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Supporting Information

Silk Fibroin Based Piezoelectric Nanofibrous Scaffolds for Rapid Wound Healing

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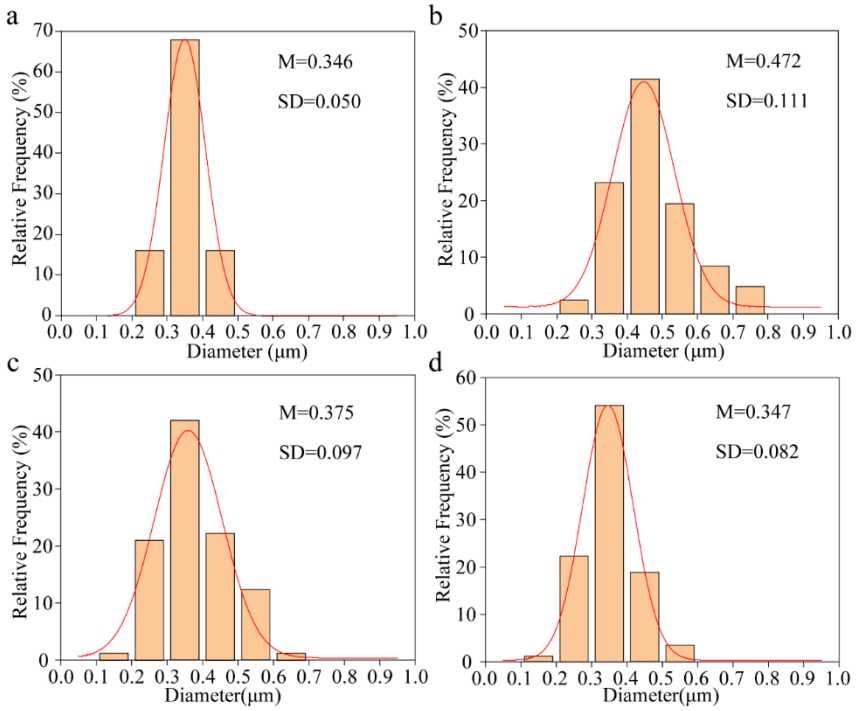

Fig. S1 Fiber diameter distribution of electrospun SF nanofibers after treatment with different concentrations of ethanol: **a** Untreated, **b** 50%v/v ethanol, **c** 70%v/v ethanol, **d** 100%v/v ethanol

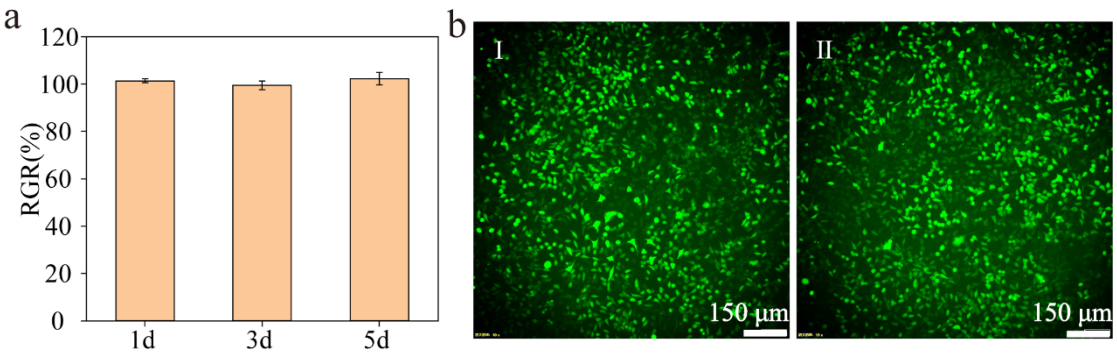

Fig. S2 a Statistical graph of RGR (%) of L929 cells cultured on SF-NFSs treated with 75% ethanol for 1, 3, and 5 days. **b** Fluorescent images of L929 cells cultured on **I** untreated and **II** SF-NFSs treated with 75% ethanol for 5 days.

