

Lab on a Chip

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

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See Hadar Ben-Yoav, Janina Bahnemann *et al.*, pp. 1404–1415.
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Inside cover

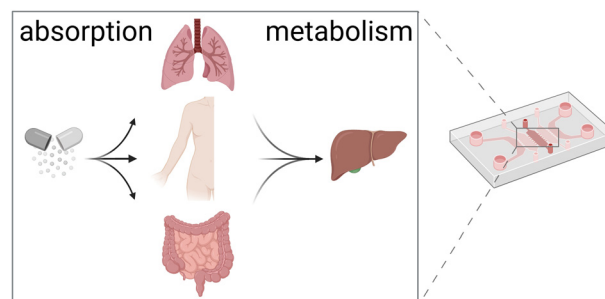
See Liuyong Shi, Hong Yan, Teng Zhou *et al.*, pp. 1416–1428.
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TUTORIAL REVIEW

1384

Advances of dual-organ and multi-organ systems for gut, lung, skin and liver models in absorption and metabolism studies

Konstanze Brandauer, Sophie Schweinitzer, Alexandra Lorenz, Judith Krauß, Silvia Schobesberger, Martin Frauenlob and Peter Ertl*

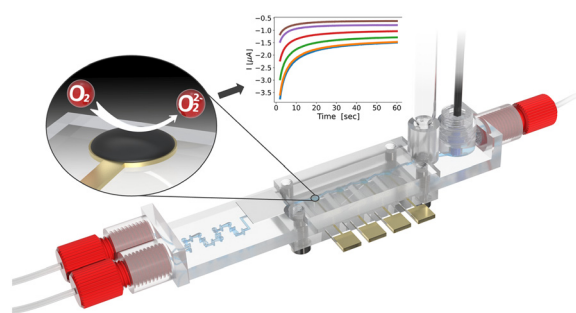


PAPERS

1404

Automated electrochemical oxygen sensing using a 3D-printed microfluidic lab-on-a-chip system

Daniel Kaufman, Steffen Winkler, Christopher Heuer, Ahed Shibli, Alexander Snezhko, Gideon I. Livshits, Janina Bahnemann* and Hadar Ben-Yoav*



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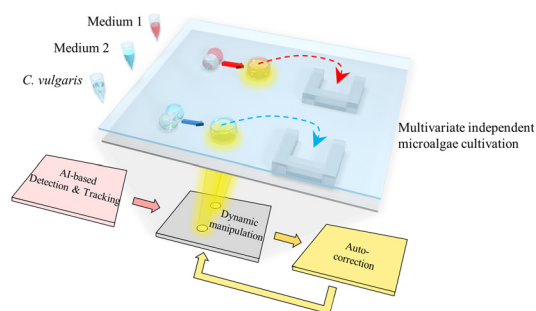


PAPERS

1416

Intelligent optoelectrowetting digital microfluidic system for real-time selective parallel manipulation of biological droplet arrays

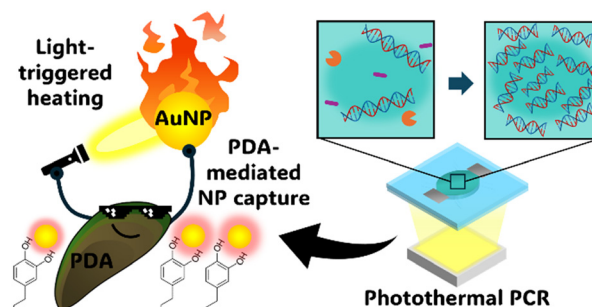
Tianyi Wang, Shizheng Zhou, Xuekai Liu, Jianghao Zeng, Xiaohan He, Zhihang Yu, Zhiyuan Liu, Xiaomei Liu, Jing Jin, Yonggang Zhu, Liuyong Shi,* Hong Yan* and Teng Zhou*



1429

Polydopamine-mediated gold nanoparticle coating strategy and its application in photothermal polymerase chain reaction

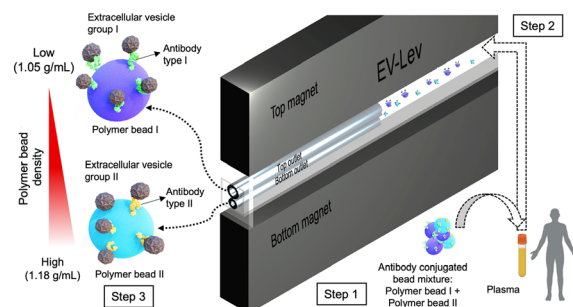
Woo Ri Chae, Yoon-Jae Song* and Nae Yoon Lee*



1439

EV-Lev: extracellular vesicle isolation from human plasma using microfluidic magnetic levitation device

