

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
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## IN THIS ISSUE

ISSN 1473-0197 CODEN LCAHAM 26(6) 1789-2102 (2026)



**Cover**  
See Xiaoming Liu, Zhuo Chen *et al.*, pp. 1528–1546.  
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**Inside cover**  
See Fatih Inci *et al.*, pp. 1943–1957.  
Image reproduced by permission of Fatih Inci from *Lab Chip*, 2026, 26, 1943.

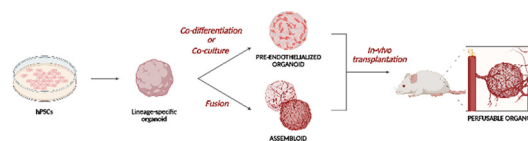
## CRITICAL REVIEW

1798

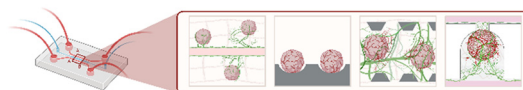
### Vascularizing organoids-on-chip for perfused and personalized models

Bianca Menzani, Priscille De Gea, Xavier Gidrol\* and Emily Tubbs\*

VASCULARIZATION STRATEGIES: from *in vitro* to *in vivo*



VASCULARIZATION OF ORGANOIDS-ON-CHIP

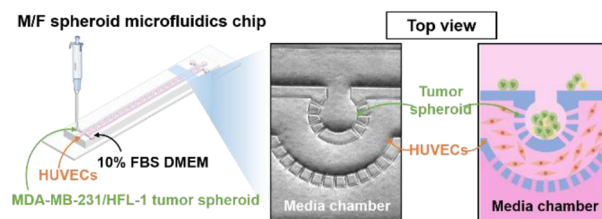


## COMMUNICATION

1820

### A smart 3D microfluidic tumor spheroid-vessel co-culture model for studying exosomal HSP-mediated tumor invasion and angiogenesis

Sisi Zhou, Fanshu Shan, Yue Zhang, Yu Cao, Junhui Cen, Noritada Kaji and Songqin Liu\*



# Environmental Science: Atmospheres

GOLD  
OPEN  
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and inspiring new ideas

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Fundamental questions  
Elemental answers



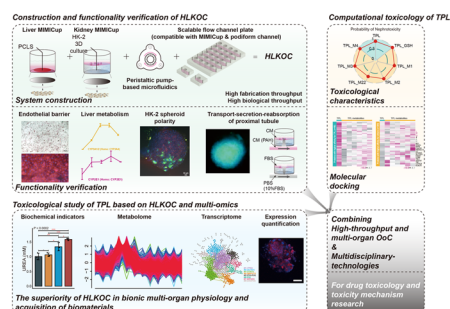
Registered charity number: 207890



1830

## A high-throughput liver-kidney metabolic interaction chip for insights into the nephrotoxicity mechanisms of triptolide

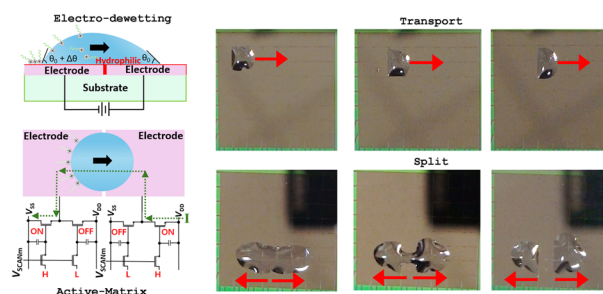
Siyu Liu, Yun Yang, Yifei Yang, Guangfei Wei, Liu Zhou, Jiawei Lin, Zheng Yuan, Yingfei Li, Zhe Wu, Ting Liu\* and Guozhuang Zhang\*



1850

## An active-matrix digital microfluidic device based on surfactant-mediated electro-dewetting

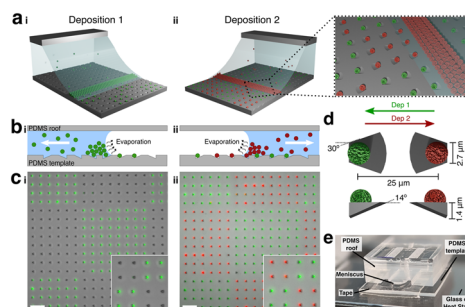
Xinying Xie,\* Qining Leo Wang, Runxiao Shi, Tengteng Lei,\* Chang-Jin "CJ" Kim and Man Wong



