Electronic Supplementary Material (ESI) for Integrative Biology

Supplementary Materials

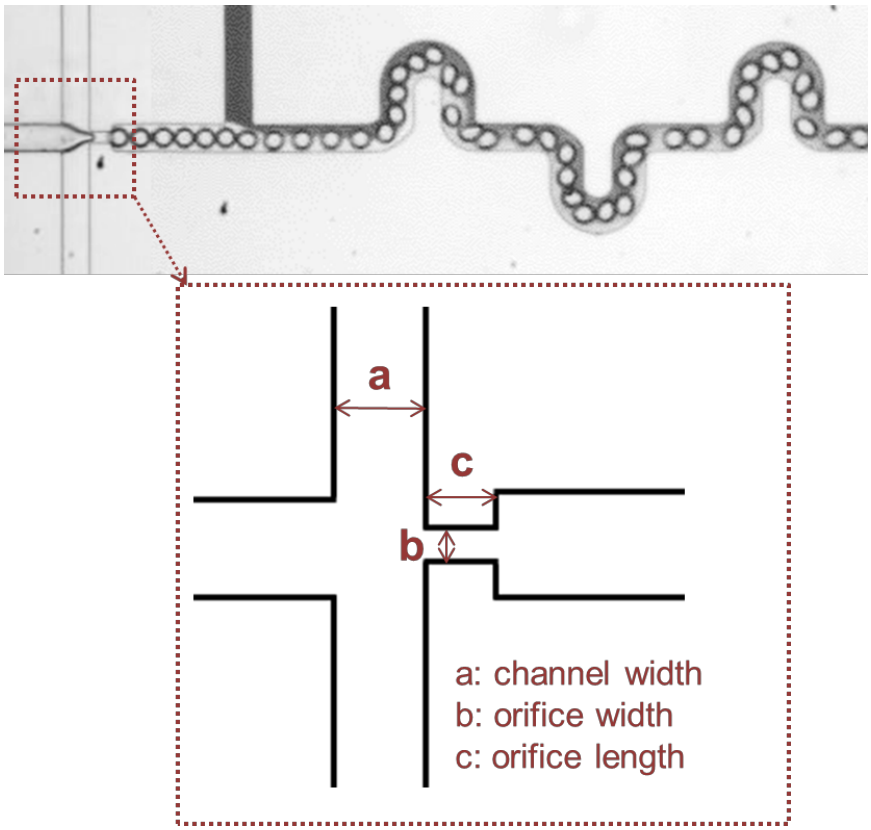

Fig. S1 Schematic of the microfluidic mixing device. The dimensions of the microfluidic device and the operating parameters are specified in Table S1. Template foam size was controlled by specifying the orifice size of the microfluidic devices. Final reported pore sizes are after swelling and degassing.

Table S1 Dimensions of the microfluidic mixing device and the operating parameters for producing templated bubbles.

Final pore size* (μm)	Foam size (μm)	Channel width** (μm)	Channel height (μm)	Orifice width** (μm)	Orifice length** (μm)	Precursor flow rate (μm)	APS flow rate (μm)	Gas pressure (psi)
45	40	45	17	15	120	25	15	40
100	80	80	25	40	120	50	30	16
200	160	180	25	120	120	50	30	13

*The final pore size reported here is for AC/BIS = 12%/0.6%.

**Channel width, orifice width, and orifice length are labelled a, b, and c, respectively, in Figure S1.

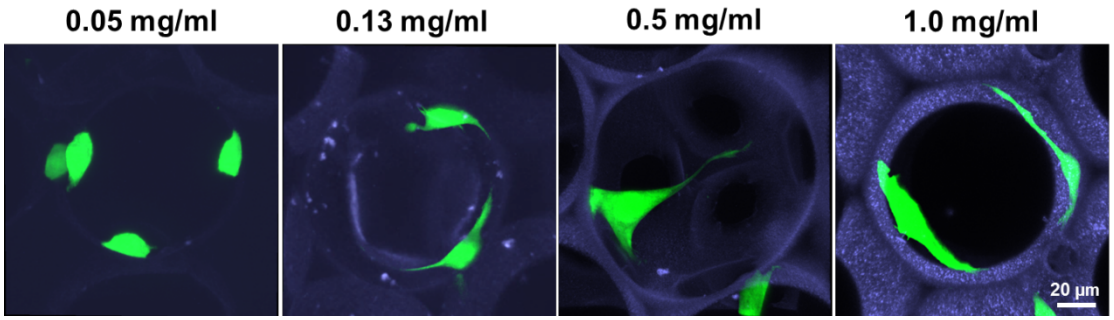

Fig. S2 Images of fibroblasts expressing Green Fluorescent Protein (green) after 24 h of culture on hard polyacrylamide scaffolds. These scaffolds were conjugated with increasing concentrations of fibronectin (purple), which are indicated at the top of each image.

