

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 25(13) 3029-3288 (2025)



Cover
See Zedong Nie *et al.*,
pp. 3094–3108.
Image reproduced by
permission of Zedong Nie
from *Lab Chip*, 2025, 25,
3094.

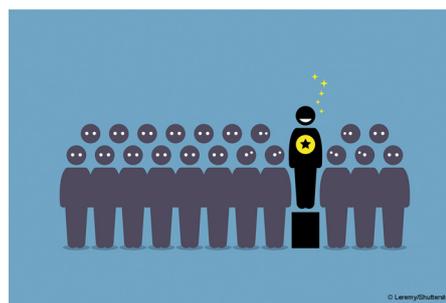


Inside cover
See Saman A. Aryana *et al.*,
pp. 3109–3122.
Image reproduced by
permission of Saman A. Aryana
from *Lab Chip*, 2025, 25,
3109.

EDITORIAL

3037

Outstanding Reviewers for *Lab on a Chip* in 2024

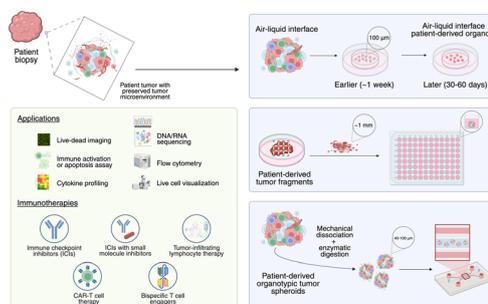


CRITICAL REVIEWS

3038

Patient-derived organotypic tumor spheroids, tumoroids, and organoids: advancing immunotherapy using state-of-the-art 3D tumor model systems

David J. Bozym, David X. Zheng, Or-Yam Revach, Amir Aref and Russell W. Jenkins*





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

**SAVE
10%**

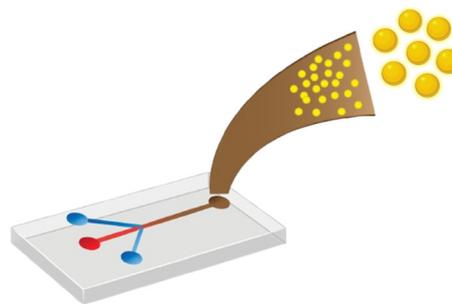


CRITICAL REVIEWS

3060

Advances in nanoparticle synthesis assisted by microfluidics

Muhammad Mubashar Saeed,* Eadaoin Carthy, Nicholas Dunne and David Kinahan

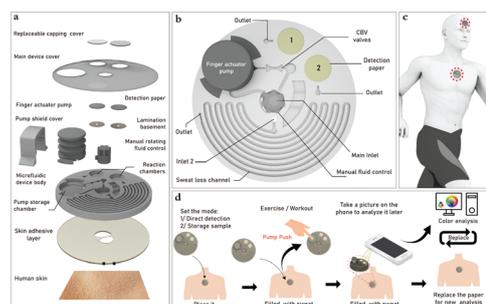


PAPERS

3094

A novel manual rotating fluid control mechanism in a microfluidic device with a finger-actuated pump for dual-mode sweat sampling

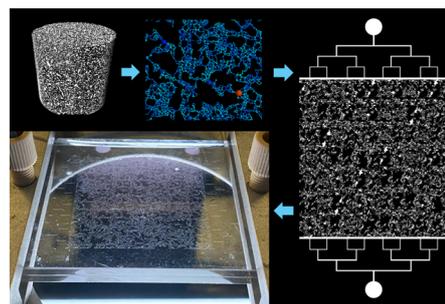
Mohamed Ishag Hassan Gama, Saminu Abdullahi, Marwa Omer Mohammed Omer, Zhu Yang, Xuzhong Wang, Yousuf Babiker M. Osman, Yuhang Liu, Jingzhen Li, Yingtian Li, Xing Gao and Zedong Nie*



3109

Rock-on-a-chip: a novel method for designing representative microfluidic platforms based on real rock structures and pore network modelling

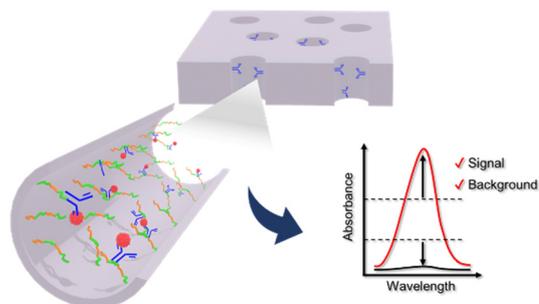
Pablo A. Godoy, Alirza Orujov, Aurora Pérez Gramatges and Saman A. Aryana*



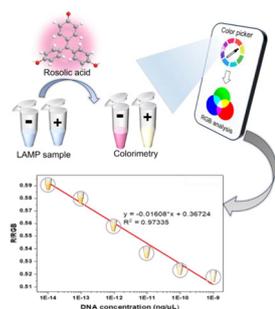
3123

A membrane-based immunosensor enabling high antifouling performance and sensitive molecular recognition

