

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
rsc.li/loc

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 1473-0197 CODEN LCAHAM 26(2) 239-516 (2026)



**Cover**  
See Yuan Gao, Chao Ma *et al.*, pp. 257–272.  
Image reproduced by permission of Chao Ma, Mikayla Ybarra, Jaehun Lee from *Lab Chip*, 2026, 26, 257.



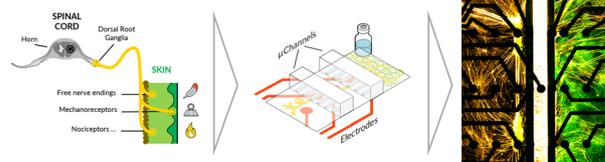
**Inside cover**  
See Woon-Hong Yeo *et al.*, pp. 273–285.  
Image reproduced by permission of Jimin Lee, Prof W. Hong Yeo from *Lab Chip*, 2026, 26, 273.

## COMMUNICATION

248

### An *in vitro* organ-on-chip model for studying neuron-keratinocyte interactions in sensory response through electrophysiology

Thomas Bessy, Anthony Martinez, Camille Baquerre, Corinne Grégoire, Aurélie Batut, Aurore Berthelin, Louise Dubuisson, Séverine Teluob, Audrey Azéma, Laurène Roussel Berlier, Damien Lelièvre and Alexandre Guichard\*

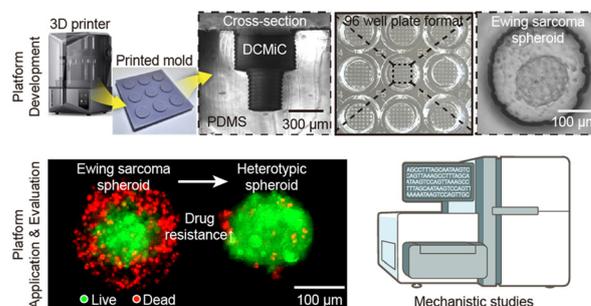


## PAPERS

257

### DCMiC: a double-cylinder micro-chamber platform for high-throughput drug screening and modeling of microenvironmental resistance in Ewing sarcoma

Jaehun Lee, Muyi Ye, Mikayla Ybarra, Joy Fei, Yuan Gao\* and Chao Ma\*



# Royal Society of Chemistry approved training courses

Explore your options.  
Develop your skills.  
Discover learning  
that suits you.

**Courses in the classroom,  
the lab, or online**

Find something for every  
stage of your professional  
development. Search our  
database by:

- subject area
- location
- event type
- skill level

Members **get at least 10% off**

Visit [rsc.li/cpd-training](https://rsc.li/cpd-training)



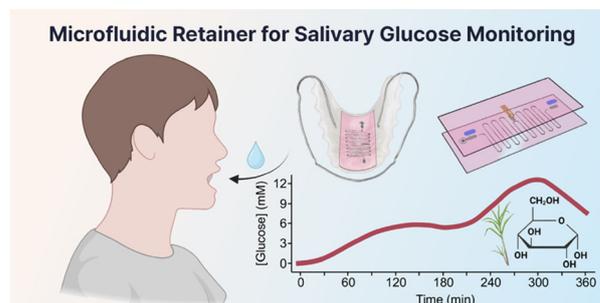
**SAVE  
10%**



273

### Capillary-driven, superhydrophilic microfluidic retainer for continuous salivary glucose monitoring

Jimin Lee, JunHo Song, Juo Kim, Arianna Lee, Saewoong Oh, Beomjune Shin, Kyoungmin Min and Woon-Hong Yeo\*

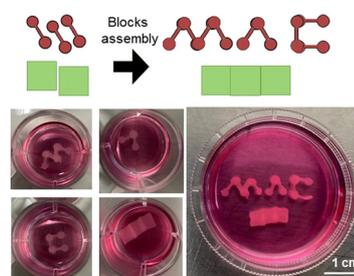


286

### Rapid scaffold-free cell sheet formation and their patterning as building blocks of complex 3D tissue constructs

Maedeh Khodamoradi, Seyedaydin Jalali, Maria Fernanda Hutter, Yufei Chen, Faraz Chogan, Alisa Douglas, Graham Rix, Bhavishya Challagundla, Margarita Elloso, Marc G. Jeschke and P. Ravi Selvaganapathy\*

