Lab on a Chip

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

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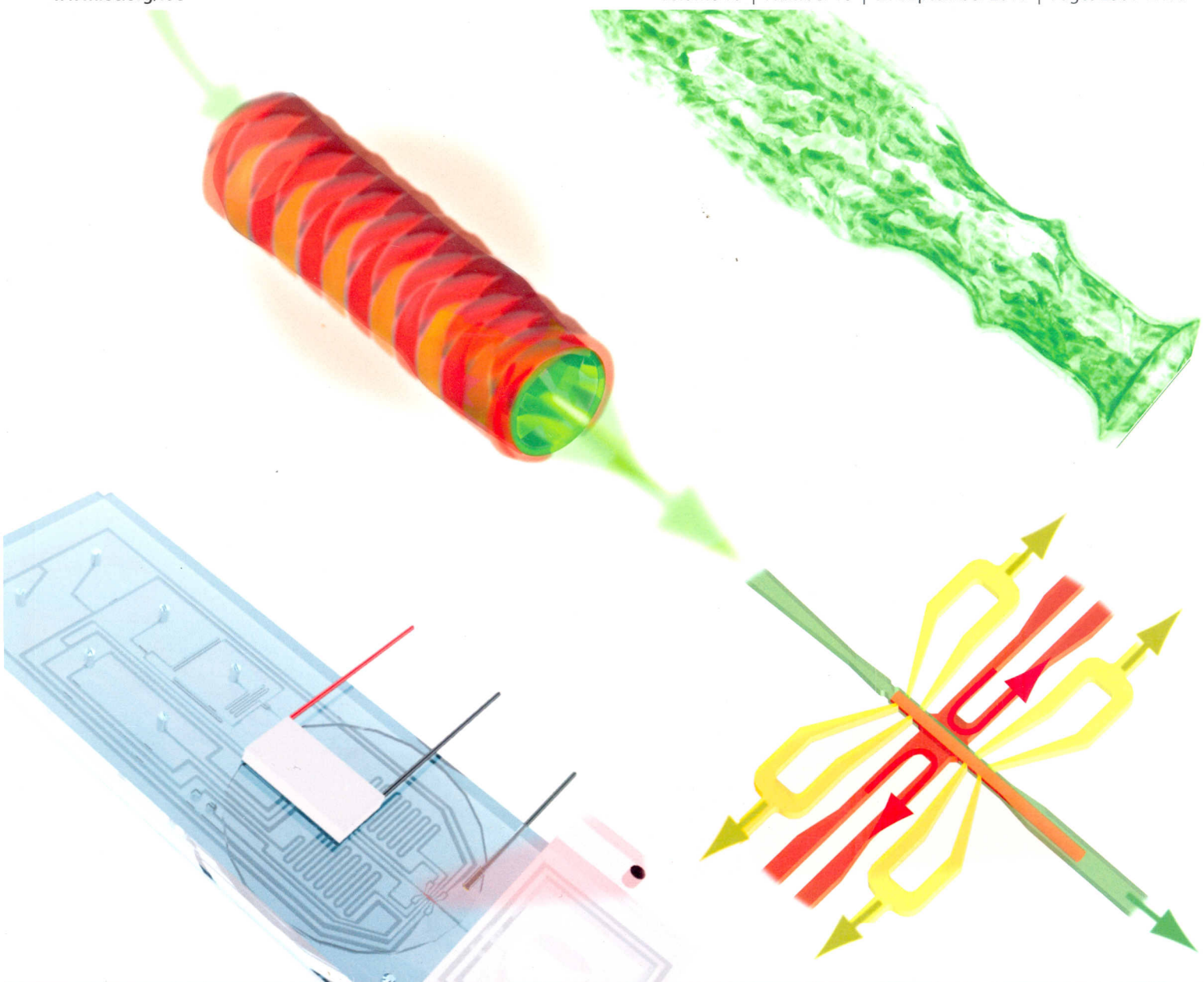

2010 Emerging Investigators Themed Issue

ISSN 1473-0197

RSC Publishing

Günther *et al.*
Probing small arteries

Love *et al.*
Gene expression detection

Celebrating 10 Years of publishing

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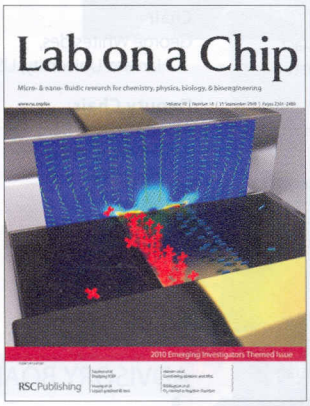
ISSN 1473-0197 CODEN LCAHAM 10(18) 2301–2480 (2010)

Cover

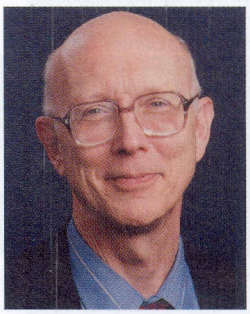
See Günther *et al.*, pp. 2341–2349. The first scalable platform to probe the function of intact small blood vessels *in vitro* in response to controlled changes in the chemical microenvironment (red and green fluid streams). Image reproduced by permission of Axel Günther from *Lab Chip*, 2010, **10**, 2341.



