Electronic Supplementary Material (ESI) for Lab on a Chip.

Supplementary materials

High-throughput injection molded microfluidic device for single-cell analysis of spatiotemporal dynamics

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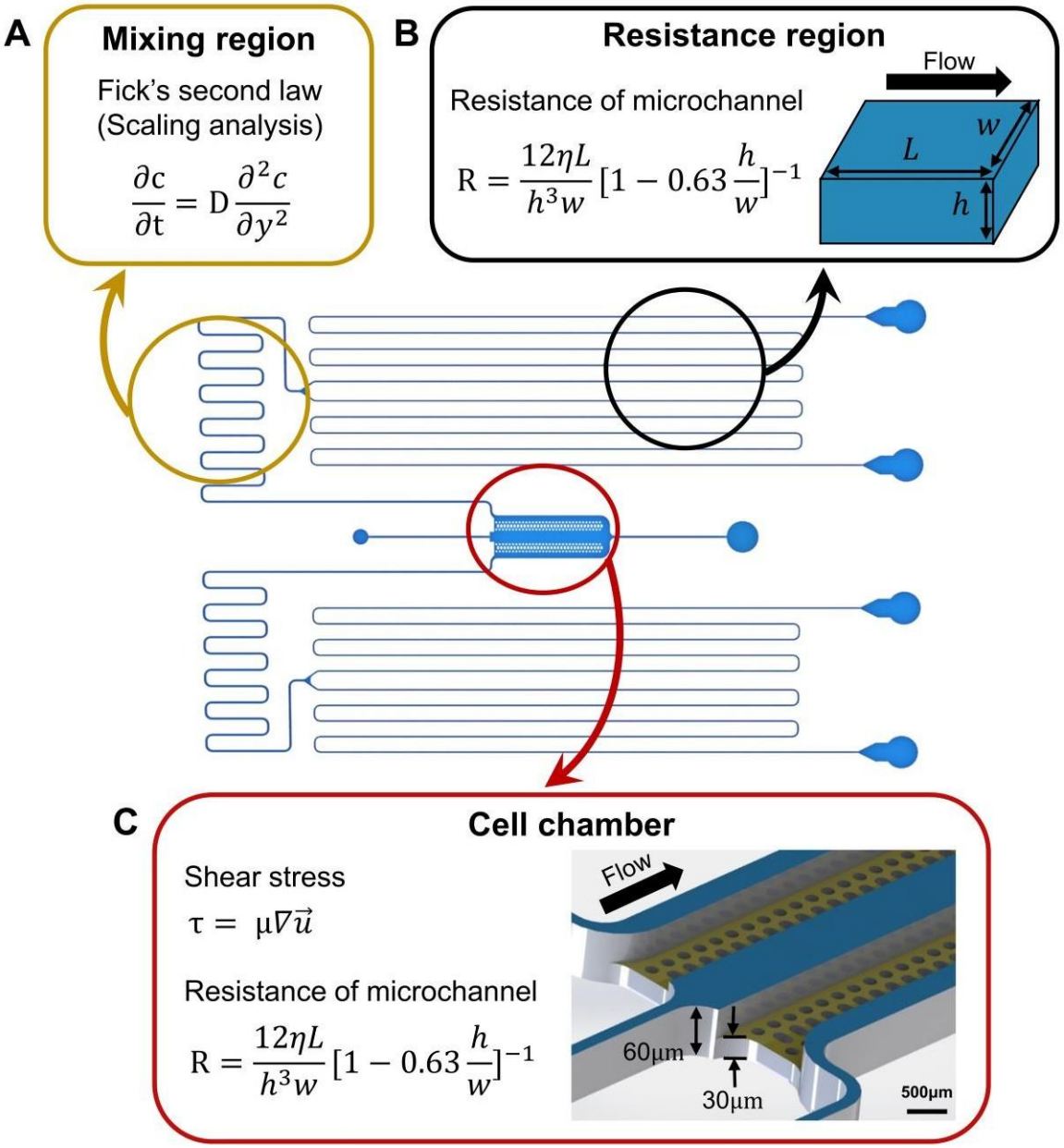

Fig S1. Theoretical concept for device design. (A) Mixing region including Y-shaped channel. Substances are mixed by molecular diffusive mixing while flow in the channels. (B) Resistance region that flow starts in the device. Resistance was considered to prevent backflow to each other inlets. (C) Cell chamber where the cells are seeded and observed. Micro posts and height of cell chamber were designed to minimize shear stress generated in the cell chamber. Scale bar = 500μm.

