Supporting Information

Ultrasound-Activable Piezoelectric Membranes for Accelerating Wound Healing

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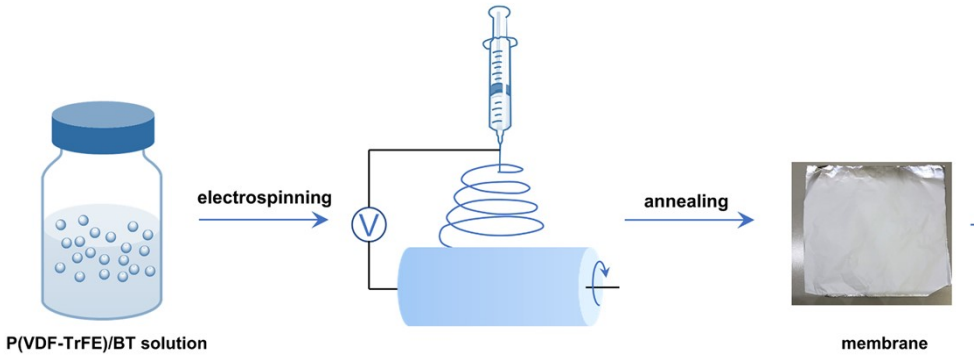

Fig. S1 Schematic illustration of the fabrication of P(VDF–TrFE)/BT membranes.

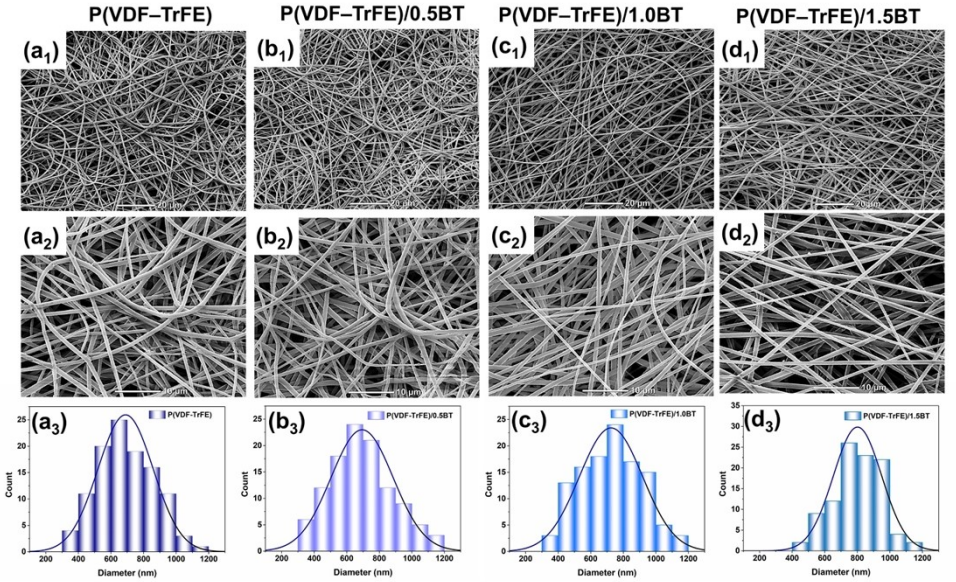

Fig. S2 SEM images showing the nanofibrous microstructure and diameter distributions of (a_1, a_2, a_3) P(VDF–TrFE), (b_1, b_2, b_3) P(VDF–TrFE)/0.5BT, (c_1, c_2, c_3) P(VDF–TrFE)/1.0BT, and (d_1, d_2, d_3) P(VDF–TrFE)/1.5BT membranes.