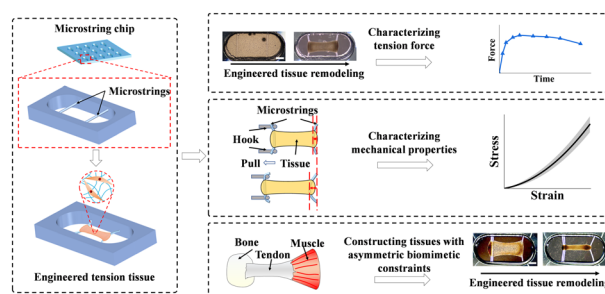
Sena Yaman, Tessa Devoe, Ugur Aycun, Ugur Parlattan, Madhusudhan Reddy Bobbili, Asma H. Karim, Johannes Grillari and Naside Gozde Durmus*



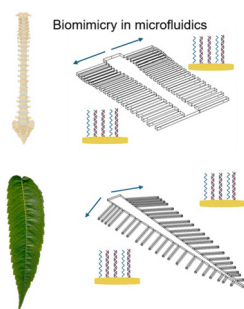
1452

Microstring-engineered tension tissues: a novel platform for replicating tissue mechanics and advancing mechanobiology

Zixing Zhou, Tingting Li, Wei Cai, Xiaobin Zhu, Zuoqi Zhang and Guoyou Huang*



1462

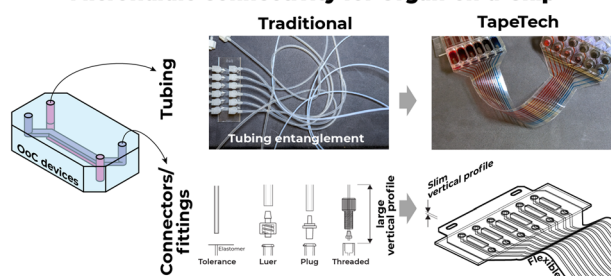


Design and simulation of biomimetic microfluidic designs to achieve uniform flow and DNA capture for high-throughput multiplexing

Enas Osman, Jonathan L'Heureux-Hache, Phoebe Li and Leyla Soleymani*

1474

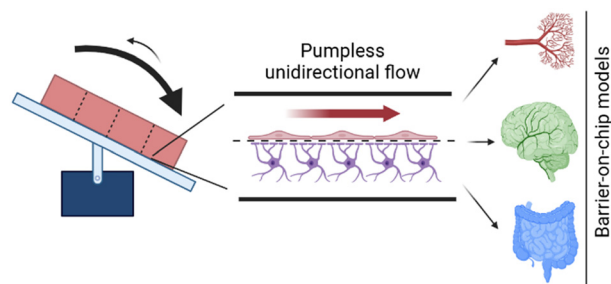
Microfluidic Connectivity for Organ-on-a-Chip



TapeTech microfluidic connectors: adhesive tape-enabled solution for organ-on-a-chip system integration

Terry Ching, Abraham C. I. van Steen, Delaney Gray-Scherr, Jessica L. Teo, Anish Vasani, Joshua Jeon, Jessica Shah, Aayush Patel, Amy E. Stoddard, Jennifer L. Bays, Jeroen Eyckmans and Christopher S. Chen*

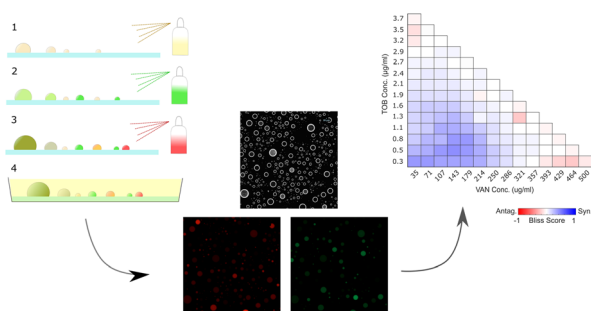
1489



A pumpless microfluidic co-culture system to model the effects of shear flow on biological barriers

Marsel Lino, Henrik Persson, Mohammad Paknahad, Alisa Ugodnikov, Morvarid Farhang Ghahremani, Lily E. Takeuchi, Oleg Chebotarev, Caleb Horst and Craig A. Simmons*

1502



High-throughput, combinatorial droplet generation by sequential spraying

Rena Fukuda* and Nate J. Cira



An electrochemical sensor integrated lab-on-a-CD system for phenylketonuria diagnostics

A universal framework for design and manufacture of deterministic lateral displacement chips

```

DLD(
# core
d.c=0.3,
width=200,

# design
opt_mirror=True,

# components
opt_filter=True,
opt_preload=True,
opt_collection=True,
opt_collection_with_via=True,

# array
array_counts=[2, 1],
array_spacing=[0, 100],
opt_mirror_before_array=[True, True],
spacing_between_mirrors_before_array=[0, 100],
)

