Lab on a Chip

Micro- & nano- fluidic research for chemistry, physics, biology, & bioengineering

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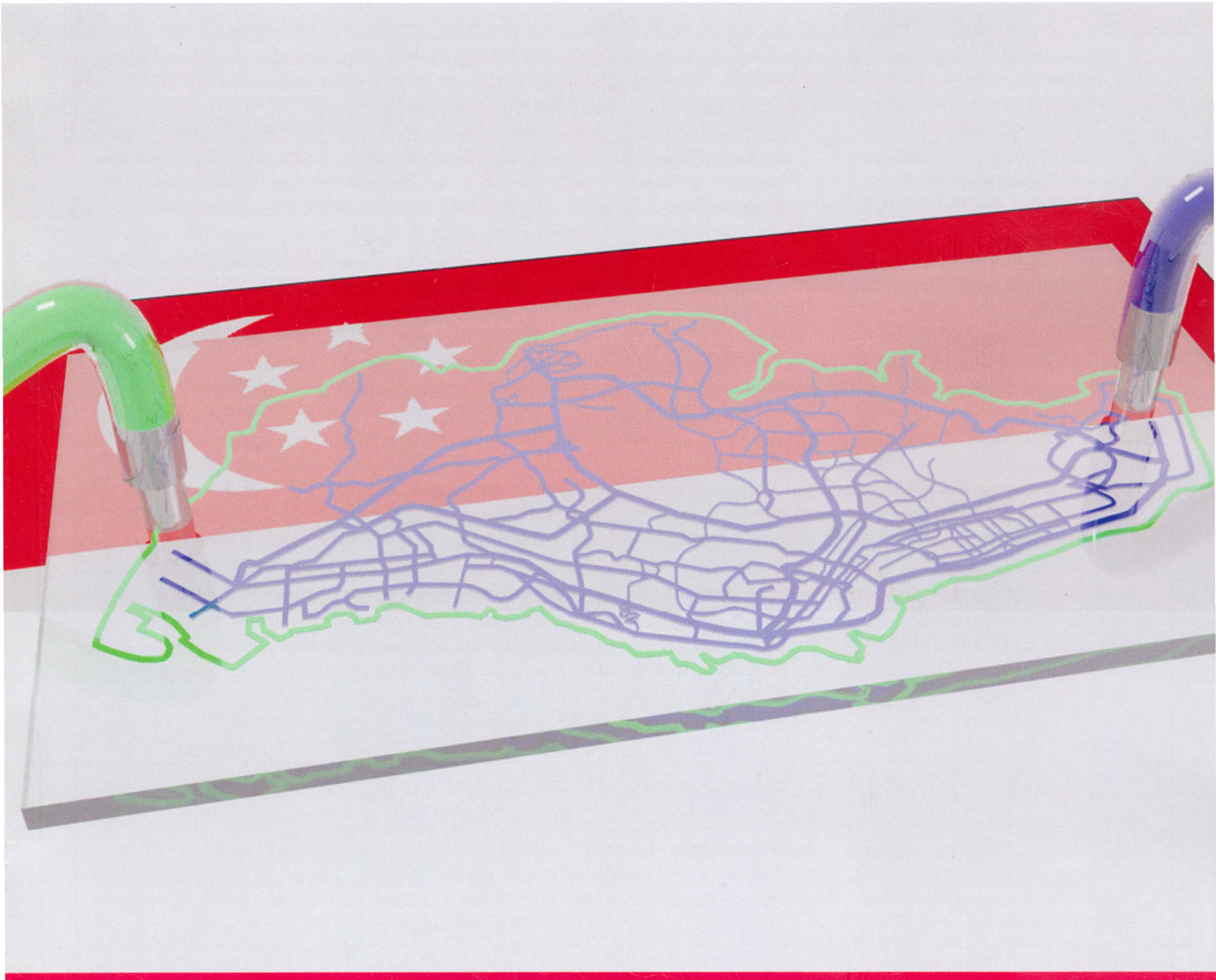

10th Anniversary: Focus on Singapore

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EDITORIAL
Ai-Qun Liu
10th Anniversary issue: Singapore

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Cover
See Ai-Qun Liu, pp. 1851–1852.
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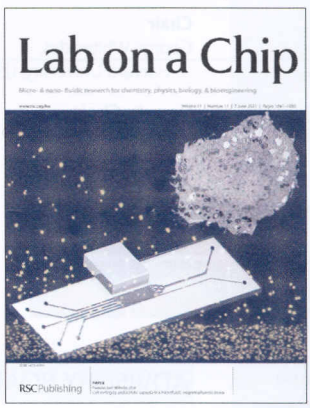
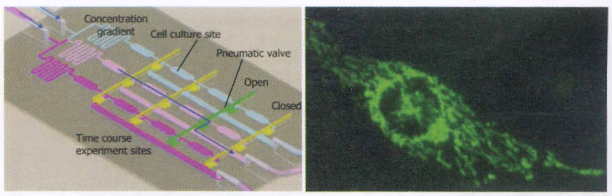


