## Lab on a Chip

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

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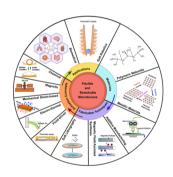
Inside cover See Todd Fernandez, David R. Myers et al., pp. 2176-2192. Image reproduced by permission of Priscilla Delgado from Lab Chip, 2024, 24, 2176. Artwork designed by Ella Maru Studio.

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Uditha Roshan, Amith Mudugamuwa, Haotian Cha, Samith Hettiarachchi, Jun Zhang\* and Nam-Trung Nguyen\*



#### **PAPERS**

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An economical in-class sticker microfluidic activity develops student expertise in microscale physics and device manufacturing

Priscilla Delgado, C. Alessandra Luna, Anjana Dissanayaka, Oluwamayokun Oshinowo, Jesse J. Waggoner, Sara Schley, Todd Fernandez\* and David R. Myers\*





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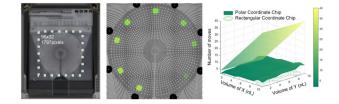


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#### Polar coordinate active-matrix digital microfluidics for high-resolution concentration gradient generation

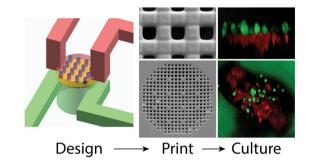
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#### Integrated biocompatible 3D printed isoporous membranes with 7 µm pores

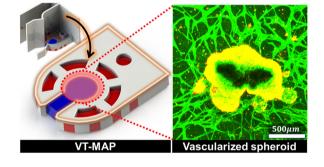
Matthew S. Viglione, Aubrianna Saxton, Dawson Downs, Adam T. Woolley, Kenneth A. Christensen, Pam M. Van Ry and Gregory P. Nordin\*



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Vascularized tissue on mesh-assisted platform (VT-MAP): a novel approach for diverse organoid size culture and tailored cancer drug response analysis

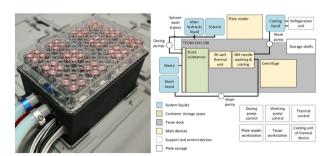
Jungseub Lee, Sangmin Jung, Hye Kyoung Hong, Hyeonsu Jo, Stephen Rhee, Ye-Lin Jeong, Jihoon Ko, Yong Beom Cho\* and Noo Li Jeon\*



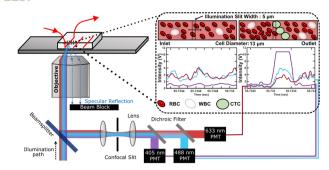
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#### Thermal segment microwell plate control for automated liquid handling setups

Simon Seidel,\* Katja F. Winkler, Anke Kurreck, Mariano Nicolas Cruz-Bournazou, Katharina Paulick, Sebastian Groß and Peter Neubauer



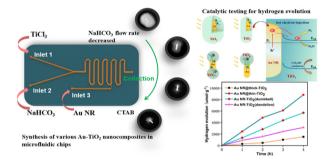
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#### Deep learning-enabled detection of rare circulating tumor cell clusters in whole blood using label-free, flow cytometry

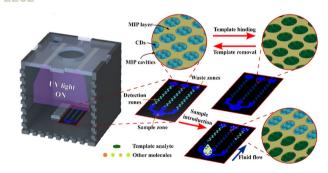
Nilay Vora, Prashant Shekar, Taras Hanulia, Michael Esmail, Abani Patra and Irene Georgakoudi\*

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#### Synthesis and photocatalytic property of Au-TiO<sub>2</sub> nanocomposites with controlled morphologies in microfluidic chips

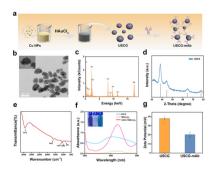
Ziran Ye,\* Ping Lu, Yiben Chen, Zhixian Xu, Haixia Huang, Mingjia Zhi, Zi Ang Chen and Bo Yan\*



#### Distance-based paper analytical device for multiplexed quantification of cytokine biomarkers using carbon dots integrated with molecularly imprinted polymer

