Supplementary Materials

Biomimetic spinal cord scaffold loaded with human amniotic epithelial cells-derived neural-like cells repairs spinal cord injury in rats

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Table S1. Primers used for qRT-PCR in this study.

Genes	Forward Primer (5′-3′)	Reverse Primer (5′-3′)
GAPDH	CATTGCCCTCAACGACCACTTTGT	TCTCTCTCTTCCTCTTGTGCTCTTGC
Pax6	GGCAACCTACGCAAGATGGC	TGAGGGCTGTGTCTGTTCGG
Sox2	CATGCACCGCTACGACG	CCCTGGAGTGGGAGGAAGA
Olig2	TGGCTTCAAGTCATCCTCGTC	CCAGTCGCTTCATCTCCTCC
Nkx6.1	ACACGAGACCCACTTTTTCCG	TGCTGGACTTGTGCTTCTTCAAC
NeuroD1	ATGACCAAATCGTACAGCGAG	GTTCATGGCTTCGAGGTCGT
Neurofilament (NF-H)	ATTCCTTTCTCGCTTCCAG	CAGACTTCTCCACCACTTTGAT
Otx2	CAAAGTGAGACCTGCCAAAAAGA	TGGACAAGGGATCTGACAGTG
Map2	CCCCTTGCTTCCCTGTAGAA	ATTTCCTCCTGGCAACCTCA
NeuN	TTCTATGCAGTGACGGGGTT	TCCATCCTGATACACGACCG

