Lab on a Chip

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

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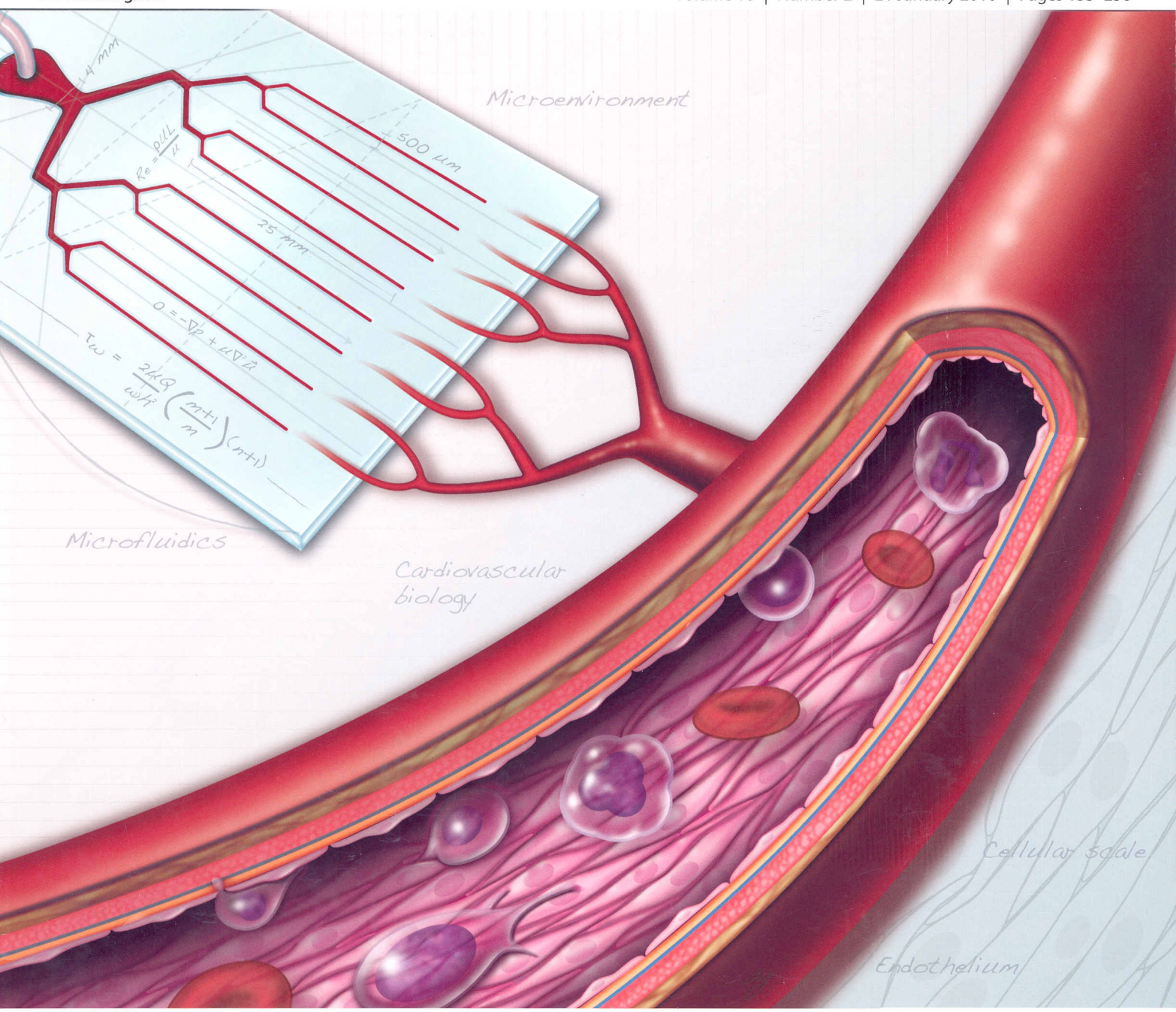

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Simmons
Endothelial cell biology

Wang
Counting single molecules

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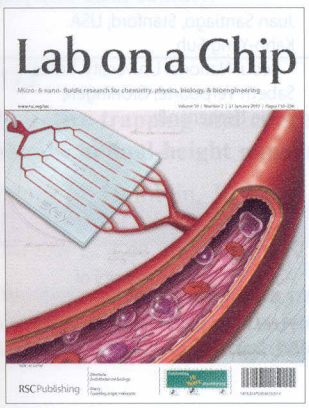
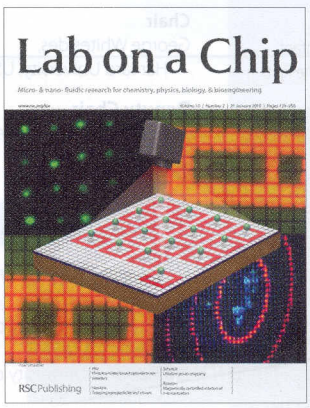
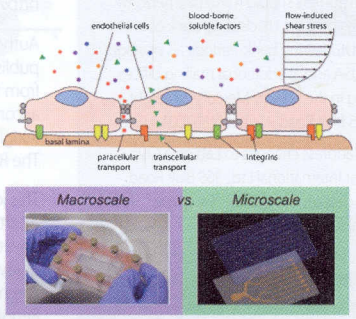


Cover
See Young and Simmons, pp. 143–160.
Microfluidic systems that mimic the blood vessel microenvironment can provide new insights into endothelial cell biology.
Image reproduced by permission of Edmond W. K. Young and Craig A. Simmons from *Lab Chip*, 2010, **10**, 143.