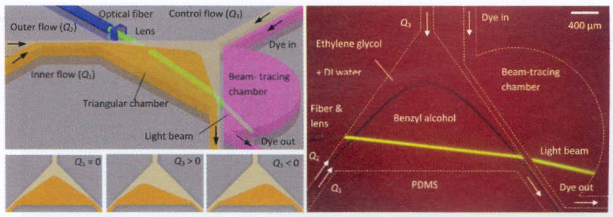
Inside cover
Pamme and Wilhelm *et al.*, pp. 1902–1910.
Image reproduced by permission of Claire Wilhelm from *Lab Chip*, 2011, **11**, 1902.

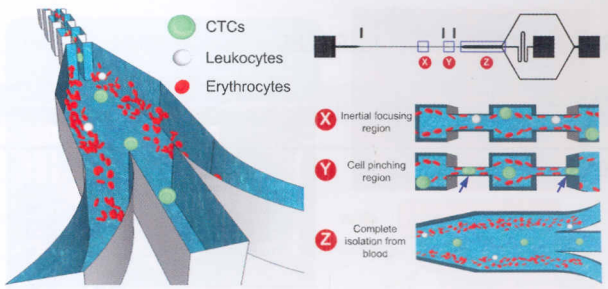
THEMED ISSUE: 10TH ANNIVERSARY FOCUS ON SINGAPORE

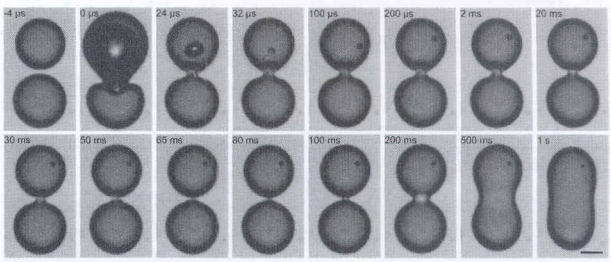
EDITORIAL

PROFILE







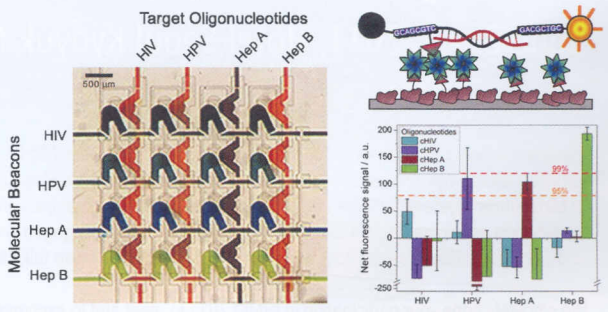


1916

Multiplexed detection of nucleic acids in a combinatorial screening chip

Benjamin R. Schudel, Melikhan Tanyeri, Arnab Mukherjee, Charles M. Schroeder* and Paul J. A. Kenis*

A combinatorial screening chip has been developed for multiplexed detection of viral nucleic acid markers for the diagnosis of infectious disease.

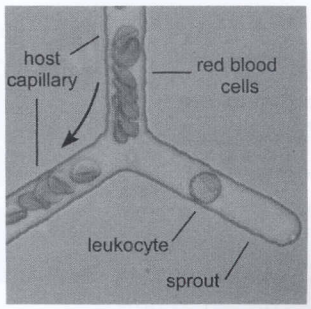


1924

Passive recruitment of circulating leukocytes into capillary sprouts from existing capillaries in a microfluidic system

Omid Forouzan, Jennie M. Burns, Jennifer L. Robichaux, Walter L. Murfee and Sergey S. Shevkoplyas*

This study demonstrates that mechanical interactions between red blood cells and leukocytes at the sprouting bifurcation enable passive entry of leukocytes into the blind-ended capillary sprouts in a microfabricated model system *in vitro*. Our observations suggest a new possible mechanism for leukocyte trafficking during angiogenesis *in vivo*.

