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Transplantation of neural scaffolds consisting of dermal fibroblast-reprogrammed neurons and 3D silk fibrous materials promotes repair of spinal cord injury

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Supplementary Figure 1

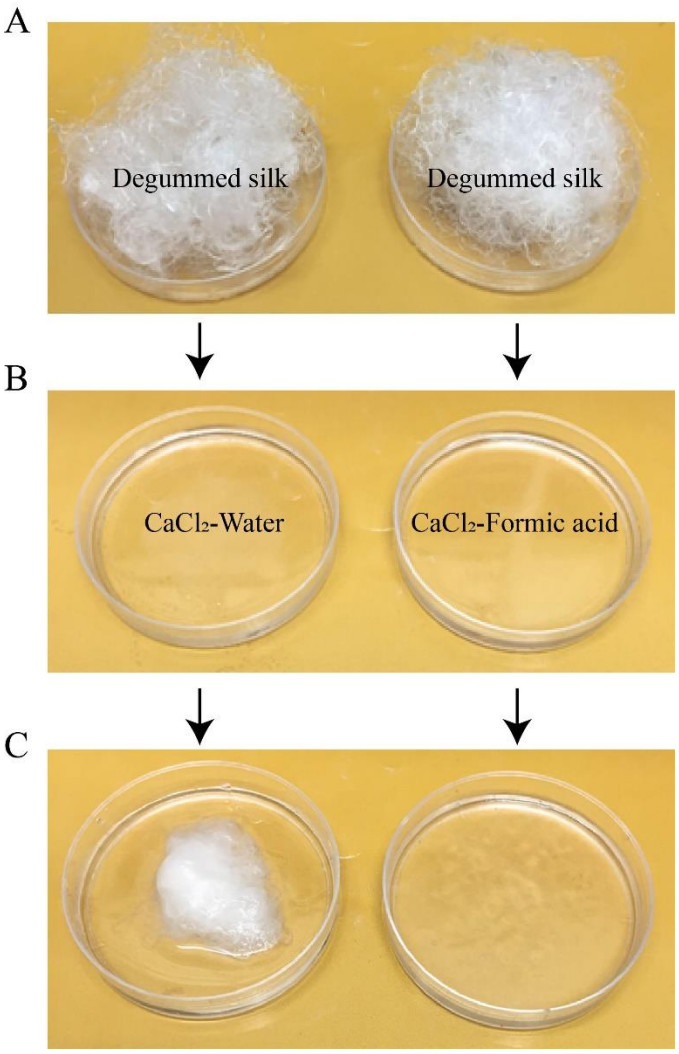

Fig. S1 Degummed silk can uniformly distribute in $CaCl_2$-Formic acid, but become entangled in $CaCl_2$-water.

(A) Degummed silk placed in a dish. (B) Solvents: $CaCl_2$-Water and $CaCl_2$-Formic acid. (C) Dissolution of degummed silk in $CaCl_2$-Water or $CaCl_2$-Formic acid.

