Supporting Information

Active microneedle patch equipped with spontaneous bubble generation for enhanced rheumatoid arthritis treatment

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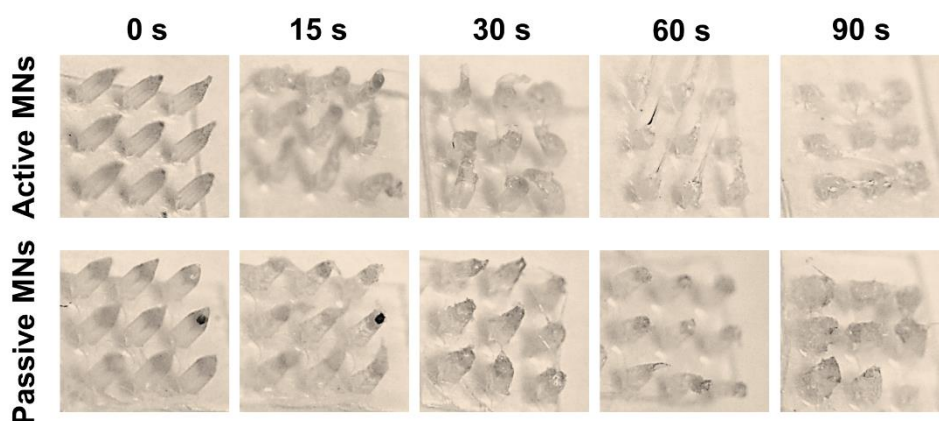[†] Ting Liu and Jintao Fu contributed equally to this paper.

Figure S1. The photographs of active MNs and passive MNs after application to gelatin-simulated skin.
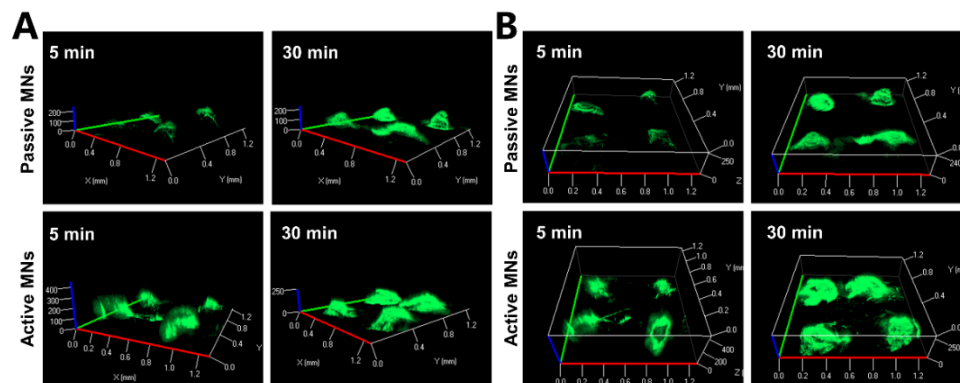
Figure S2. Three-dimensional distribution of active MNs and passive MNs inserted in pig skin for 5 and 30 min in different fields of view.

Figure S3. Representative images of mice skin after application of an active MNs in vivo at different time intervals.
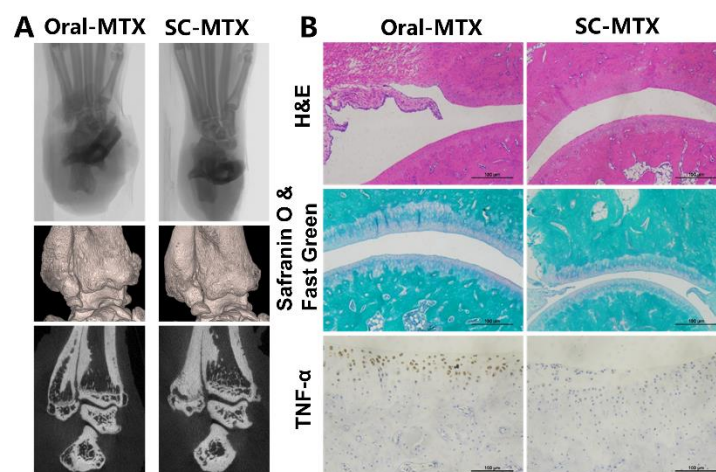
Figure S4. (A) Representative images of Micro-CT imaging assessment of oral-MTX group and SC-MTX group. (B) Histological and immunohistochemical analysis of hind paws in oral-MTX group and SC-MTX group.
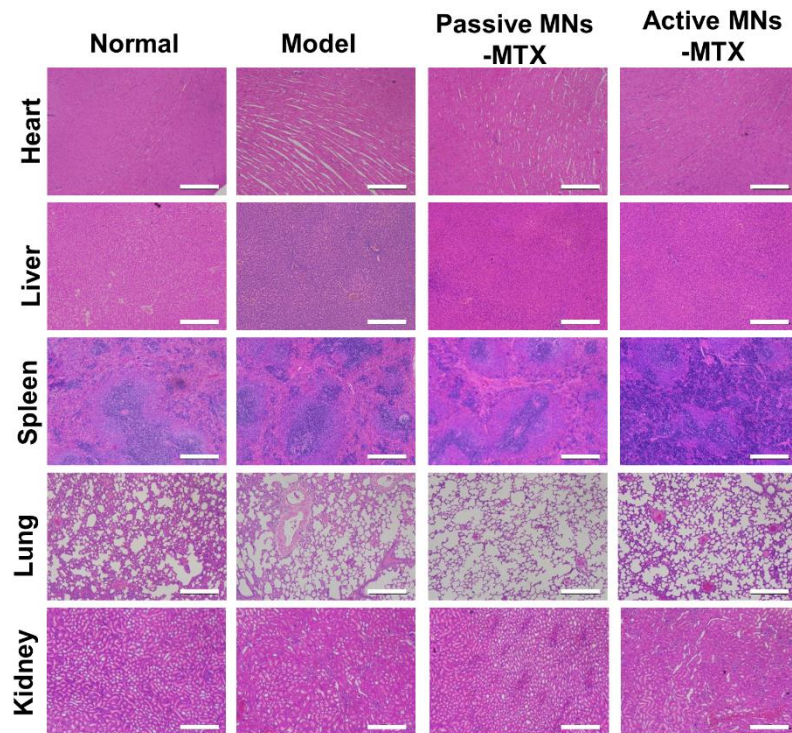

Figure S5. Representative H&E staining of major organs in different treated AIA rats (Scale bar = 100 μm).