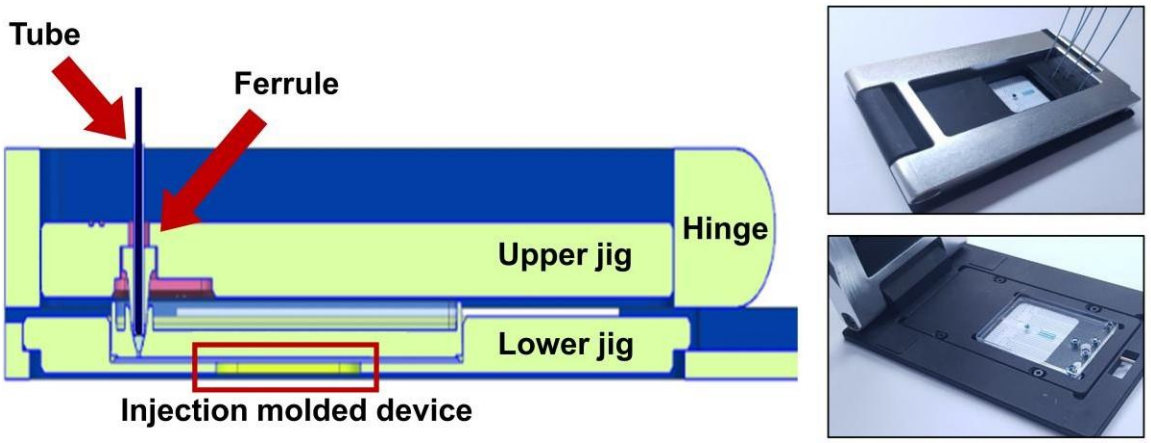

Fig S2. Schematic of customized jig for the injection molded microfluidic device (Left), Photograph of the jig connected with tubing and fitted the device (Right).

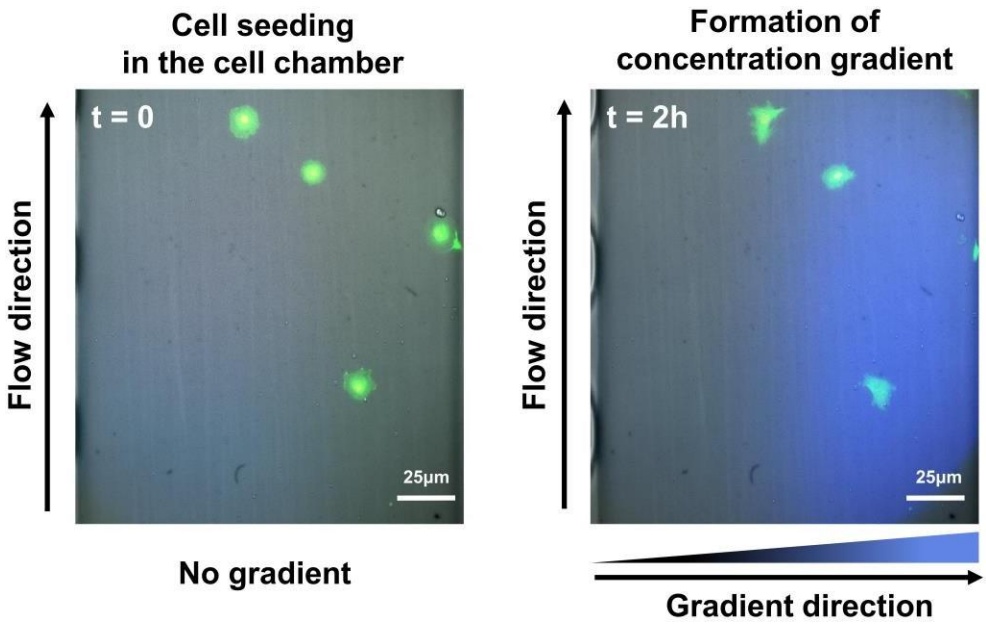

Fig S3. Fluorescence image (merged) of NIH 3T3 fibroblast during migration under PDGF concentration gradient to right direction. Total 3 steps for 2 hours and final concentration is 50ng/ml. Scale bar = 25μm.

Video. S1. Pulsatile stimulation using 10kD FITC-dextran and DI water. The profile changes within 3 minutes (on) and 20 minutes (off) (Fig. 3D).

Video. S2. Ramping up and down stimulation using 10kD FITC-dextran and DI water. The profiles changes after each 20 minutes (Fig. 3E).

Video. S3. Switching stimulation using 10kD FITC-dextran and DI water. The profiles changes after each 30 minutes (Fig. 3F).

Video. S4. Surface plot of switching stimulation (Fig. 3F).