

## *Supplementary Information*

### **A lab-on-a-chip device for investigating the fusion process of olfactory ensheathing cell spheroids**

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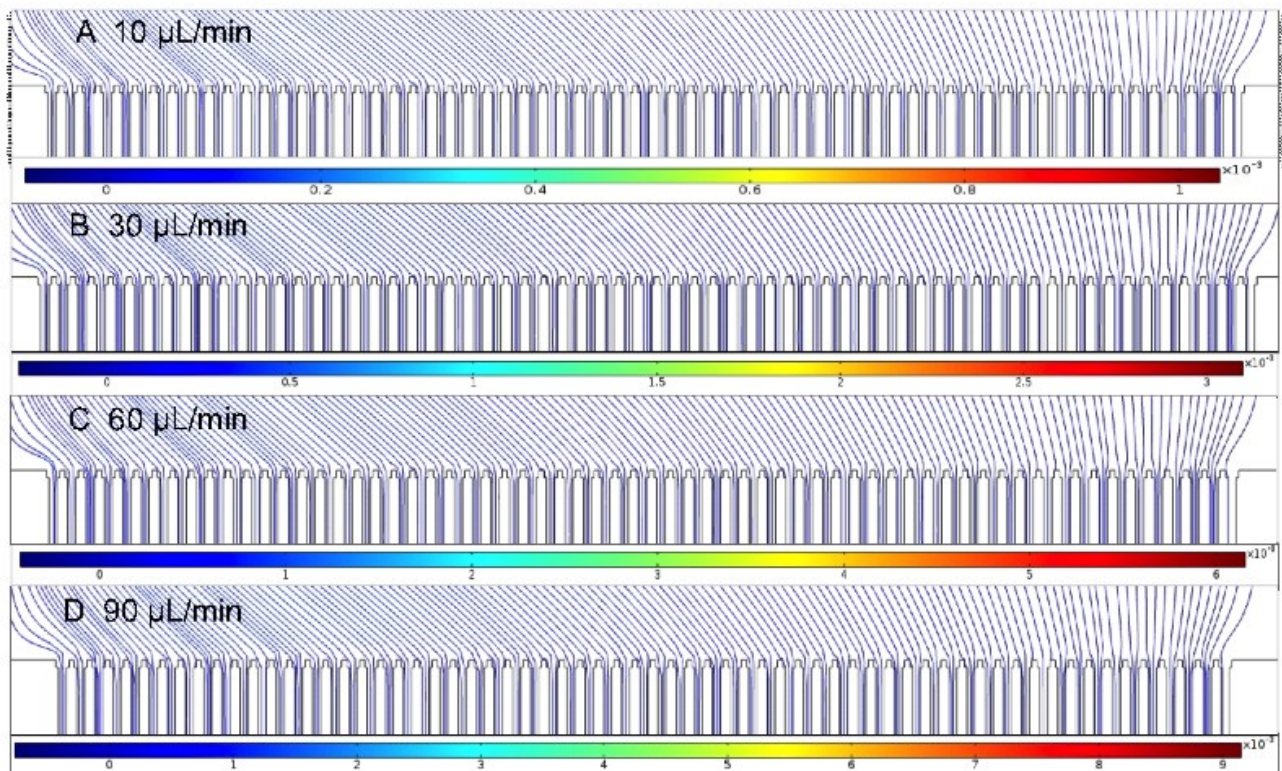
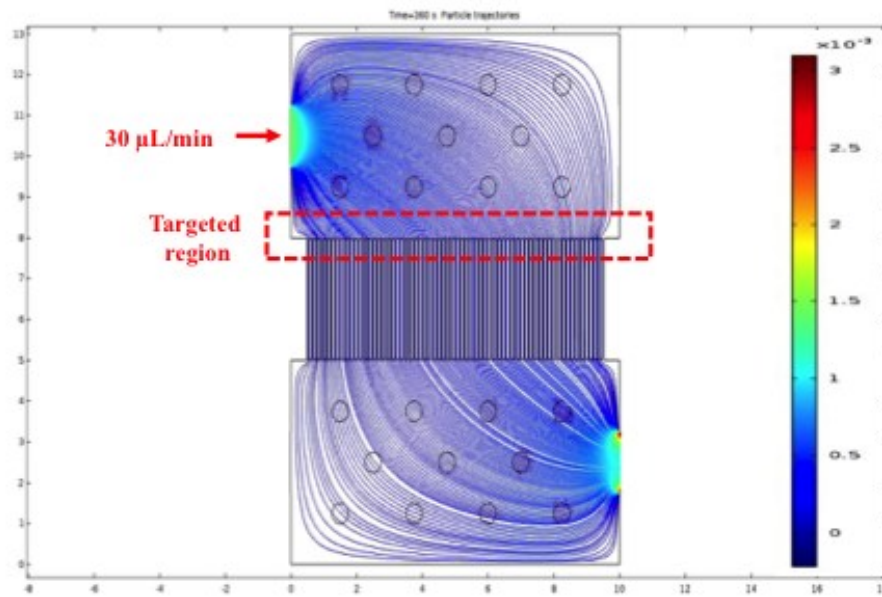
**Figure S1.** Numerical particle tracing in the trapping mode with a flow rate of (A) 10  $\mu\text{L}/\text{min}$ , (B) 30  $\mu\text{L}/\text{min}$ , (C) 60  $\mu\text{L}/\text{min}$ , (D) 90  $\mu\text{L}/\text{min}$  (units are in  $\text{ms}^{-1}$  for the initial particle velocity). [Time step 0.1 sec, time from 0 to 360 sec]

