

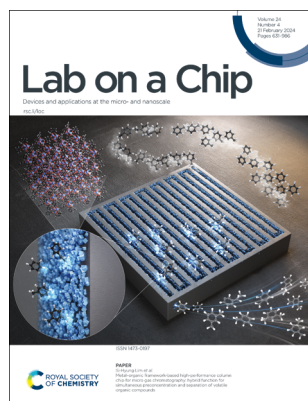
# Lab on a Chip

Devices and applications at the micro- and nanoscale  
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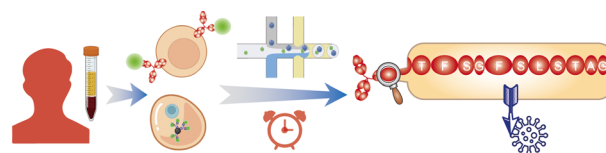
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Daniel Brassard *et al.*,  
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## PERSPECTIVE

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### Microfluidic-assisted single-cell RNA sequencing facilitates the development of neutralizing monoclonal antibodies against SARS-CoV-2

Ziwei Wang, Amelia Siqi Huang, Lingfang Tang, Jianbin Wang and Guanbo Wang\*

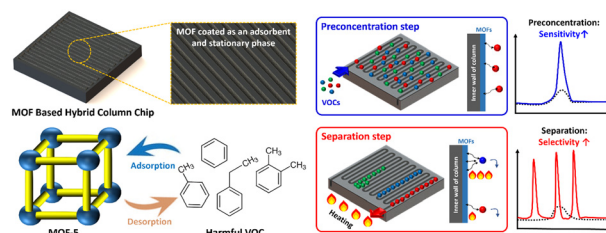


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### Metal–organic framework-based high-performance column chip for micro gas chromatography: hybrid function for simultaneous preconcentration and separation of volatile organic compounds

Yeongseok Lee, Yuntaek Choi, Jaehyun Sim, Jeonghun Kim and Si-Hyung Lim\*



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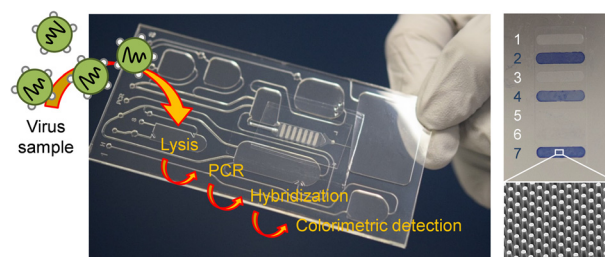
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## Centrifugal microfluidic system for colorimetric sample-to-answer detection of viral pathogens

Matthias Geissler, Daniel Brassard, Nadine Adam, Neda Nasheri, Ana Victoria C. Pilar, Kyle Tapp, Liviu Clime, Caroline Miville-Godin, Maxence Mounier, Christina Nassif, Ljuboje Lukic, Lidija Malic, Nathalie Corneau\* and Teodor Veres\*

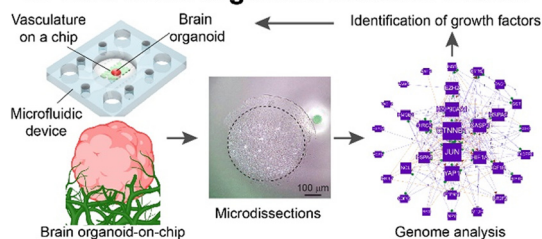


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## Deciphering potential vascularization factors of on-chip co-cultured hiPSC-derived cerebral organoids

Maneesha Shaji, Atsushi Tamada, Kazuya Fujimoto, Keiko Muguruma,\* Stanislav L. Karsten\* and Ryuji Yokokawa\*

