

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
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### Cover

See Lawrence G. Welch,  
Emma L. Talbot *et al.*,  
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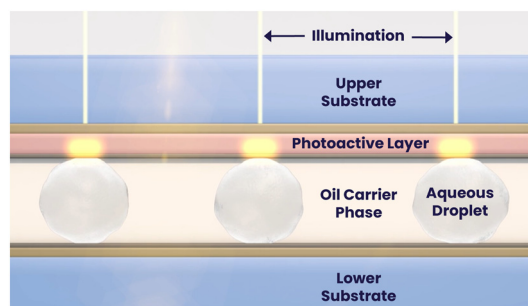
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## PAPERS

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### A programmable and automated optical electrowetting-on-dielectric (oEWOD) driven platform for massively parallel and sequential processing of single cell assay operations

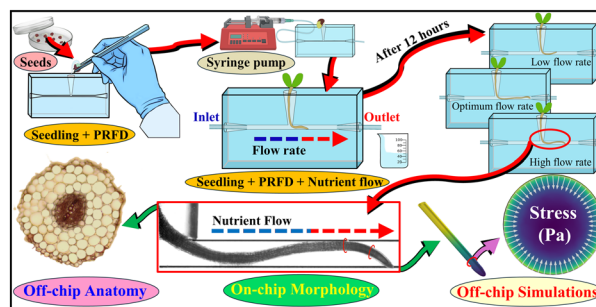
L. G. Welch,\* J. Estranero, P. Tourlomousis,  
R. C. R. Wootton, V. Radu, C. González-Fernández,  
T. J. Puchtler, C. M. Murzeau, N. M. G. Dieckmann,  
A. Shibahara, B. W. Longbottom, C. E. Bryant  
and E. L. Talbot\*



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### Unveiling nutrient flow-mediated stress in plant roots using an on-chip phytofluidic device

Kaushal Agarwal, Sumit Kumar Mehta  
and Pranab Kumar Mondal\*



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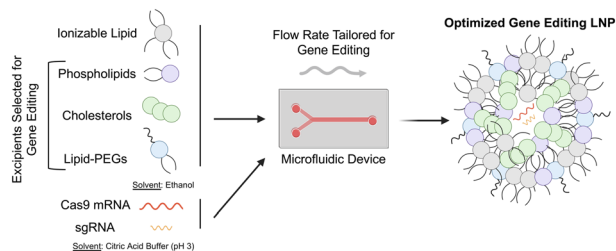


## PAPERS

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## Optimized microfluidic formulation and organic excipients for improved lipid nanoparticle mediated genome editing

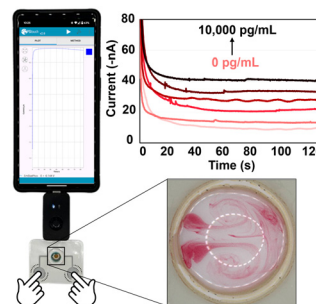
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## Microfluidic finger-actuated mixer for ultrasensitive electrochemical measurements of protein biomarkers for point-of-care testing

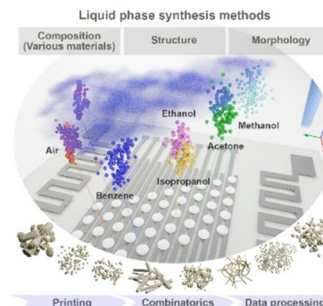
Benjamin Utzinger, Desh Deepak Dixit and Peter B. Lillehoj\*



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## Multioxide combinatorial libraries: fusing synthetic approaches and additive technologies for highly orthogonal electronic noses

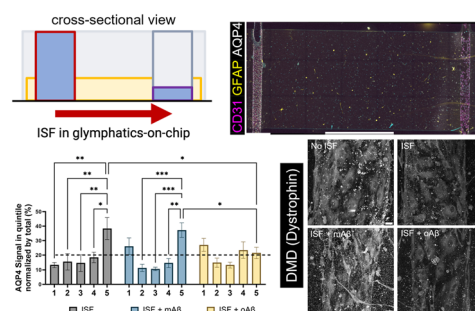
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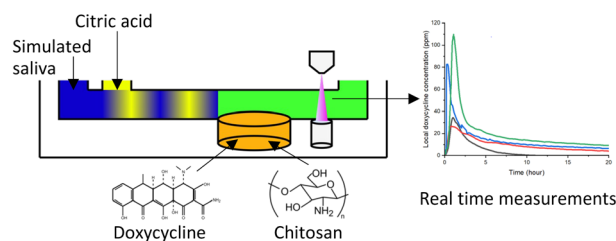
## Monomeric and oligomeric amyloid- $\beta$ cause distinct Alzheimer's disease pathophysiological characteristics in astrocytes in human glymphatics-on-chip models