Kawin Khachornsakkul,\* Ruben Del-Rio-Ruiz, Lita Chheang, Wenxin Zeng and Sameer Sonkusale\*

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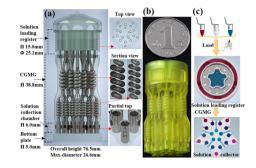
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Huilan Hu, Jiagi Tian, Rui Shu, Huihui Liu,\* Shaochi Wang, Xuechi Yin, Jianlong Wang and Daohong Zhang\*

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#### High-throughput 3D microfluidic chip for generation of concentration gradients and mixture combinations

Mingwei Zhao, Jing Yang, Zhenqing Li, Yuan Zeng, Chunxian Tao,\* Bo Dai, Dawei Zhang and Yoshinori Yamaguchi

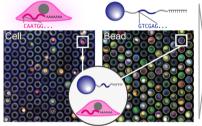


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#### Opto-combinatorial indexing enables high-content transcriptomics by linking cell images and transcriptomes

Arata Tsuchida, Taikopaul Kaneko, Kaori Nishikawa, Mayu Kawasaki, Ryuji Yokokawa and Hirofumi Shintaku\*

# **Dual-labelling with optical and DNA barcodes**



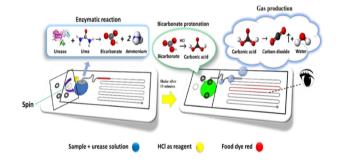
Link phenotype to transcriptome

Joint colour codes

#### 2298

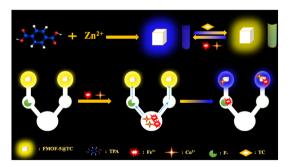
#### Designing and prototyping a novel biosensor based on a volumetric bar-chart chip for urea detection

Mahdi Samadi Khezri, Mohammad Reza Housaindokht\* and Mojtaba Firouzi



A novel ratiometric design of microfluidic paperbased analytical device for the simultaneous detection of Cu<sup>2+</sup> and Fe<sup>3+</sup> in drinking water using a fluorescent MOF@tetracycline nanocomposite

Sabah H. Al-Jaf, Sameera Sh. Mohammed Ameen and Khalid M. Omer\*

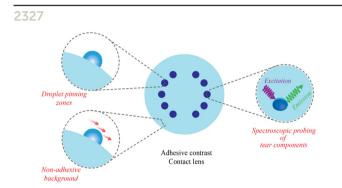


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#### Effect of in-plane and out-of-plane bifurcated microfluidic channels on the flow of aggregating red blood cells

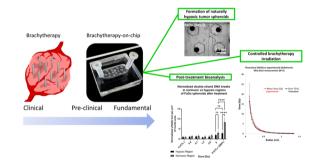
Amirreza Gholivand, Olivera Korculanin, Knut Dahlhoff, Mehrnaz Babaki, Timo Dickscheid and Minne Paul Lettinga\*



#### A surface-engineered contact lens for tear fluid biomolecule sensing

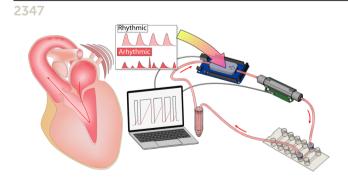
Aravind M and Sajan D. George\*





#### Brachytherapy on-a-chip: a clinically-relevant approach for radiotherapy testing in 3d biology

Rodin Chermat,\* Elena Refet-Mollof, Yuji Kamio, Jean-François Carrier, Philip Wong and Thomas Gervais



#### A microfluidic model to study the effects of arrhythmic flows on endothelial cells

Austin Lai, Adam Hawke, Mokhaled Mohammed, Peter Thurgood, Gianmarco Concilia, Karlheinz Peter, Khashayar Khoshmanesh\* and Sara Baratchi\*

### CORRECTION

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#### Correction: Integrated biosensors for monitoring microphysiological systems

Lei Mou, Kalpana Mandal, Marvin Magan Mecwan, Ana Lopez Hernandez, Surjendu Maity, Saurabh Sharma, Rondinelli Donizetti Herculano, Satoru Kawakita, Vadim Jucaud, Mehmet Remzi Dokmeci\* and Ali Khademhosseini\*