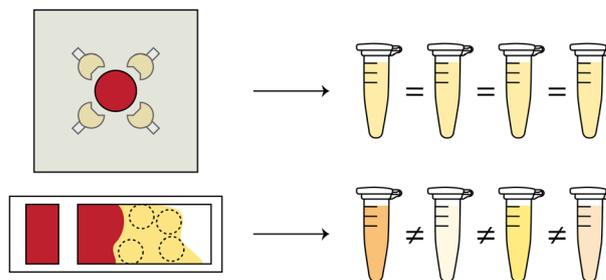
Assembly of sheets to make complex structures



306

### Multi-zone patterning enables hematocrit-independent precision metering of dried plasma for decentralized diagnostics

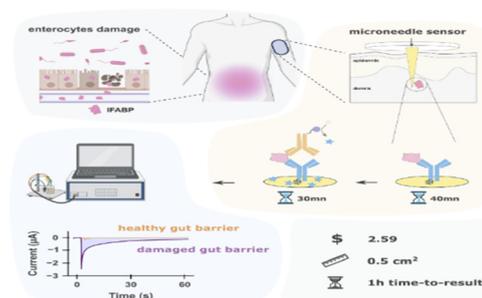
Amanda Code, Giorgio Gianini Morbioli, Keith R. Baillargeon, Jack Soloway, Yanran Sun and Charles R. Mace\*



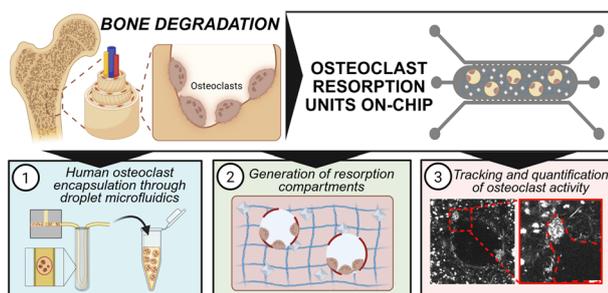
316

### Gut health monitoring via intestinal barrier function screening using a transepidermal microneedle-based sensor

Nicolas Maïno, Sihui Xu, Petter Brodin and Onur Parlak\*



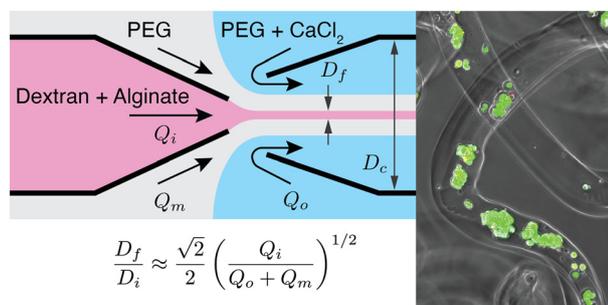
331



### Engineering osteoclast resorption units via sacrificial microgels in a bone-on-chip platform

Francisco Conceição, Nuno Araújo-Gomes, Johanna F. A. Husch, Malin Becker, Jeroen J. J. P. van den Beucken, Jeroen Leijten and Liliana Moreira Teixeira\*

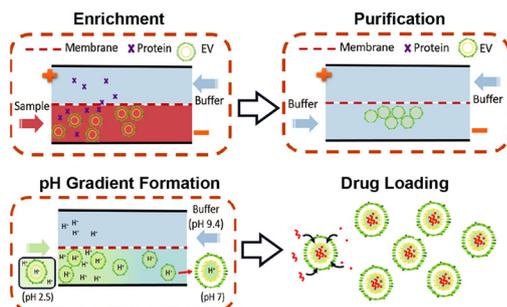
345



### Clog-free all-aqueous microfluidic fabrication of hydrogel microfibers governed by a universal scaling law

Jinchang Zhu, Yi He, Jing Wang, Isabella Powell, Pu Zhang, Anthony Ouertani, Yong Wang and Li-Heng Cai\*

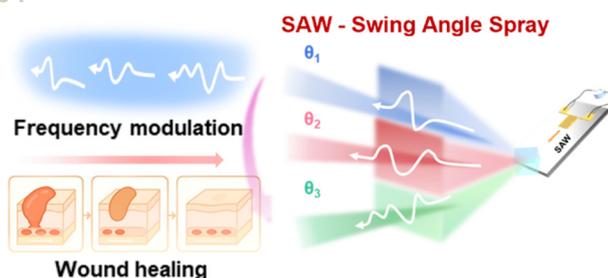
353



### Therapeutic extracellular vesicle preparation via sequential electrophoretic enrichment and counterflow microdialysis

Sima Mehraji, Nicholas H. Pirulli, Raith Nowak, Steven M. Jay and Don L. DeVoe\*

364



### Surface acoustic wave-assisted swing-angle spray: from mechanism investigation to deposition characteristics and *in vivo* wound healing

