Lab on a Chip

Miniaturisation for chemistry, physics, biology and bioengineering

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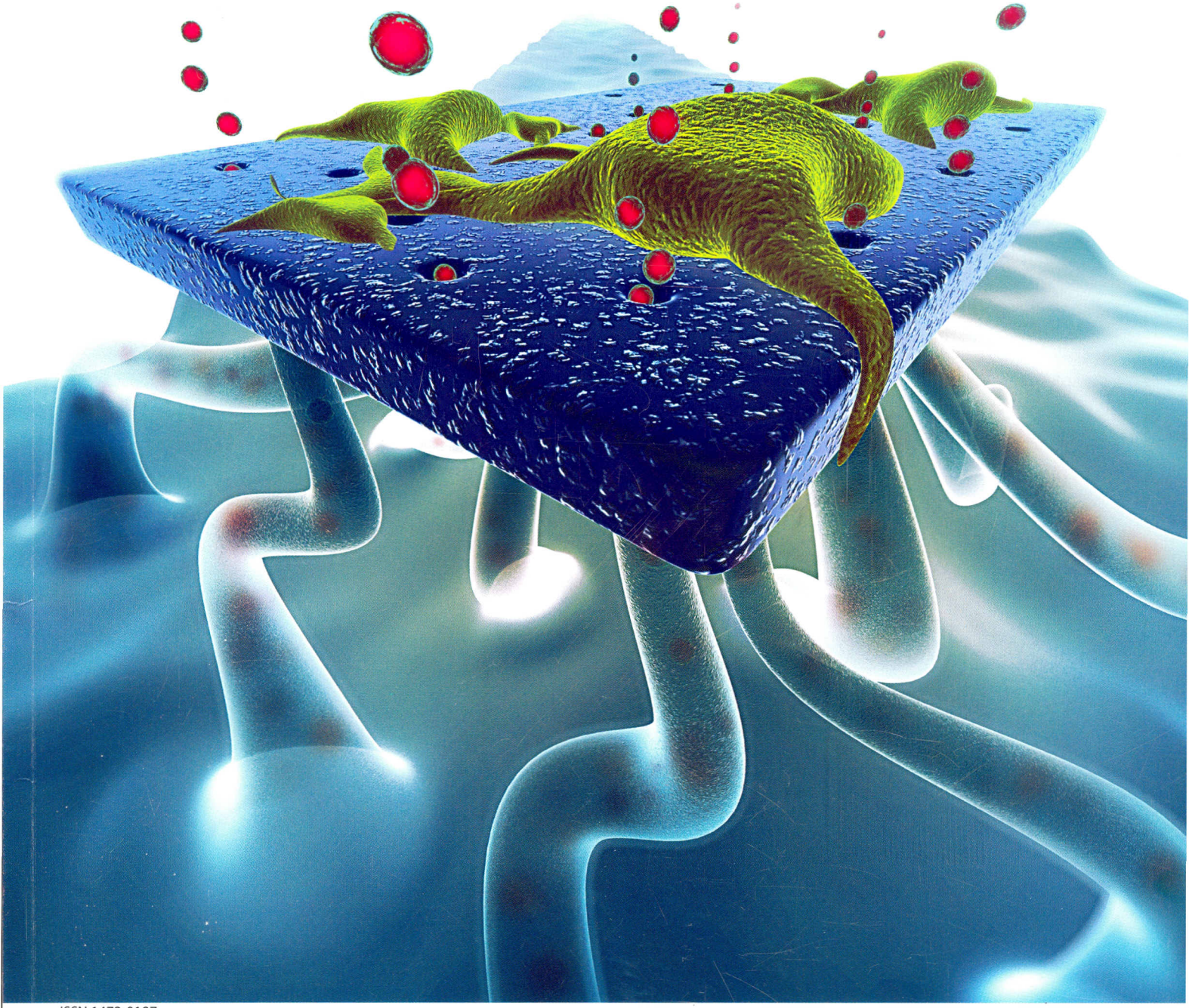
Volume 11 | Number 18 | 21 September 2011 | Pages 3017–3198



