Electronic Supplementary Information

Potential use of bioactive nanofibrous dural substitutes with controlled release of IGF-1 for neuroprotection after traumatic brain injury

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Table S1. Mechanical properties of BNDSs after 150 and 300 days of degradation.

		PCL/HAMA-150k-B/IGF	PCL/HAMA-400k-B/IGF	PCL/HAMA-150k-C/IGF
150 days	Tensile strength (MPa)	10.20±1.50	11.05±0.71	13.79±3.09
	Elongation at break (%)	42.88±1.87	40.50±1.25	39.68±4.41
	Young`s modulus (MPa)	38.38±13.48	48.19±6.34	72.80±30.15
360 days	Tensile strength (MPa)	10.18±1.82	9.07±1.61	7.96±0.65
	Elongation at break (%)	16.50±1.70	16.94±0.41	29.05±8.33
	Young`s modulus (MPa)	74.92±4.16	74.36±15.7	71.49±17.00

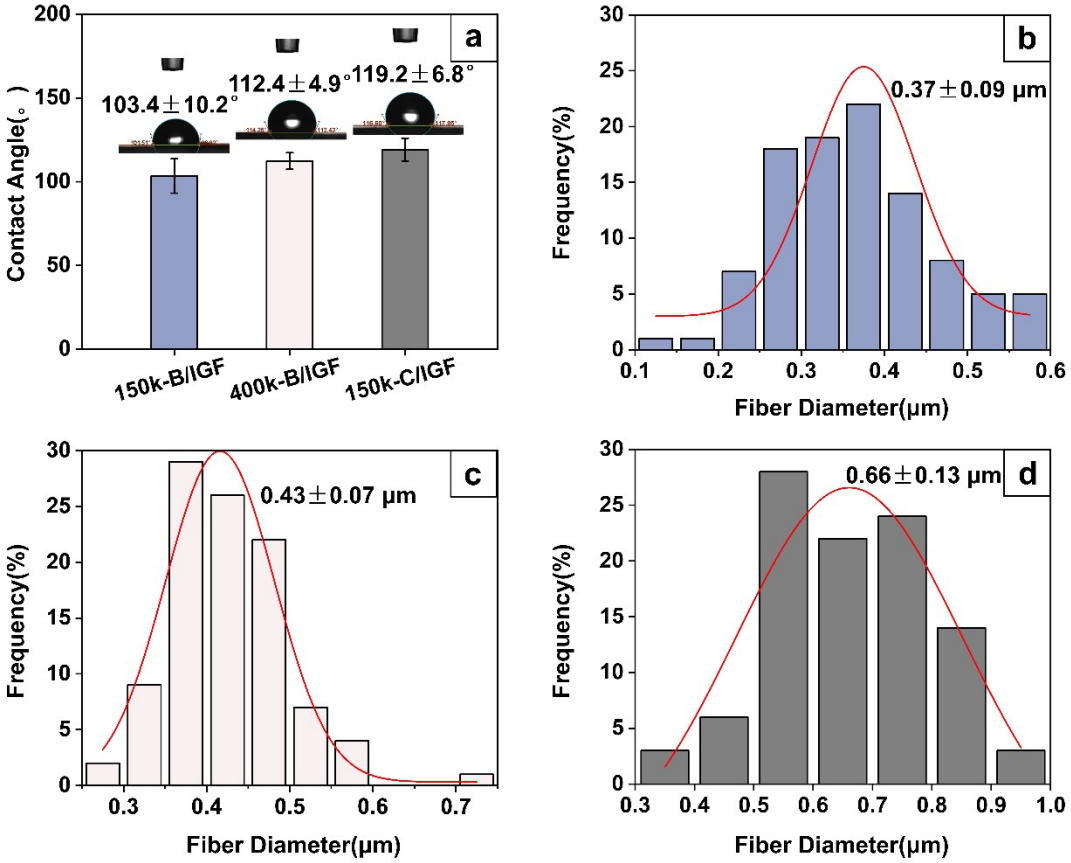

Figure S1. Contact angle and diameter distribution chart of the different nanofibrous scaffolds.

