An in vitro model of foam cell formation induced by a stretchable microfluidic device

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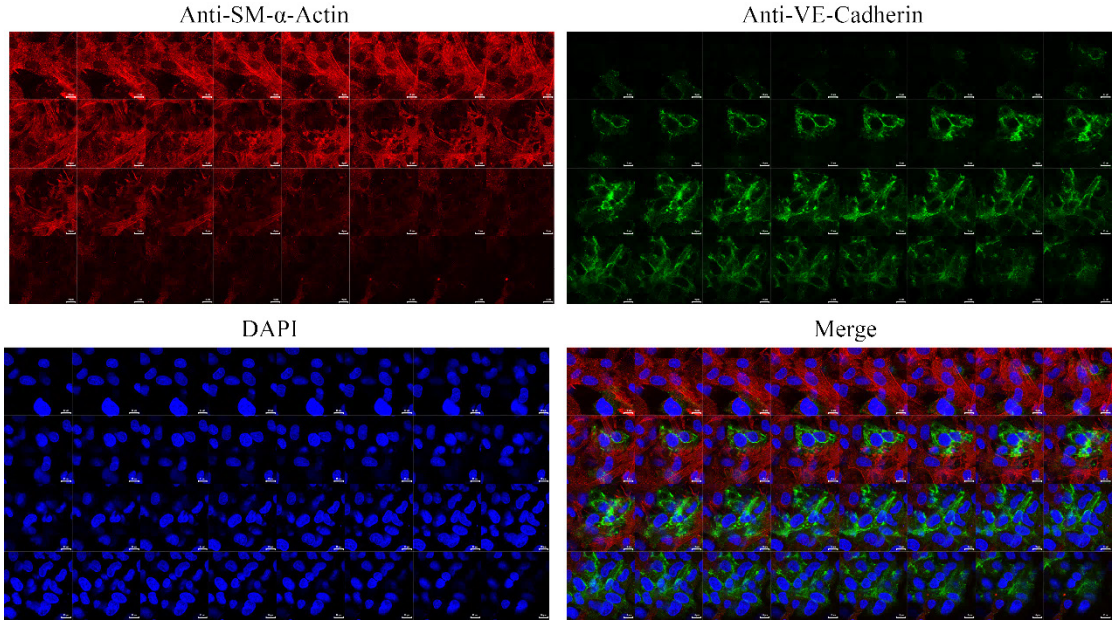
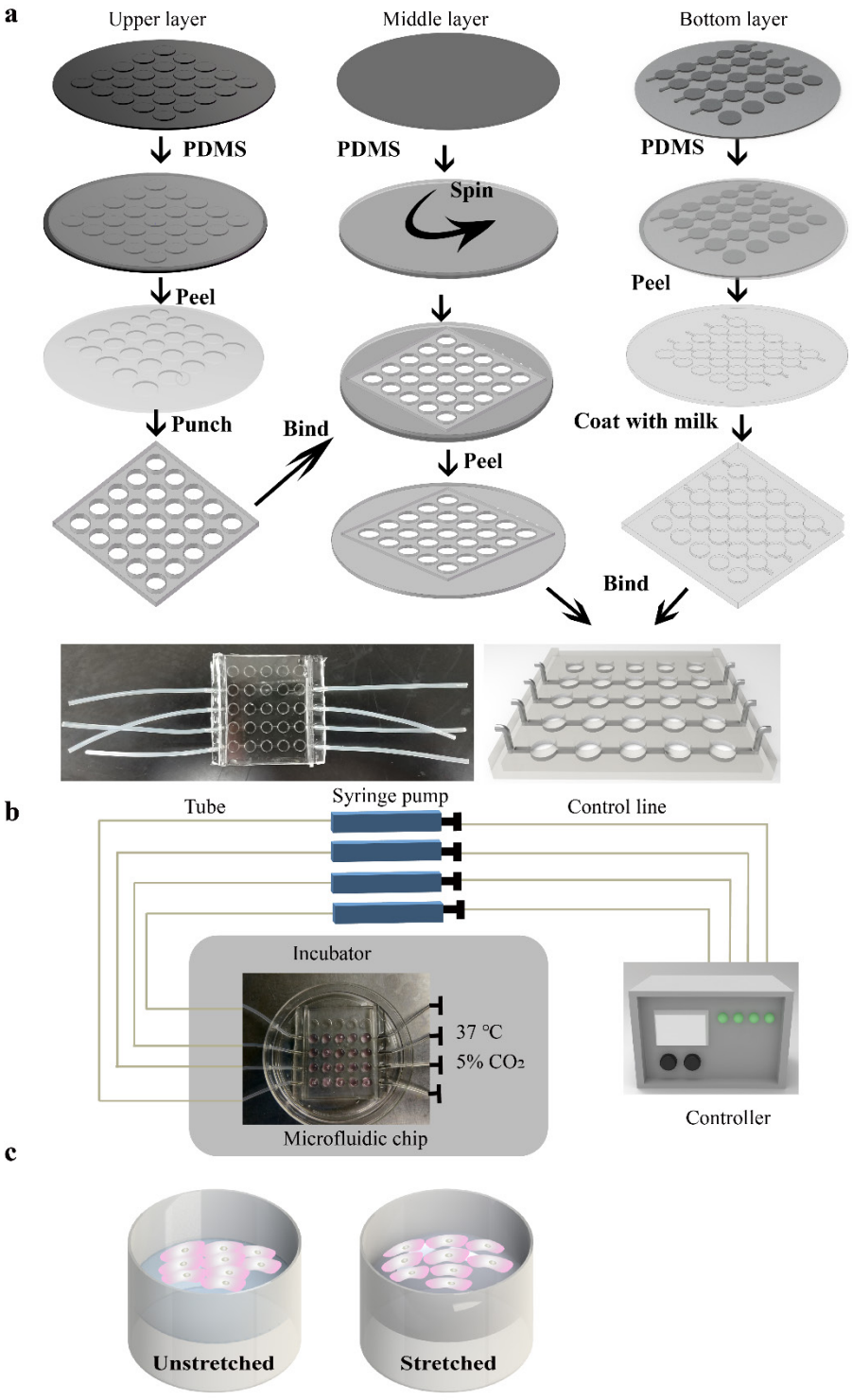
Supplement table 1