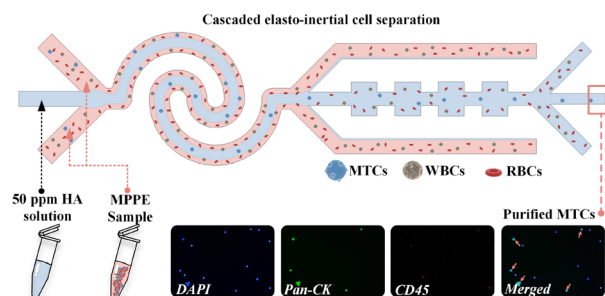
### In vitro brain organoid vascularization



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## Cascaded elasto-inertial separation of malignant tumor cells from untreated malignant pleural and peritoneal effusions

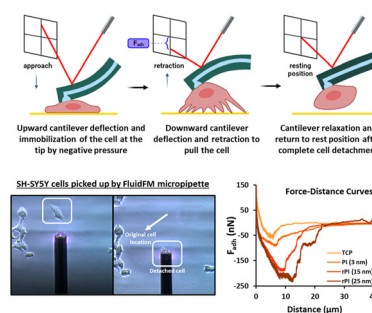
Chen Ni, Dan Wu, Yao Chen, Silin Wang and Nan Xiang\*



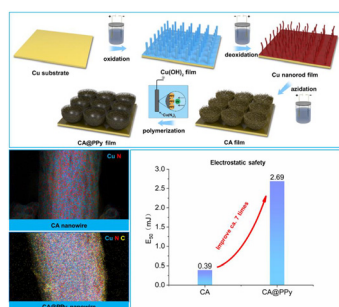
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## Single-cell fluid-based force spectroscopy reveals near lipid size nano-topography effects on neural cell adhesion

Zeina Habli, Rima Lahoud, Ahmad Zantout, Wassim Abou-Kheir and Massoud L. Khraiche\*



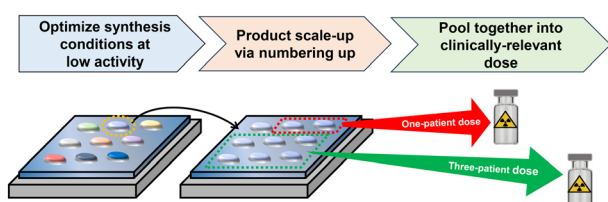
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### Synthesis and protection: a controllable electrochemical approach to polypyrrole-coated copper azide with superior safety for MEMS

Minghao Bao, Chunpei Yu,\* Gexing Yang, Junhong Chen, He Cheng, Jianyong Xu, Wei Shi, Changkun Song, Xiaoting Lei, Zhongbo Han and Wenchao Zhang\*

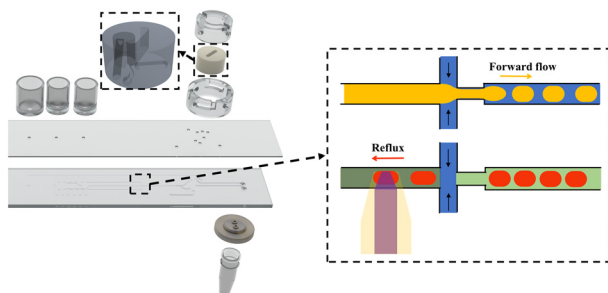
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### Scalable droplet-based radiosynthesis of [ $^{18}\text{F}$ ] fluorobenzyltriphenylphosphonium cation ([ $^{18}\text{F}$ ] FBnTP) via a "numbering up" approach

Yingqing Lu, Jeffrey Collins, Kuo-Shyan Lin and R. Michael van Dam\*

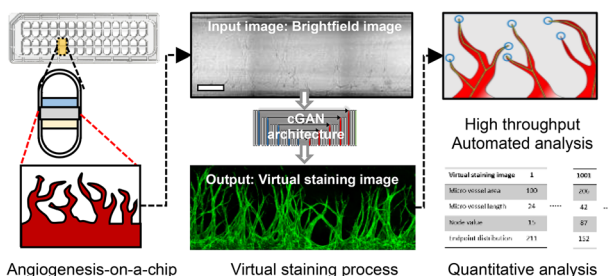
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### A ddPCR platform based on a microfluidic chip with a dual-function flow-focusing structure for sample-to-result DNA quantification analysis