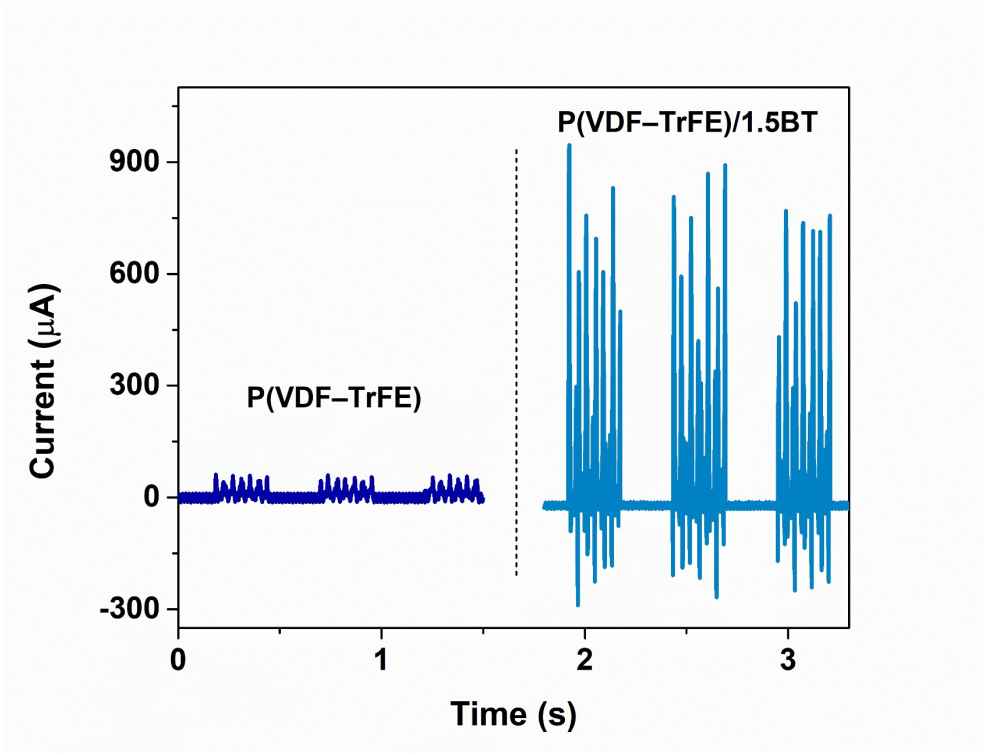

Fig. S3 The output currents generated from the P(VDF–TrFE) and P(VDF–TrFE)/1.5BT membranes under ultrasonic stimulation.