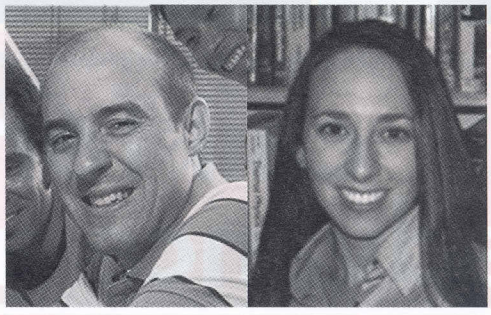
Inside cover

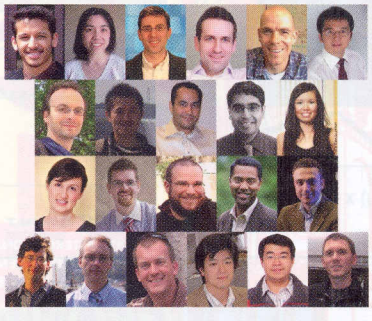
See Squires *et al.*, pp. 2350–2357. A planar metallic strip in a microchannel provides an ideal system to investigate induced-charge electrokinetic flows under various experimental conditions. Image reproduced by permission of Todd M. Squires from *Lab Chip*, 2010, **10**, 2350.

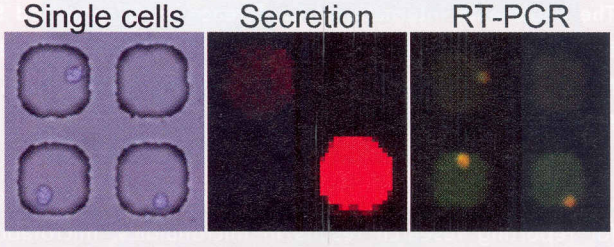
EDITORIAL

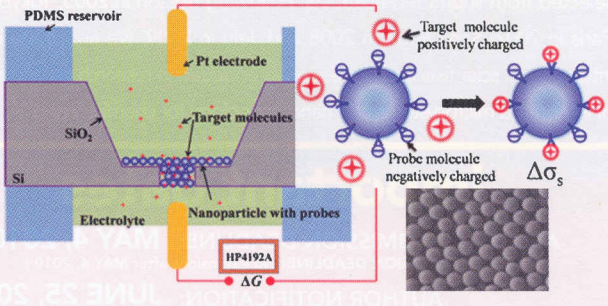


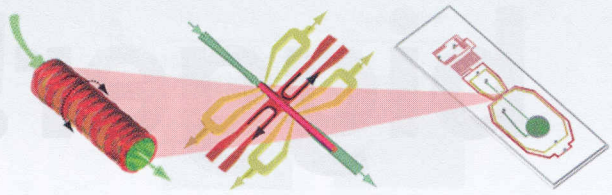
HIGHLIGHT

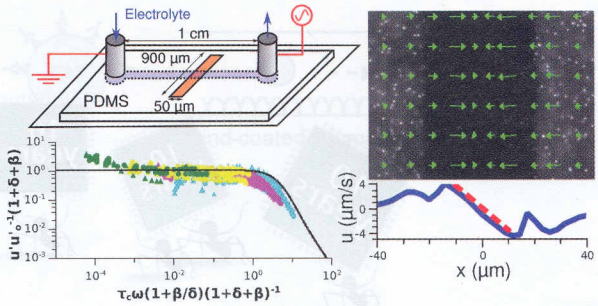


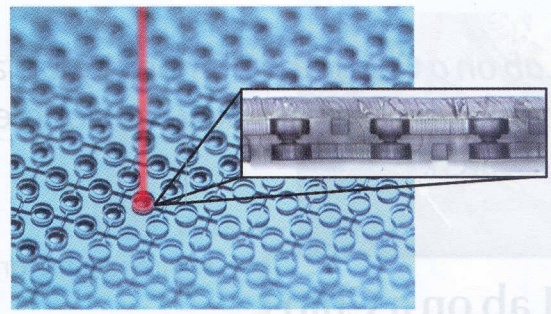


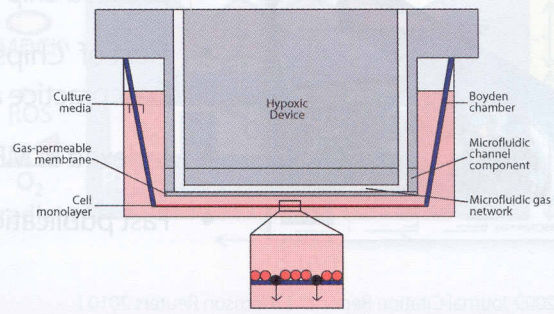


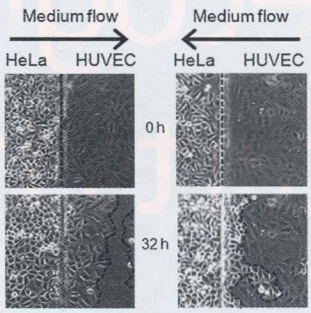


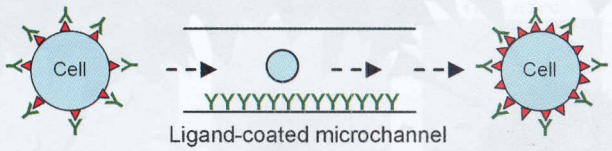


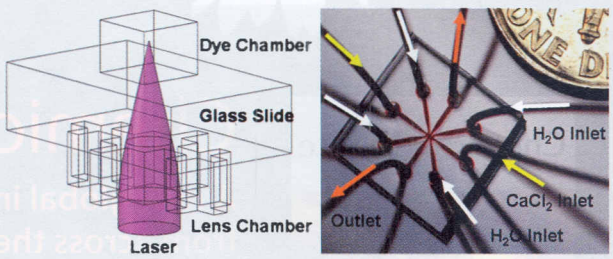


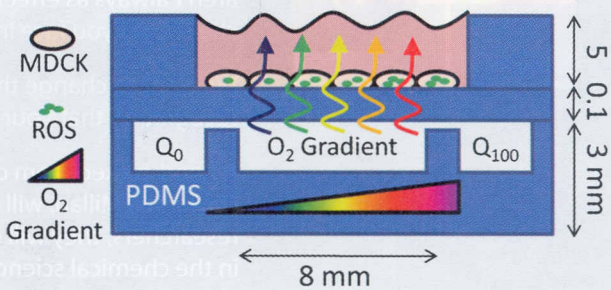










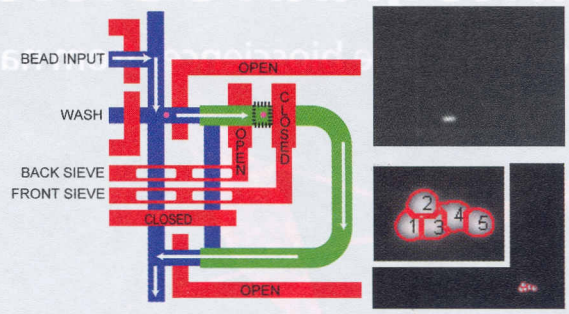


2402

