

# Lab on a Chip

Devices and applications at the micro- and nanoscale  
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## IN THIS ISSUE

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**Cover**  
See Federica Caselli *et al.*, pp. 2883–2892.  
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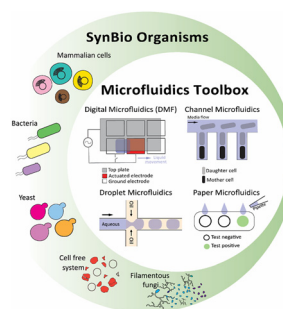
**Inside cover**  
See Sebastian Bohm *et al.*, pp. 2893–2905.  
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## CRITICAL REVIEW

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### Integrating microfluidics and synthetic biology: advancements and diverse applications across organisms

Chiara Leal-Alves, Zhiyang Deng, Natalia Kermeci and Steve C. C. Shih\*

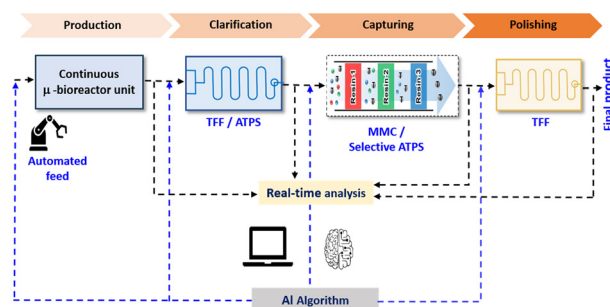


## PERSPECTIVE

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### Toward microfluidic continuous-flow and intelligent downstream processing of biopharmaceuticals

Vikas Sharma, Amirreza Mottafeqh, Jeong-Un Joo, Ji-Ho Kang, Lei Wang and Dong-Pyo Kim\*



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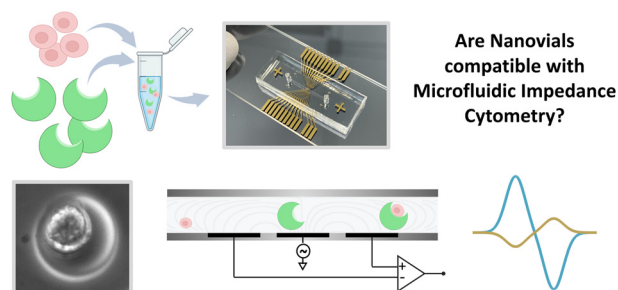
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### On the compatibility of single-cell microcarriers (nanovials) with microfluidic impedance cytometry

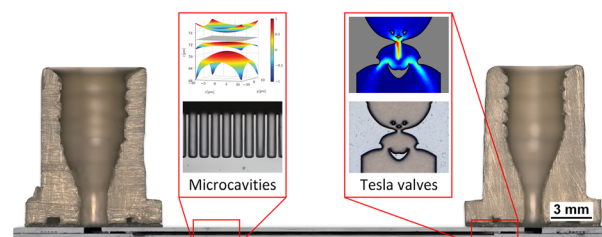
Cristian Brandi, Adele De Ninno, Filippo Ruggiero, Emanuele Limiti, Franca Abbruzzese, Marcella Trombetta, Alberto Rainer, Paolo Bisegna and Federica Caselli\*



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### Chip-integrated non-mechanical microfluidic pump driven by electrowetting on dielectrics

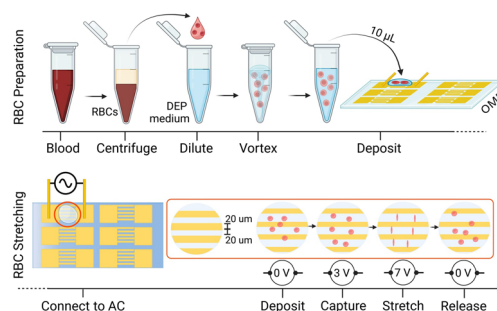
Sebastian Bohm,\* Hai Binh Phi, Lars Dittrich and Erich Runge



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### OMEF biochip for evaluating red blood cell deformability using dielectrophoresis as a diagnostic tool for type 2 diabetes mellitus

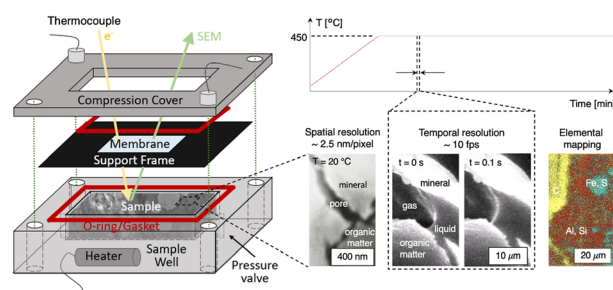
Dima Samer Ali, Samuel O. Sofela, Muhammedin Deliorman, Pavithra Sukumar, Ma-sum Abdulhamid, Sherifa Yakubu, Ciara Rooney, Ryan Garrod, Anoop Menachery, Rabih Hijazi, Hussein Saadi and Mohammad A. Qasaimeh\*



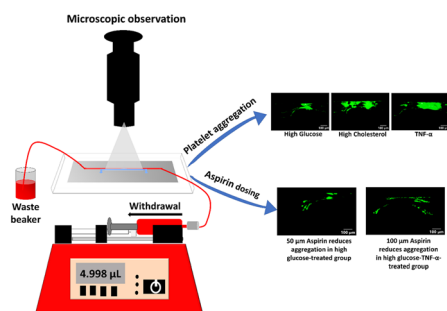
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### Operando scanning electron microscopy platform for *in situ* imaging of fluid evolution in nanoporous shale