1861

## Controlling spatial structure in minimal microbial communities by sequential capillary assembly

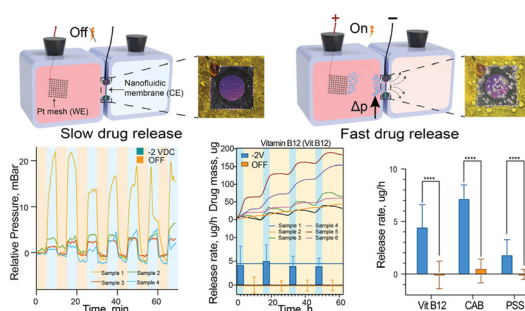
Cameron Boggon, Jeremy P. H. Wong, Arpita Sahoo, Annelies S. Zinkernagel, Markus A. Seeger, Eleonora Secchi\* and Lucio Isa\*



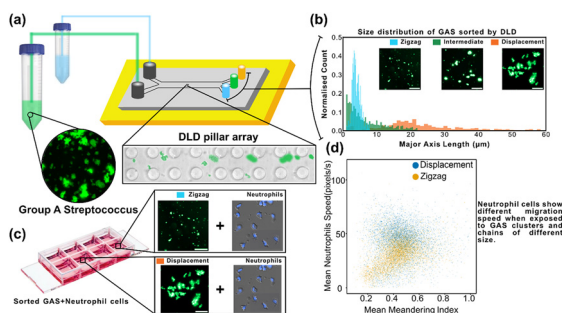
1874

## Nanofluidic-based electrochemical pump for remotely controlled, on-demand drug delivery

Marco M. Paci, Nicola Di Trani, Paolo Bolla, Fabiana Del Bono, Takuma Yoshikawa, Isaac Tichy, Patrick S. Stayton and Alessandro Grattoni\*



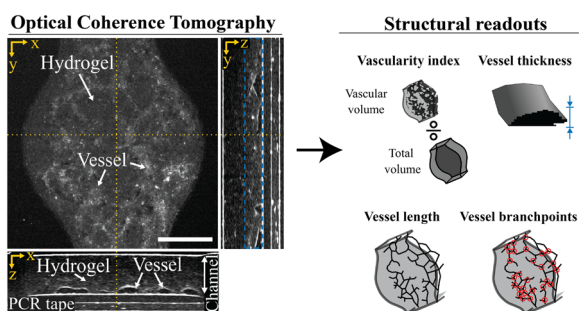
1890



### Size-based sorting of dynamic bacterial clusters

Elham Akbari, Jason P. Beech, Johannes Kumra Ahnlide, Sebastian Wrighton, Pontus Nordenfelt and Jonas O. Tenenfeldt\*

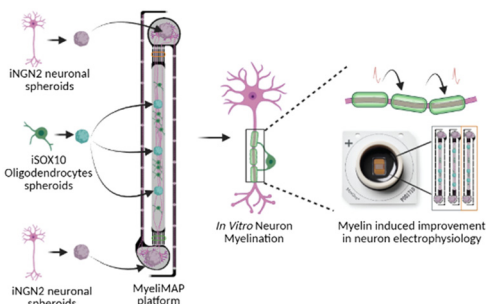
1901



### Label-free assessment of a microfluidic vessel-on-chip model with visible-light optical tomography reveals structural changes in vascular networks

Devin Veerman,\* Carlos Cuartas-Vélez, Tarek Gensheimer, Tomas van Dorp, Andries van der Meer and Nienke Bosschaart\*

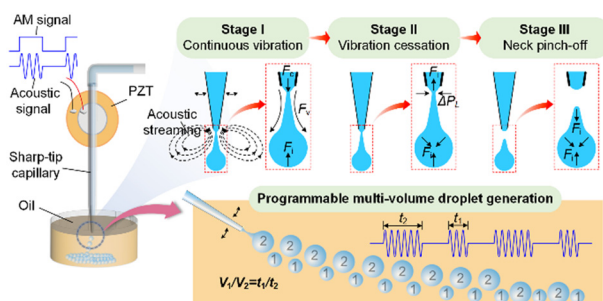
1915



### MyeliMAP: a microfluidic-multielectrode array hybrid platform to investigate oligodendrocyte function in human iPSC derived brain-like networks

Karan Ahuja,\* Blandine F. Clément, Giulia Amos, Joël Küchler, Keimpe Wierda, Yoke Chin Chai, Lieve Moons and Catherine Verfaillie\*

1930



### Systematic characterization and mechanistic insights into ultrasonically actuated sharp-tip capillary droplet generation