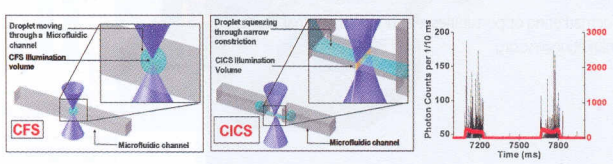


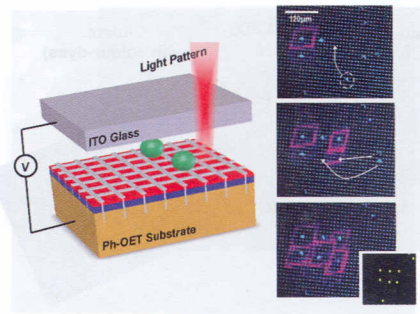
Inside cover
See Hsu, Ohta, Chiou *et al.*, pp. 165–172.
Practical cell control made easy; a new tool for home projector-based optical manipulation for cells in their native environment. The background shows cell array, separation, collection and interaction functions.
Image reproduced by permission of Hsan-yin Hsu, Aaron T. Ohta, Pei-Yu Chiou, Arash Jamshidi, Steven L. Neale and Ming C. Wu from *Lab Chip*, 2010, **10**, 165–172.

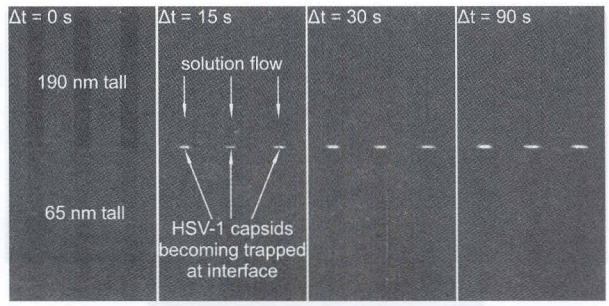
CRITICAL REVIEW

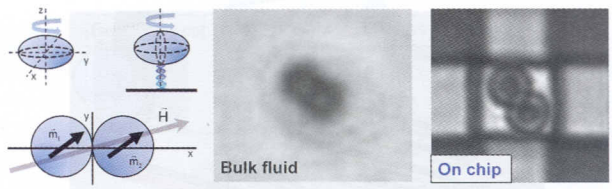


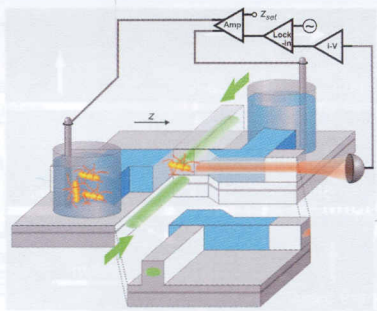
COMMUNICATION











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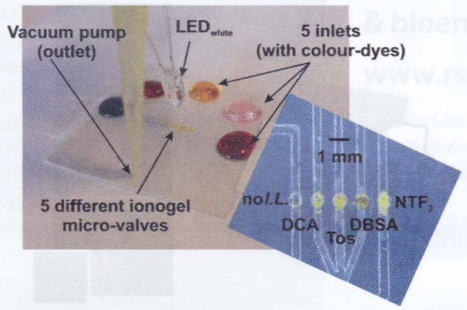

Ionogel-based light-actuated valves for controlling liquid flow in micro-fluidic manifolds

Fernando Benito-Lopez, Robert Byrne, Ana Maria Răduţă, Nihal Engin Vrana, Garrett McGuinness and Dermot Diamond*

Novel multifunctional materials based on ionogels have been used as light-actuated valve structures in micro-fluidic platforms. Through variation of the composition of the ionogels, the micro-valves can be tuned to open at different times under similar illumination conditions.

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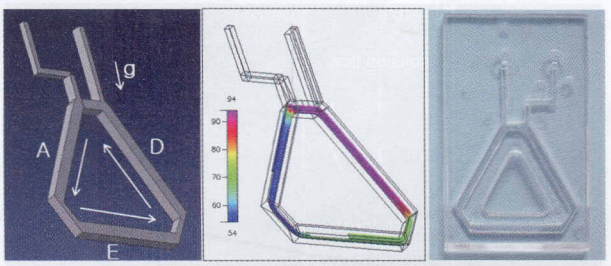

A palmtop PCR system with a disposable polymer chip operated by the thermosiphon effect

Kwang Hyo Chung, Se Ho Park and Yo Han Choi*

This paper describes a palmtop-sized PCR system operated by the thermosiphon effect. The loop channel is molded in a polymer chip. Not only is the polymer chip advantageous for making disposable LOCs, but also has merits in versatile integration, mass production and facile handling.

