# Lab on a Chip

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

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10th Anniversary: Focus on Switzerland

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RSC Publishing

Vogel
Nanocargo shuttles

Valero
Single cell spectroscopy

Celebrating 10 Years of publishing

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# Lab on a Chip

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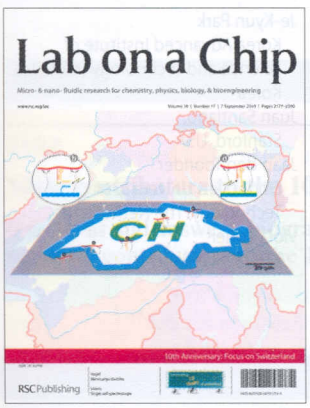
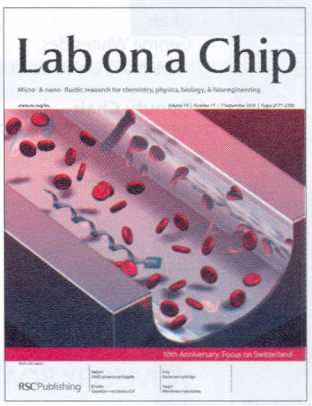
## IN THIS ISSUE


ISSN 1473-0197 CODEN LCAHAM 10(17) 2177–2300 (2010)


**Cover**

See Schmidt and Vogel, pp. 2195–2198.
Loading and unloading of nanocargo by "molecular shuttles" integrated into one device. A kinesin propelled microtubule enters the loading station (map of Switzerland), picks up cargo there, transports it to and delivers it at the unloading station (letters "CH"). Image reproduced by permission of Claudia Schmidt and Viola Vogel from *Lab Chip*, 2010, **10**, 2195.

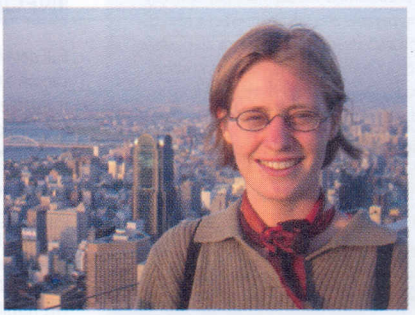



**Inside cover**

See Nelson *et al.*, pp. 2203–2215.
Artificial bacterial flagella provide mobile manipulation tools for local fluid flow control and performing batch manipulation of microobjects in liquid.
Image reproduced by permission of Li Zhang, Kathrin E. Peyer and Bradley J. Nelson from *Lab Chip*, 2010, **10**, 2203.