**Figure S2.** Unfused OECs spheroids inside of the microfluidic chamber for (A) 1 Hour of time; (B) 4 hours of time; (C) 8 hours of time; (D) 12 hours of time (composite photos of at least nine frames are taken on 10X zoom) with closed well setup.

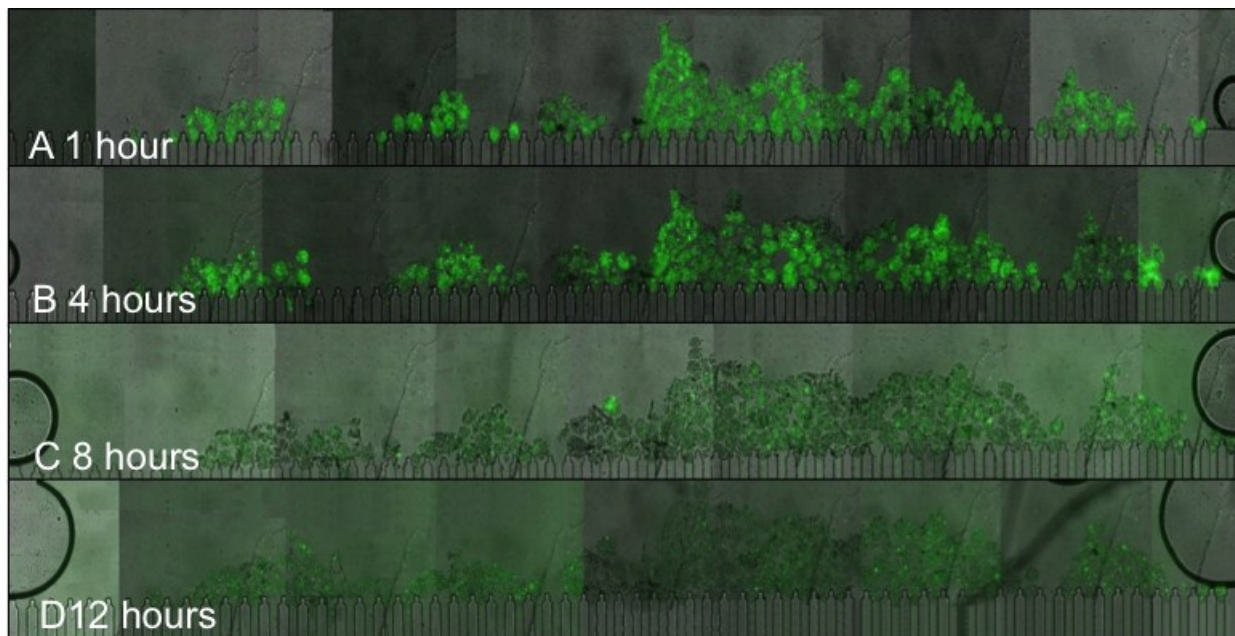
**Figure S3.** OECs spheroids fused inside of the microfluidic chamber cultured up to 48 hours in Device 1