Artur Davletshin and Wen Song\*



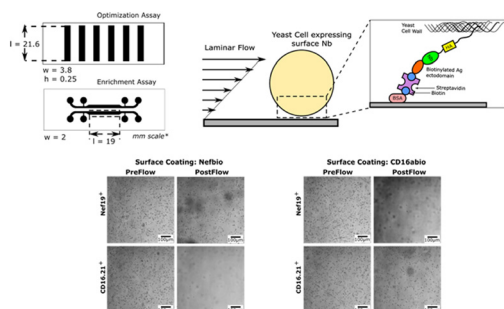
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## Evaluating thrombosis risk and patient-specific treatment strategy using an atherothrombosis-on-chip model

Fahima Akther, Hedieh Fallahi, Jun Zhang, Nam-Trung Nguyen and Hang Thu Ta\*

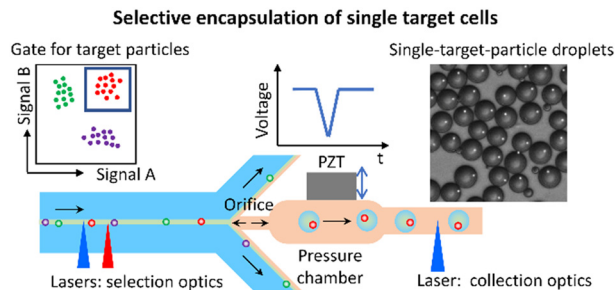
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## Antigen density and applied force control enrichment of nanobody-expressing yeast cells in microfluidics

Merlin Sanicas, Rémy Torro, Laurent Limozin\* and Patrick Chames\*

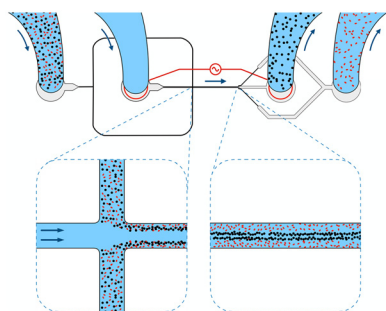
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## Microfluidic device for the high-throughput and selective encapsulation of single target cells

Masahiko Nakamura, Masahiro Matsumoto, Tatsumi Ito, Isao Hidaka, Hirokazu Tatsuta and Yoichi Katsumoto\*

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## Concentration-polarization electroosmosis for particle fractionation

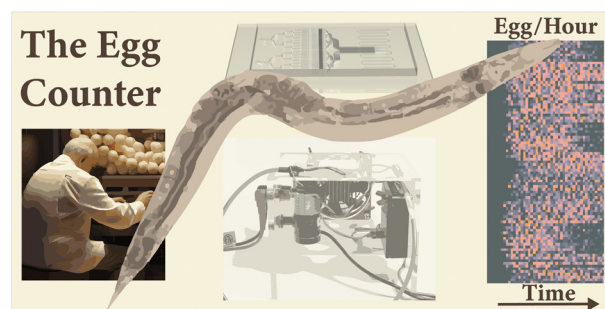
Raúl Fernández-Mateo, Pablo García-Sánchez, Antonio Ramos and Hywel Morgan\*



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## The egg-counter: a novel microfluidic platform for characterization of *Caenorhabditis elegans* egg-laying

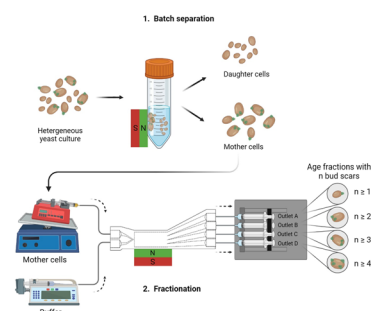
Stephen A. Banse, Cody M. Jarrett, Kristin J. Robinson, Benjamin W. Blue, Emily L. Shaw and Patrick C. Phillips\*



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## Millifluidic magnetophoresis-based chip for age-specific fractionation: evaluating the impact of age on metabolomics and gene expression in yeast

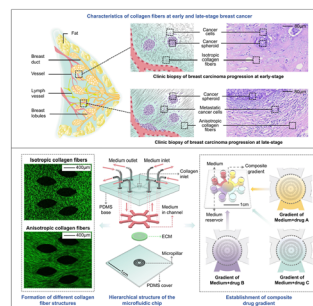
L. Wittmann, M. Eigenfeld, K. Büchner, J. Meiler, H. Habisch, T. Madl, R. Kerpes,\* T. Becker, S. Berensmeier and S. P. Schwaminger\*



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## Emulation and evaluation of tumor cell combined chemotherapy in isotropic/anisotropic collagen fiber microenvironments

Lianjie Zhou, Guoqiang Li,\* Jingru Yao, Jing Wang, Xiyao Yao, Zhikai Ye, Dongtian Zheng, Kena Song, Hongfei Zhang, Xianquan Zhang, Jianwei Shuai, Fangfu Ye, Ming Li, Yufeng Li, Guo Chen, Yuyan Cheng, He Liu, Peter Shaw\* and Liyu Liu\*



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## Automated dynamic inlet microfluidics system: 3D printer adaptation for cost-effective, low volume, on-demand multi-analyte droplet generator

Abdul Basit Zia,\* Justin Farrell and Ian G. Foulds

