

*Supporting information*

**Portable Bilayer Microneedle Patch for Rapid and Patient-Friendly Administration of Rabies Immunoglobulin and Enhanced Wound Healing**

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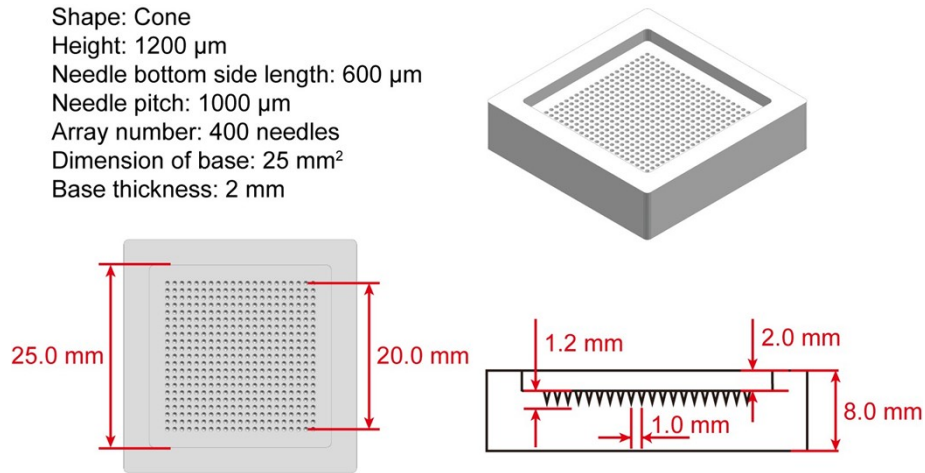
Prof. J. D. Shao, \*E-mail: [shaojundong@gzhmu.edu.cn](mailto:shaojundong@gzhmu.edu.cn)

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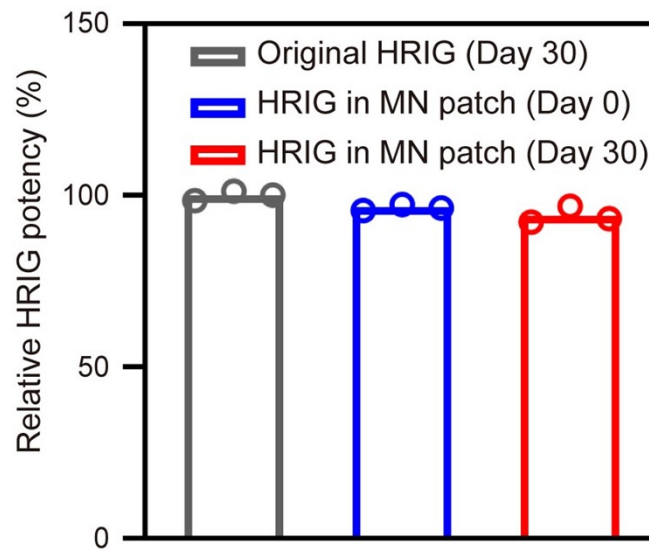
Prof. L. Wang, \*E-mail: [wanglin3@scut.edu.cn](mailto:wanglin3@scut.edu.cn)

### Supplementary figures

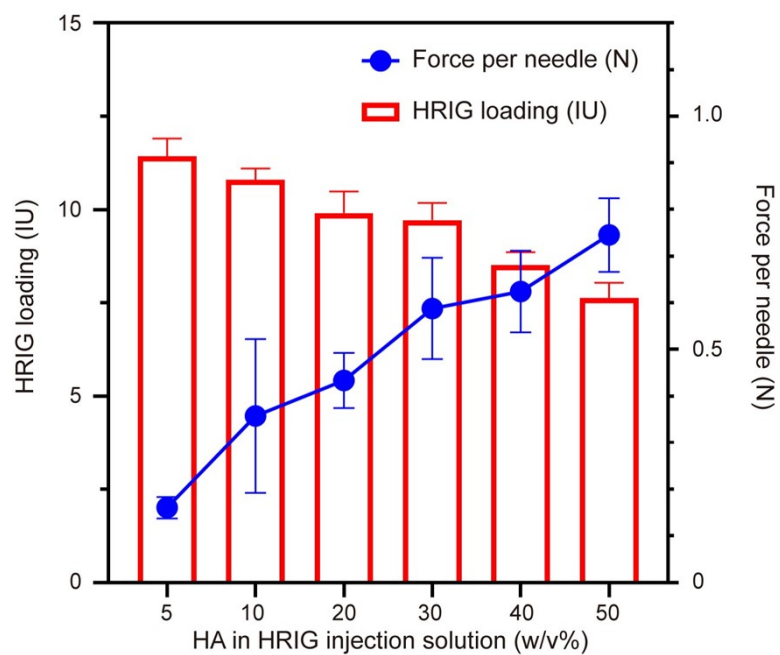
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Height: 1200  $\mu\text{m}$   
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Needle pitch: 1000  $\mu\text{m}$   
Array number: 400 needles  
Dimension of base: 25  $\text{mm}^2$   
Base thickness: 2 mm



