

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
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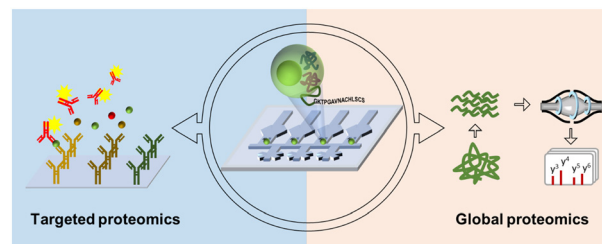
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### Recent advances in microfluidics for single-cell functional proteomics

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Chih-Cheng Huang, Asad Ali Siyal, Mihir Anand,  
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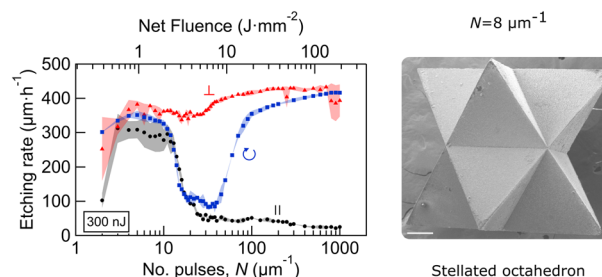


## COMMUNICATION

1752

### Polarisation-independent ultrafast laser selective etching processing in fused silica

Mario Ochoa,\* Pablo Roldán-Varona,  
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# Lab on a Chip

Devices and applications at the micro- and nanoscale

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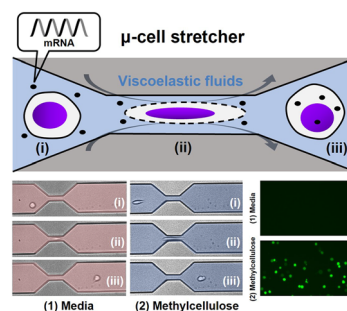


## PAPERS

1758

# Highly efficient mRNA delivery with nonlinear microfluidic cell stretching for cellular engineering

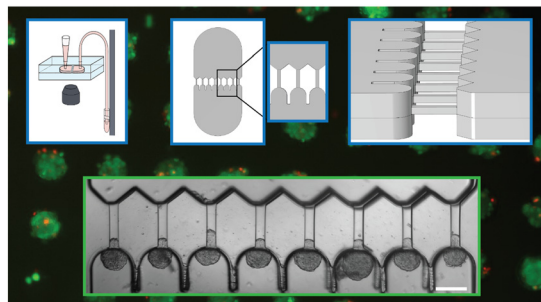
Chan Kwon and Aram J. Chung\*



1768

# High-throughput mechanophenotyping of multicellular spheroids using a microfluidic micropipette aspiration chip

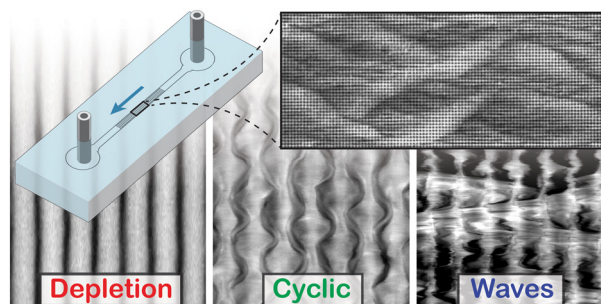
Ruben C. Boot, Alessio Roscani, Lennard van Buren, Samadarshi Maity, Gijsje H. Koenderink and Pouyan E. Boukany\*



1779

# Short and long-range cyclic patterns in flows of DNA solutions in microfluidic obstacle arrays

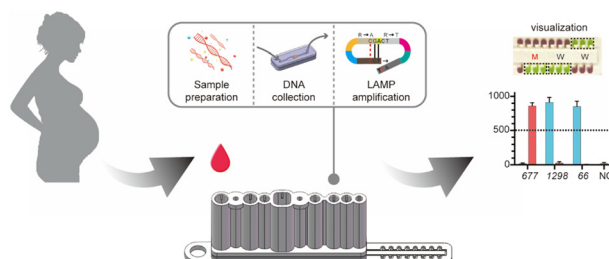
Oskar E. Ström, Jason P. Beech and Jonas O. Tegenfeldt\*