ISSN 1473-0197

RSC Publishing

PAPER

Nicholas A. Melosh *et al.*

Rapid spatial and temporal controlled signal delivery over large cell culture areas

1473-0197(2011)11:18;1-Z

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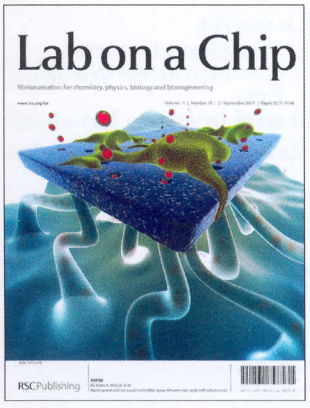
ISSN 1473-0197 CODEN LCAHAM 11(18) 3017–3198 (2011)



Cover
See Nicholas A. Melosh *et al.*, pp. 3057–3063.
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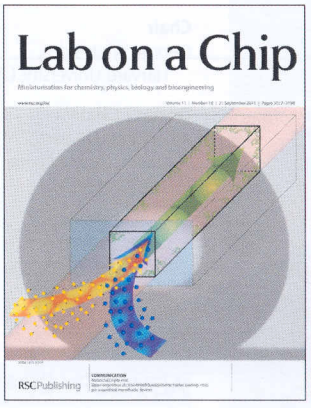

Inside cover
See Malancha Gupta *et al.*, pp. 3049–3052.
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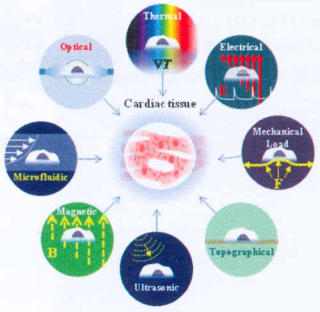
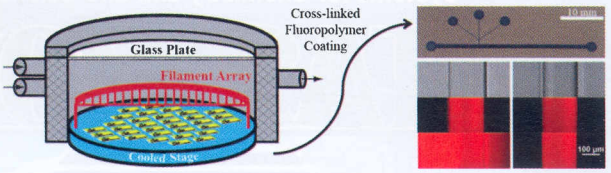
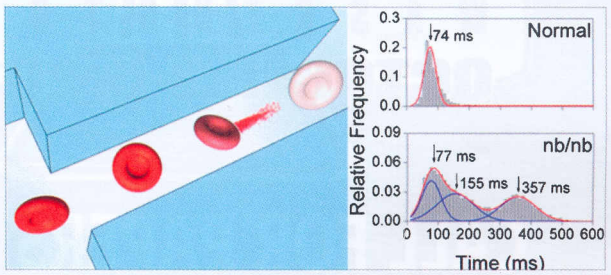
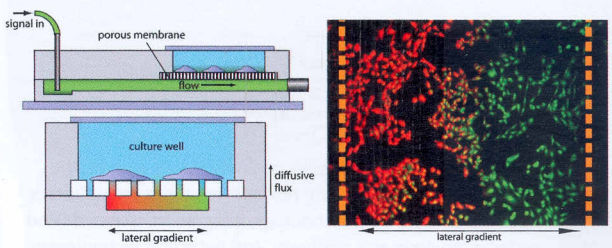
HIGHLIGHT