Aria R. Yslas, Rena Park, Nozomi Nishimura and Esak Lee\*



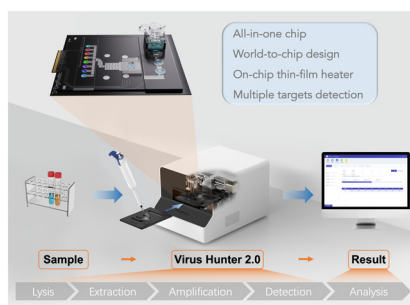
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A novel microfluidic tool for the evaluation of local drug delivery systems in simulated *in vivo* conditions

William A. Oates and Antonios D. Anastasiou\*

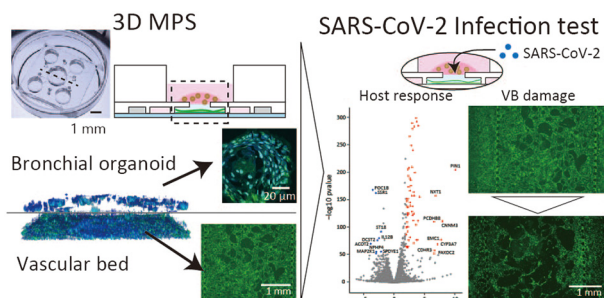
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## A syndromic diagnostic assay on a macrochannel-to-digital microfluidic platform for automatic identification of multiple respiratory pathogens

Cheng Dong, Fei Li, Yun Sun, Dongling Long, Chunzhao Chen, Mengyan Li, Tao Wei, Rui P. Martins, Tianlan Chen\* and Pui-In Mak\*

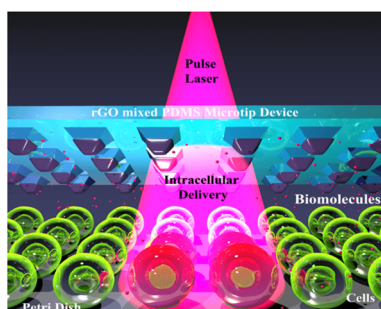
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## SARS-CoV-2-induced disruption of a vascular bed in a microphysiological system caused by type-I interferon from bronchial organoids

Kazuya Fujimoto, Yoshikazu Kameda, Yuta Nagano, Sayaka Deguchi, Takuya Yamamoto, Rafal P. Krol, Peter Gee, Yasufumi Matsumura, Toru Okamoto, Miki Nagao, Kazuo Takayama\* and Ryuji Yokokawa\*

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Hima Harshan Padma, Kavitha Illath, Donia Dominic, Hwan-You Chang, Moeto Nagai, Rajdeep Ojha, Srabani Kar and Tuhin Subhra Santra\*



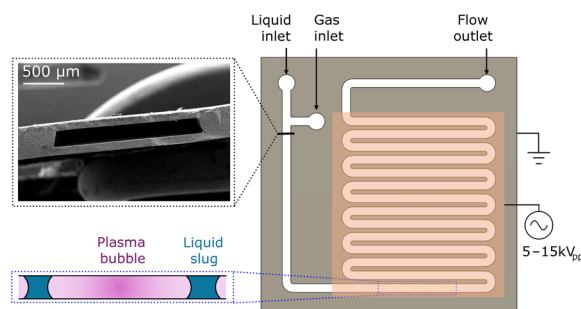


## PAPERS

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**Microreactor designed for efficient plasma–liquid segmented flows**