**Figure S4.** OECs spheroids fused inside of the microfluidic chamber cultured up to 48 hours in Device 2

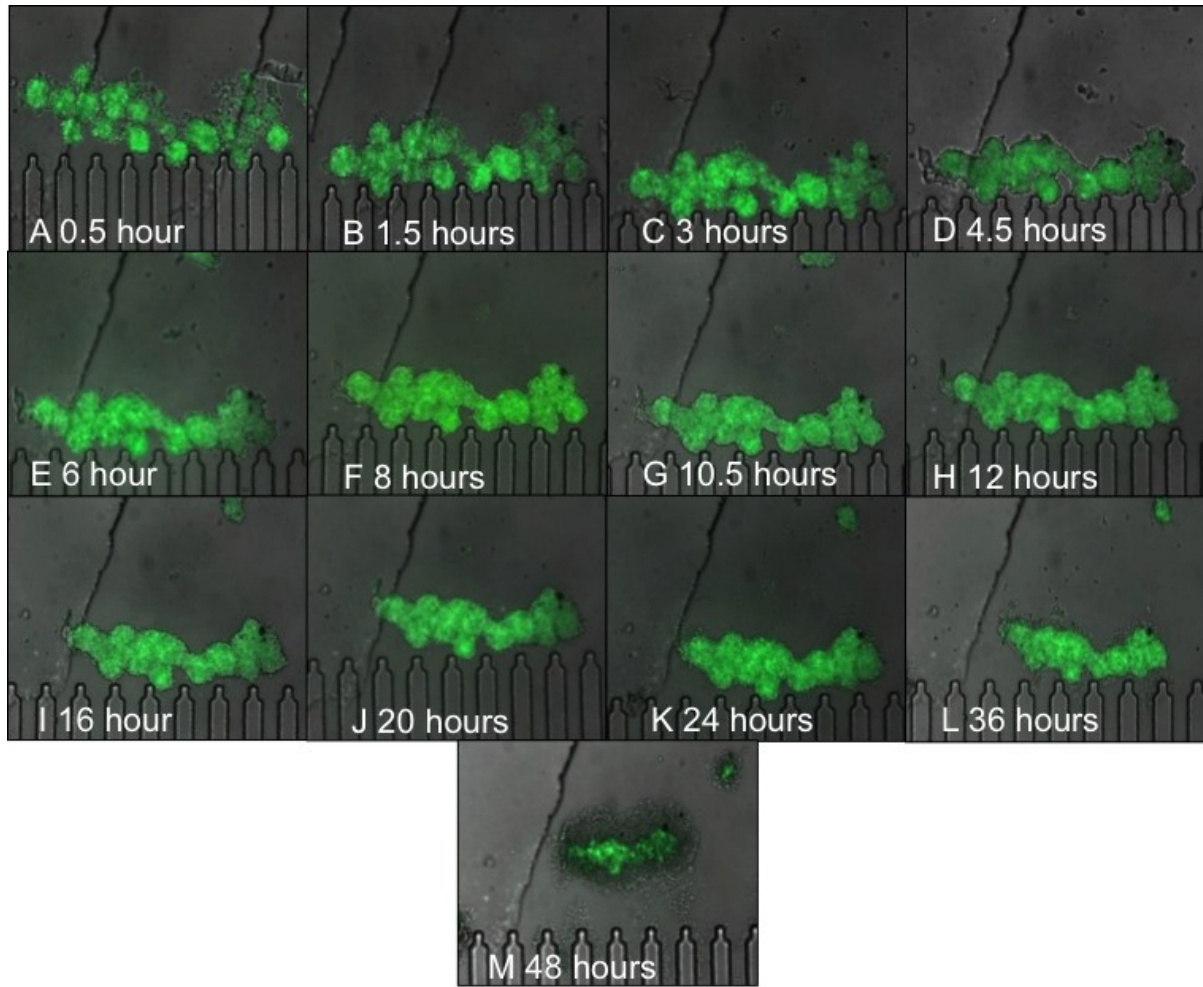
**Figure S5.** OECs spheroids fused inside of the microfluidic chamber cultured up to 48 hours in Device 3