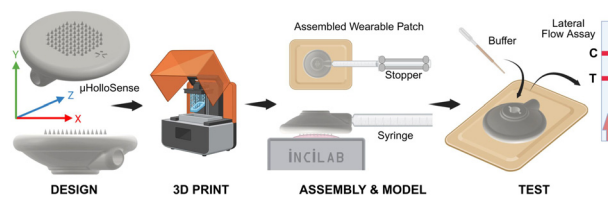
Qi Zhang, Li Ran and Gang Li\*



1943

## A wearable 3D-printed hollow microneedle device for pressure-driven interstitial fluid collection and testing

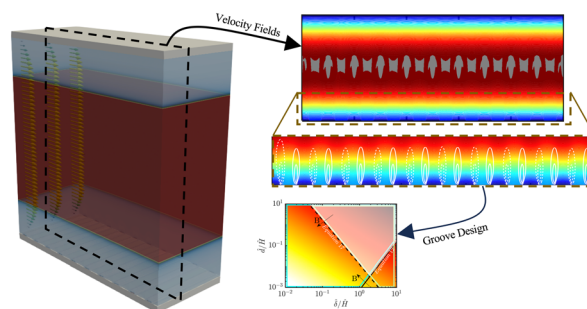
Nedim Hacıosmanoğlu, Emre Ece and Fatih İnci\*



1958

## Two-phase simulations of viscoplastic flow in superhydrophobic microchannels: interface stability, plug dynamics, and drag reduction

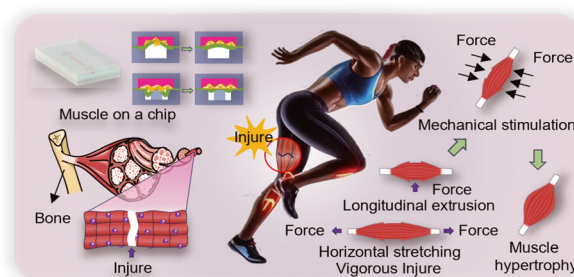
Amir Joulaei, Hossein Rahmani and Seyed Mohammad Taghavi\*



1980

## Muscle regeneration on a chip: exercise-induced microtrauma and optimal mechanical stimulation regimen

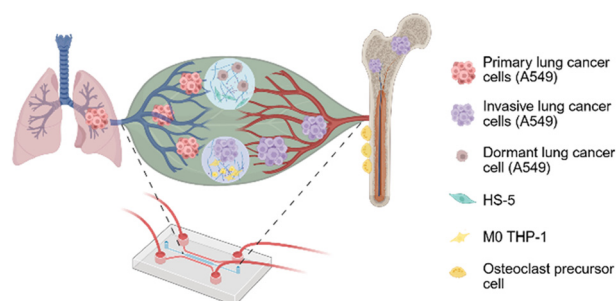
Hongze Yin, Juan Zhang, Jing Zhou, Hui ying Yang, Jiahao Wang, Yue Wang, Na Liu and Tao Yue\*



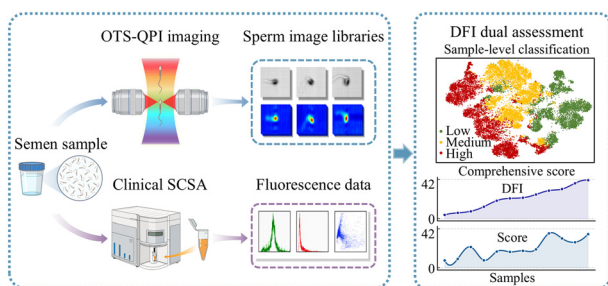
1996

## Bone-on-leaf-chip for the study of lung cancer bone metastasis

Qi Liu, Di Suo, Renxian Wang, Shuai Zhao, Mao Mao, Wei-Ning Lee, Yuhe Yang\* and Xin Zhao\*



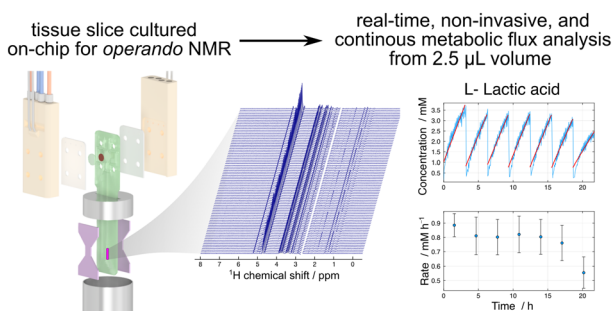
2012



### High-throughput label-free assessment of sperm DNA fragmentation index *via* intelligent morphological imaging

Yan Jin, Yujie Zou, Yueyun Weng,\* Zhaoyi Ye, Xiaoyang Chen, Zhengwu Liu, Tailang Yin, Sheng Liu, Yan Zhang\* and Cheng Lei\*