```

Large-scale acoustic single cell trapping and selective releasing

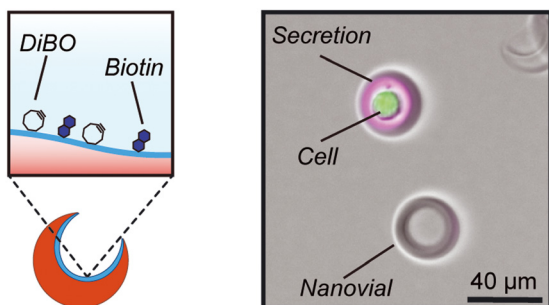
The schematic diagram illustrates the device structure and its components. The main structure is a 3D view of a device on a substrate. The substrate is orange. A white layer, labeled 'Glass', is on top of the substrate. A blue layer, labeled 'RFMS', is on top of the glass. A grey layer, labeled 'Ballium', is on top of the RFMS. A yellow layer, labeled 'BTF', is on top of the ballium. A yellow beam is shown incident on the BTF layer. A legend at the bottom identifies the colors: Orange for BTF, White for Glass, Blue for RFMS, and Grey for Ballium.

A sample-to-answer digital microfluidic multiplexed PCR system for syndromic pathogen detection in respiratory tract infection



PAPERS

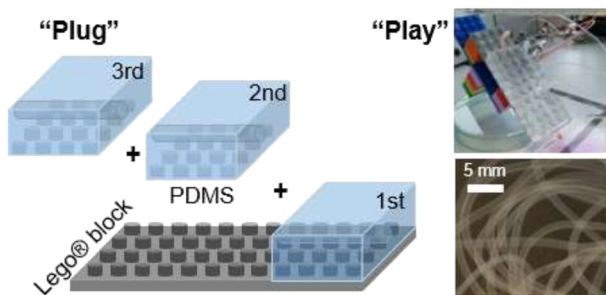
1565



Multi-reactive hydrogel nanovials for temporal control of secretion capture from antibody-secreting cells

Michael Mellody, Yuta Nakagawa, Richard James and Dino Di Carlo*

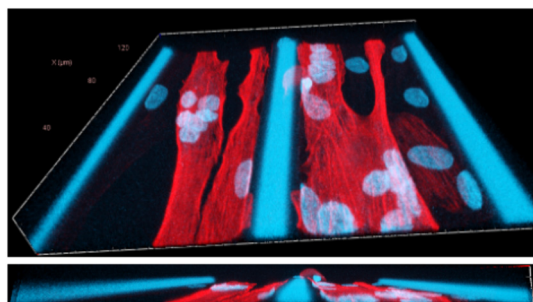
1575



A plug-and-play microfluidic device for hydrogel fiber spinning

Kongchang Wei, Wuchao Wang, Giorgia Giovannini, Khushdeep Sharma, René M. Rossi* and Luciano F. Boesel*

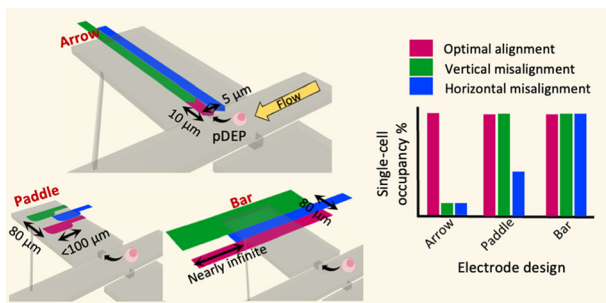
1586



A new biofunctionalized and micropatterned PDMS is able to promote stretching induced human myotube maturation

Théo Regagnon, Fabrice Raynaud, Gilles Subra, Gilles Carnac, Gerald Hugon, Aurélien Flatres, Vincent Humblot, Laurine Raymond, Julie Martin, Elodie Carretero, Margaux Clavié, Nathalie Saint, Sylvie Calas, Cécile Echalié, Pascal Etienne and Stefan Matecki*

1600



iDEP-based single-cell isolation in a two-dimensional array of chambers addressed by easy-to-align wireless electrodes

Thilini N. Rathnaweera and Robbyn K. Anand*



CORRECTIONS

1611

Correction: *In vitro* vascularized liver tumor model based on a microfluidic inverse opal scaffold for immune cell recruitment investigation

Pingwei Xu, Junjie Chi,* Xiaochen Wang, Meng Zhu, Kai Chen, Qihui Fan,* Fangfu Ye* and Changmin Shao*

1614

Correction: Acoustic modulation and non-contact atomization of droplets based on the Fabry–Pérot resonator

Jingjun Li, Xiukun Wang, Fan Yang, Yadong Sun and Lei Zhang*