List of primer sequences used for real-time quantitative PCR analysis in this study.

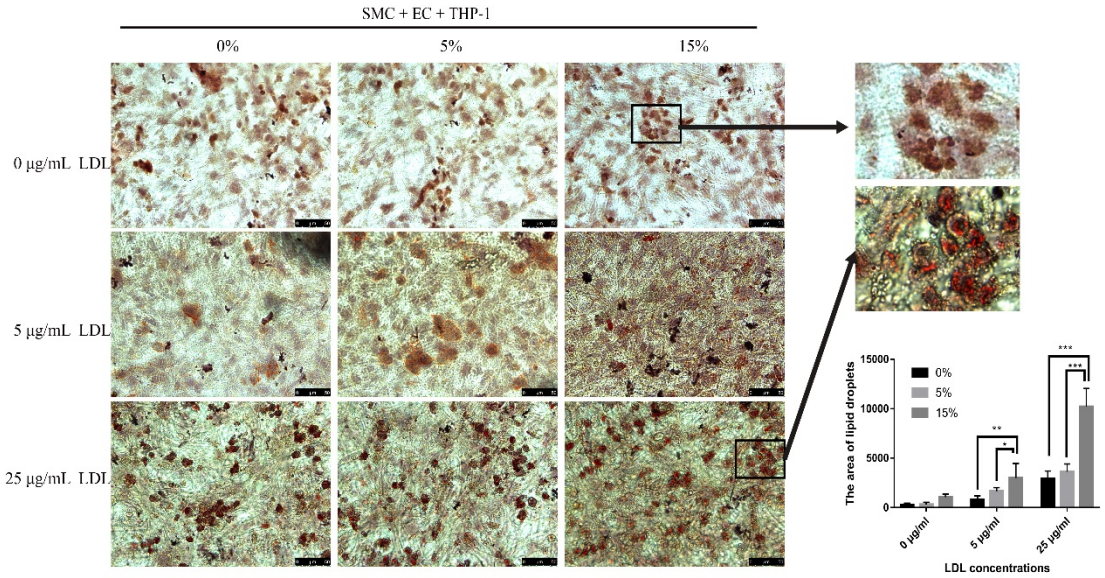
18s-Forward	AGTCCCTGCCCTTTGTACACA
18s-Reverse	CGATCCGAGGGCCTCACTA
LDLR-Forward	GAGTGAACTGGTGTGAGAGGAC
LDLR-Reverse	GTGTGCTGTGTCCTTACGGCTG
CD36-Forward	GGACATACTTGGATATTGAACC
CD36-Reverse	ACACCAACACTGAGTAAGAT
SR-A1-Forward	CCTTTACCTCCTCGTGTTT
SR-A1-Reverse	TGTTGCTCATGTGTTCCA
LOX-1-Forward	TCTGACCTCCTAACACAAGA
LOX-1-Reverse	AGATTCTGGTGGTGAAGTTC
LAL-Forward	TAGGACGATTACCAGATCATC
LAL-Reverse	AGCAGGAGAATGTGTTGTAT
ACAT1-Forward	CGCTGCTGTAGAACCTATT
ACAT1-Reverse	CCGTATTCTCCTTGCTTCA
NCEH1-Forward	AGCATGATGTCCTCAGAGA
NCEH1-Reverse	GCCACTTGATGTAACTATTCC
ABCA1-Forward	GGAGATCAGTAGTGCTTACAT
ABCA1-Reverse	GCCAGAGAAGATAATGAAGATG
ABCG1-Forward	CCTACAGTGGATGTCCTAC
ABCG1-Reverse	CCGAGTACGATGAAGTCC
SR-BI-Forward	GGTGATGATGGAGAATAAGC
SR-BI-Reverse	TAATCCGAACTTGTCCTTGA
TNFα-Forward	TCTGGGCAGGTCTACTTTGGG
TNFα- Reverse	GAGGTTGAGGGTGTCTGAAGG
MCP1-Forward	CCAGCAGCAAGTGTCCCAAAG
MCP1-Reverse	TGCTTGTCCAGGTGGTCCATG
IL6-Forward	GCCACTCACCTCTTCAGAACG
IL6-Reverse	TTTCACCAGGCAAGTCTCCTC
IL8-Forward	TTCAGGAATTGAATGGGTTTGC
IL8-Reverse	CACTGTGAGGTAAGATGGTGG