Xiaoliang Zhang, Shun Wang, Jinxian Wang, Xiaojie Sun, Jinbing Xue, Zhenya Wang, Tianhang Yang, Liangfei Weng, Bidou Wang\* and Gangyin Luo\*

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### Angio-Net: deep learning-based label-free detection and morphometric analysis of *in vitro* angiogenesis

Suryong Kim, Jungseub Lee, Jihoon Ko, Seonghyuk Park, Seung-Ryeol Lee, Youngtaek Kim, Taeseung Lee, Sunbeen Choi, Jiho Kim, Wonbae Kim, Yoojin Chung, Oh-Heum Kwon and Noo Li Jeon\*



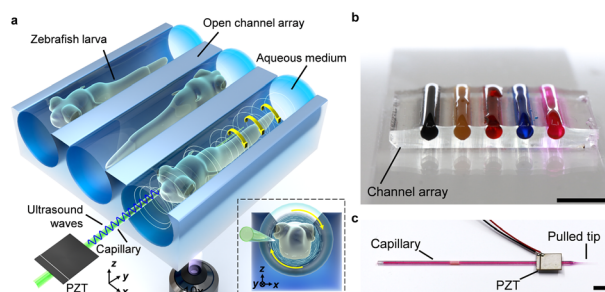


## PAPERS

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# A vibrating capillary for ultrasound rotation manipulation of zebrafish larvae

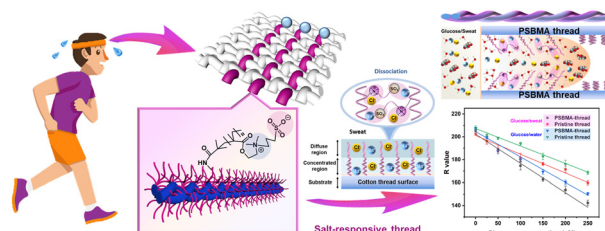
Zhiyuan Zhang, Yilin Cao, Sara Caviglia, Prajwal Agrawal, Stephan C. F. Neuhauss and Daniel Ahmed\*



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# Smart salt-responsive thread for highly sensitive microfluidic glucose detection in sweat

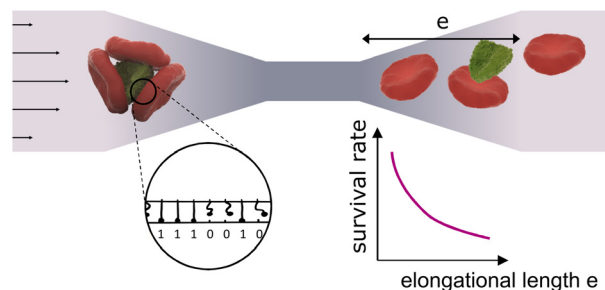
Liang Wu, Jing Xiong, Gang Xiao, Jun Ju, Wei Sun, Wei Wang, Yan Ma, Ruilong Ran, Yan Qiao, Changming Li, Ling Yu\* and Zhisong Lu\*



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# Survival of *P. falciparum* infected red blood cell aggregates in elongational shear flow

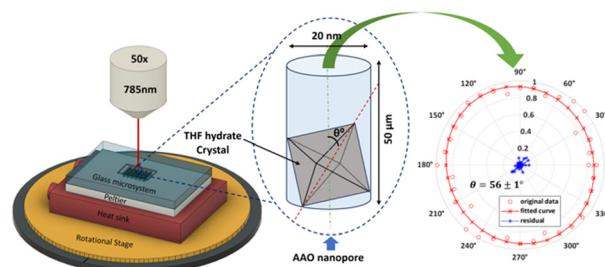
Anna M. Jötten, Anabelle Schepp, Adam Machon, Kirsten Moll, Mats Wahlgren, Timm Krüger and Christoph Westerhausen\*