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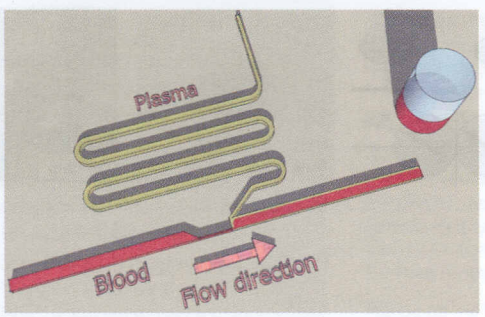

High flow rate microfluidic device for blood plasma separation using a range of temperatures

Angeles Ivón Rodríguez-Villarreal,* Martin Arundell, Manuel Carmona and Josep Samitier

A microfluidic device able to remove up to 97.58 ± 0.45% of cells from plasma from a whole blood sample at a wide range of temperatures, using high flow rates and powered by hand.

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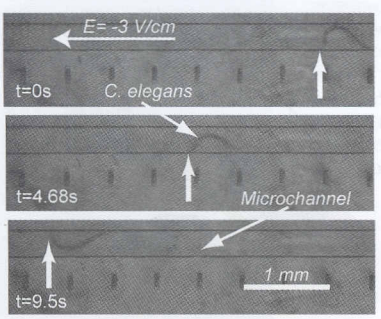
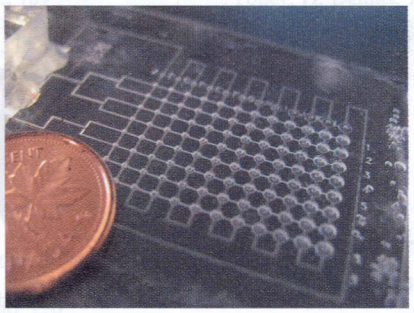
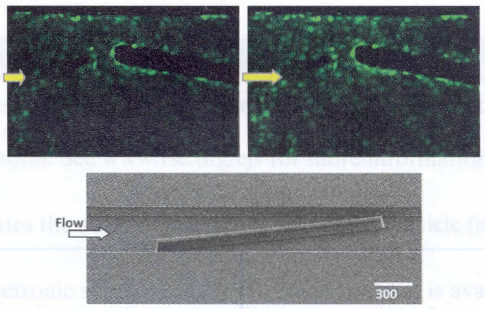


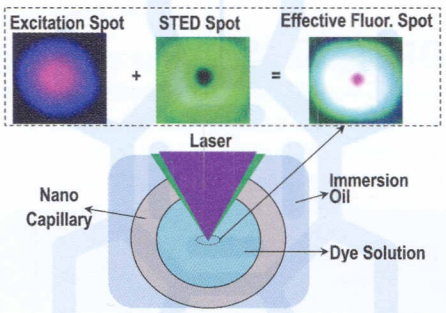
Electrotaxis of *Caenorhabditis elegans* in a microfluidic environment

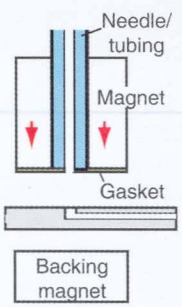
Pouya Rezai, Asad Siddiqui, Ponnambalam Ravi Selvaganapathy* and Bhagwati P. Gupta*

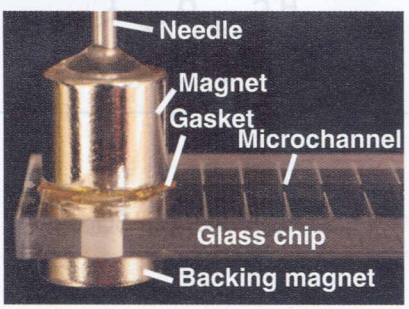
Different developmental stages of *Caenorhabditis elegans* nematodes respond to specific ranges of electric field with different speeds. Application: drug discovery, sorting, and manipulation.











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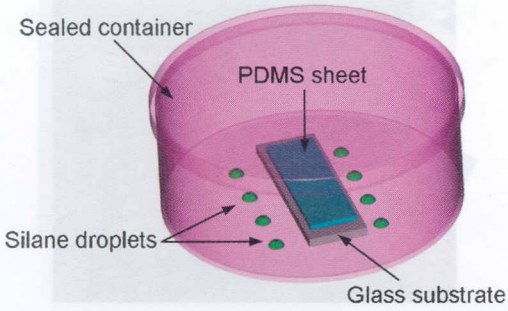

A vapor-assisted method for adhering polydimethylsiloxane and glass

Aarash Y. N. Sofla* and Cristina Martin

PDMS and glass can be permanently bonded if exposed to a certain silane vapor. This inexpensive method does not require oxygen plasma or adhesives, and can be used by inexperienced operators.