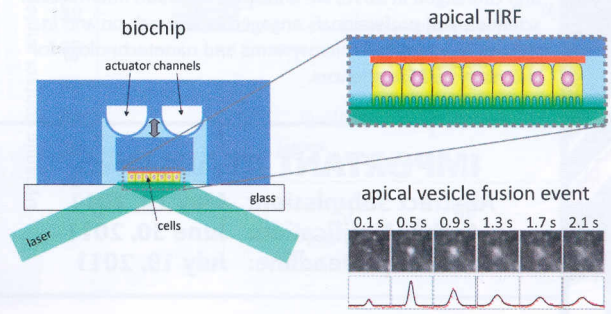
CRITICAL REVIEW

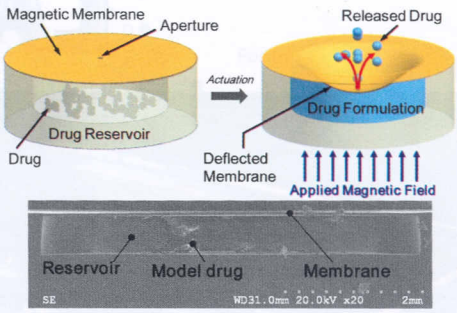


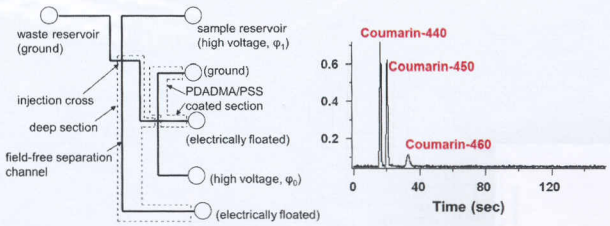


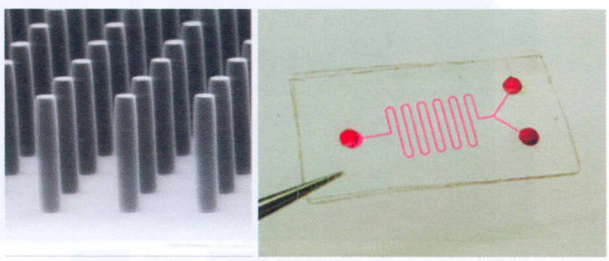


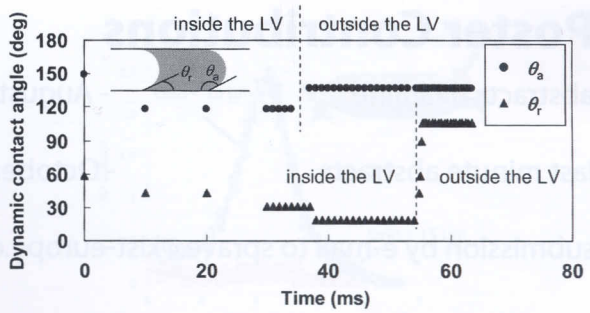










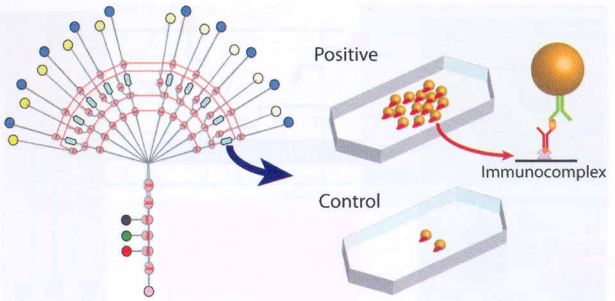


3106

Integrated microfluidic bioprocessor for solid phase capture immunoassays

Jungkyu Kim, Erik C. Jensen, Mischa Megens, Bernhard Boser and Richard A. Mathies*

A programmable microfluidic device with automated sample delivery, hydrodynamic washing and substrate compatibility is developed for solid-phase immunoassays based on microparticle labeling.

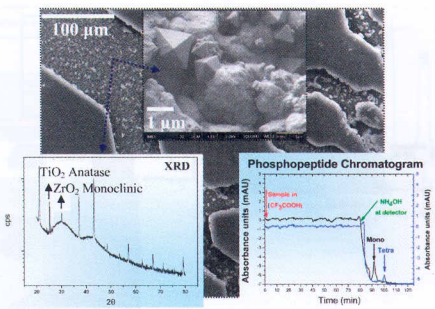


3113

TiO_2–ZrO_2 affinity chromatography polymeric microchip for phosphopeptide enrichment and separation

Katerina Tsougeni, Panagiotis Zerefos, Angeliki Tserepi, Antonia Vlahou, Spiros D. Garbis and Evangelos Gogolides*

We demonstrate enrichment and separation of (a) a standard mono- and tetra-phosphopeptide, and (b) phosphopeptides contained in a tryptic digest of β-Casein. The chip had a capacity of >1.4 μg (0.7 nmol) and a recovery of 94 ± 3%, and can be reproducibly used several times.