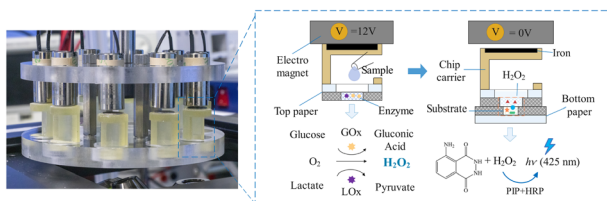
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# The crystal orientation of THF clathrates in nano-confinement by *in situ* polarized Raman spectroscopy

Mrityunjay K. Sharma, Xin Ning Leong, Carolyn A. Koh and Ryan L. Hartman\*



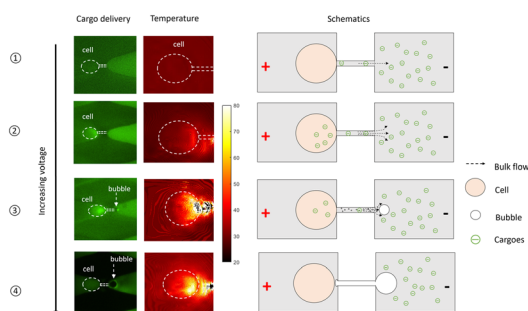
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### High sensitivity and automatic chemiluminescence detection of glucose and lactate using a spin-disc paper-based device

Wenqiang Tong, Jiaming Shi, Zhihang Yu, Bin Ran, Huaying Chen\* and Yonggang Zhu\*

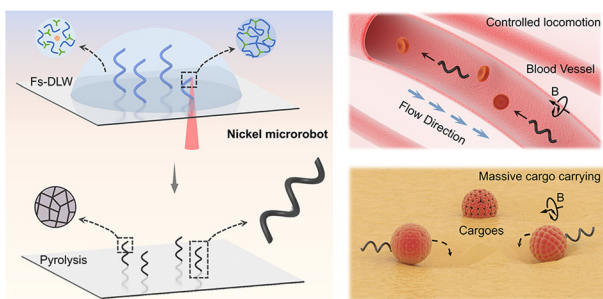
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### Joule heating and electroosmotic flow in cellular micro/nano electroporation

Junjie Pan, Xinyu Wang, Chi-ling Chiang, Yifan Ma, Junao Cheng, Paul Bertani, Wu Lu\* and L. James Lee\*

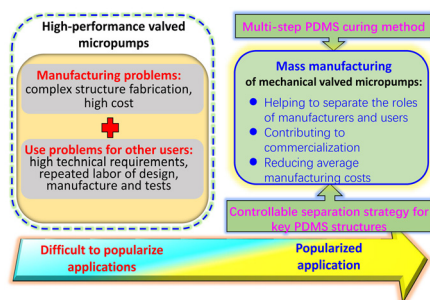
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### High-performance magnetic metal microrobot prepared by a two-photon polymerization and sintering method

Rui Li, Modong Jiang, Bingrui Liu, Shaojun Jiang, Chao Chen, Mengxue Liang, Lijie Qu, Chaowei Wang, Gang Zhao, Yanlei Hu, Dong Wu, Jiaru Chu and Jiawen Li\*

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### Multi-step PDMS curing and a controlled separation method for mass manufacturing of high-performance and user-friendly micro-devices: valved micropumps

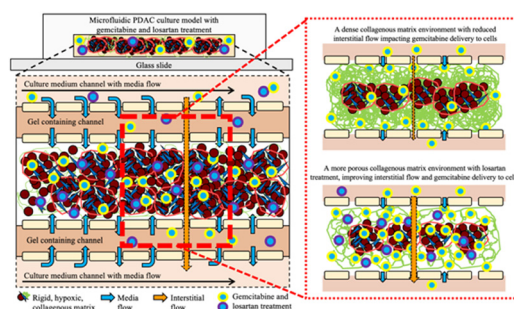
Zhichang Du, Wei Sun\* and Shengli Mi\*



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## Modelling and breaking down the biophysical barriers to drug delivery in pancreatic cancer