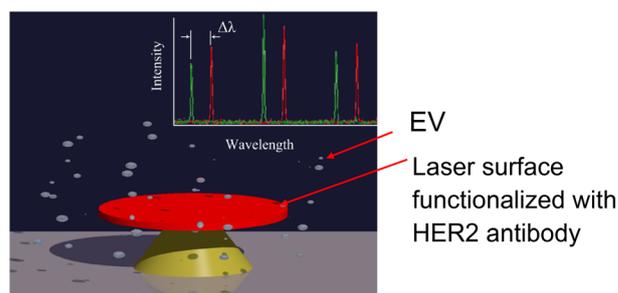
Chenhui Gai, Yu Gu, Qutong Yang, Suxiao Zhao, Yizhan Ding, Yulin Lei, Junlong Han,\* Hong Hu\* and Chen Fu\*



375

### Advancing liquid biopsy: whispering gallery mode laser detection of the HER2 cancer biomarker on extracellular vesicles

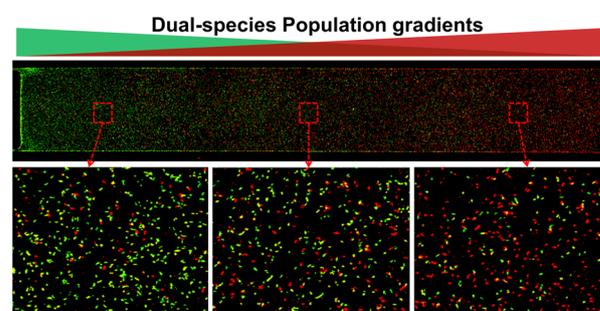
S. F. Wondimu, R. Khanduri, J. Atanga, M. Hippler, A. Hofmann, C. Hussal, D. Kohler, S. Krämmer, U. Bog, T. Wienhold, M. Koenig, S. Köber, T. Mappes, J. Lahann, H. Kalt, W. Freude, J. Sleeman, A. Warnecke, T. Erbes, I. Juhasz-Böss, C. Koos and I. Nazarenko\*



391

### Microfluidic flow-based spatial control of dual-species bacterial adhesion for population-dependent biofilm formation

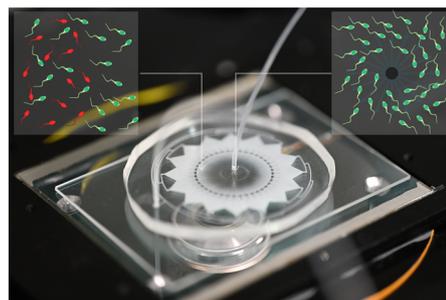
Seung Hui An, Jae Seong Kim, Chang-Soo Lee\* and Heon-Ho Jeong\*



403

### Navigation and selection of spermatozoa in a radial flow microfluidic device

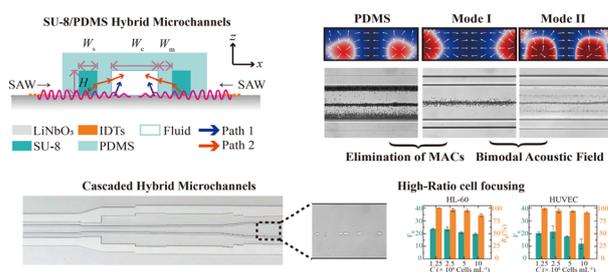
Ali Karimi, Xieergai Jiang and Alireza Abbaspourrad\*



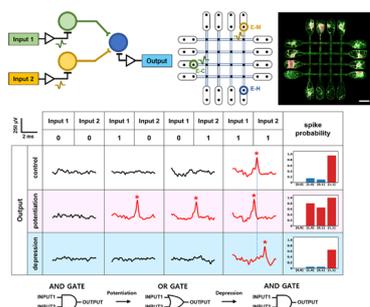
415

### Sheathless prefocusing in SU-8/PDMS hybrid microchannels via sidewall-assisted bimodal acoustic field cascading

Haixiang Zheng, Yang Zhao, Yuanpeng Ma, Suyu Ding, Dachuan Sang, Zeyi Wang, Dong Zhang\* and Xiasheng Guo\*



