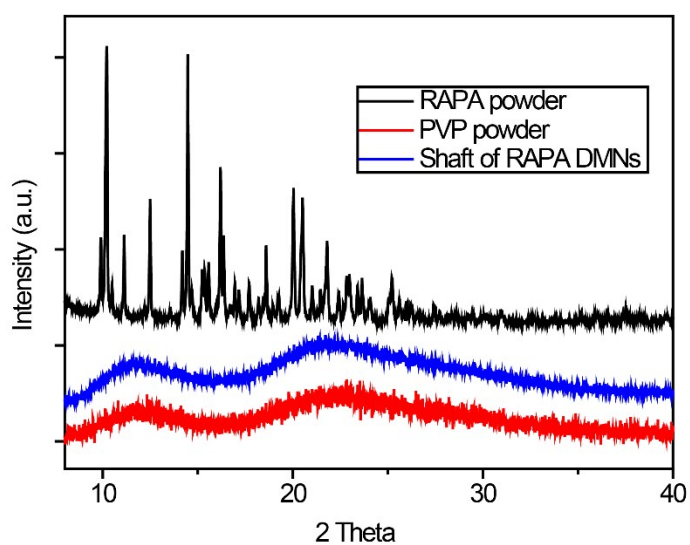


Fig. S3. XRD patterns of RAPA powder, PVP powder, and shaft of RAPA DMNs.

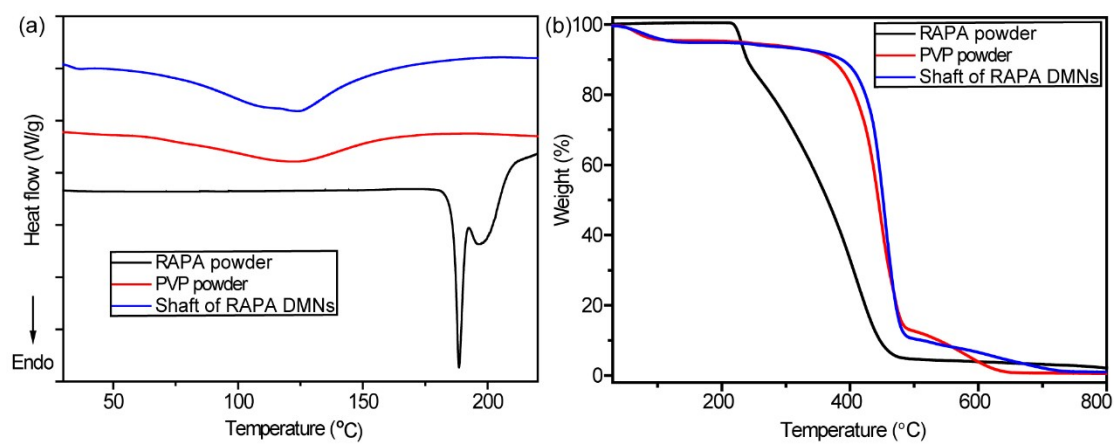


Fig. S4. Thermal analysis data. (a) DSC curves of RAPA powder, PVP powder, and shaft of RAPA DMNs. (b) TGA curves of RAPA powder, PVP powder, and shaft of RAPA DMNs.

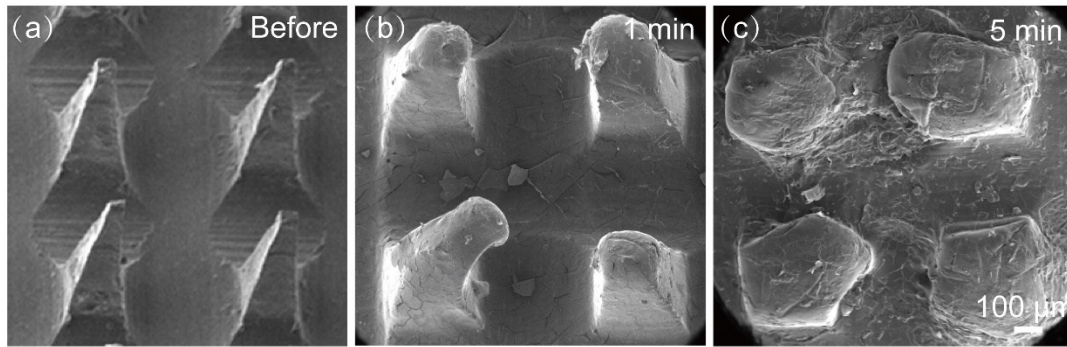


Fig. S5. SEM images of RAPA DMNs (a) before insertion, (b) after 1 min, and (c) 5 min of insertion in mice skin *in vivo*.

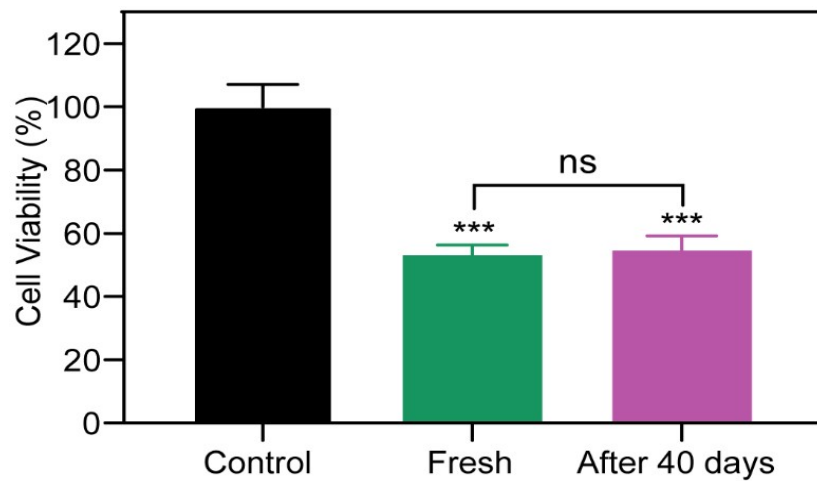


Fig. S6. The storage stability of RAPA DMNs. The cell viability was tested on HUVECs by CCK-8 assays after 24 h of incubation with freshly prepared RAPA DMNs or RAPA DMNs stored at room temperature for 40 days ($n = 3$). (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).