Supporting Information

Electrospun Nanofibrous Conduit Filled with a Collagen-Based Matrix (ColM) for Nerve Regeneration

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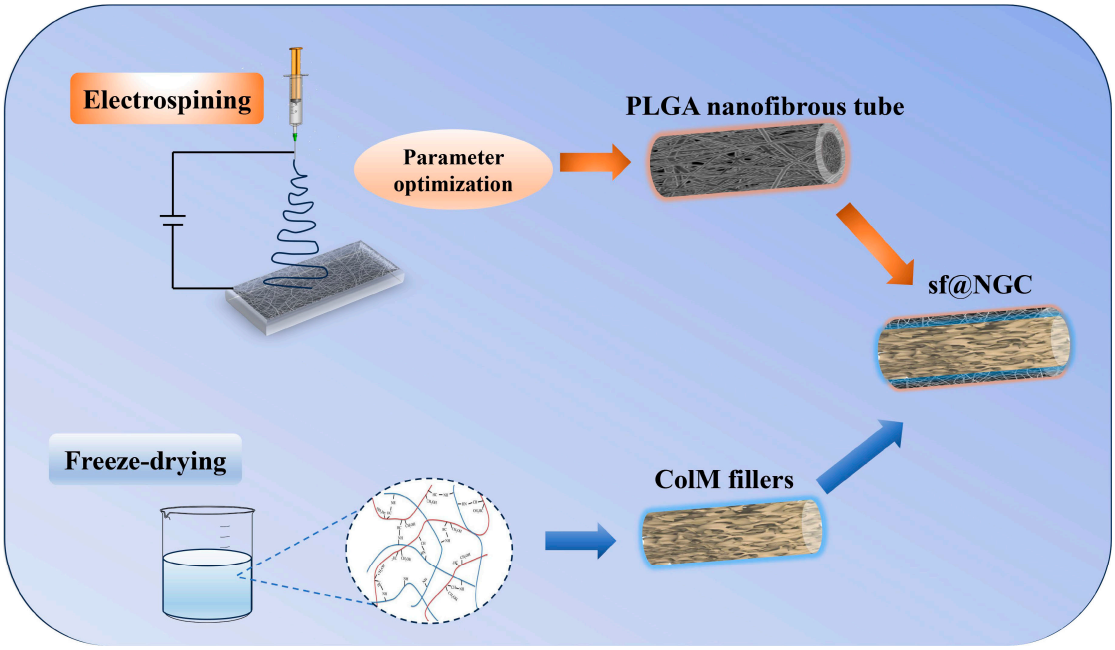

Figure S1. Schematic illustration of the fabrication course of sf@NGC.

Determination of crosslinking degree

The crosslinking degree for collagen and OBC was evaluated by an indirectly titration method as previously described [1]. In brief, ColM sample (100 mg) was dispersed in deionized water and 0.1 M HCl solution respectively, with stirring at room temperature for 4 h. And then 0.1 M NaOH was titrated to the suspension to achieve a neutral pH value. As free amine [NH_2] in collagen can protonate to amine [NH^{3+}] under the presence of HCl, the cross-linking degrees of ColM fillers were calculated by measuring the consumption of HCl.

Table S1 displays the crosslinking degrees of ColM fillers with different blend ratio of collagen and OBC. The crosslinking degree showed an initial increase and subsequent decrease with the rise in collagen content. Notably, ColM2 demonstrated the highest crosslinking degree, reaching a maximum of 6.8%. The lower crosslinking degrees observed in ColM1 and ColM5 fillers were likely a result of insufficient crosslinking reactions caused by imbalanced ratios of collagen and OBC.

Table S1. Sample codes and crosslinking degree of ColM fillers.

Samples	Collagen: OBC mass ratio	Crosslinking degree (%)
ColM1	1:9	2.8
ColM2	3:7	6.8
ColM3	5:5	5.7
ColM4	7:3	4.4
ColM5	9:1	3.2

Reference

[1] U.-J. Kim, Y.R. Lee, T.H. Kang, J.W. Choi, S. Kimura, M. Wada, Protein adsorption of dialdehyde cellulose-crosslinked chitosan with high amino group contents, Carbohydrate Polymers 163 (2017) 34-42.