Image-based feedback control for real-time sorting of microspheres in a microfluidic device

Matthew S. Munson, James M. Spotts, Antti Niemistö, Jyrki Selinummi, Jason G. Kralj, Marc L. Salit and Adrian Ozinsky*

We demonstrate an automated particle sorter with single particle precision. It is capable of constructing arrays of diverse particle types in individually addressable microfluidic assay chambers.

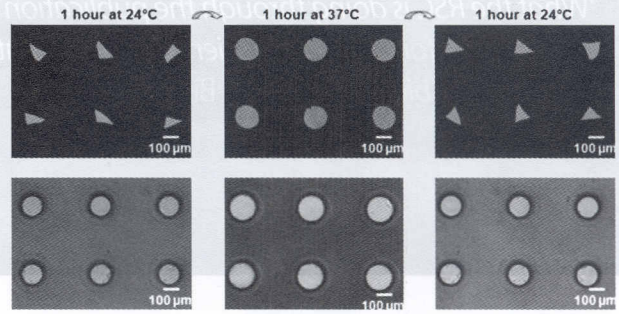


2411

Stimuli-responsive microwells for formation and retrieval of cell aggregates

Halil Tekin, Michael Anaya, Mark D. Brigham, Claire Nauman, Robert Langer* and Ali Khademhosseini*

We demonstrate that shape changing microwells can be made from temperature responsive polymers. The temperature induced changes in microwell diameters applied mechanical forces to cell aggregates that resulted in their retrieval from the microwell arrays with high efficiency.