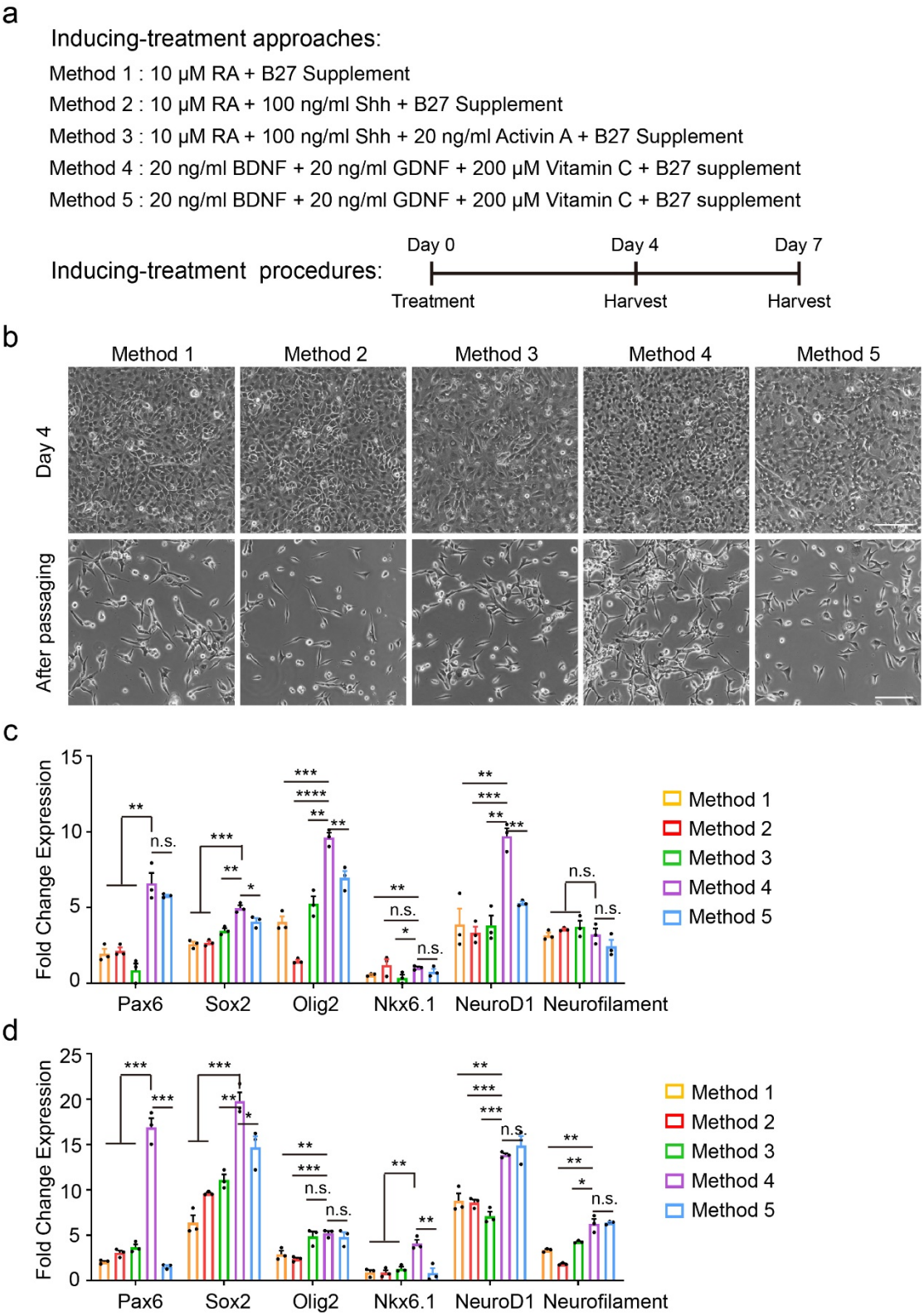

Figure S1. The screening of inducing-treatment approaches. (**a**) Experimental schematic of 5 different inducing-treatment approaches; (**b**) The observation of cells morphology from indicated treated groups at 4 days and after passaging; (**c**) The mRNA expression of neural markers from all indicated treated groups 4 days after inducing-treatment, normalize the non-treated hAECs as 1, ****p<0.0001, ***p<0.001, **p<0.005, *p<0.05, n.s.: not significant (Unpaired

t-test), n=3; (**d**) The mRNA expression of neural markers from all indicated treated groups 7 days after treatment, normalize the non-treated hAECs as 1, ****p<0.0001, ***p<0.001, **p<0.005, *p<0.05, n.s.: not significant (Unpaired t-test), n=3. **Scale bars: b:** 100 μm.

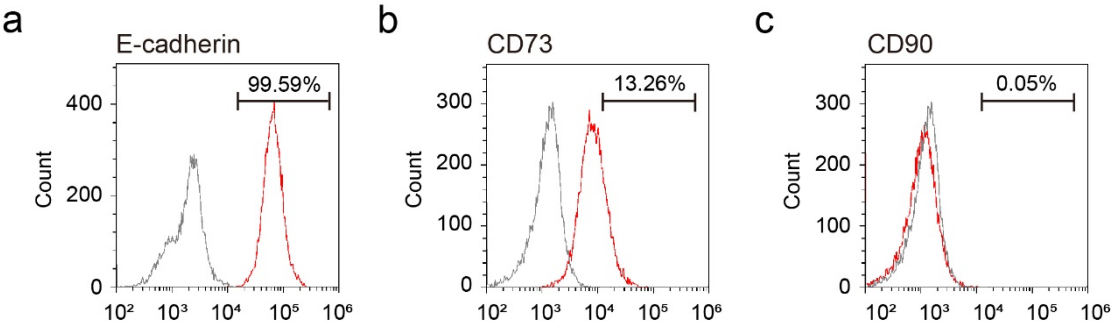

Figure S2. The detection of epithelial and mesenchymal properties of hAEC-neural-like cells. (**a-c**) The expression of epithelial marker (E-cadherin) and mesenchymal markers (CD73, CD90) detected by flow cytometry after BGVB inducing treatment.