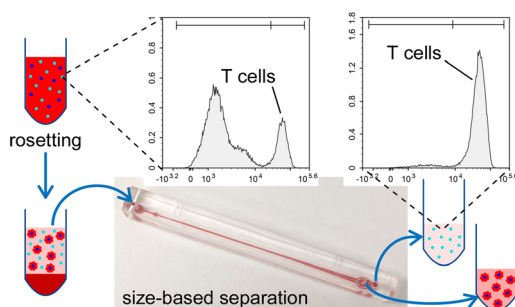
1794

# A fully integrated nucleic acid analysis system for multiplex detection of genetic polymorphisms related to folic acid metabolism

Baobao Lin, Zhi Geng, Yanjing Chen, Wu Zeng, Bao Li, Yan Zhang\* and Peng Liu\*



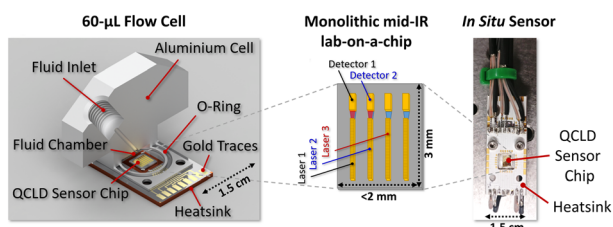
1804



### Red blood cell rosetting enables size-based separation of specific lymphocyte subsets from blood in a microfluidic device

Kumar Abhishek, Anto Sam Crosslee Louis Sam Titus, Mai T. P. Dinh, Anton Mukhamedshin, Chandra Mohan, Sean C. Gifford and Sergey S. Shevkoplyas\*

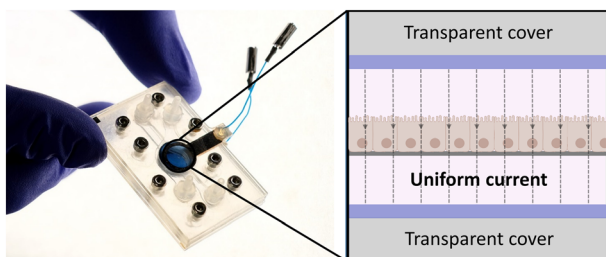
1816



### Beyond Karl Fischer titration: a monolithic quantum cascade sensor for monitoring residual water concentration in solvents

Florian Pilat,\* Benedikt Schwarz, Bettina Baumgartner, Daniela Ristanić, Hermann Detz, Aaron M. Andrews, Bernhard Lendl, Gottfried Strasser and Borislav Hinkov\*

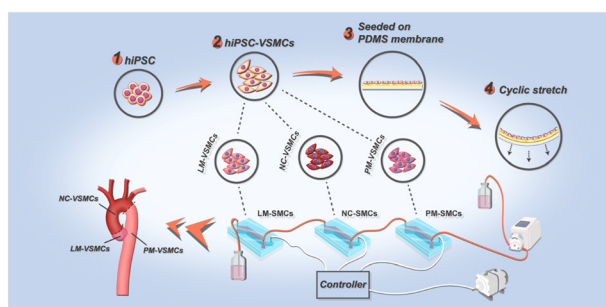
1825



### Organ-on-a-chip with integrated semitransparent organic electrodes for barrier function monitoring

Denise Marrero, Anton Guimera, Laure Maes, Rosa Villa, Mar Alvarez\* and Xavi Illa\*

1835



### A hiPSC-derived lineage-specific vascular smooth muscle cell-on-a-chip identifies aortic heterogeneity across segments

Gang Liu, Jun Li, Yang Ming, Bitao Xiang, Xiaonan Zhou, Yabin Chen, Nan Chen, Mieradilijiang Abudupataer, Shichao Zhu, Xiaoning Sun, Yongxin Sun, Hao Lai, Sisi Feng,\* Chunsheng Wang\* and Kai Zhu\*