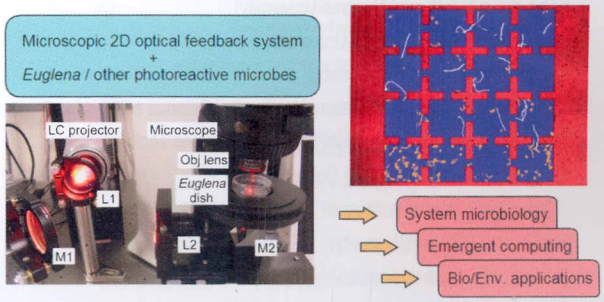


1933

Two-dimensional optical feedback control of *Euglena* confined in closed-type microfluidic channels

Kazunari Ozasa,* Jeesoo Lee, Simon Song, Masahiko Hara and Mizuo Maeda

We developed and demonstrated 2D optical feedback control of the density and position of *Euglena* cells swimming in microaquariums.

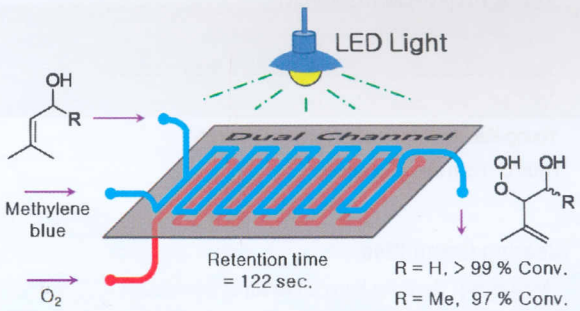


1941

Efficient photosensitized oxygenations in phase contact enhanced microreactors

Chan Pil Park, Ram Awatar Maurya, Jang Han Lee and Dong-Pyo Kim*

Transparent dual-channel microreactor shielded with polyvinylsilazane (PVSZ) was fabricated for photosensitized oxygenation conducted with light and O_2 gas.

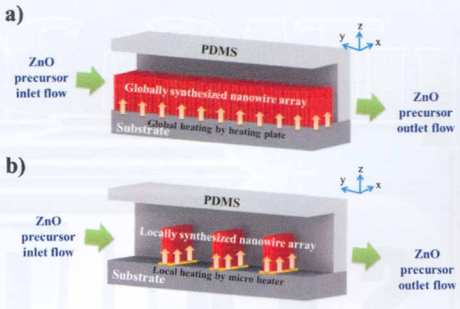


1946

Direct synthesis and integration of functional nanostructures in microfluidic devices

Jung Kim, Zhiyong Li and Inkyu Park*

In this paper, we report a novel and simple method for the *in situ* synthesis and integration of ZnO nanowires by controlled hydrothermal reaction within microfluidic devices.

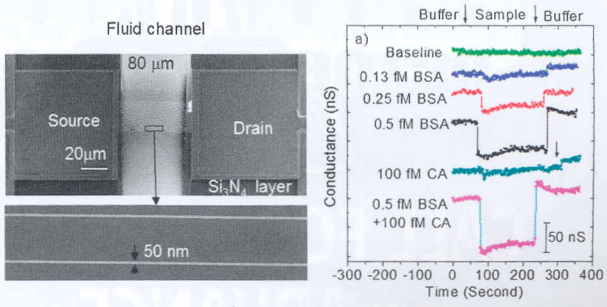


1952

Ultrasensitive protein detection using lithographically defined Si multi-nanowire field effect transistors

Ruhai Tian, Suresh Regonda, Jinming Gao, Yaling Liu and Walter Hu*

We present the lithographic silicon multi-nanowire FETs with improved uniformity and stability for protein sensing at sub-femtomolar limit of detection.

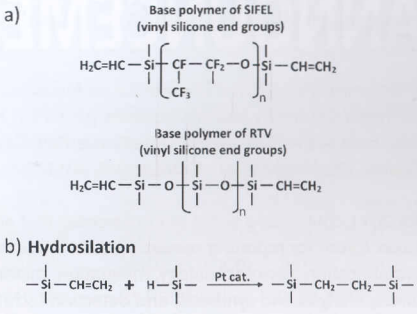


1962

Multilayer soft lithography of perfluoropolyether based elastomer for microfluidic device fabrication

Naga Sai Gopi Krishna Devaraju* and Marc Alexander Unger

We report successful fabrication of microfluidic devices from a novel perfluoropolyether based polymer utilizing the Multilayer Soft Lithography™ technique (MSL) with simple, straightforward processing.



1968

Pressure drop of slug flow in microchannels with increasing void fraction: experiment and modeling

Shahnawaz Molla, Dmitry Eskin and Farshid Mostowfi*

Constant pressure gradient was observed for gas-liquid slug flow along a microchannel where gas bubbles progressively expanded and flow velocity increased due to significant pressure drop.