

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
[rsc.li/loc](https://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 24(10) 2593-2826 (2024)



### Cover

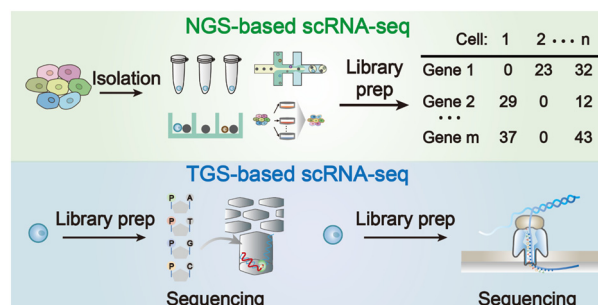
See Mengxi Wu, Jijuan Cao, Junshan Liu *et al.*, pp. 2622–2632.  
Image reproduced by permission of Mengxi Wu from *Lab Chip*, 2024, 24, 2622.

## CRITICAL REVIEW

2601

### Advanced sequencing-based high-throughput and long-read single-cell transcriptome analysis

Shanqing Huang, Weixiong Shi, Shiyu Li, Qian Fan, Chaoyong Yang, Jiao Cao\* and Lingling Wu\*



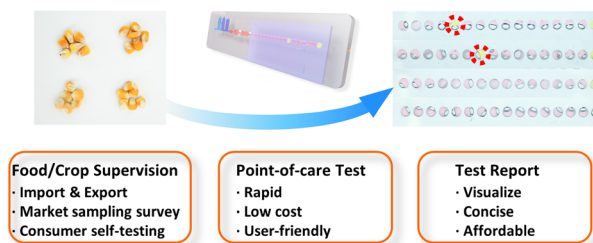
## PAPERS

2622

### A point-of-care testing platform for on-site identification of genetically modified crops

Yangyang Wang, Furui Yang, Yingyi Fu, Xin He, Haowei Tian, Lili Yang, Mengxi Wu,\* Jijuan Cao\* and Junshan Liu\*

#### On-site identification of GM crops



# 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%**

Registered charity number: 207890

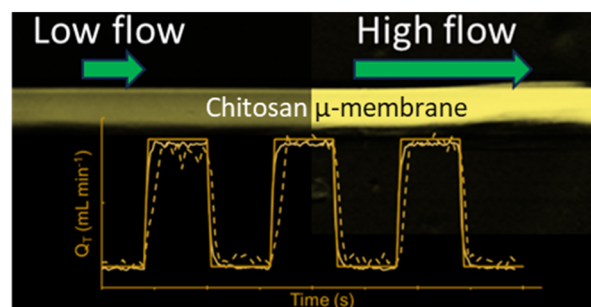


## PAPERS

2633

# Microflow sensing and control using an in-channel birefringent biomembrane

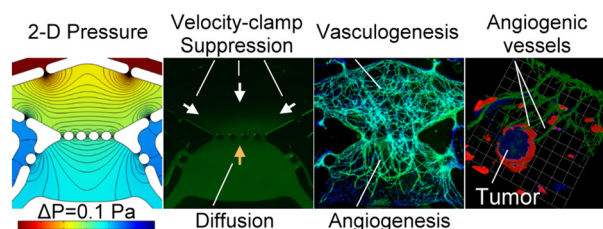
Nan Jia, Tianyang Deng, Charles Larouche, Tigran Galstian, André Bégin-Drolet and Jesse Greener\*



2644

# Spatially controlled diffusion range of tumor-associated angiogenic factors to develop a tumor model using a microfluidic resistive circuit

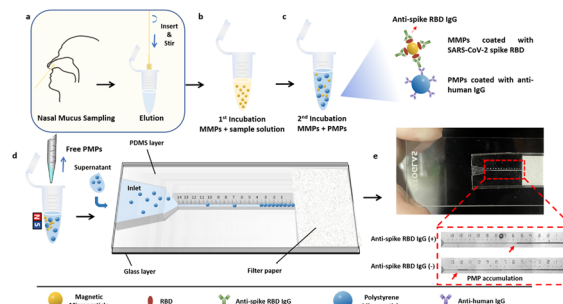
Yu-Hsiang Hsu,\* Wen-Chih Yang, Yi-Ting Chen, Che-Yu Lin, Chiou-Fong Yang, Wei-Wen Liu, Subhashree Shivani and Pai-Chi Li



2658

# Microfluidic particle counter visualizing mucosal antibodies against SARS-CoV-2 in the upper respiratory tract for rapid evaluation of immune protection