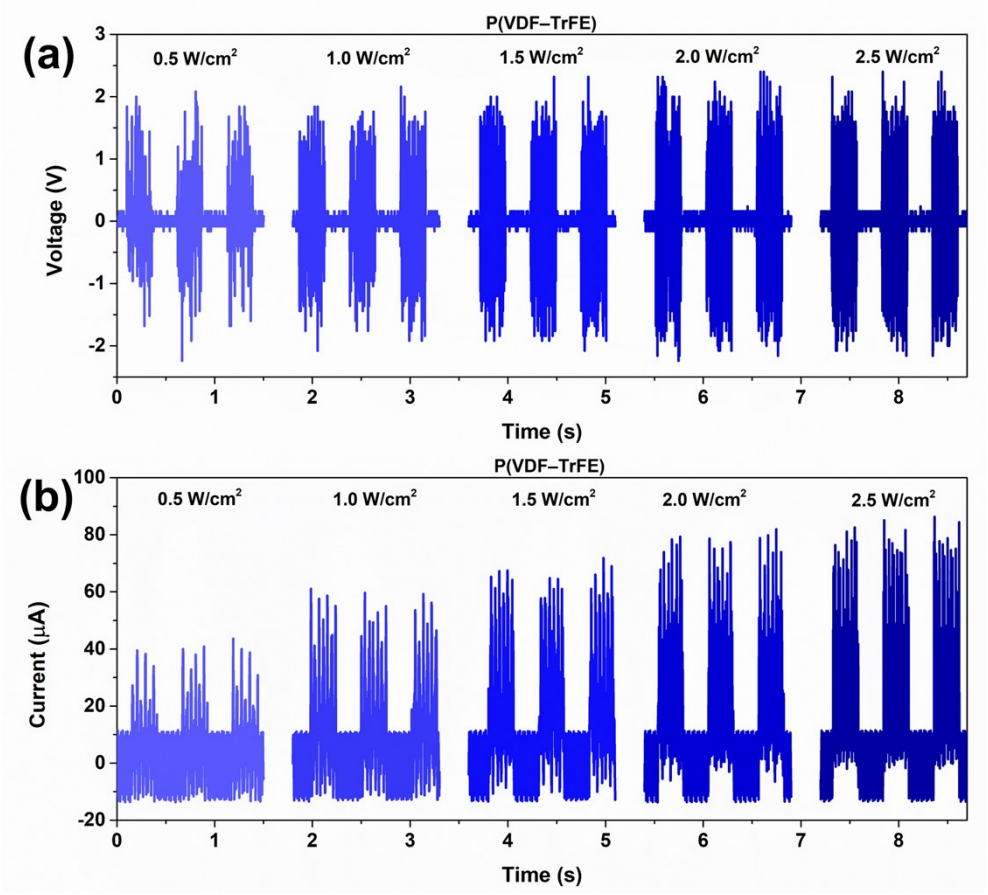

Fig. S4 The output (a) voltages and (b) currents of the P(VDF–TrFE) membranes under ultrasonic stimulation with different power intensities (i.e., 0.5 W/cm^2, 1.0 W/cm^2, 1.5 W/cm^2, 2.0 W/cm^2, and 2.5 W/cm^2).

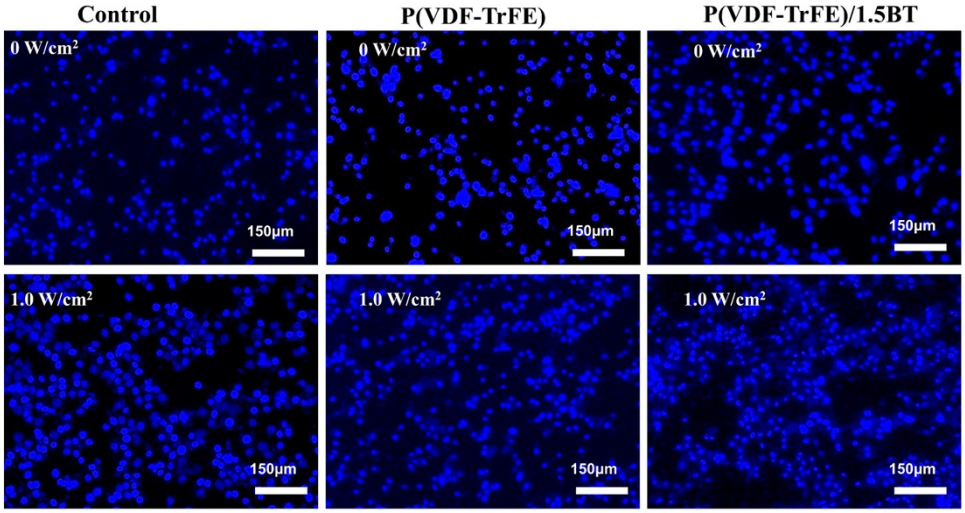

Fig. S5 The fluorescence images of DAPI-stained NIH-3T3 fibroblasts with/without ultrasound treatment for three days (scale bar = 150 μm).

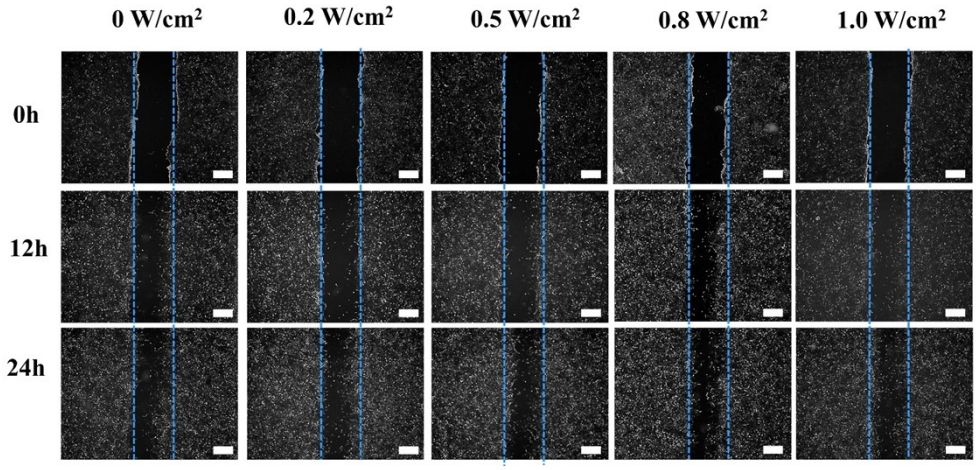

Fig. S6 The cell migration images of NIH-3T3 fibroblasts on the culture plates (control group) stimulated by ultrasound with different power intensities (scale bar = 500 μm).