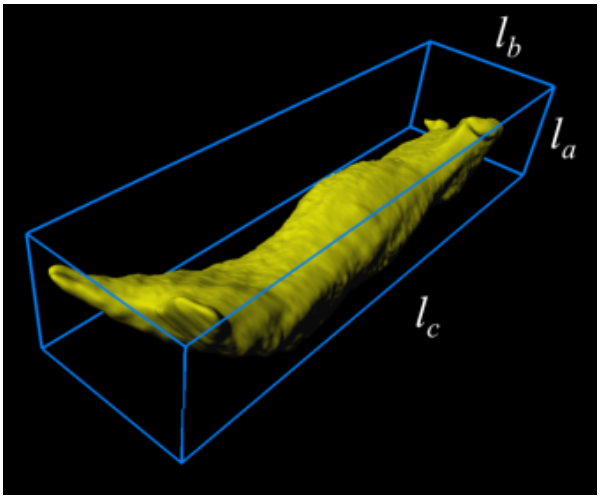

Fig. S3 Illustration of the bounding box of a cell with lengths l_a, l_b, and l_c.

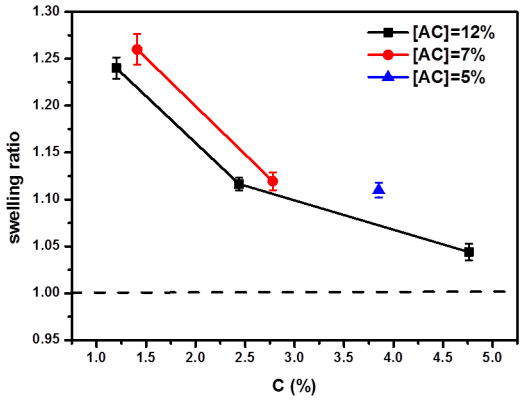

Fig. S4 The swelling ratio of polyacrylamide gels as a function C defined as BIS/(AC+BIS). Each point on the graph is the mean ± standard deviation (n=10).

Table S2 The swelling ratio of polyacrylamide in terms of the total concentrations of AC and BIS.

AC/BIS (w/v%)	T (%)	C (%)	Swelling ratio
12/0.6	**12.6**	**4.76**	**1.044 ± 0.00865**
12/0.3	**12.3**	**2.44**	**1.1165 ± 0.00662**
12/0.145	**12.145**	**1.22**	**1.24 ± 0.01142**
7/0.2	**7.2**	**2.78**	**1.1195 ± 0.00955**
7/0.1	**7.1**	**1.41**	**1.26 ± 0.01635**
5/0.2	**5.2**	**3.85**	**1.11 ± 0.00791**

* T (%): total w/v concentration of AC and BIS in the gel mixture.

** C (%): the w/w percentage of BIS included in %T.

*** Swelling ratio: the diameter of the swelling gel to the diameter of the mold.

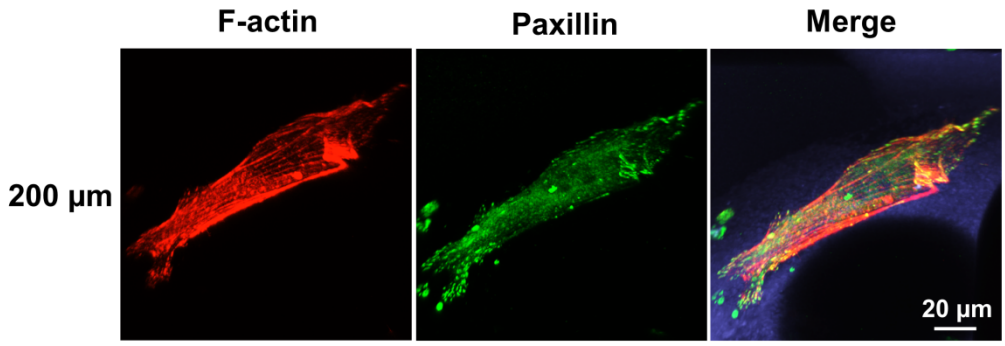

Fig. S5 The distribution of F-actin bundles (red) and paxillin streaks (green) of fibroblasts grown in 45-μm pores coated with fibronectin (purple).

Supplementary Movie

Movie S1. Rendering views of actin bundles and paxillin adhesions of a fibroblast in a 45-μm pore.