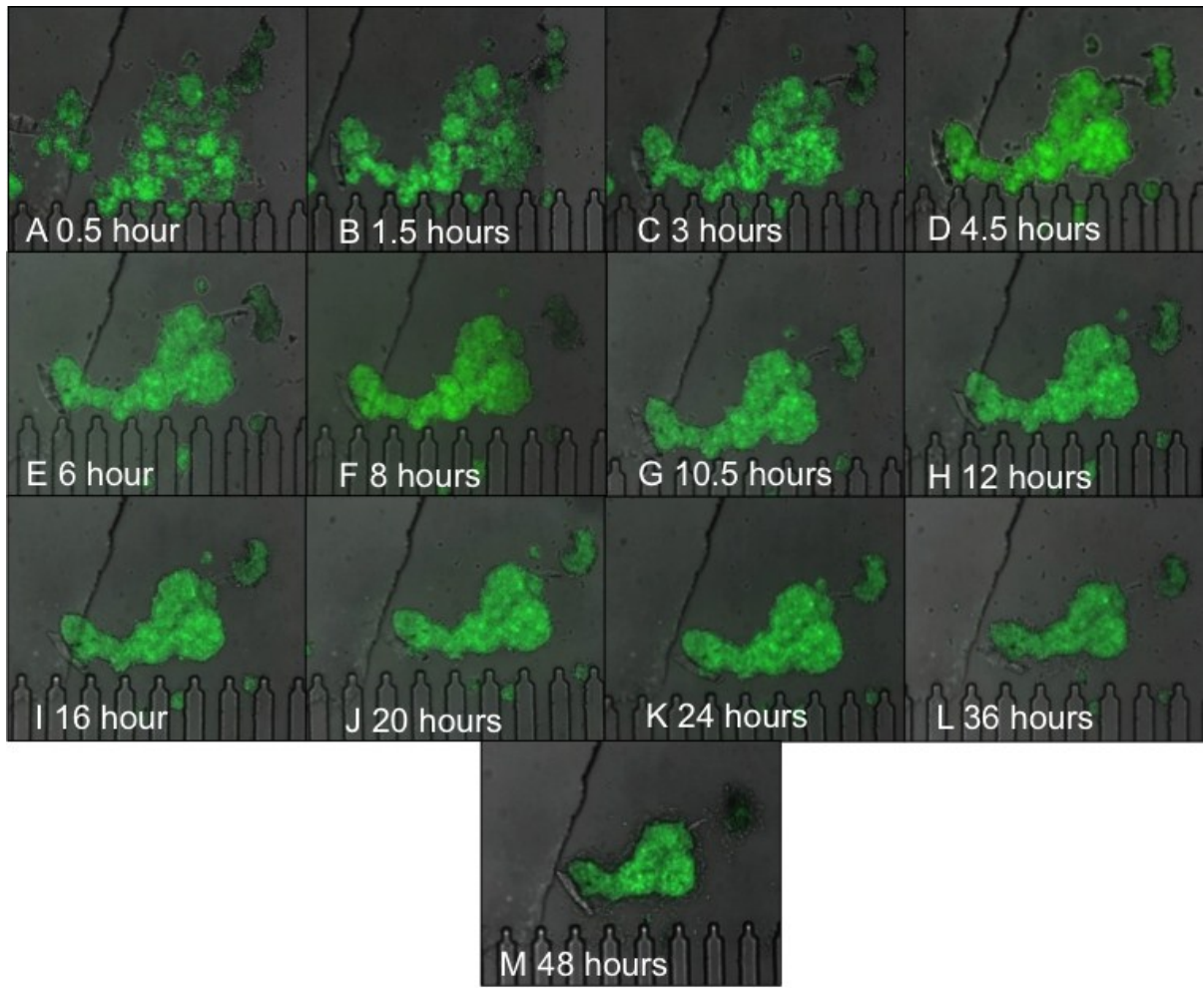
**Fig. S1** Numerical particle tracing in the trapping mode with a flow rate of (A) 10  $\mu\text{L}/\text{min}$ , (B) 30  $\mu\text{L}/\text{min}$ , (C) 60  $\mu\text{L}/\text{min}$  (units are in  $\text{ms}^{-1}$  for the initial particle velocity). [Time step 0.1 sec, time from 0 to 360 sec] (D) 90  $\mu\text{L}/\text{min}$  (units are in  $\text{ms}^{-1}$  for the initial particle velocity). [Time step 0.1 sec, time 0 to 360 sec]