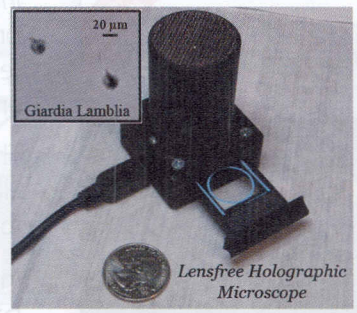


2419

Detection of waterborne parasites using field-portable and cost-effective lensfree microscopy

Onur Mudanyali, Cetin Oztoprak, Derek Tseng, Anthony Erlinger and Aydogan Ozcan*

We investigate the use of a field-portable and cost-effective lensfree holographic microscope to image and detect pathogenic protozoan parasites such as *Giardia Lamblia* and *Cryptosporidium Parvum* at low concentration levels.

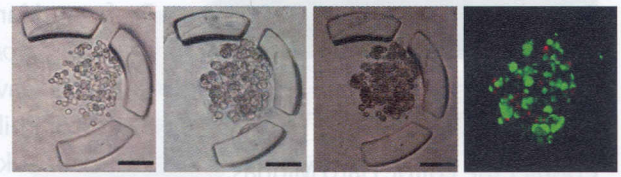


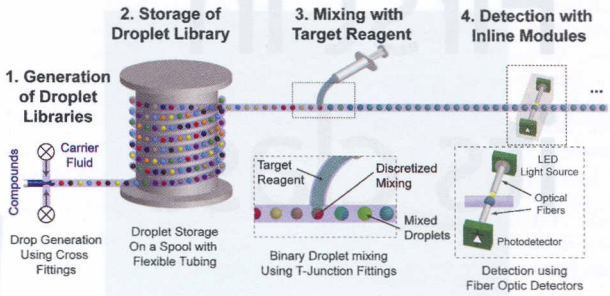
2424

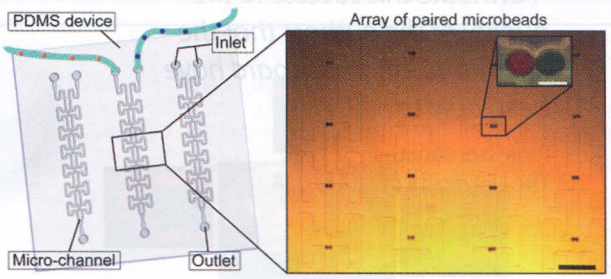
Droplet-based microfluidic system for multicellular tumor spheroid formation and anticancer drug testing

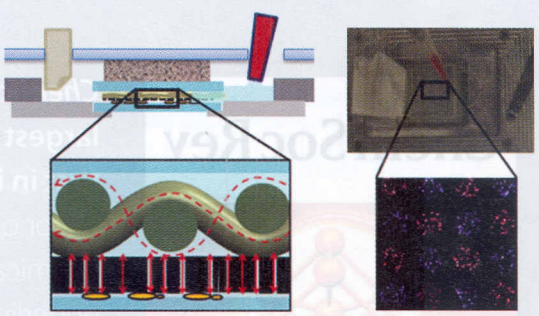
Linfen Yu, Michael C. W. Chen and Karen C. Cheung*

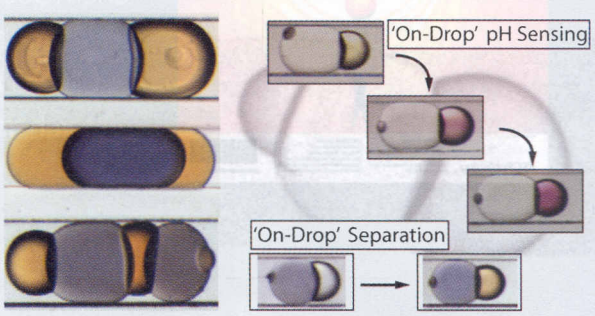
We demonstrate a droplet-based microfluidic platform for three-dimensional cell culture and drug toxicity testing. Tumor cells encapsulated in alginate droplets form multicellular tumor spheroids, and the dose-dependent response of spheroids to doxorubicin can be imaged and quantified.



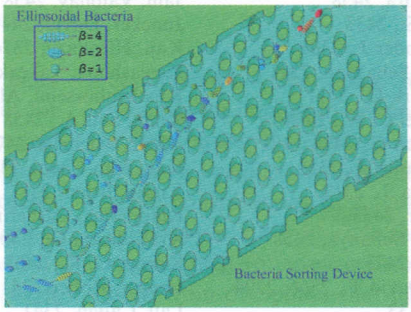








METHOD



TECHNICAL NOTE