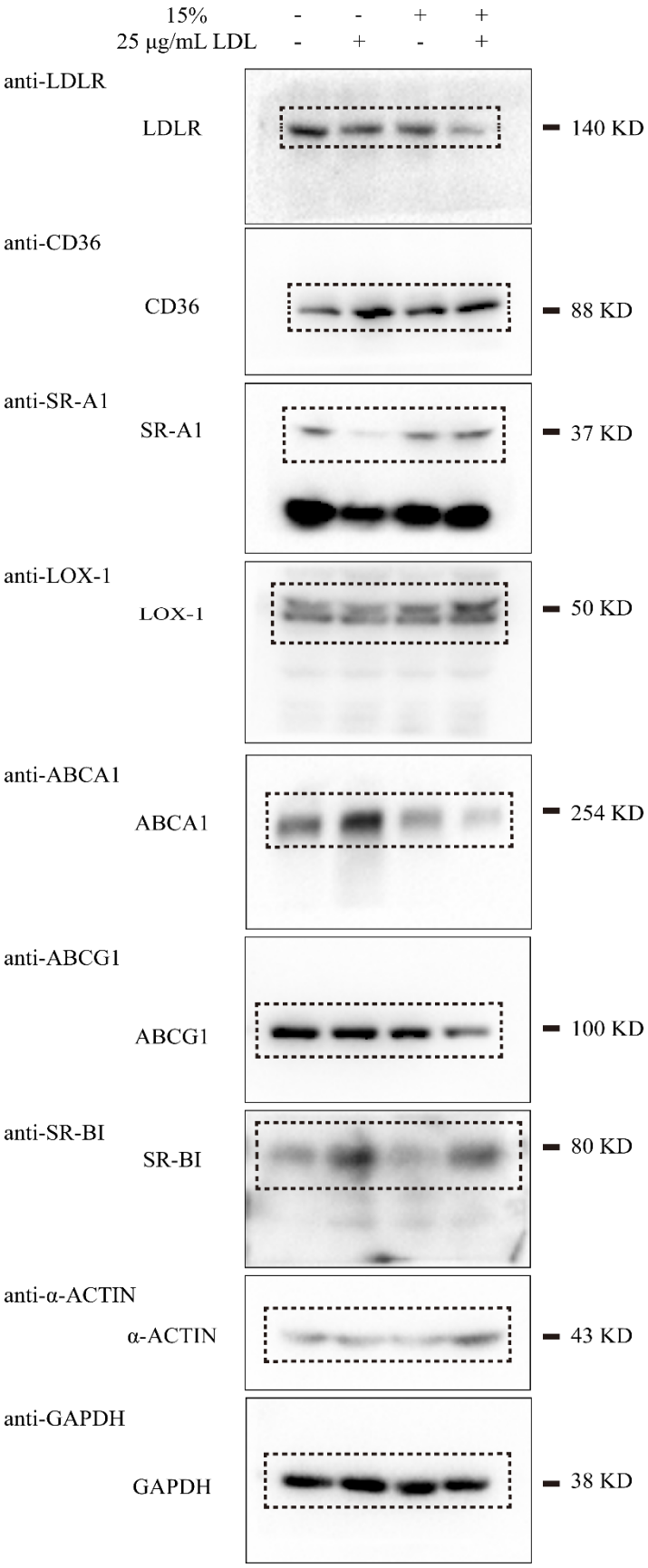
Supplement Fig. 1. The entire images of *Z*-axis scanning of the co-culture model. Antibodies of VE-cadherin (protein marker of EC), and SM-α-actin (protein marker of VSMC), were used for immunofluorescence experiments. *Z*-axis scanning of the co-culture model was performed under a laser confocal microscope. With the focus moving up, the VSMCs disappeared while the ECs appeared gradually.