Supplementary Figure 2

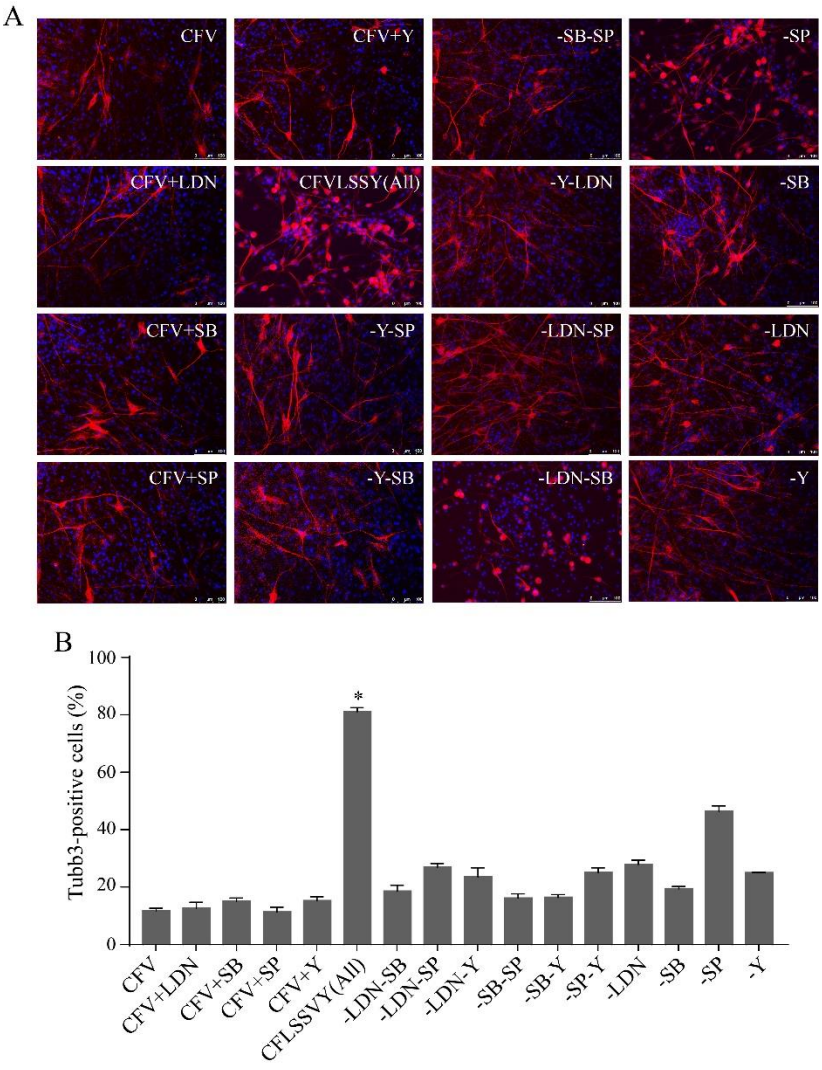

Fig. S2 Screening for the most effective small molecule combination that induces reprogramming. (A) Cells induced by CFV, that initiates neuronal fate from dermal fibroblasts, by CFLSSVY, or by withdrawing chemicals from CFLSSVY were double stained with Tubb3 (red) and Hoechst 33258 (blue). Scale bars = 100 μm. The quantification of Tubb3-positive cells was analyzed in (B). Data represent the mean ± SEM from at least three independent experiments. Differences were considered statistically significant when **P*<0.05 compared with any other combination.