Table S1. Comparison table of RGR and cytotoxicity grading [1]

RGR (%)	Cytotoxicity grading
RGR≥100%	0
75%≤RGR＜100%	1
50%≤RGR＜75%	2
25%≤RGR＜50%	3
1%≤RGR＜25%	4
RGR＜1%	5

After ethanol treatment, since the change in morphology leads to a decrease in the porosity and surface area of SF fibrous scaffolds, we evaluated this change by cytotoxicity assay in order to prevent the adverse effects of this change on cell adhesion, proliferation. As shown in Fig. S1a, the relative growth rate (RGR%) statistics of L929 cells cultured in untreated and 75% ethanol-treated SF-NFSs on days 1, 3, and 5, with RGR = 101.14 ± 0.85 on day 1, RGR (%) = 99.54 ± 1.77 on day 3, and RGR (%) = 102.36 ± 2.56 on day 5. According to the relationship between RGR and cytotoxicity grading, the cytotoxicity of SF-NFSs treated with 75% ethanol belonged to grade 0. Grade 0 indicated excellent cell proliferation ability, and SF-NFSs treated with 75% ethanol had basically no effect on cell proliferation. And from the fluorescence plots of L929 cells cultured on untreated and 75% ethanol-treated SF-NFSs for 5 days (Fig. S1b), it can be seen that there was no significant difference in cell density between the two groups. It indicates that this adherent flat structure has basically no adverse effect on cell proliferation.

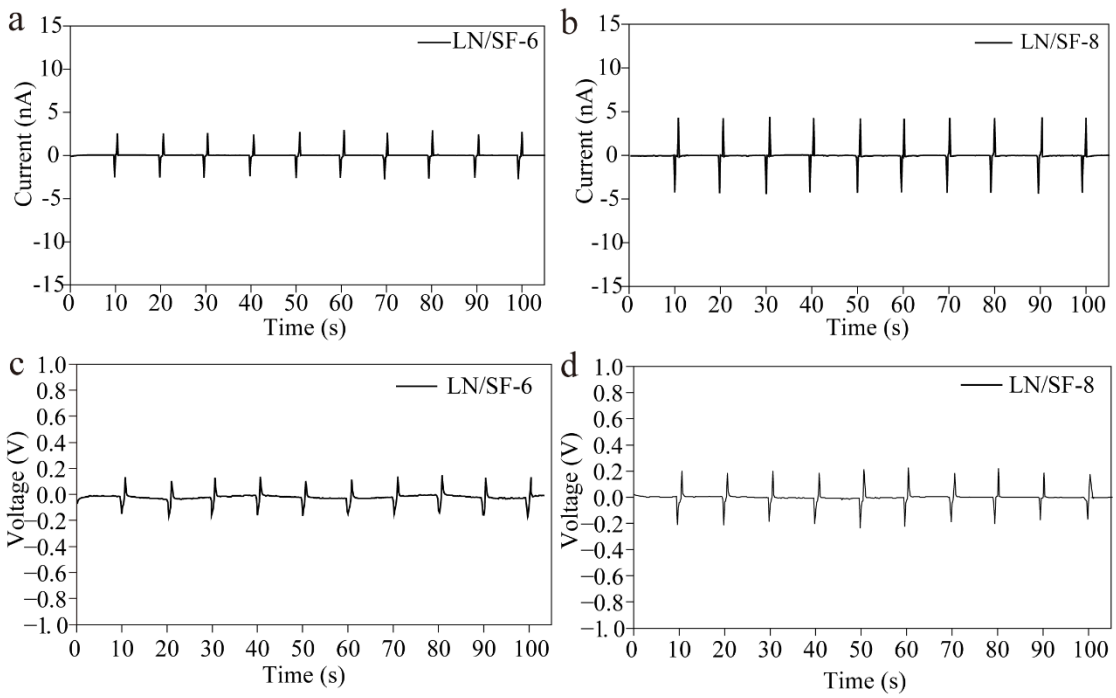

Fig. S3 The output current and output voltage of **a, c** LN/SF-6 and **b, d** LN/SF-8 during the repeated press and release cycles

