

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
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**Cover**  
See Zedong Nie *et al.*, pp. 3094–3108.  
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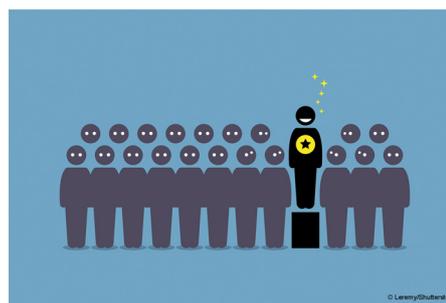


**Inside cover**  
See Saman A. Aryana *et al.*, pp. 3109–3122.  
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## EDITORIAL

3037

### Outstanding Reviewers for *Lab on a Chip* in 2024

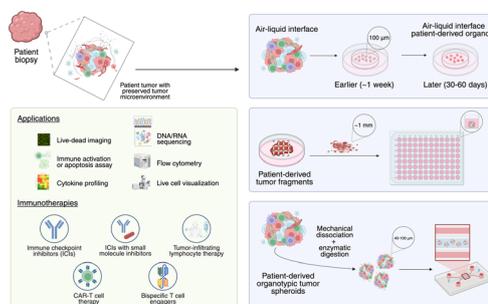


## CRITICAL REVIEWS

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### 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\*



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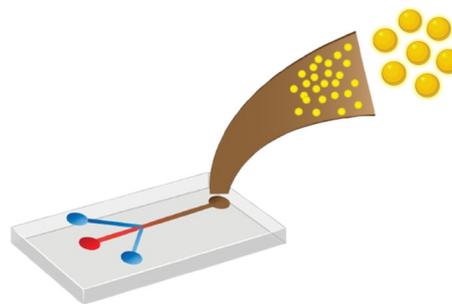


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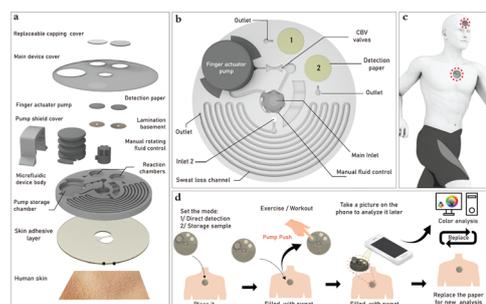
## CRITICAL REVIEWS

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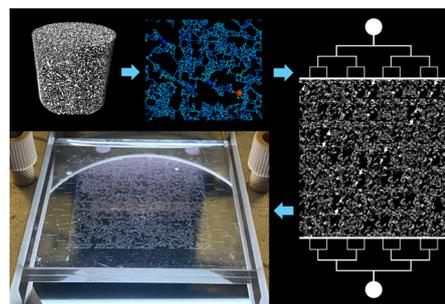
**Advances in nanoparticle synthesis assisted by microfluidics**Muhammad Mubashar Saeed,\* Eadaoin Carthy,  
Nicholas Dunne and David Kinahan

## PAPERS

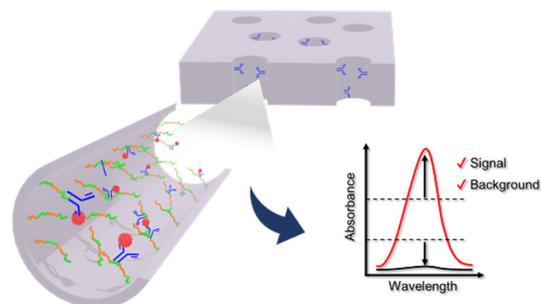
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**A novel manual rotating fluid control mechanism in a microfluidic device with a finger-actuated pump for dual-mode sweat sampling**Mohamed Ishag Hassan Gama, Saminu Abdullahi,  
Marwa Omer Mohammed Omer, Zhu Yang,  
Xuzhong Wang, Yousuf Babiker M. Osman, Yuhang Liu,  
Jingzhen Li, Yingtian Li, Xing Gao and Zedong Nie\*

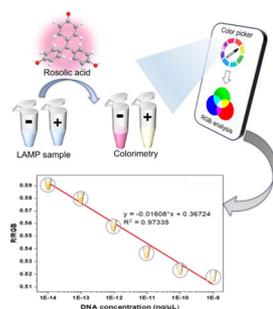
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**Rock-on-a-chip: a novel method for designing representative microfluidic platforms based on real rock structures and pore network modelling**Pablo A. Godoy, Alirza Orujov, Aurora Pérez Gramatges  
and Saman A. Aryana\*