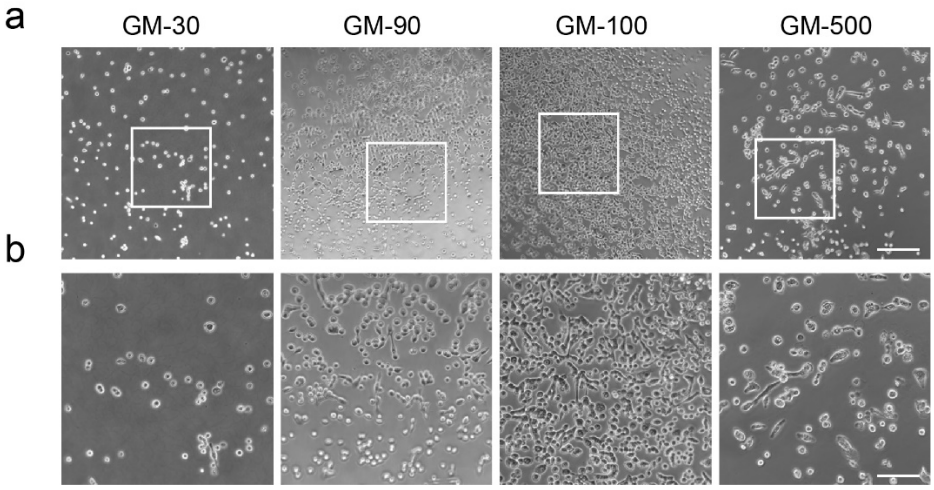

Figure S3. The optimization of GelMA substitution degree for hAECs attachment and growth. (**a**) The morphology of hAECs on GelMA surfaces with 4 different substitution degrees; (**b**) The magnified imagings of the white frames in **figure a** from all indicated GelMA surfaces showed the significant difference in cell number and appereance. **Scale bars: a:** 100 μm; **b:** 50 μm.

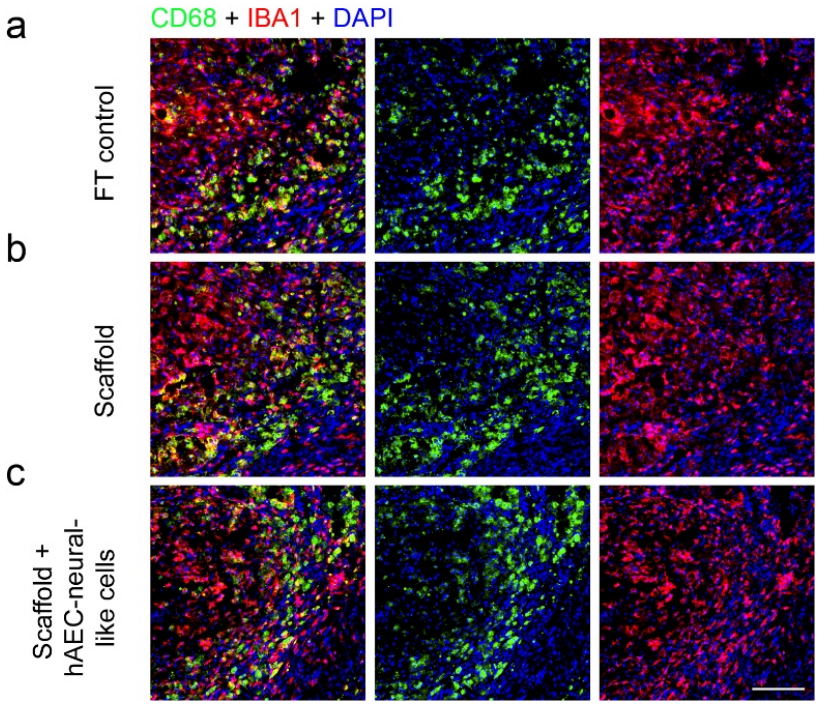

Figure S4. The evaluation of inflammation response around lesions from all indicated groups. (**a-c**) CD68 (green) and IBA1 (red) staining revealed the activation of macrophage and microglia around lesion from different treatment groups; (**a**) The FT control group; (**b**) The empty scaffold group; (**c**) The scaffold + hAEC-neural-like cells group. **Scale bars:** 140 μm.