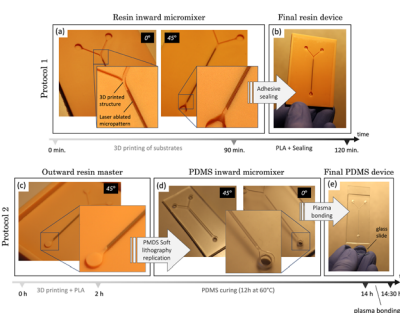
Jiaheng Li, Lok Ting Chu, Hogi Hartanto, Guihuan Guo, Lu Liu, Jianpeng Wu, Minghui Wu, Chenyu Cui, Gaobo Wang, Wengang Liu, Hoi Kwan Kwong, Siying Wu and Ting-Hsuan Chen\*



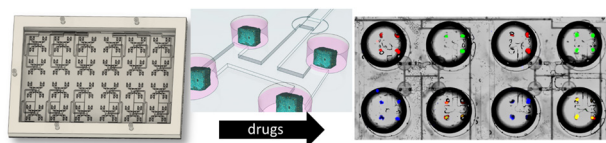
2669

# Versatile hybrid technique for passive straight micromixer manufacturing by combining pulsed laser ablation, stereolithographic 3D printing and computational fluid dynamics

Bastián Carnero, Yago Radziunas-Salinas, Bruno K. Rodiño-Janeiro, Sylvana Varela Ballesta and M. Teresa Flores-Arias\*



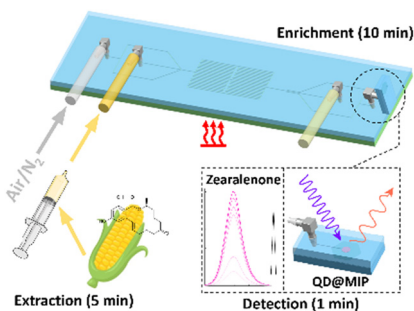
2683



### Drug testing of monodisperse arrays of live microdissected tumors using a valved multiwell microfluidic platform

Ethan J. Lockhart,\* Lisa F. Horowitz, Adán Rodríguez, Songli Zhu, Tran Nguyen, Mehdi Mehrabi, Taranjit S. Gujral and Albert Folch

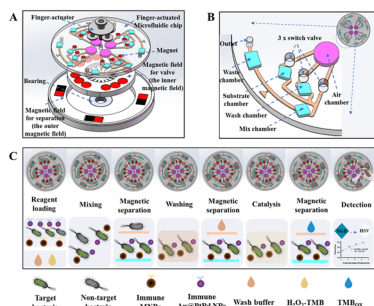
2700



### Development of a microfluidic device to enrich and detect zearalenone in food using quantum dot-embedded molecularly imprinted polymers

Marti Z. Hua, Shenmiao Li, M. S. Roopesh and Xiaonan Lu\*

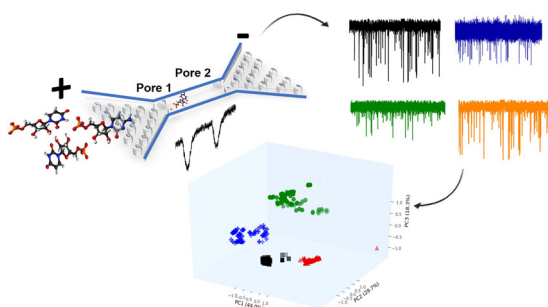
2712



### Multiplex nanozymatic biosensing of *Salmonella* on a finger-actuated microfluidic chip

Nana Jin, Fan Jiang, Fengzhen Yang, Ying Ding, Ming Liao, Yanbin Li and Jianhan Lin\*

2721



### Detection and identification of single ribonucleotide monophosphates using a dual in-plane nanopore sensor made in a thermoplastic *via* replication

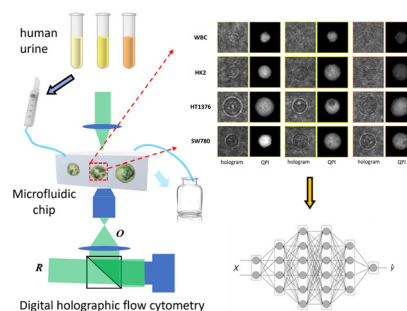
Chathurika Rathnayaka, Indu A. Chandrosoma, Junseo Choi, Katie Childers, Maximillian Chibuike, Khurshed Akabirov, Farhad Shiri, Adam R. Hall,\* Maxwell Lee, Collin McKinney, Matthew Verber, Sunggook Park\* and Steven A. Soper\*



2736

## Screening for urothelial carcinoma cells in urine based on digital holographic flow cytometry through machine learning and deep learning methods