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**A membrane-based immunosensor enabling high antifouling performance and sensitive molecular recognition**Hiroki Yamashita, Hiroto Okuyama  
and Takeo Yamaguchi\*

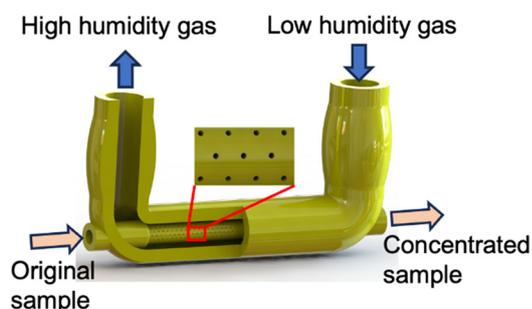
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### Halochromism of rosolic acid: a pH-sensitive colorimetric dye combined with a smartphone technique for quantification of DNA in molecular diagnostics

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

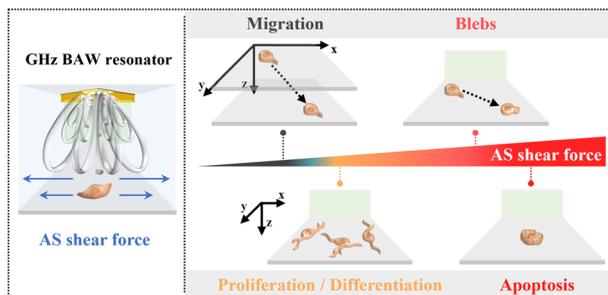
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### 3D-printed micro-pore evaporator for increasing concentration of analytes in aqueous solutions

Yufeng Su and Tanya Hutter\*

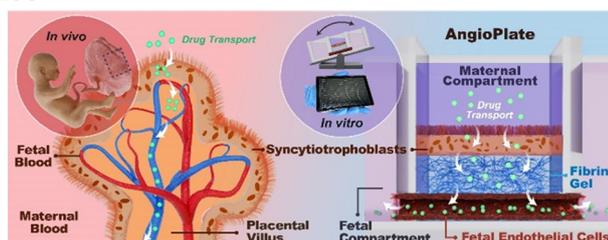
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### Mechanical regulation of nerve stem cells' multiple behaviors via GHz acoustic streaming

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\*

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

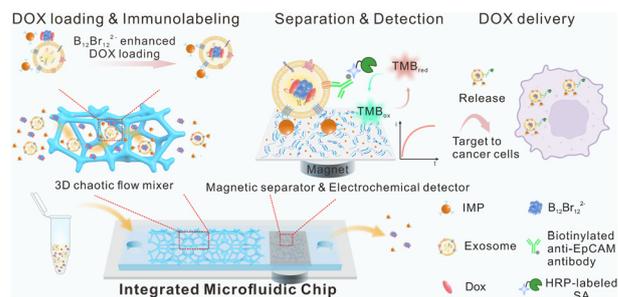
Sonya Kouthouridis, Poonam Saha, Madeleine Ludlow, Brenda Y. N. Truong and Boyang Zhang\*



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

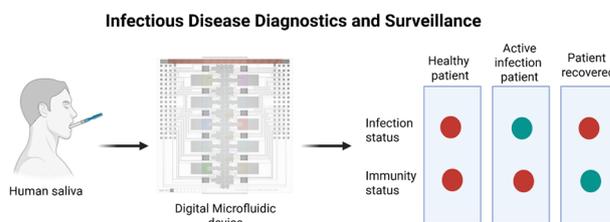
Yu-Xin Zhang, Ming Wang, Li-Li Xu, Yi-Jing Chen, Shu-Ting Zhong, Ying Feng, Hai-Bo Zhang,\* Shi-Bo Cheng,\* Min Xie\* and Wei-Hua Huang



