

Supplementary Information for

A flexible microfluidic strategy to generate grooved microfibers for guiding cell alignment

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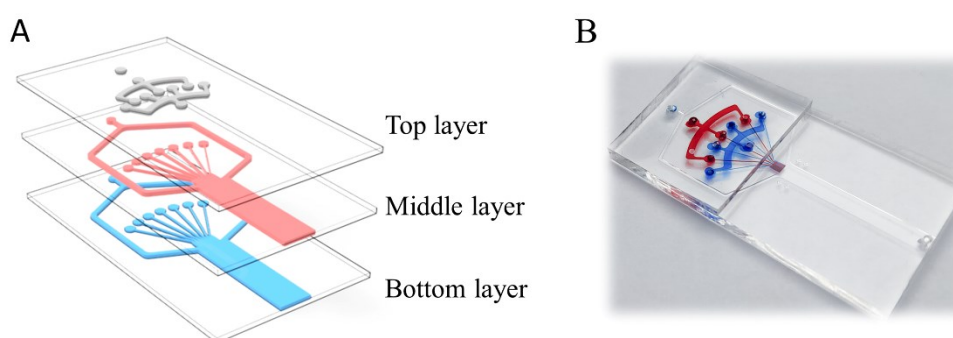


Fig. S1 Schematic diagram of chip. (A) Schematic diagram of three-layer chip. (B) Real chip.

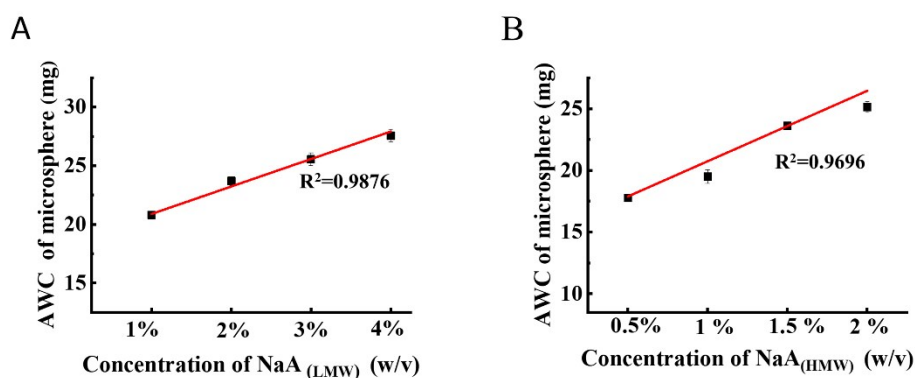


Fig. S2 (A) Absolute water content (AWC) of microspheres as function of the concentration of NaA with low molecular weight (NaA-LMW). (B) Absolute water content (AWC) of microspheres as a function of the concentration of NaA with high molecular weight (NaA-HMW).