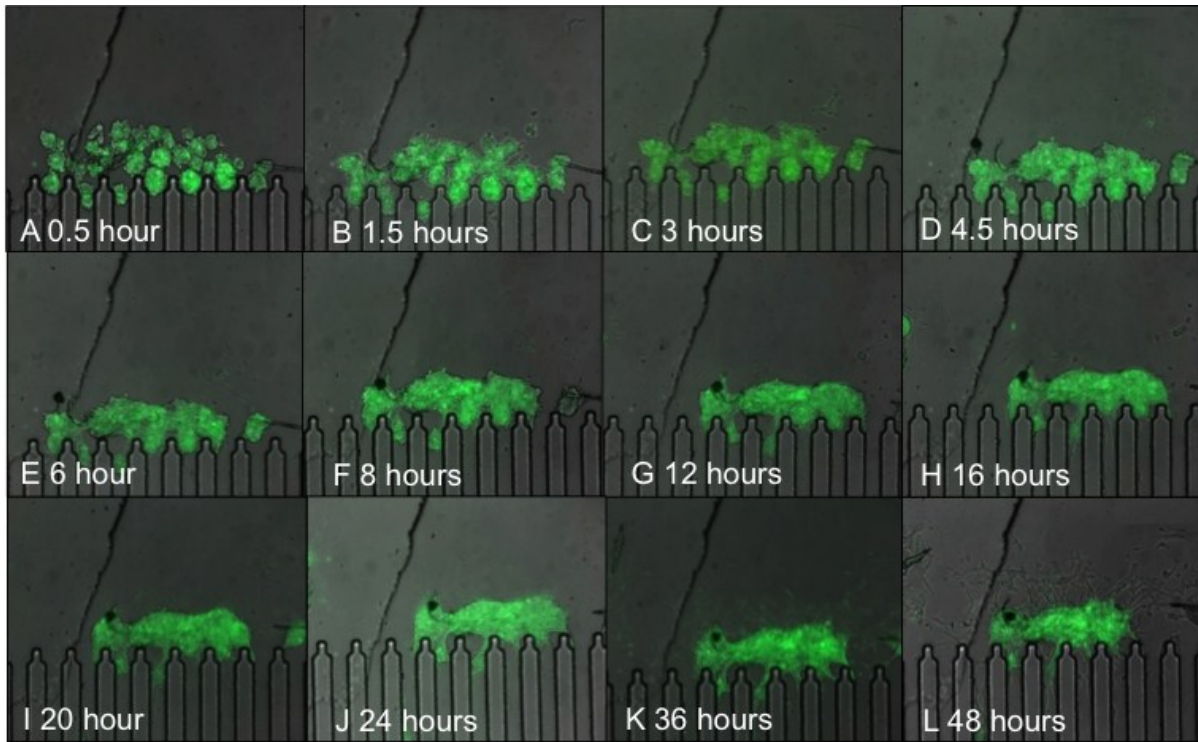
**Fig. S2** Unfused OECs spheroids inside of the microfluidic chamber for (A) 1 hour incubation; (B) 4 hours incubation; (C) 8 hours incubation; (D) 12 hours incubation (composite photos of at least nine frames are taken on 10X zoom) with closed well setup.



**Fig. S3** OECs spheroids fused inside of the microfluidic chamber cultured up to 48 hours in Device 1.



**Fig. S4** OECs spheroids fused inside of the microfluidic chamber cultured up to 48 hours in Device 2.



**Fig. S5** OECs spheroids fused inside of the microfluidic chamber cultured up to 48 hours in Device 3.