(a) Water contact angle of BNDSs. (b-d) The fibers' diameter distribution chart of BNDSs. The average diameter is denoted in the figure. PCL/HAMA-150k-B/IGF (blue), PCL/HAMA-400k-B/IGF (pink), PCL/HAMA-150k-C/IGF (gray).

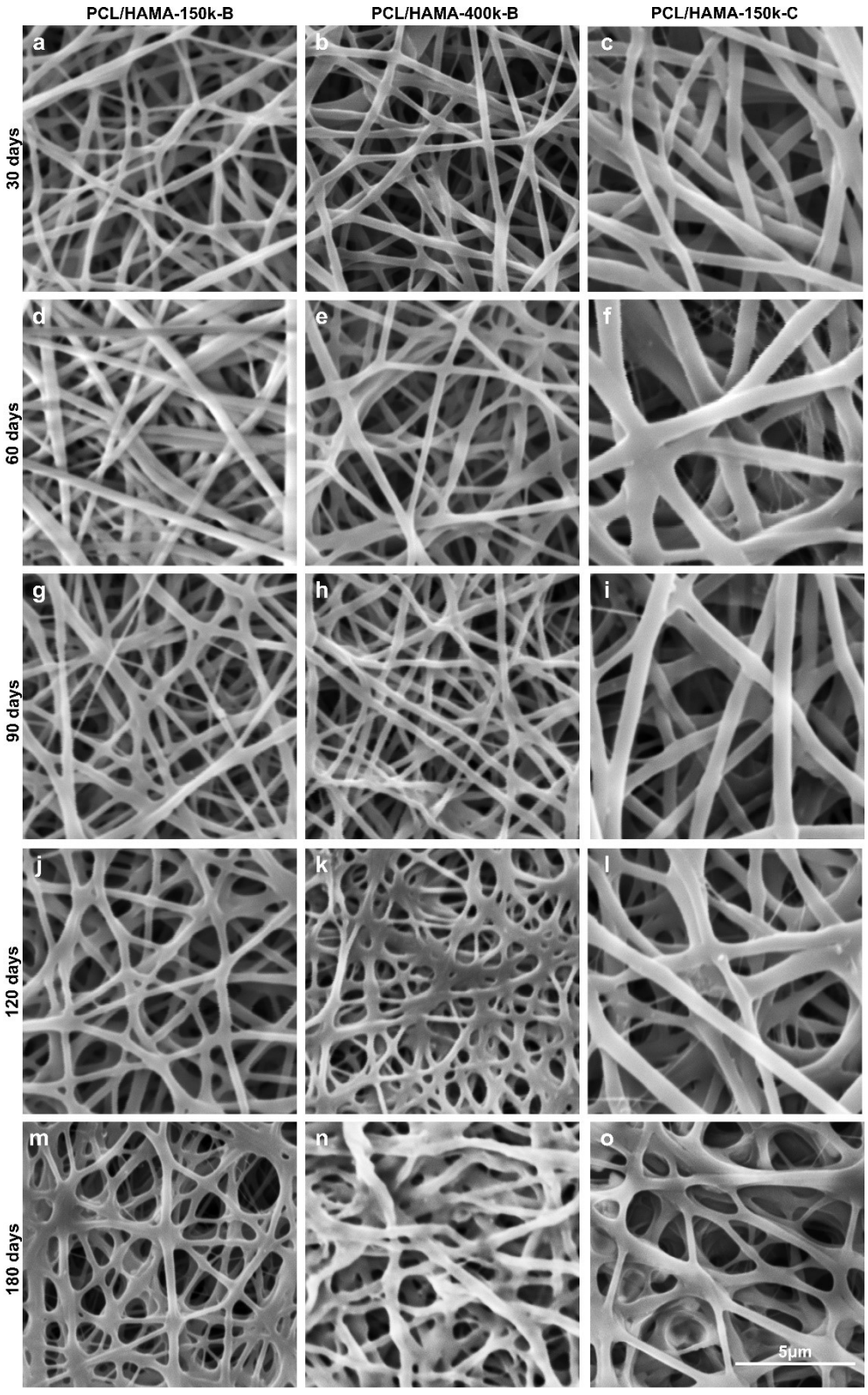

Figure S2. Degradation behavior.