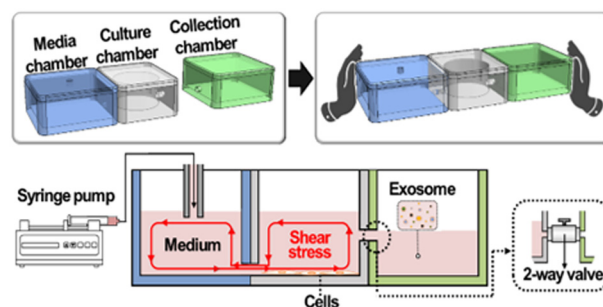


## PAPERS

1852

### Modularized dynamic cell culture platform for efficient production of extracellular vesicles and sequential analysis

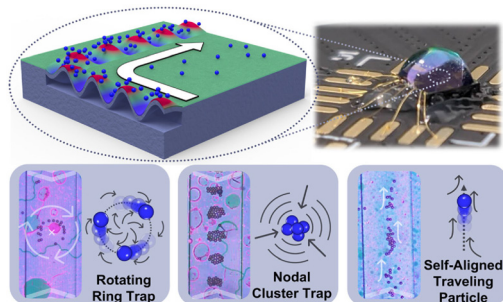
Seo Yeon Kim, Seong Min Ha, Dong-Uk Kim, Junhyun Park, Sunyoung Park, Kyung-A Hyun\* and Hyo-Il Jung\*



1865

### Microfabricated acoustofluidic membrane acoustic waveguide actuator for highly localized in-droplet dynamic particle manipulation

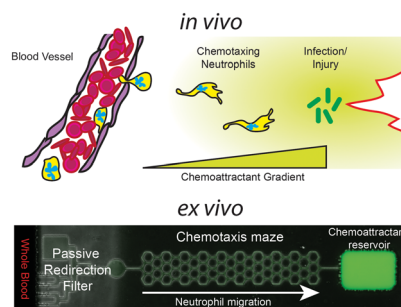
Philippe Vachon,\* Srinivas Merugu, Jaibir Sharma, Amit Lal, Eldwin J. Ng, Yul Koh, Joshua E.-Y. Lee and Chengkuo Lee



1879

### Passive redirection filters minimize red blood cell contamination during neutrophil chemotaxis assays using whole blood