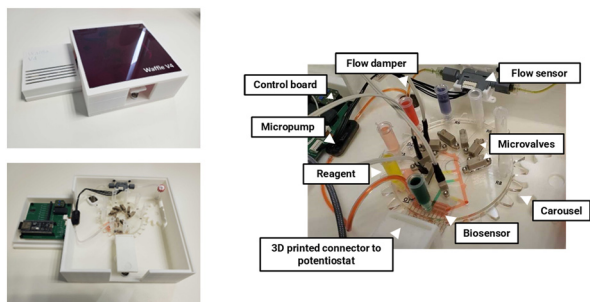
2023



### Microfluidic NMR for *operando* monitoring of drug-induced metabolic fluxes in liver tissue slices

Sylwia J. Barker, Bishnubrata Patra, Manvendra Sharma, Annamarija Raic, Ruby E. H. Karsten, Elisabeth Verpoorte and Marcel Utz\*

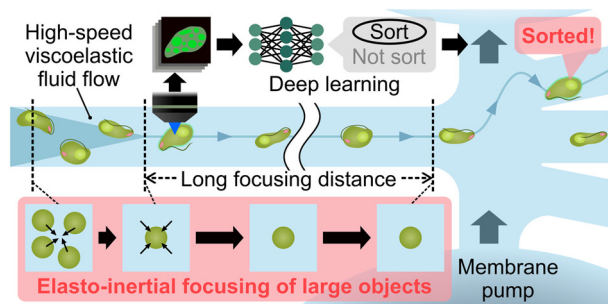
2035



### WAFFLE – an automated platform for enhancing the performance of electrochemical biosensors

Alexandra Dobreă,\* Rowan Blake, Daniel Macdonald, Cormack McKenzie, Yoann Altmann, Damion K. Corrigan and Melanie Jimenez

2047



### Intelligent image-activated sorting of large cells enabled by elasto-inertial focusing

Yuzuki Nagasaka, Akihiro Isozaki, Hiroki Matsumura, Natsumi Tiffany Ishii, Norah Roels, Mina Rassuli, Kelvin C. M. Lee, Walker Peterson, Tianben Ding\* and Keisuke Goda\*

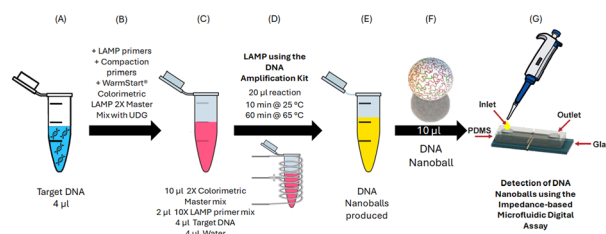


## PAPERS

2061

### A portable, low-cost, point-of-care DNA amplification kit with impedance-based detection for decentralized antimicrobial resistance diagnostics

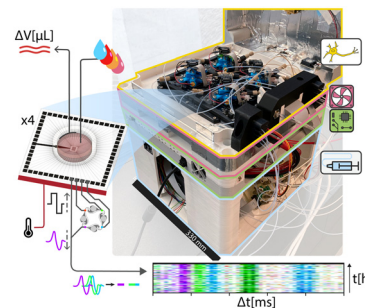
Koosha Karimi, Miriam Arroyo, Erin E. Chille, Timothy G. Stephens, Donal Barrett, Vicent Pelechano,\* Debashish Bhattacharya\* and Mehdi Javanmard\*



2074

### Inkube: an all-in-one solution for neuron culturing, electrophysiology, and fluidic exchange

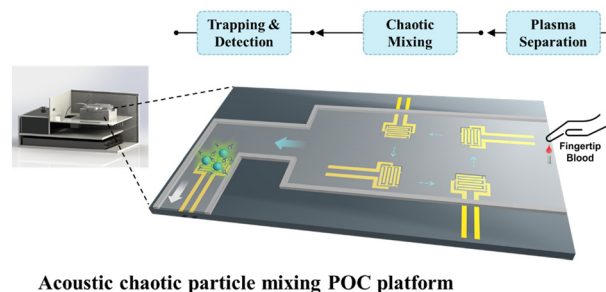
Benedikt Maurer, Selina Fassbind, Tobias Ruff, Jens Duru, Giusy Spacone, Theo Rodde, János Vörös and Stephan J. Ihle\*



2090

### On-chip acoustic chaotic micromixer for point-of-care applications

Xian Chen, Chuanchao Zhang, Yaping Wang,\* Xuexin Duan\* and Yunhua Gao\*



Acoustic chaotic particle mixing POC platform

## CORRECTION

2100

### Correction: Reversible and reusable compartmentalized thermoplastic chip for coculture of dorsal root ganglion neurons

Solène Moreau, Raul Flores-Berdines, Anne Simon, Tatiana El Jalkh, Guillaume Taret, Anna Fomina, Céline Dargenet-Becker, André Estevez-Torres, Sophie Bernard\* and Hugo Salmon\*