SEM images showing the fiber morphologies post degradation at (a-c) 30, (d-f) 60, (g-i) 90, (j-l) 120, and (m-o) 180 days, respectively.

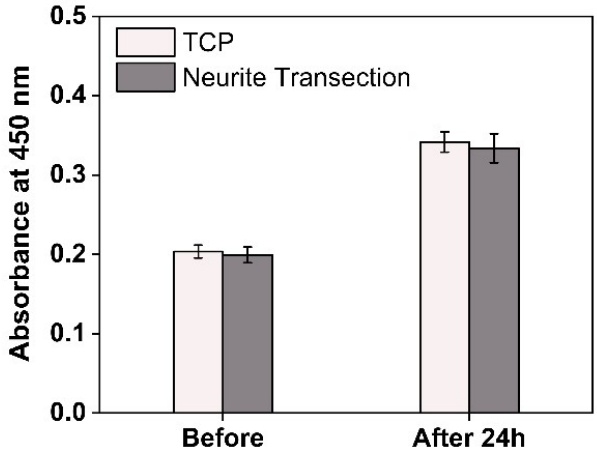

Figure S3. Cell viability after neurite transection.

Cell activity was quantitatively measured by CCK-8. There were no significant differences between the TCP group and the neurite transection group before or at 24 h post neurite transection.