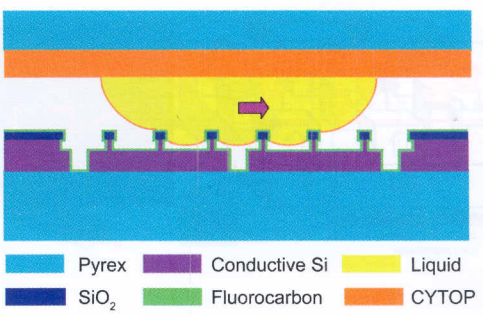


3121

Engineering superlyophobic surfaces as the microfluidic platform for droplet manipulation

Tianzhun Wu* and Yuji Suzuki

Microfabricated engineering superlyophobic surfaces (SLS), which exhibit extremely high contact angle, good pressure, low adhesion and flow friction, are proposed as the universal microfluidic platform for droplet manipulation applicable for various liquids. When a hexadecane droplet is moved manually between a smooth Teflon-like surface (CYTOP) and the SLS, its adhesion and flow resistance on SLS are reduced by 98% and 73% respectively compared with the smooth surface.

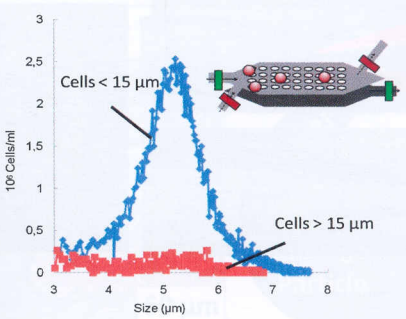


3130

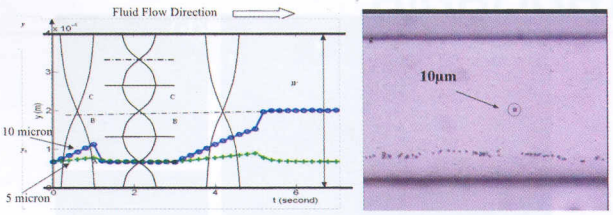
Microfluidic purification and analysis of hematopoietic stem cells from bone marrow

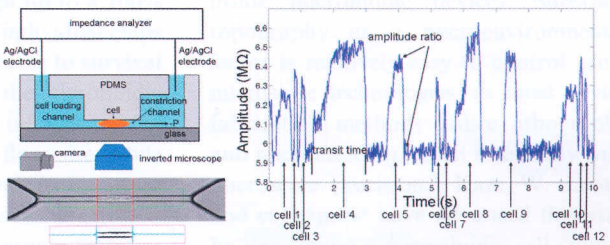
Romana Schirhagl, Ingo Fuereder, Eric W. Hall, Bruno C. Medeiros and Richard N. Zare*

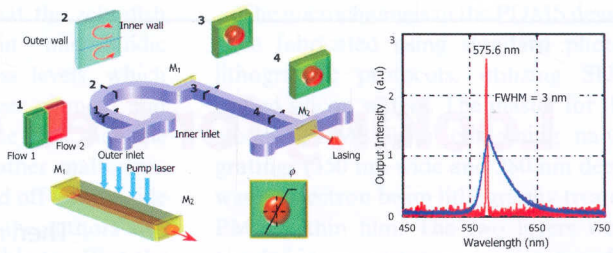
We present a filter-based microfluidic chip that is able to separate by size hematopoietic stem cells present in bone marrow samples.



PAPERS







TECHNICAL NOTES