Supplementary Figure 3

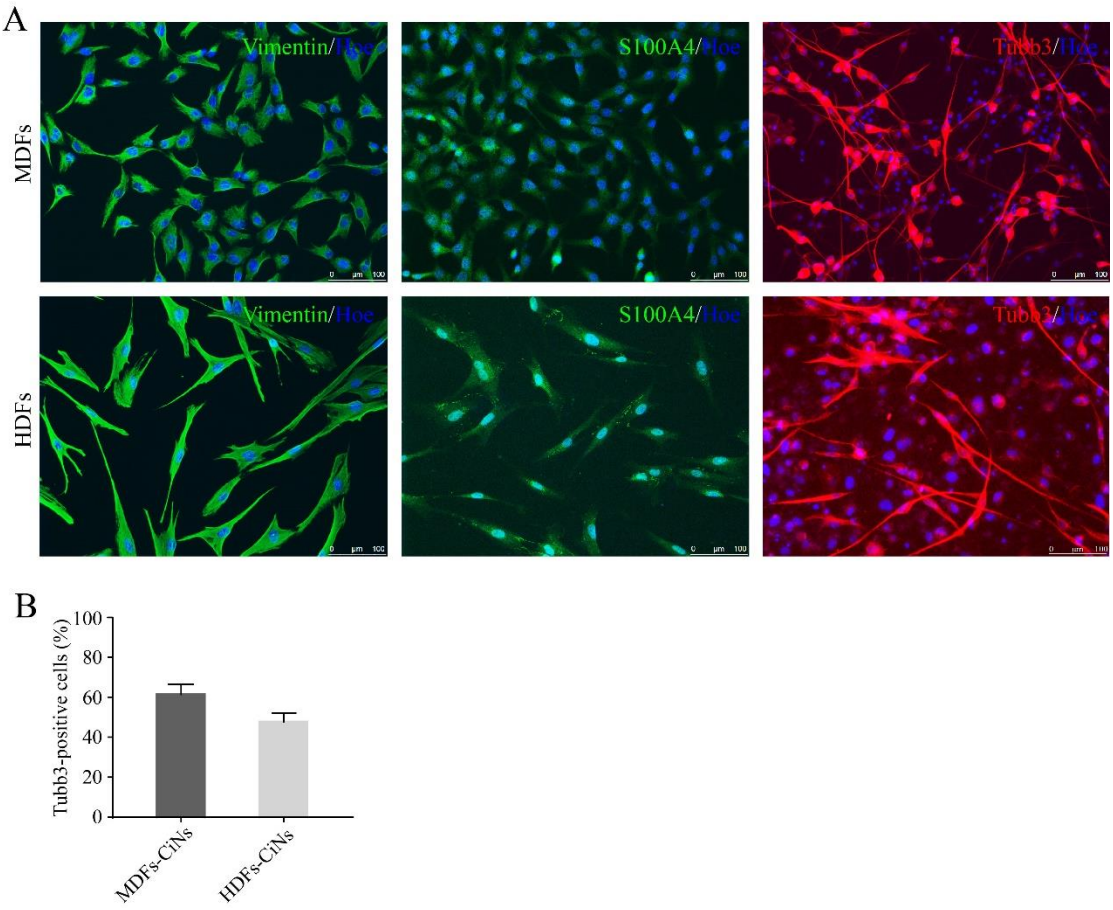

Fig. S3 Transdifferentiation of mouse dermal fibroblasts (MDFs) or human dermal fibroblasts (HDFs) into neuronal cells by CFLSSVY induction.

(A) MDFs or HDFs were double stained with Vimentin (green) or S100A4 (green) or Tubb3 (red) and Hoechst 33258 (blue). Scale bars = 100 μm. (B) Quantification of Tubb3-positive cells after induction by the small molecule combination CFLSSVY in MDFs and HDFs. Data represent the mean ± SEM from at least three independent experiments.

Supplementary Figure 4

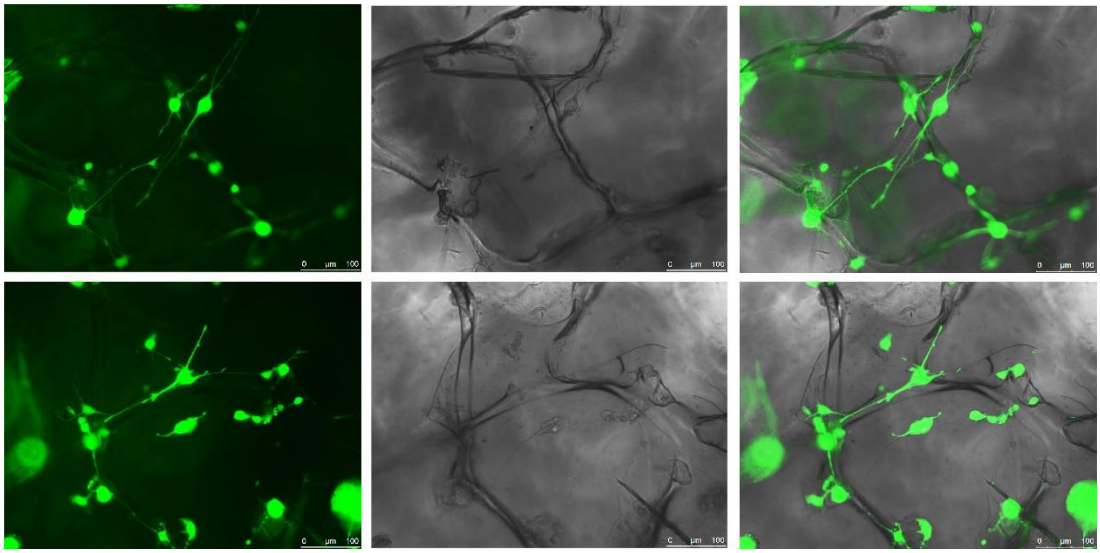

Fig. S4 Distribution of GFP-tagged CiNs for transplantation on 3D-SF.

The processes of GFP-tagged CiNs arranged along its direction at the localized filamentous landform of the scaffold which was observed under a fluorescence microscope. Scale bars = 100 μm.