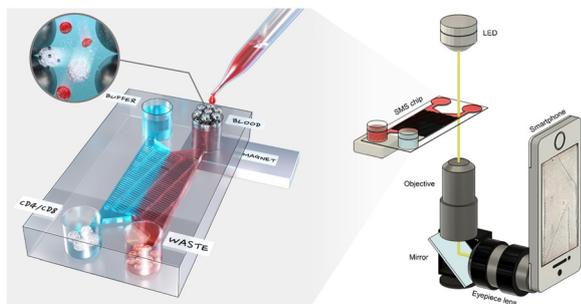
426



## Implementation of reconfigurable logic-in memory in a cultured neuronal network with a crossbar structure

Yonghee Bae, Kyo-Seok Lee, Sun-Mi Lee, Jeong-O Lee and Kyung-Hwa Yoo\*

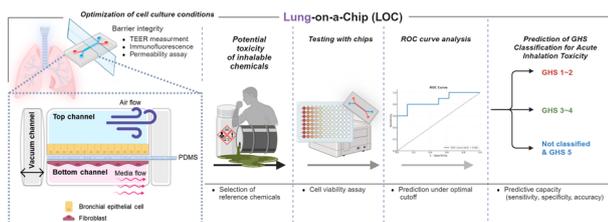
437



## Magnetic smartphone microflow cytometry enables rapid CD4/CD8 T cell quantification

Hee Sik Shin, Sung Joo Lee, Jae In Kim, Jung Ho Kim, Jun Yong Choi, Su Jin Jeong\* and Sungyoung Choi\*

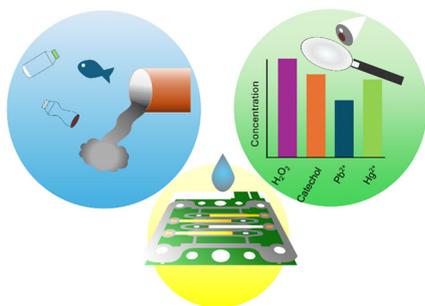
448



## Development of an acute inhalation toxicity testing method based on a lung-on-a-chip

Ga Eun Kim, Yubin Han, In Jae Bang, Jung Eun Lim and Ha Ryong Kim\*

457



## A novel microfluidic multichannel electrochemical cell for multiplexed monitoring of water pollutants

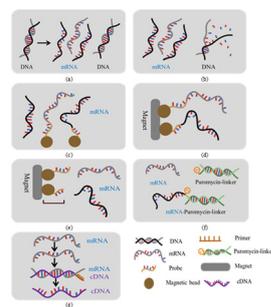
Tong Liu, Ivo Tichý, Jiří Homola\* and Amir M. Ashrafi\*



471

### An integrated microfluidic system for automated extraction of *in vitro* transcribed mRNAs via probe-coated magnetic beads

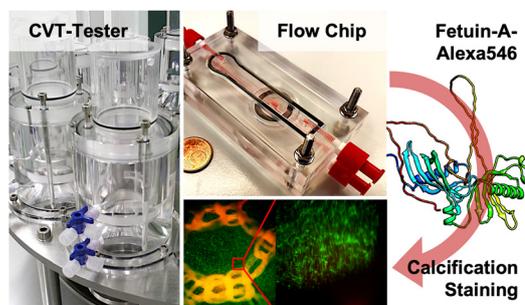
Swati T. Gurme, Yu-Ting Su, Bhushan Koparde, Lily Hui-Ching Wang\* and Gwo-Bin Lee\*



481

### Miniaturized device for assessing calcification propensity of biohybrid implants under continuous flow

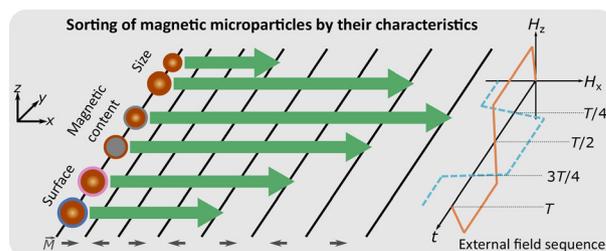
Aaron D. Morgan, Robert Dzhanayev, Andrea Gorgels, Jan Ritter, Johanna C. Clauser, Felix Stockmeier, Lucas Stüwe, Christian Böhm, Stefan Jockenhoevel, Ulrich Steinseifer and Willi Jahnen-Dechent\*



494

### Magnetophoretic long jump of magnetic microparticles in an engineered magnetic stray field landscape for highly localized and large throughput on-chip fractionation

Rico Huhnstock,\* Lukas Paetzold, Piotr Kuświk and Arno Ehresmann



507

### An integrated valved microfluidic platform for rapid and simultaneous nucleic acid detection

Zihan Wang, Fuwan Yang, Shuai Zeng, Rui Sun, Qifei Hu and Yichen Du\*