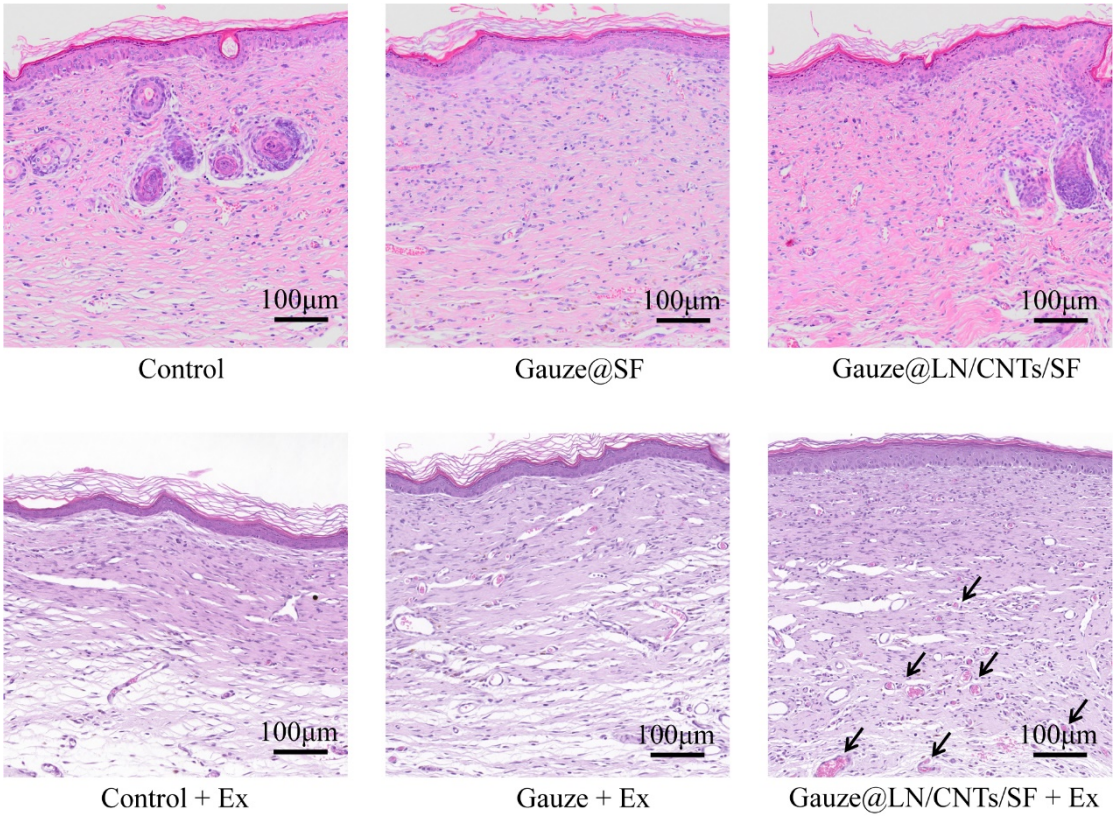

Fig. S4 HE staining images of wound skin tissue sections of various groups of mice (Scale bar: 100 μm)