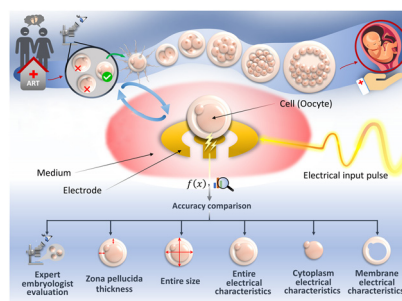
Pierre Dedieu, Gabriel Morand, Karine Loubière, Stéphanie Ognier\* and Michael Tatoulian



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**Simple bioelectrical microsensor: oocyte quality prediction via membrane electrophysiological characterization**

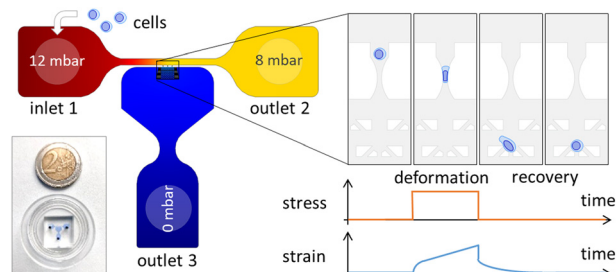
Peyman Palay, Davood Fathi,\* Hassan Saffari, Fatemeh Hassani, Samira Hajiaghalou and Rouhollah Fathi\*



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**Deformation under flow and morphological recovery of cancer cells**

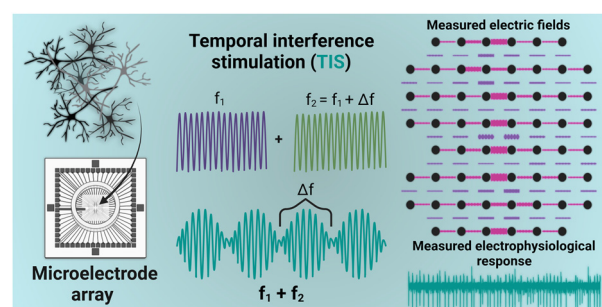
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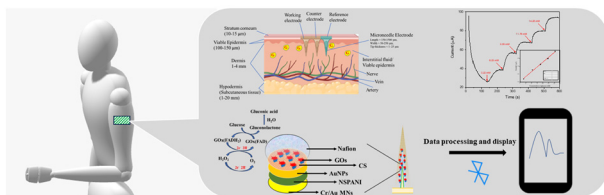
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**Electric field temporal interference stimulation of neurons *in vitro***

Annika Ahtiainen,\* Lilly Leydolph, Jarno M. A. Tanskanen, Alexander Hunold, Jens Haueisen and Jari A. K. Hyttinen



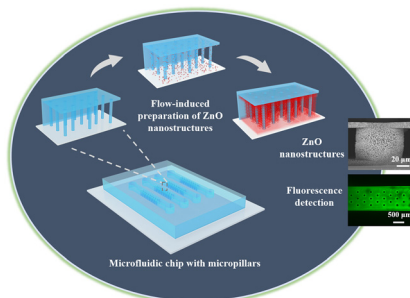
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### Early detection of hypo/hyperglycemia using a microneedle electrode array-based biosensor for glucose ultrasensitive monitoring in interstitial fluid

Samar H. Tawakey, Mohammad Mansour, Ahmed Soltan and Alyaa I. Salim\*

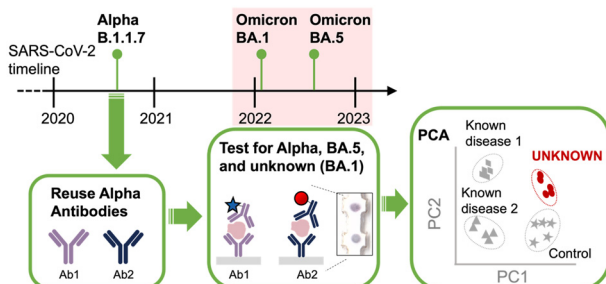
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### Flow-induced fabrication of ZnO nanostructures in pillar-arrayed microchannels

Ruyi Xu, Siyu Li, Sai-Xi Yu, Yan-Jun Liu, Wenhui Xie, Qingfeng Zhan, Zhenjie Zhao\* and Xin Li\*

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### A novel immunoassay technique using principal component analysis for enhanced detection of emerging viral variants

Josselyn Mata Calidonio, Arianna I. Maddox and Kimberly Hamad-Schifferli\*

