

Supporting Information for

Simultaneous Generation of Gradients with Gradually Changed Slope in a Microfluidic Device for Quantifying Axon Response

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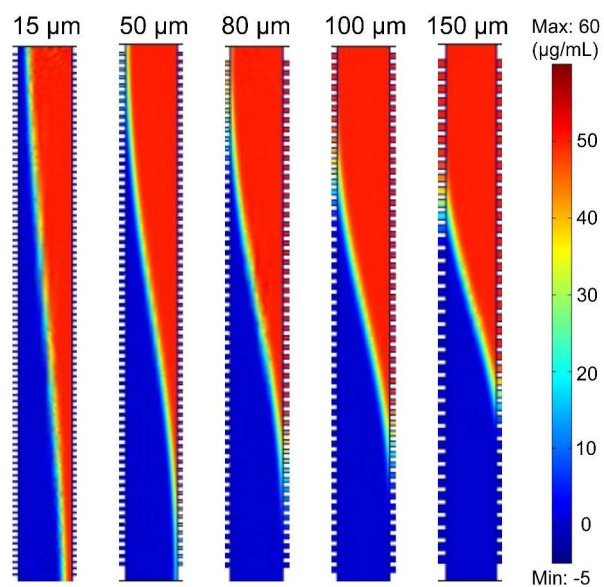


Figure S1. The simulation models of different gradient distributions on different gradient generators with the different width (from 15 μm to 150 μm) of interconnecting grooves (10 μm in height).