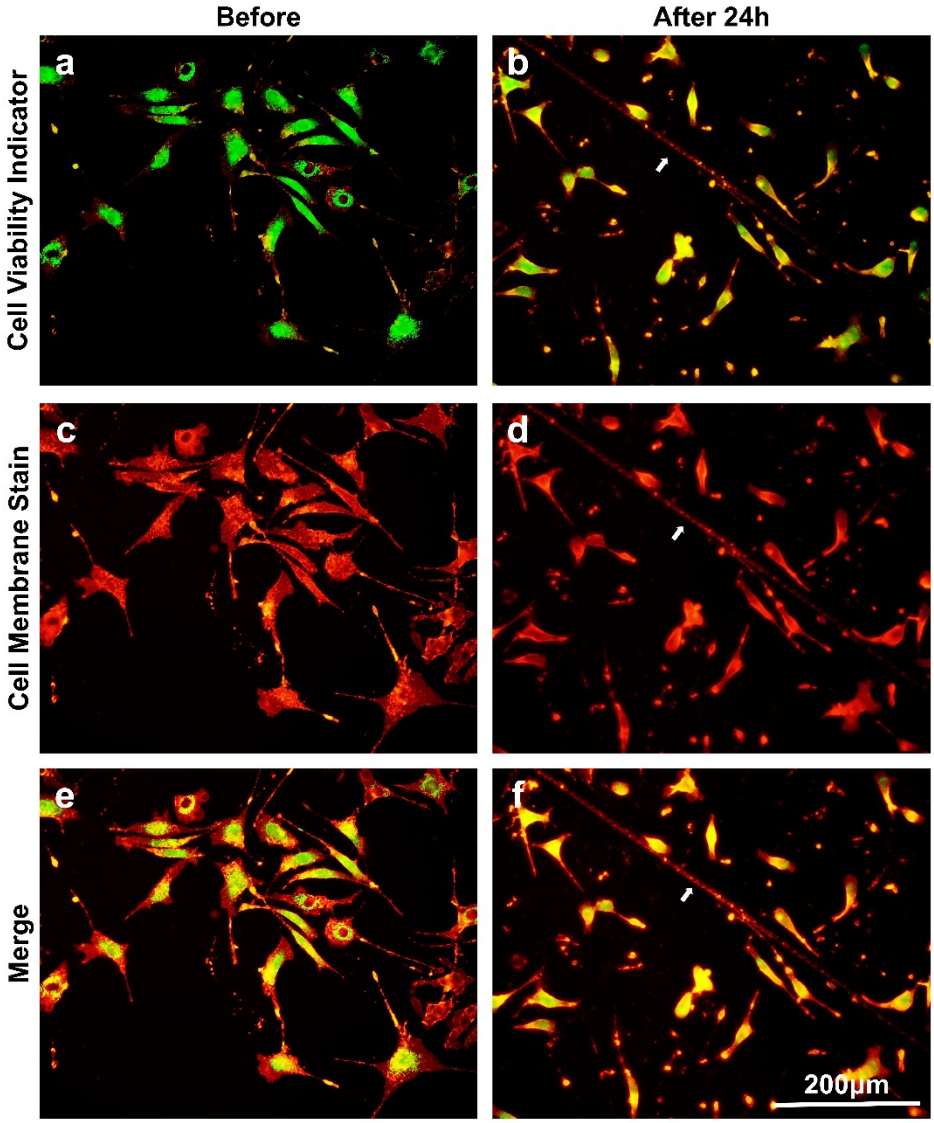

Figure S4. The neurite outgrowth staining after neurite transection.

The fluorescence staining micrographs of the SH-SY5Y cells (a, c, e) before and (b, d, f) at 24 h post neurite transection. The cell viability was indicated in green, and the cell membrane was stained in red. The neurite transection was indicated by the white arrows.

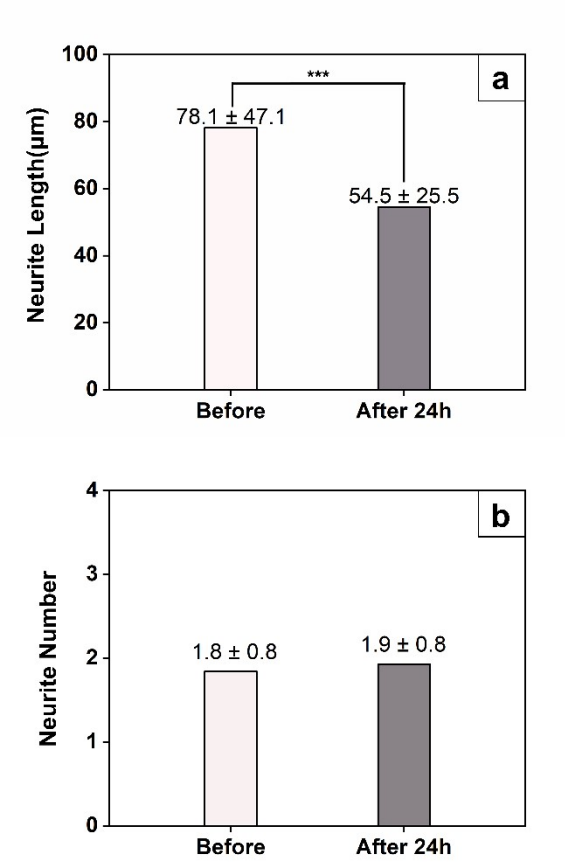

Figure S5. The statistic results of the neurite outgrowth staining after neurite transection.

(a) The neurite length before and after neurite transection treatment. (b) The neurite number after neurite transection treatment. ****P*<0.001 indicates the significant difference of neurite length, but no significant difference was found in terms of neurite number before and after neurite transection treatment.