Hiroki Yamashita, Hiroto Okuyama and Takeo Yamaguchi*



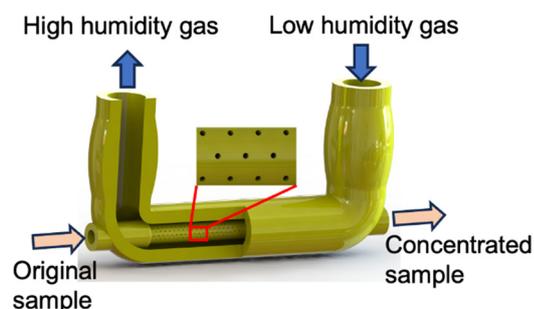
3132



Halochromism of rosolic acid: a pH-sensitive colorimetric dye combined with a smartphone technique for quantification of DNA in molecular diagnostics

Rajamanickam Sivakumar, Seo Yeon Park, Seung Kyun Park and Nae Yoon Lee*

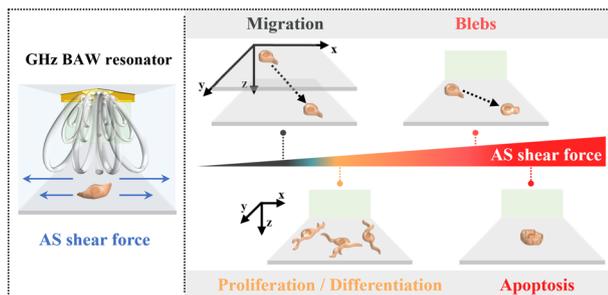
3141



3D-printed micro-pore evaporator for increasing concentration of analytes in aqueous solutions

Yufeng Su and Tanya Hutter*

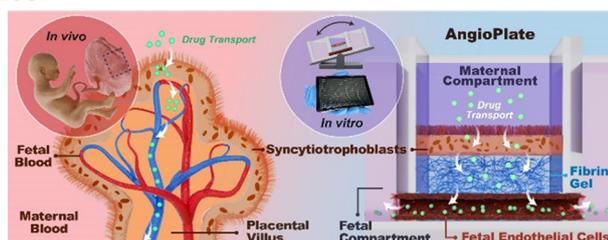
3156



Mechanical regulation of nerve stem cells' multiple behaviors via GHz acoustic streaming

Wenjun Li, Shenghui Kang, Wei Wei, Kai Yang, Xiaoyu Wu, Shan He, Zefang Wang, Wenlan Guo, Chen Sun, Wei Pang, Xuexin Duan and Yanyan Wang*

3168



Late-stage placental barrier model for transport studies of prescription drugs during pregnancy

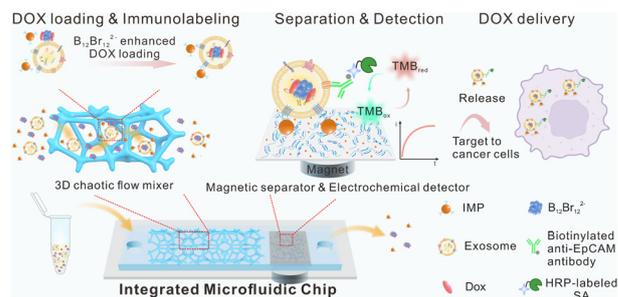
Sonya Kouthouridis, Poonam Saha, Madeleine Ludlow, Brenda Y. N. Truong and Boyang Zhang*



3185

An integrated microfluidic chip for synchronous drug loading, separation and detection of plasma exosomes

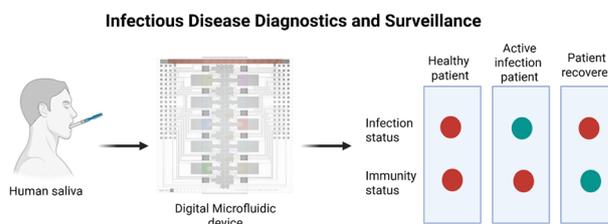
Yu-Xin Zhang, Ming Wang, Li-Li Xu, Yi-Jing Chen, Shu-Ting Zhong, Ying Feng, Hai-Bo Zhang,* Shi-Bo Cheng,* Min Xie* and Wei-Hua Huang



3197

A combined digital microfluidic test for assessing infection and immunity status for viral disease in saliva