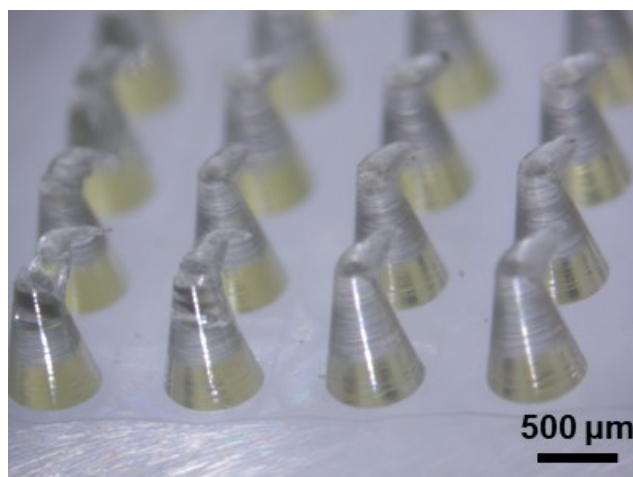
**Figure S1** The parameters of our PDMS mold used for preparing bilayer MN patch.



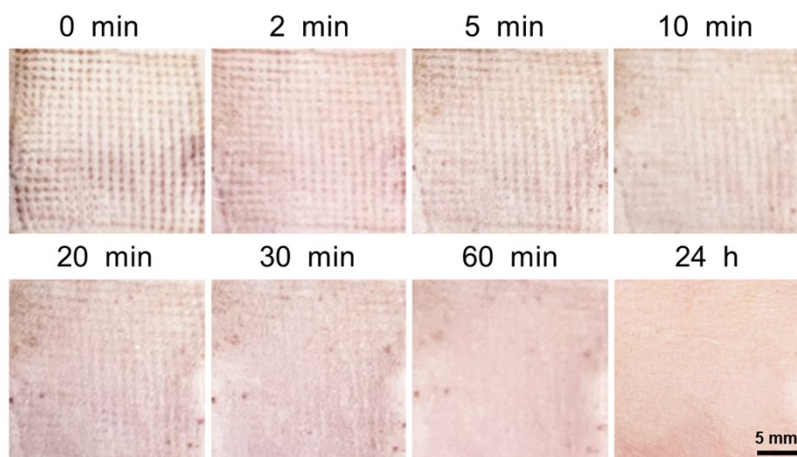
**Figure S2** The stability of HRIG in MN patches at room temperature (n=3).



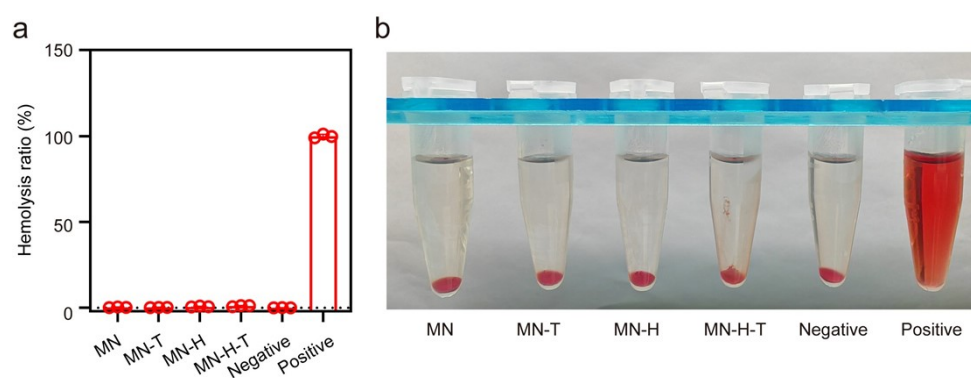
**Figure S3** The HRIG loading capacity and failure force of MN patch composed of different HA loading in HRIG solution (n=3).