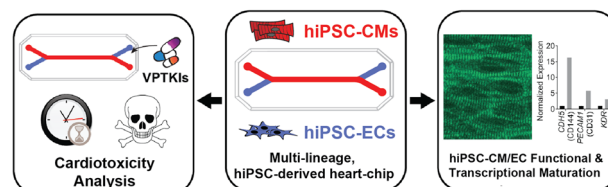
Delanyo Kpeglo, Malcolm Haddrick,  
Margaret A. Knowles, Stephen D. Evans  
and Sally A. Peyman\*



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## Multi-lineage heart-chip models drug cardiotoxicity and enhances maturation of human stem cell-derived cardiovascular cells

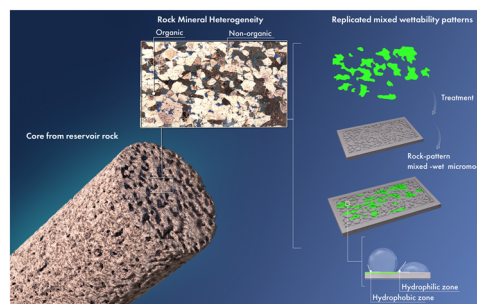
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Robert J. Barrett, Clive N. Svendsen and Arun Sharma\*



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## Novel fabrication of mixed wettability micromodels for pore-scale studies of fluid-rock interactions

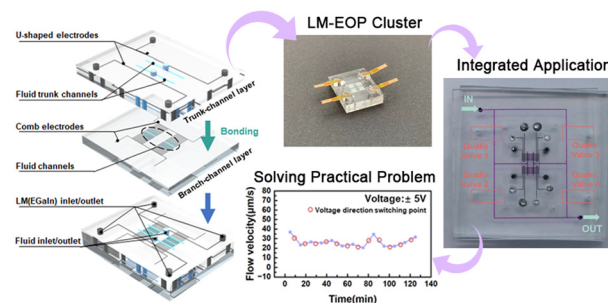
Abdullah AlOmier, Dongkyu Cha, Subhash Ayirala,  
Ali Al-Yousef and Hussein Hoteit\*



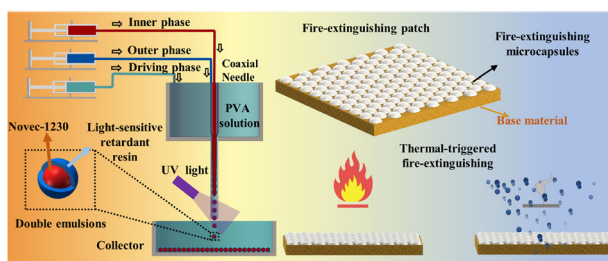
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## A liquid metal based, integrated parallel electroosmotic micropump cluster drive system

Qian Li, Pan Zhang, Zi Ye, Huimin Zhang, Xiao Sun  
and Lin Gui\*



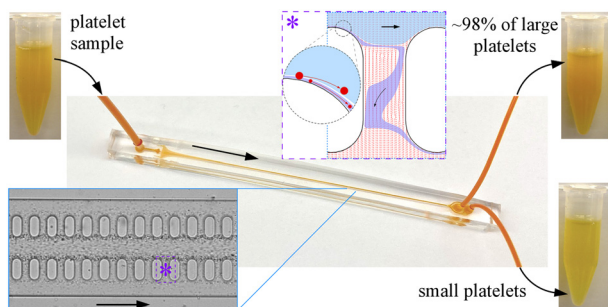
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### Enhancing safety in small confined spaces with thermally triggered fire-extinguishing microcapsules from microfluidics

Chen Li, Hairui Bian, Dang Ding, Fangsheng Huang\* and Zhiqiang Zhu\*

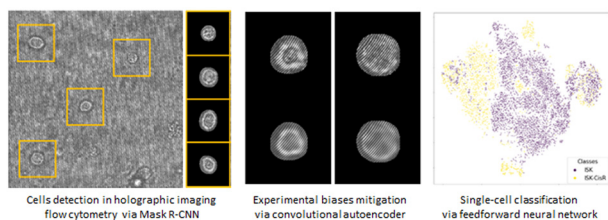
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### Separation of platelets by size in a microfluidic device based on controlled incremental filtration