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

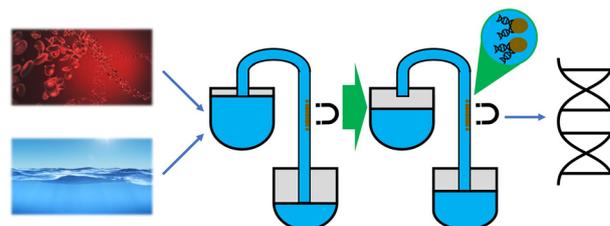
N. Sathishkumar, Jose Gilberto Camacho Valenzuela, Nguyen H. Le, Anthony K. C. Yong, Martin A. Rossotti, Joshua Dahmer, Alexandros A. Sklavounos, Martin Plante, Daniel Brassard, Lidija Malic, Anna N. Moraitis, Ruzica Biga, Imane El Idrissi, Jamshid Tanha, Jean Labrecque, Teodor Veres and Aaron R. Wheeler\*



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## DNA extraction from bacteria using a gravity-driven microcapillary siphon

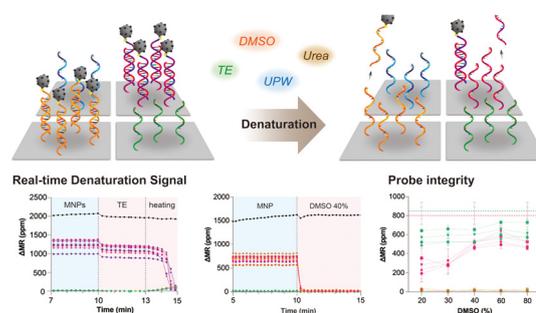
Crescenzo Ianniello, Julia Sero, David Gough, Barbara Kasprzyk-Hordern and Nuno M. Reis\*



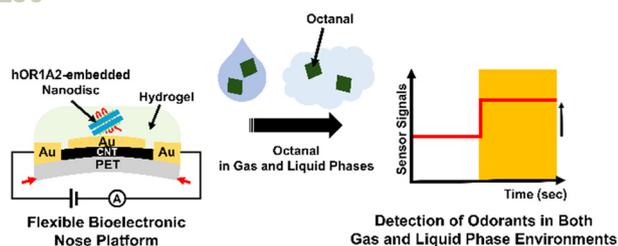
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## Denaturation methods for reusable magnetic biosensors

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



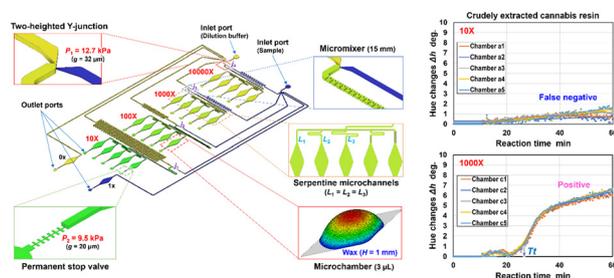
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### Flexible bioelectronic nose based on olfactory receptor/hydrogel hybrid nanostructures for the direct detection of odorants in both the gas and liquid phases

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

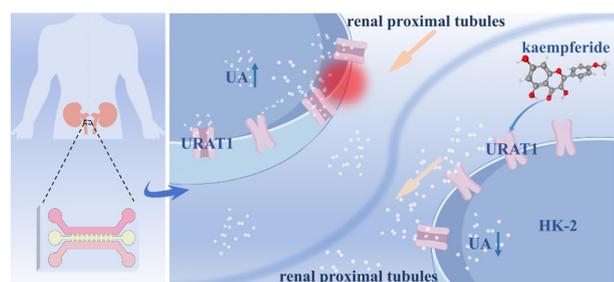
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### Parallel dilution microfluidic device for enabling logarithmic concentration generation in molecular diagnostics

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

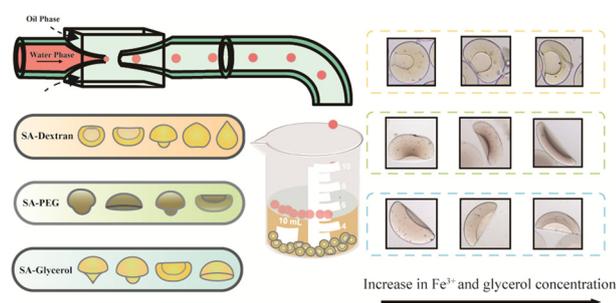
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### Investigation of the potential application of kaempferide in hyperuricemia based on a kidney-on-a-chip

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

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### 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\*