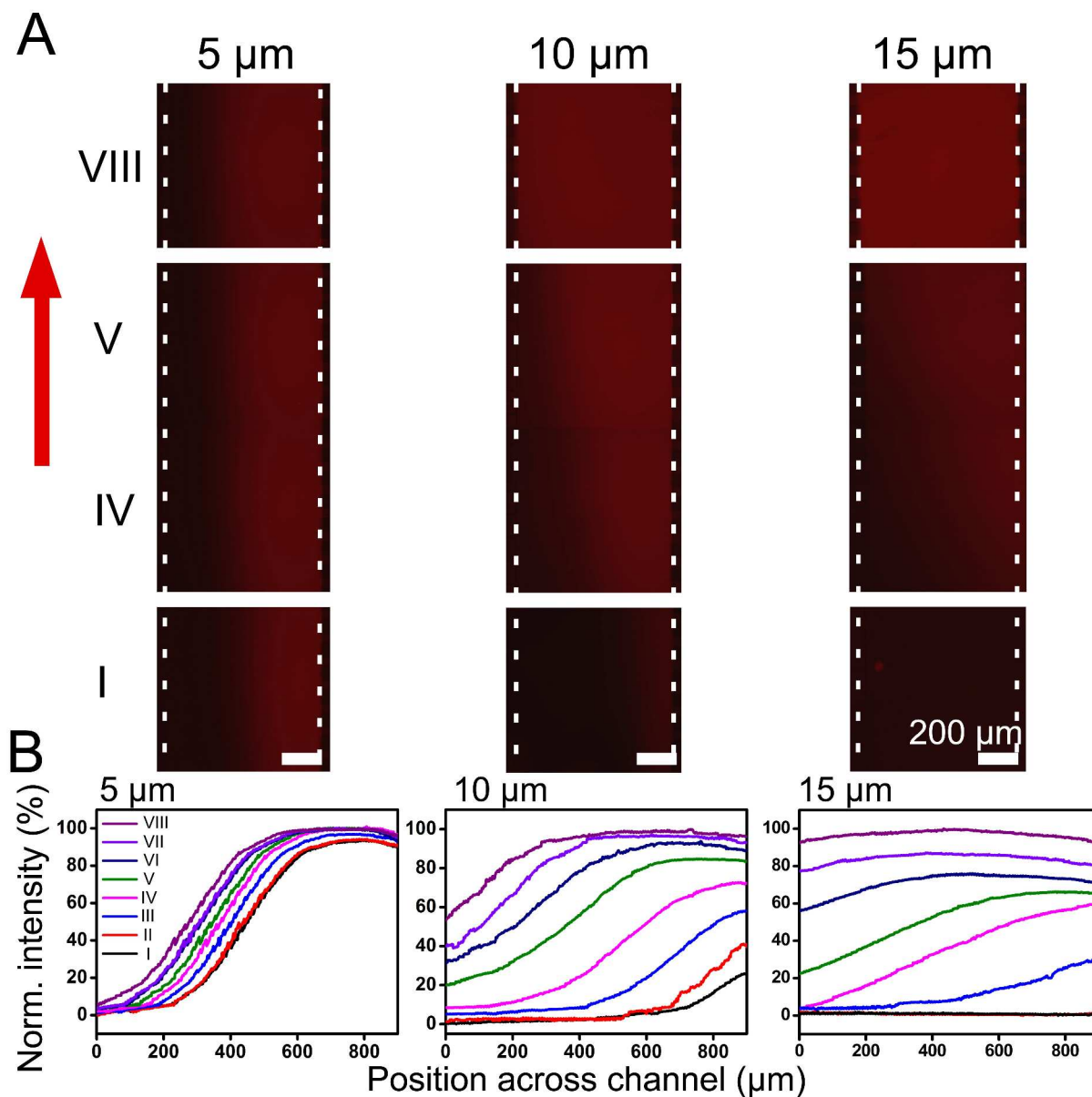


Figure S2. Fluorescence (Rhodamine B-labeled dextran, 70kDa) micrographs and normalized fluorescence intensity profiles. (A) Fluorescence micrographs of gradient generation regions showing different distribution of gradients on chips with different interconnecting groove height, the flow rate in the all inlets are 5 $\mu\text{L/h}$. (B) Normalized fluorescence intensity profiles in the center channels, different colors represent the gradient on different regions, the I-VIII of the three profiles is correspond with the I-VIII of graph A.

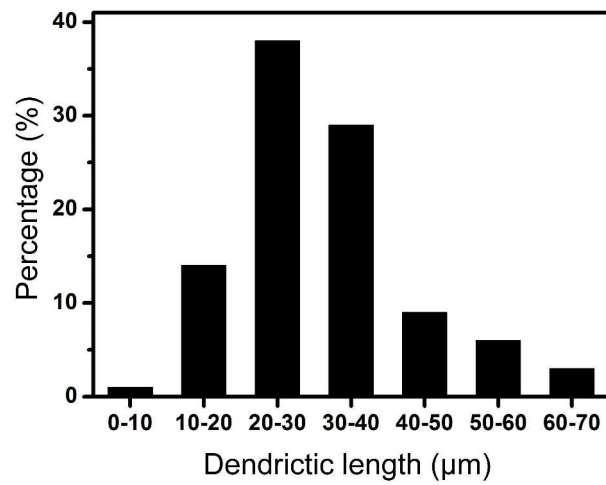


Figure S3. Statistical data of the isolated neurons dendritic length after 48h in culture (n=100).

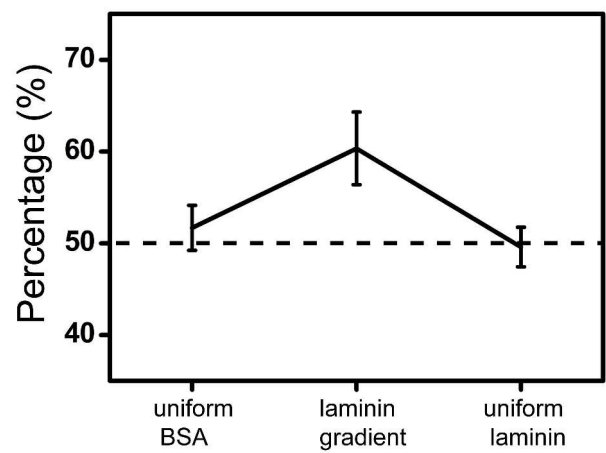


Figure S4. Summary of the percentage of positive responding neurons cultivated on three different substrates generated by the chip with interconnecting grooves height of 15 μm.

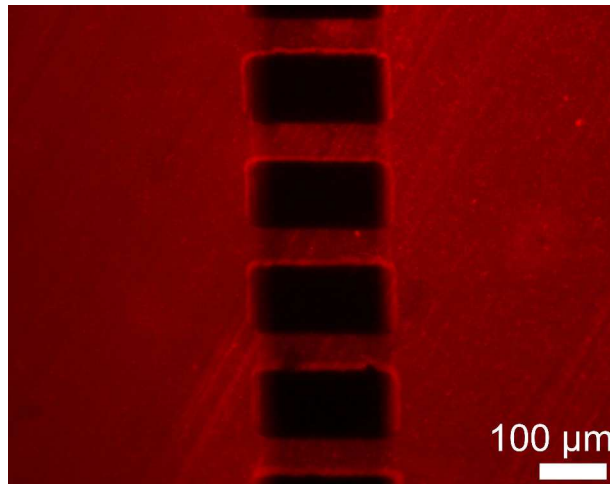


Figure S5. The fluorescence micrograph of a special region on a chip binding with polyester membrane, the flow rate of inlets is 500 $\mu\text{L/h}$.

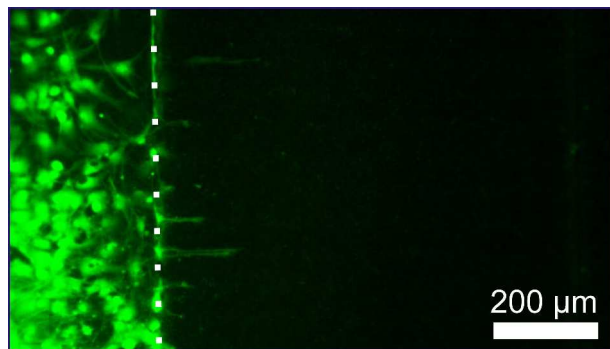


Figure S6. Fluorescence micrograph of hippocampal neurons labeled with Calcein-AM in the upper culture channel with constant flow of Sema3A in the lower channel after 14 days in culture, the flow rate was 5 $\mu\text{L/h}$.