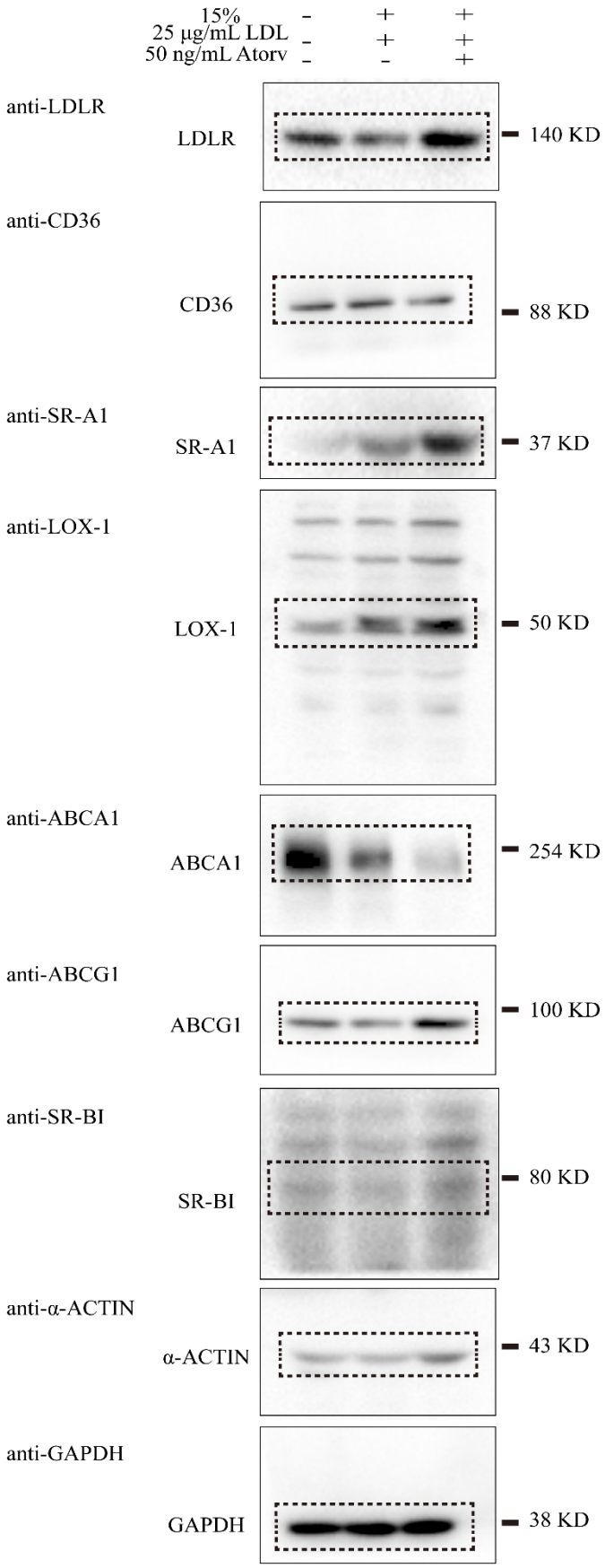
Supplement Fig. 2. Description of the stretchable device and its working principle.
(a) Fabrication of the stretchable device and the image of a real device. (b) The scheme of the entire stretching system. The system contains stretchable device, syringe pumps, syringes, tubes and incubator. (c) The working principle of the stretchable device. Two conditions of the stretchable device were showed. When the device was stretched, the middle layer can provide an axisymmetric and nonuniform strain to the cultured cells. When the device was unstretched, the middle layer was flat, there was no strain to the cultured cells.



Supplement Fig. 3. Foam cells were formed under the treatments of different concentrations of LDL and different degrees of deformation. These treatments lasted for 48 hours since the co-culture model was constructed. Oil-red O stain was performed subsequently. The images were obtained by Leica microscope at ×40 bright field. Statistical analysis of the lipid droplets generation. The tool color range of photoshop software was used to count lipid droplets. Data was shown as mean ± SD. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.



Supplement FIG.4. Full-length blots from figure 5b.



Supplement FIG.5. Full-length blots from figure 6f.