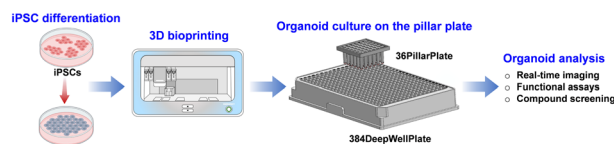
Lu Xin, Xi Xiao, Wen Xiao, Ran Peng, Hao Wang\* and Feng Pan\*



2747

## Reproducible generation of human liver organoids (HLOs) on a pillar plate platform via microarray 3D bioprinting

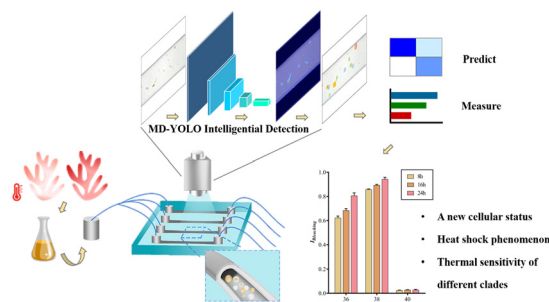
Sunil Shrestha, Vinod Kumar Reddy Lekkala, Prabha Acharya, Soo-Yeon Kang, Manav Goud Vanga and Moo-Yeal Lee\*



2762

## A microfluidic microalgae detection system for cellular physiological response based on an object detection algorithm

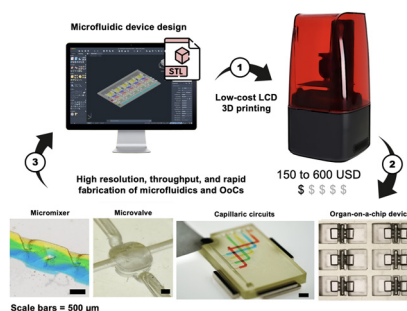
Shizheng Zhou, Tianhui Chen, Edgar S. Fu, Teng Zhou, Liuyong Shi and Hong Yan\*



2774

## High-resolution low-cost LCD 3D printing for microfluidics and organ-on-a-chip devices

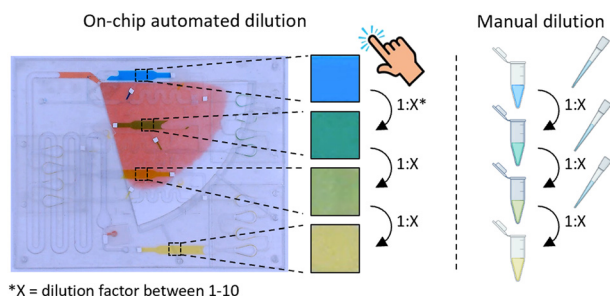
Houda Shafique, Vahid Karamzadeh, Geunyoung Kim, Molly L. Shen, Yonatan Morocz, Ahmad Sohrabi-Kashani and David Juncker\*





## PAPERS

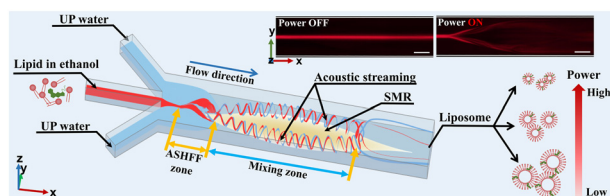
2791



### Revolutionizing sample preparation: a novel autonomous microfluidic platform for serial dilution

Dries Vloemans, Alexander Pieters, Francesco Dal Dosso and Jeroen Lammertyn\*

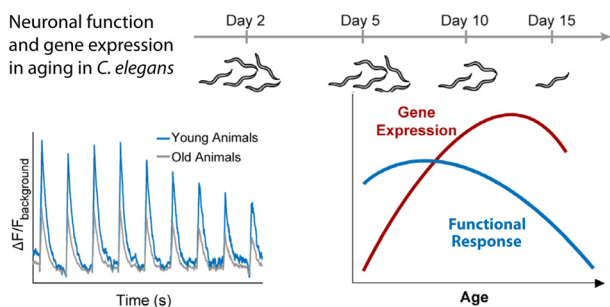
2802



### Microfluidic confined acoustic streaming vortex for liposome synthesis

Huihui Xu, Zhaoxun Wang, Wei Wei, Tiechuan Li\* and Xuexin Duan\*

2811



### Microfluidic approach to correlate *C. elegans* neuronal functional aging and underlying changes of gene expression in mechanosensation

Jason Wan, Jimmy L. Ding and Hang Lu\*