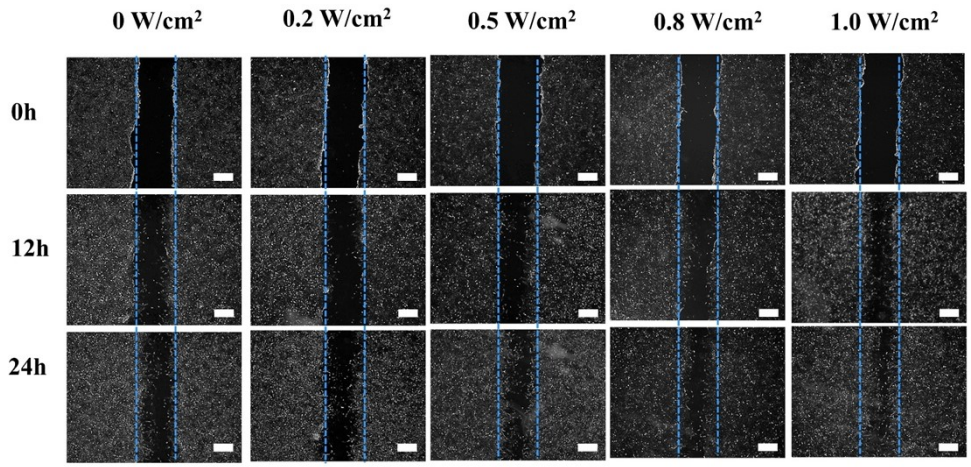

Fig. S7 The cell migration images of NIH-3T3 fibroblasts on the P(VDF–TrFE) membranes stimulated by ultrasound with different power intensities (scale bar = 500 μm).

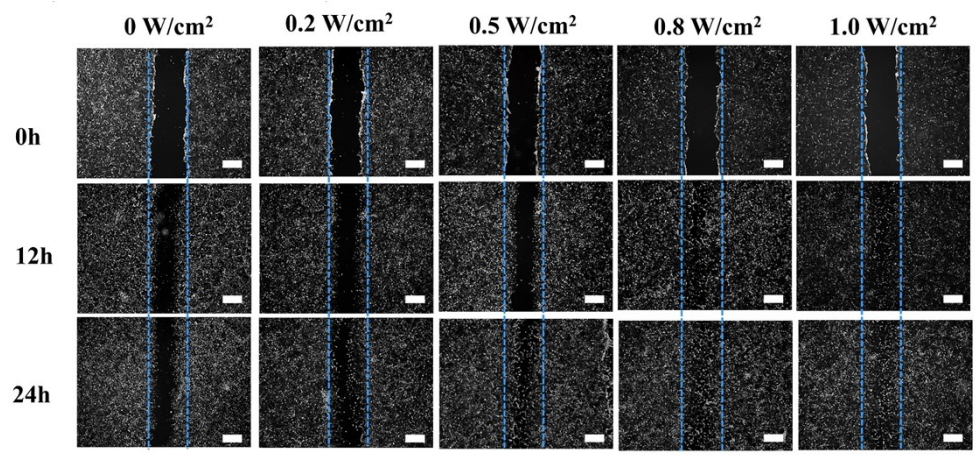

Fig. S8 The cell migration images of NIH-3T3 fibroblasts on the P(VDF–TrFE)/1.5BT membranes stimulated by ultrasound with different power intensities (scale bar = 500 μm).