Mai T. P. Dinh, Anton Mukhamedshin, Kumar Abhishek, Fong W. Lam, Sean C. Gifford and Sergey S. Shevkoplyas\*

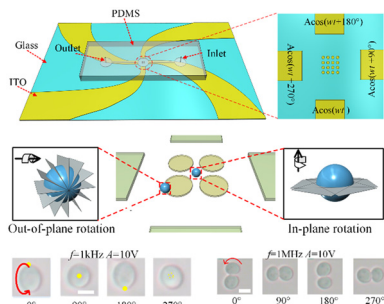
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### Label-free cell classification in holographic flow cytometry through an unbiased learning strategy

Gioele Ciaparrone, Daniele Pirone, Pierpaolo Fiore, Lu Xin, Wen Xiao, Xiaoping Li, Francesco Bardozzo, Vittorio Bianco, Lisa Miccio, Feng Pan,\* Pasquale Memmolo,\* Roberto Tagliaferri\* and Pietro Ferraro

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### Three-dimensional rotation of deformable cells at a bipolar electrode array using a rotating electric field

Yupan Wu,\* Yuanbo Yue, Haohao Zhang, Xun Ma, Zhixin Zhang, Kemu Li, Yingqi Meng, Shaoxi Wang, Xuewen Wang\* and Wei Huang\*

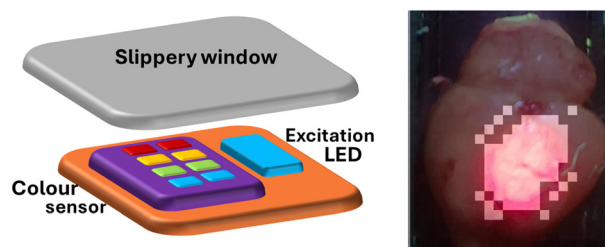




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## Miniature fluorescence sensor for quantitative detection of brain tumour

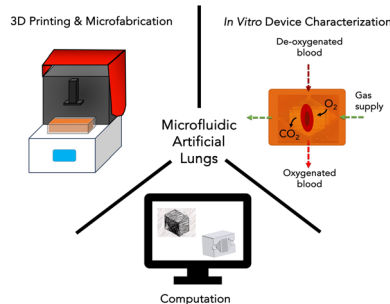
Jean Pierre Ndabakuranye, James Belcourt, Deepak Sharma, Cathal D. O'Connell, Victor Mondal, Sanjay K. Srivastava, Alastair Stacey, Sam Long, Bobbi Fleiss and Arman Ahnood\*



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## Toward 3D printed microfluidic artificial lungs for respiratory support

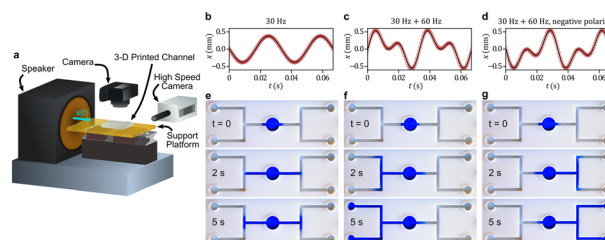
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## Vibrational manipulation of dry granular materials in lab-on-a-chip devices

Timothy C. Hui, Xiaolin Zhang, Dhruva Adiga, Gregory H. Miller and William D. Ristenpart\*



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## Fast and on-site animal species identification in processed meat via centrifugal microfluidics and isothermal amplification

Laura Niebling,\* Ramona Nitzsche, Thorben Sieksmeyer, Vera Haskamp, Jonas Kissenkötter, Ahmed Abd El Wahed, Thomas Teufel, Herbert Hermann, Nils Paust and Ana R. Homann\*