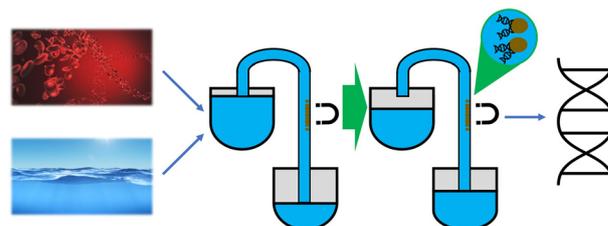
N. Sathishkumar, Jose Gilberto Camacho Valenzuela, Nguyen H. Le, Anthony K. C. Yong, Martin A. Rossotti, Joshua Dahmer, Alexandros A. Sklavounos, Martin Plante, Daniel Brassard, Lidija Malic, Anna N. Moraitis, Ruzica Biga, Imane El Idrissi, Jamshid Tanha, Jean Labrecque, Teodor Veres and Aaron R. Wheeler*



3208

DNA extraction from bacteria using a gravity-driven microcapillary siphon

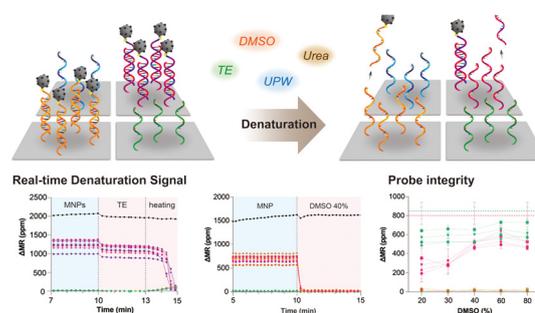
Crescenzo Ianniello, Julia Sero, David Gough, Barbara Kasprzyk-Hordern and Nuno M. Reis*



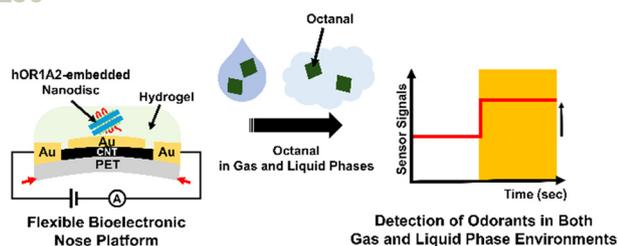
3220

Denaturation methods for reusable magnetic biosensors

Suhyeon Park, Songeun Kim, Shan X. Wang and Jung-Rok Lee*



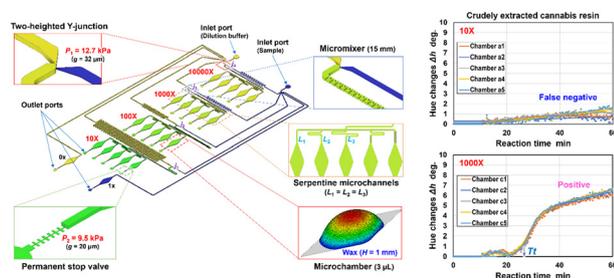
3230



Flexible bioelectronic nose based on olfactory receptor/hydrogel hybrid nanostructures for the direct detection of odorants in both the gas and liquid phases

Danmin Choi, Jun Young Hwang, Youngju Nam, Sunwoo Bang, Seung Hwan Lee* and Seunghun Hong*

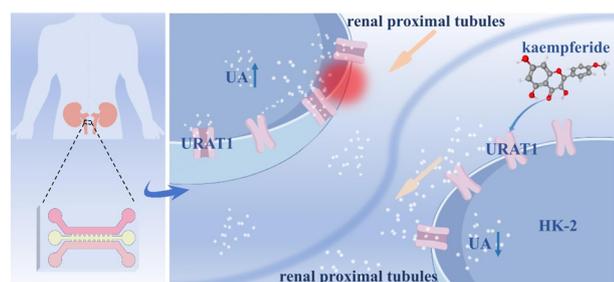
3242



Parallel dilution microfluidic device for enabling logarithmic concentration generation in molecular diagnostics

Akira Miyajima,* Fumiya Nishimura, Daigo Natsuhara, Yuka Kiba, Shunya Okamoto, Moeto Nagai, Tadashi Yamamuro, Masashi Kitamura and Takayuki Shibata*

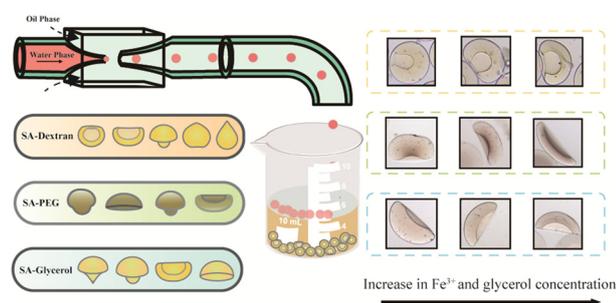
3254



Investigation of the potential application of kaempferide in hyperuricemia based on a kidney-on-a-chip

Xinyu Song, Lili Zhao, Yingying Tian, Chen Yang, Ting Cao* and Jiayu Zhang*

3270



Droplet microfluidics-assisted fabrication of Fe-alginate microgels with complex morphology: effect of the composition of droplets

Jie Chen, Penghui Li, Ran An, Aishan Cai, Kaiqi Wang, Zheyu Zhang, Tao Wang* and Yuandu Hu*