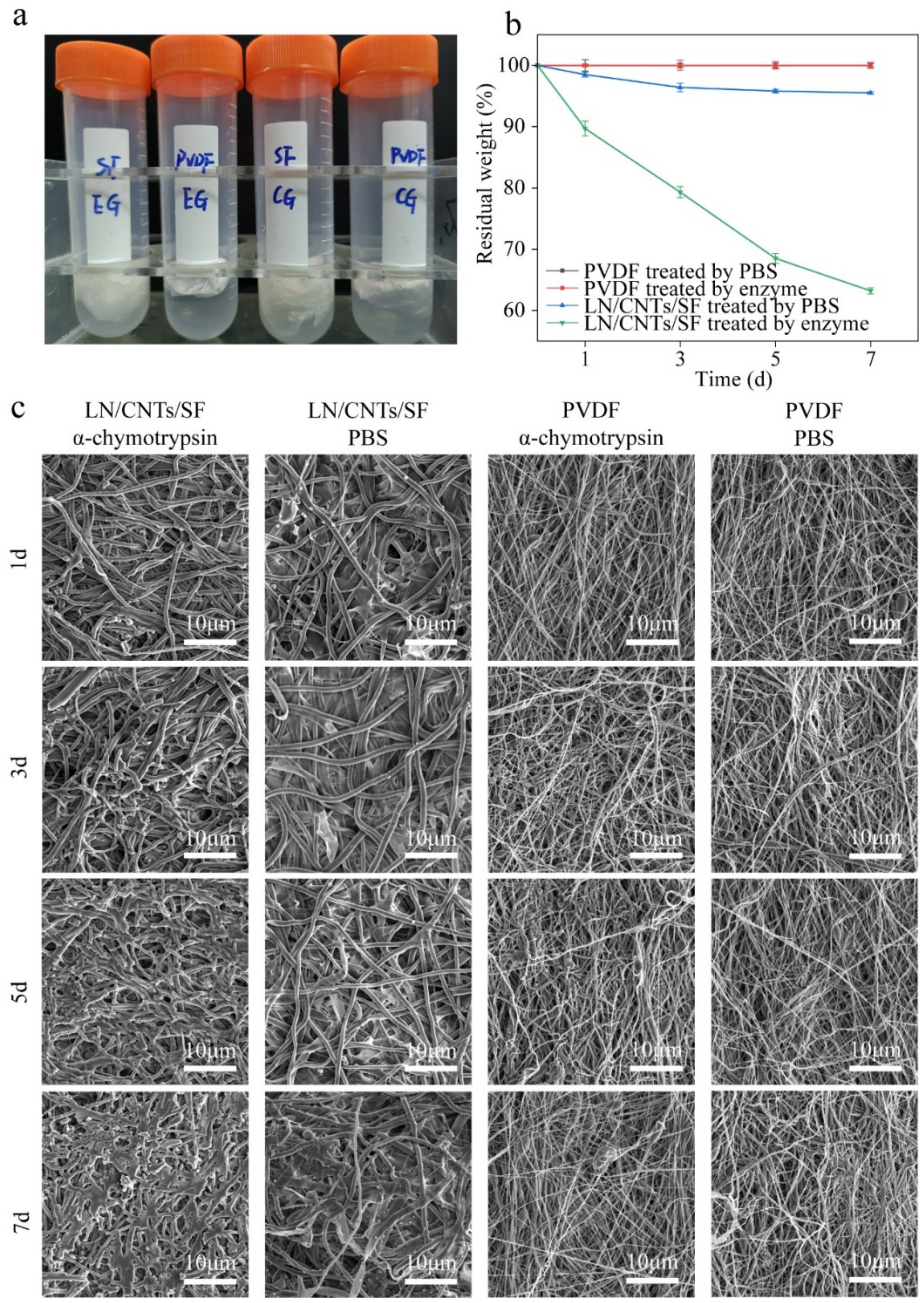

Fig. S5 a Photos of the degradation process. **b** Weight loss of LN/CNTs/SF-NFSs and PVDF-NFSs treated with PBS and α-chymotrypsin for 1, 3, 5, and 7 days. **c** LN/CNTs/SF-NFSs and PVDF-NFSs processed for SEM for different days

Reference

1. US Pharmacopeia National Formulary. Toxicity classification in US Pharmacopeia: USP XXII, NF XVII[S]. US: Pharmacopeial Convention Inc, 1990: 2069.