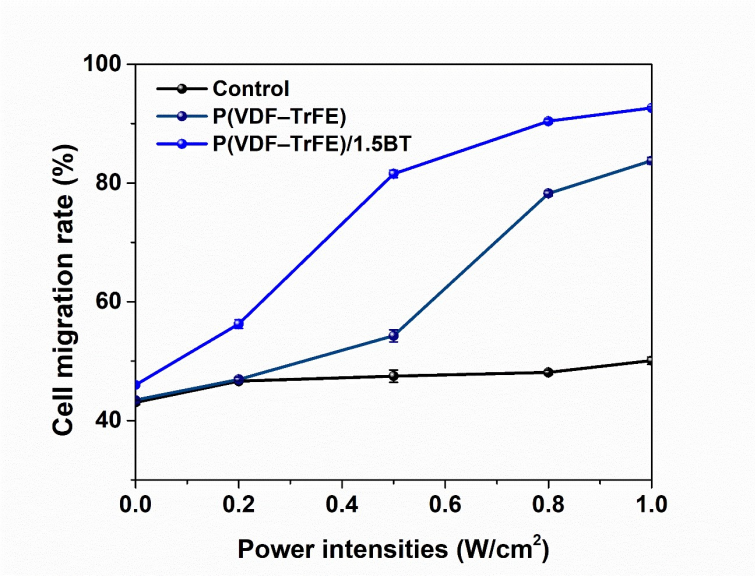

Fig. S9 The quantitative analysis of the cell migration rate of NIH-3T3 fibroblasts on the culture plates (control group) and P(VDF–TrFE)/BT membranes from the scratch tests

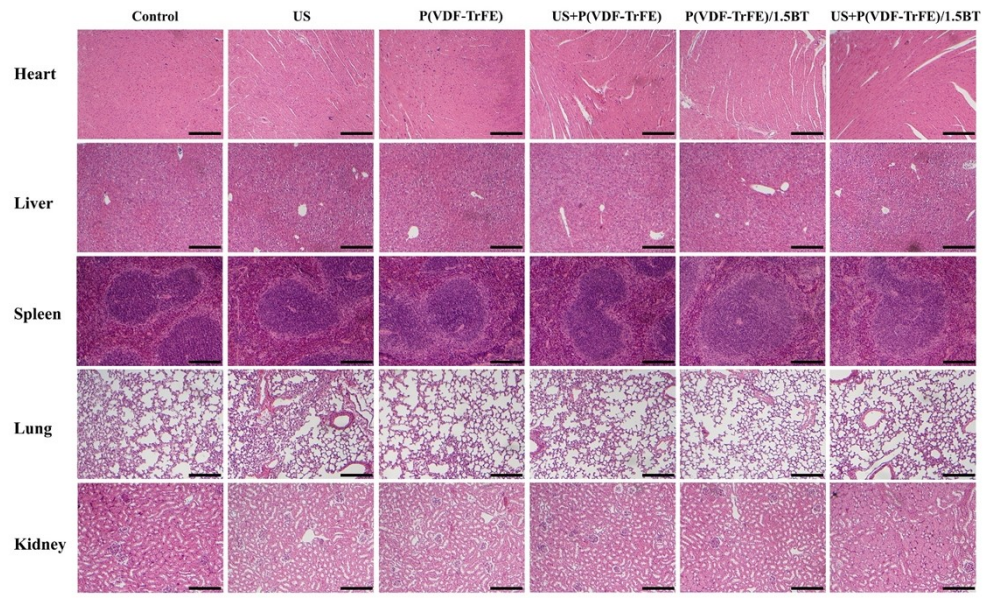

Fig. S10. H&E staining of the main tissues of the mice in different groups at the end of the experiments (scale bar = 200 μm).

Video lists

Video S1. The output voltages generated from the ultrasound-activable P(VDF–TrFE)/1.5BT membrane on the mouse skin.

Video S2. The output voltages of P(VDF–TrFE) membrane implanted at 1.5 cm.

Video S3. The output voltages of P(VDF–TrFE)/1.5BT membrane implanted at 1.5 cm.

Video S4. A flashed LED charged by the P(VDF-TrFE)/1.5BT membrane implanted at 1.5 cm under 1.4 ms pulse duration.