## HIGHLIGHT

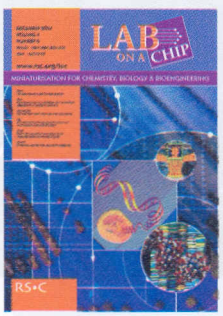




## THEMED ISSUE: 10TH ANNIVERSARY: FOCUS ON SWITZERLAND

## EDITORIALS





## EDITORIALS

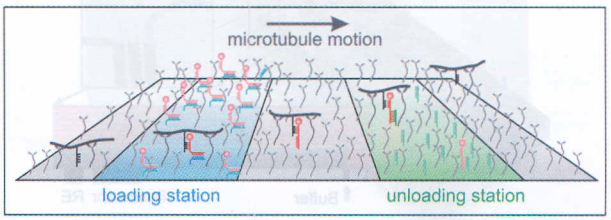


## PROFILE



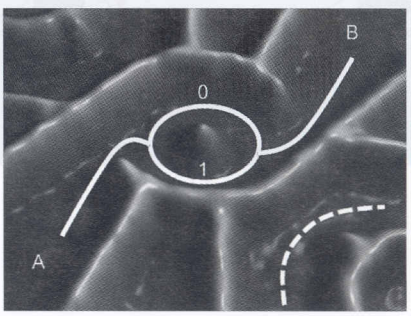
## COMMUNICATION






## FRONTIERS



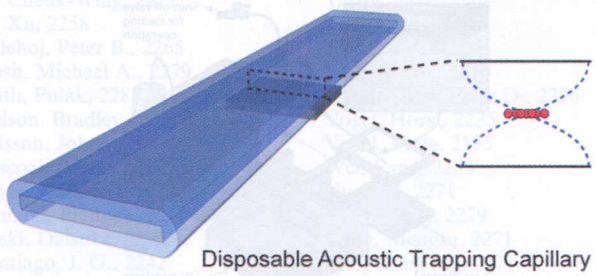


## CRITICAL REVIEWS

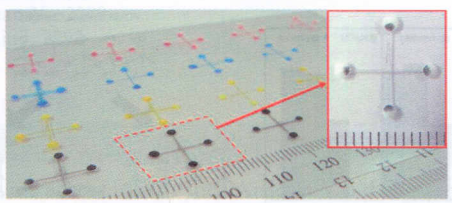


## PAPERS

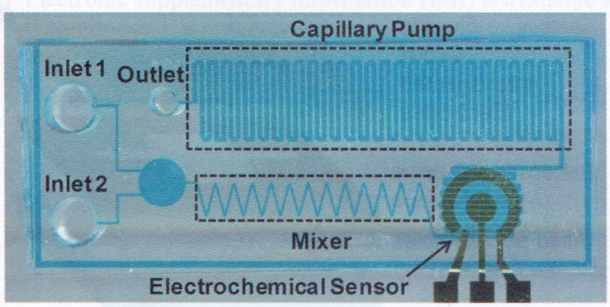


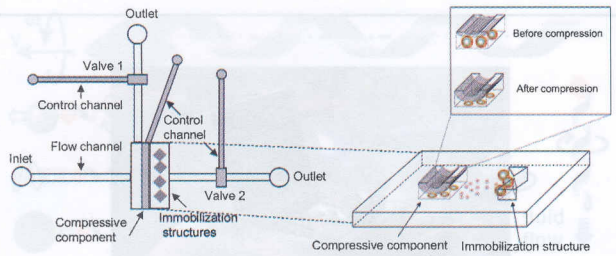










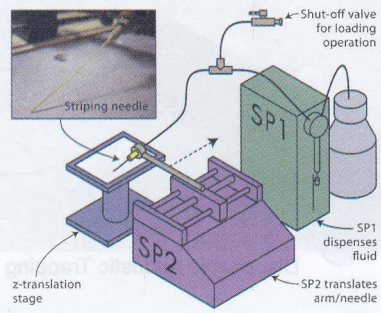

**Real-time monitoring of suspension cell–cell communication using an integrated microfluidics**

Tao Xu, Wanqing Yue, Cheuk-Wing Li, Xinsheng Yao,* Guoping Cai and Mengsu Yang*

Real-time monitoring of suspension cell–cell communication is achieved by a microfluidics device with integrated functions of cell entrapment and immobilization, selective exertion of mechanical stimulation, and fluid control.





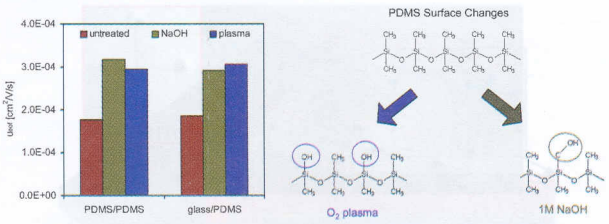



**Laboratory-scale protein striping system for patterning biomolecules onto paper-based immunochromatographic test strips**

Michael A. Nash,* John M. Hoffman, Dean Y. Stevens, Allan S. Hoffman, Patrick S. Stayton and Paul Yager

A simple yet effective system utilizing laboratory syringe pumps to pattern narrow lines of biomolecules onto porous membranes is described. This method proved useful for the laboratory-scale fabrication of lateral flow biosensors.



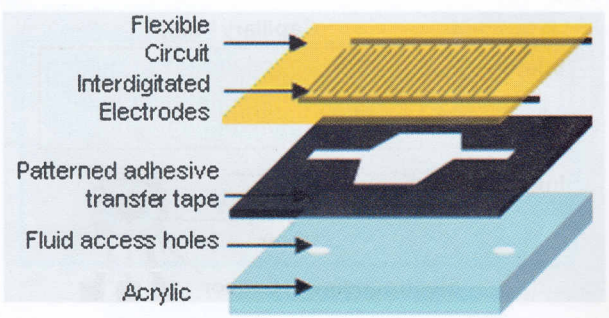



**Sodium hydroxide treatment of PDMS based microfluidic devices**

Ingrid Hoek,* Febly Tho and W. Mike Arnold

Treatment of PDMS/PDMS and glass/PDMS microchannels with aqueous NaOH leads to a doubling of the electroosmotic flow. This high flow rate is comparable to the flow rates achieved by treating PDMS microchannels with $O_2$ plasma. Contact angle measurements and ATR-FTIR analysis show that the surface chemistry of the NaOH treated PDMS differs from $O_2$ plasma treated PDMS.

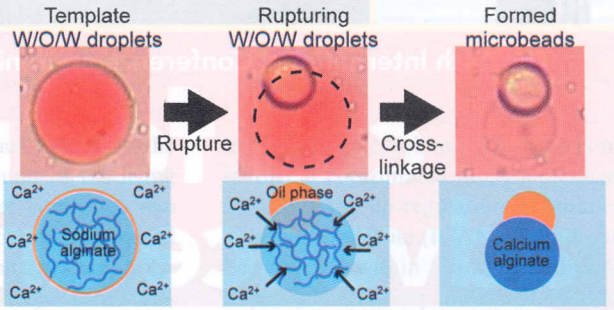





**Rapid prototyping of robust and versatile microfluidic components using adhesive transfer tapes**

Pulak Nath,* Derek Fung, Yuliya A. Kunde, Ahmet Zeytun, Brittany Branch and Greg Goddard

A rapid microfluidic prototyping technique is reported using adhesive transfer tapes to fabricate wide variety of functional microfluidic devices (*e.g.* an acoustic mixer, a DEP particle trap, a complex microchannel network, a high temperature bioreactor and a novel world-to-chip interface), which demonstrate the robustness and versatility of fabricating integrated lab on a chip systems.




## AUTHOR INDEX



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