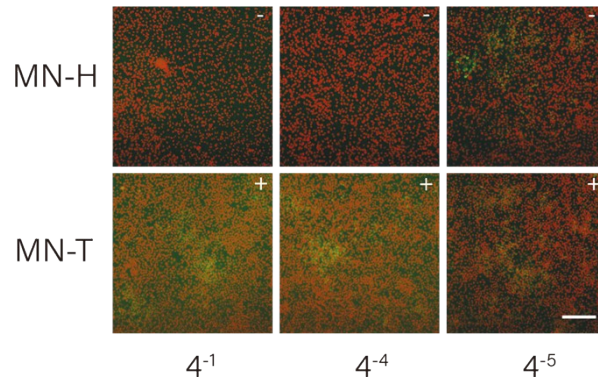
**Figure S4** The image of the needles on the MN patch after mechanical test.



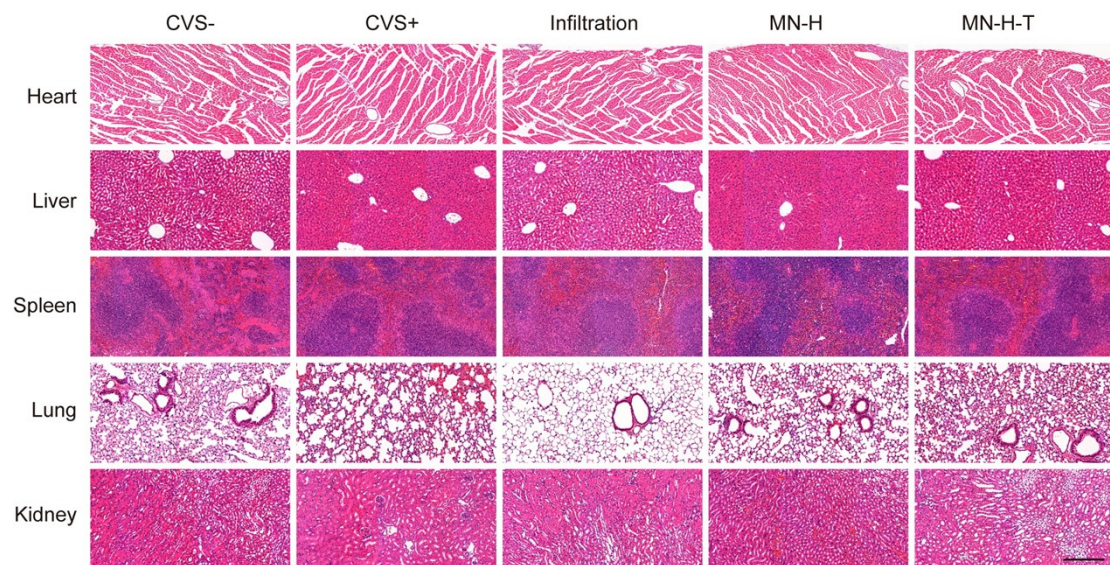
**Figure S5** Appearance of the Sprague-Dawley (SD) rat skin following MN patch application for the indicated durations.



**Figure S6** The hemolysis of different MN patch. (a) The hemolysis rate of different MN patch (n=3). (b) The images of the erythrocytes incubated with different MN patch extracts.



**Figure S7** The representative fluorescence images of FAVN test. The fluorescence images of *BHK-21* cells infected with RABV. The green fluorescence represented virus-infected cells, and the red fluorescence represented normal cells. The cells were strained with FITC anti-rabies monoclonal globulin (1:200) and Propidium iodide (1:500). The scale bar was 100  $\mu\text{m}$ .



**Figure S8** The H&E staining images of organs including heart, liver, spleen, lung, and kidney of mice after different treatments on the fourteenth day. The scale bar was 200  $\mu\text{m}$ .