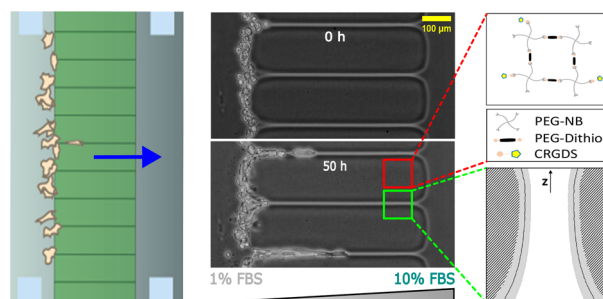
Felix Ellett\* and Daniel Irimia\*



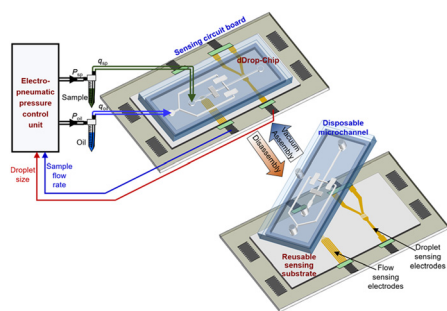
1886

### Photolithographic microfabrication of hydrogel clefts for cell invasion studies

Stefan Stöberl, Miriam Balles, Thomas Kellerer and Joachim O. Rädler\*



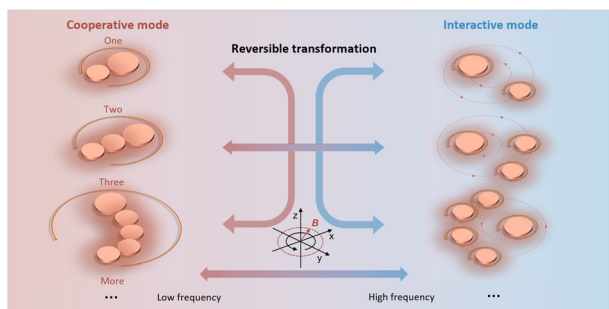
1896



### dDrop-Chip: disposable film-chip microfluidic device for real-time droplet feedback control

Jaewook Ryu, Junhyeong Kim and Ki-Ho Han\*

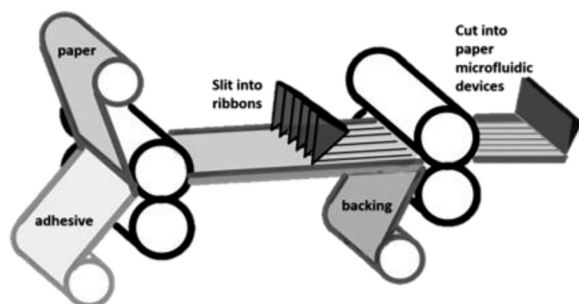
1905



### Dynamically reversible cooperation and interaction of multiple rotating micromotors

Shilu Zhu, Yifan Cheng, Jialong Chen, Guangli Liu, Tingting Luo and Runhui Yang\*

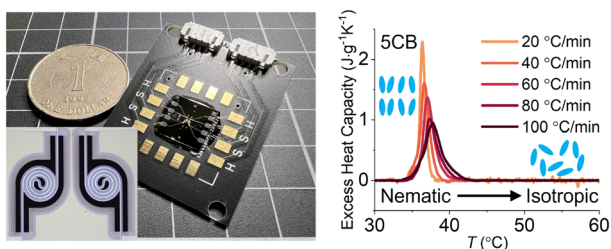
1918



### The air-gap PAD: a roll-to-roll-compatible fabrication method for paper microfluidics

Rachel M. Roller, Angela Rea and Marya Lieberman\*

1926



### Sub-nL thin-film differential scanning calorimetry chip for rapid thermal analysis of liquid samples

Sheng Ni, Hanliang Zhu, Pavel Neuzil and Levent Yobas\*

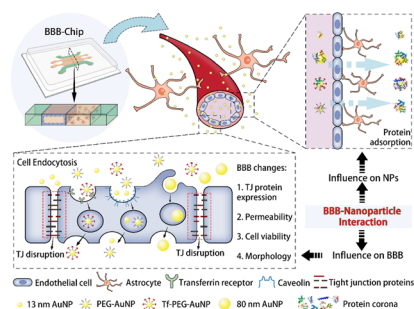


## PAPERS

1935

### Understanding drug nanocarrier and blood–brain barrier interaction based on a microfluidic microphysiological model

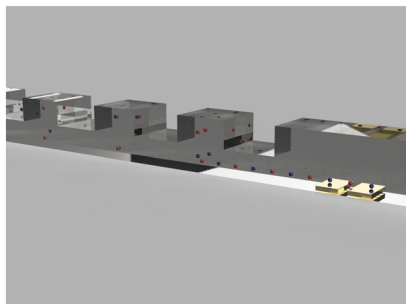
Yuanyuan Fan, Chang Xu, Ning Deng, Ze Gao, Zhongyao Jiang, Xiaoxiao Li, Yingshun Zhou, Haimeng Pei, Lu Li\* and Bo Tang\*



1945

### High-throughput multi-gate microfluidic resistive pulse sensing for biological nanoparticle detection

June Soo Kim, Soon Yeol Kwon, Jae Yong Lee, Seung Deok Kim, Da Ye Kim, Hyunjun Kim, Noah Jang, Jiajie Wang, Maeum Han\* and Seong Ho Kong\*



## CORRECTIONS

1954

### Correction: Organ-on-a-chip with integrated semitransparent organic electrodes for barrier function monitoring

Denise Marrero, Anton Guimera, Laure Maes, Rosa Villa, Mar Alvarez\* and Xavi Illa\*

1955

### Correction: Virtual microwells for digital microfluidic reagent dispensing and cell culture

Irwin A. Eydelnant, Uvaraj Uddayasankar, Bingyu 'Betty' Li, Meng Wen Liao and Aaron R. Wheeler\*