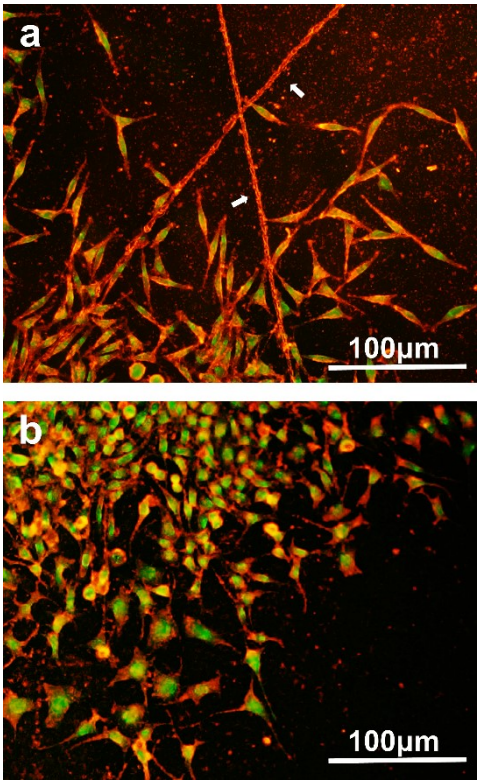

Figure S6. The neurite outgrowth staining of TCP group.

The fluorescence staining micrographs of cells at three days post (a) neurite transection and (b) OGD experiment. The cell viability was indicated in green, and the cell membrane was stained in red. The neurite transection was indicated by the white arrows.

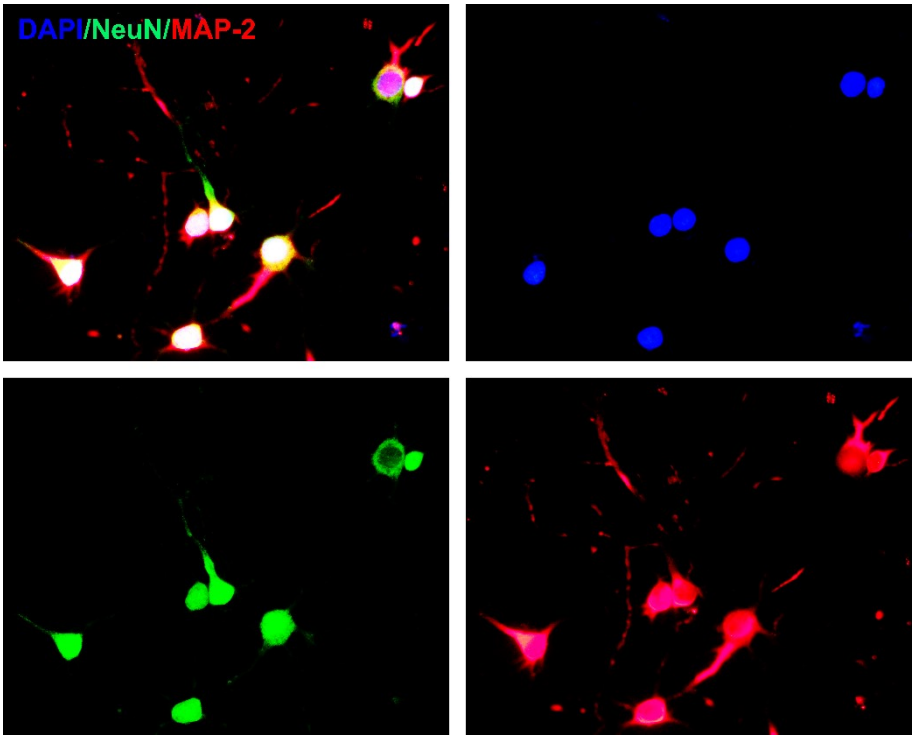

Figure S7. Immunofluorescent Staining of the primary neurons.

The immunofluorescence images of the primary neurons at 14 days post culture: DAPI (blue), NeuN (green), MAP-2 (red), and merged illustration.