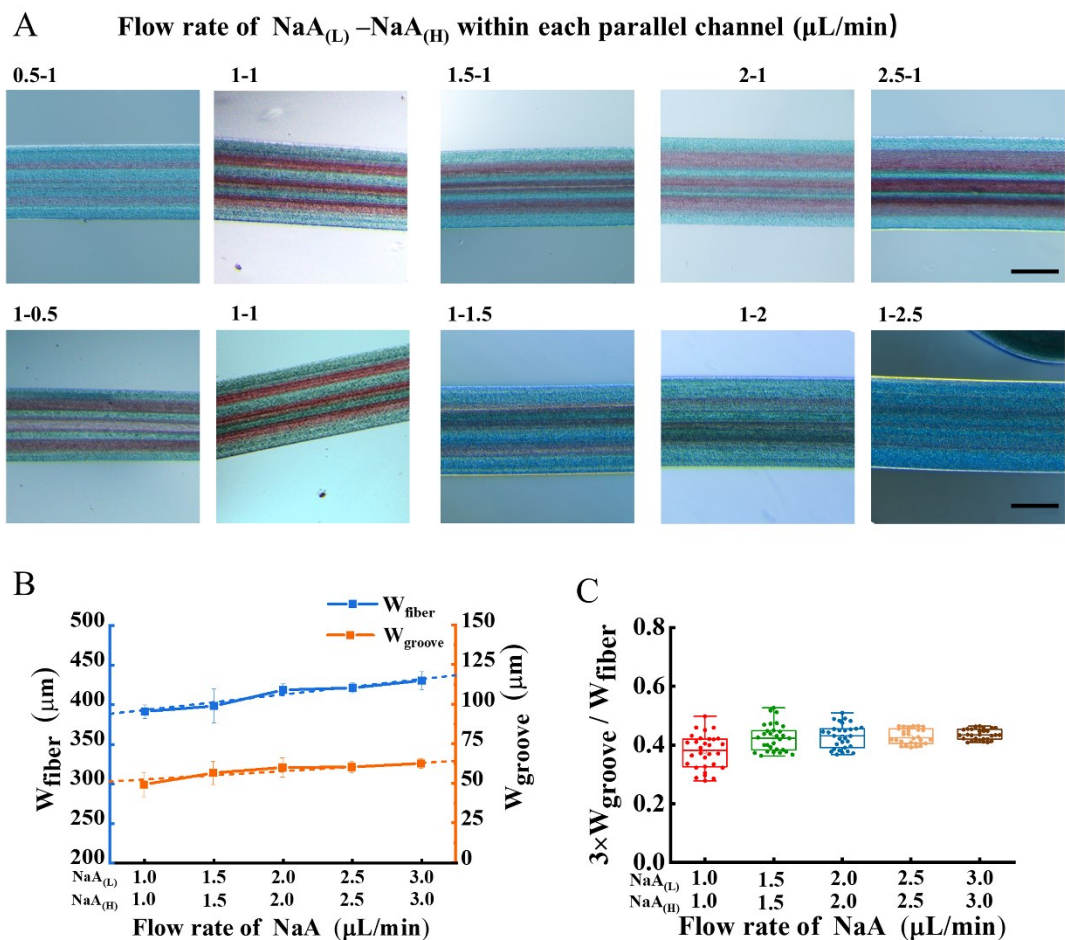


Fig. S3 Effects of the flow rates on the morphology of microfibers. (A) Bright-field images of grooved microfibers fabricated under 0.5 to 2.5 $\mu\text{L}/\text{min}$ flow rates of $\text{NaA}_{(L)}$ and $\text{NaA}_{(H)}$ within each parallel channel. (B) The effects of the flow rates of NaA on the width of microfibers and the grooves. (C) Effects of the flow rate of NaA on the proportion of groove in the microfibers. Scale bar: 200 μm .

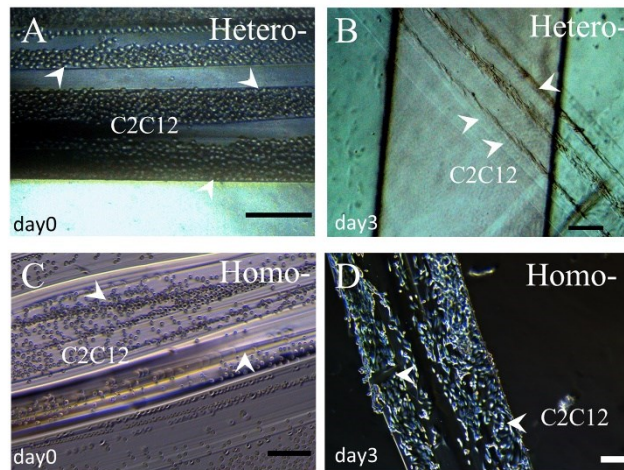


Fig. S4 Cell alignment induced by the grooved microstructure on homogeneous/heterogeneous IPN hydrogel fibers. (A,B) Bright-field images of the heterogeneous grooved fibers seeded with cells on day0 and day3. (C,D) Bright-field images of the homogeneous grooved fibers seeded with cells on day0 and day3. The arrows indicate the concave and convex areas. Scale bar: 200 μm .

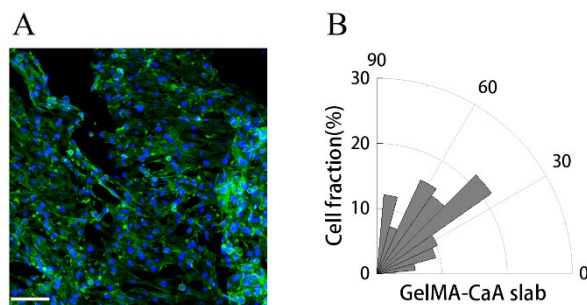


Fig. S5 Cell randomly grew on the flat GelMA-CaA slab. (A) Fluorescent images showing cells cultured on the flat GelMA-CaA slab. (B) Quantitative analysis of cell alignment on the flat GelMA-CaA slab.