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¹National Tsing Hua University, TAIWAN, ²Industrial Technology Research Institute, TAIWAN, and
³Academia Sinica, TAIWAN

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¹University of Tokyo, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN

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¹Kanagawa Academy of Science and Technology (KAST), JAPAN and ²University of Tokyo, JAPAN

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¹University of Tokyo, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN

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| <i>¹Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY,</i> | |
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¹University of California, Los Angeles, USA, ²Vortex Biosciences, USA, and ³University of California, Los Angeles Medical Center, USA

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¹Nagaoka University of Technology, JAPAN and ²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

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¹*University of Maryland, College Park, USA* and ²*National Chung Hsing University, TAIWAN*

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¹*University of Freiburg - IMTEK, GERMANY*, ²*Jobst Technologies GmbH, GERMANY*, and ³*Bionas GmbH, GERMANY*

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¹Nagoya University, JAPAN, ²Stockholm University, SWEDEN, ³Hokkaido University, JAPAN, and ⁴National Institute for Materials Science, JAPAN, and ⁵National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

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S. Peeters¹, B. Jones¹, O. Ibrahim^{1,3}, R. Wiederkehr¹, L. Zhang¹, H. Tanaka⁴, T. Matsuno⁴,
I. Yamashita⁴, B. Majeed¹, T. Stakenborg¹, P. Fiorini¹, and L. Lagae¹
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³*Centre of Excellence for Nano-manufacturing Applications (CENA), SAUDI ARABIA*, and
⁴*Panasonic Corporation, JAPAN*

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F. Pastorino¹ and G. Simone²
¹*Istituto G. Gaslini, ITALY* and ²*University of Napoli, ITALY*

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J. Kai¹, A. Puntambekar¹, S.H. Lee¹, J. Han¹, and C.H. Ahn^{1,2}
¹*Siloam Biosciences Inc., USA* and ²*University of Cincinnati, USA*

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²*Universitaire Vaudois, and Université de Lausanne, SWITZERLAND*

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Dublin City University, IRELAND

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IBM Research GmbH, SWITZERLAND

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¹University of Hull, UK, ²University of Leiden, THE NETHERLANDS, ³Cankaya University, TURKEY, and
⁴MIMETAS VB, THE NETHERLANDS

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²National University of Singapore, SINGAPORE, ³National Cancer Centre Singapore, SINGAPORE,
⁴ClearbridgeBioMedics Pte Ltd., SINGAPORE, and ⁵Massachusetts Institute of Technology, USA

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³National Institute of Standards and Technology (NIST), USA

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E. Lartigau², T. Fujii¹, F. Cleri³, H. Fujita¹, and D. Collard^{1,4}
¹University of Tokyo, JAPAN, ²University of Lille 2, FRANCE, and ³University of Lille 1, FRANCE,

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N. Nishiwaki¹, T. Kasama², A. Ishida¹, H. Tani¹, Y. Baba^{2,3}, and M. Tokeshi^{1,2}
¹Hokkaido University, JAPAN, ²Nagoya University, JAPAN, ³The Priority Research Project, JAPAN

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N. Woolsey¹, E. Kim¹, D.L. Kelly², G.P. Payne¹, and R. Ghodssi¹
¹University of Maryland, College Park, USA and ²University of Maryland School of Medicine, USA

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¹Nagoya University, JAPAN, ²Hokkaido University, JAPAN, and
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T. Higashiyama¹, S. Sakuma³, F. Arai¹, and Y. Yamanishi²
¹Nagoya University, JAPAN, ²Shibaura Institute of Technology, JAPAN, and ³Osaka University, JAPAN

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M. Akbari^{1,2,3}, A. Tamayol^{1,2,3}, V. Laforte¹, N. Annabi^{2,3}, A. Khademhosseini^{2,3}, and D. Juncker¹
¹McGill University, CANADA, ²Harvard-MIT Division of Health Sciences and Technology, USA, and
³Brigham and Women's Hospital, Harvard Medical School, USA
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T. Kageyama^{1,2}, T. Kakegawa^{1,2}, T. Osaki^{1,2}, T. Ito³, T. Nittami², and J. Fukuda²
¹University of Tsukuba, JAPAN, ²Yokohama National University, JAPAN, and ³University of Tokyo, JAPAN
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Y.J. Heo, S. Iwanaga, and S. Takeuchi
University of Tokyo, JAPAN and Japan Science and Technology Agency (JST), JAPAN

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Hungarian Academy of Sciences, HUNGARY

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T. Rieper¹, P. Čvančara¹, S. Gast², B. Wehrstein², A.N. Maurer², C. Mueller¹, and H. Reinecke¹
¹University of Freiburg - IMTEK, GERMANY and ²Novalung GmbH, GERMANY
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S. Huang, H.W. Hou, and J. Han
Massachusetts Institute of Technology, USA

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S. Moorjani, N. Bhattacharjee, and A. Folch
University of Washington, USA

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S. Wang and W. Du
Renmin University of China, CHINA

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Y. Fukushima¹, T. Naito¹, K. Sueyoshi², T. Kubo¹, and K. Otsuka¹
¹*Kyoto University, JAPAN and* ²*Osaka Prefecture University, JAPAN*

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Q. Wu¹, T. Yasui¹, S. Rahong², T. Yanagida², M. Kanai², N. Kaji¹, M. Tokeshi³, K. Nagashima¹, T. Kawai¹, and Y. Baba^{1,4}
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J.D.P. Thomas¹, D.W. Olson¹, M.N. Joswiak^{1,2}, S.-G. Park³, and K.D. Dorfman¹
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Poster Session Separation Technologies - Chromatographic Separations

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H. Shimizu^{1,2}, A. Smirnova^{1,2}, K. Mawatari^{1,2}, and T. Kitamori^{1,2}
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L. Zhang^{1,2}, P. Fiorini¹, B. Majeed¹, L. Lagae^{1,2}, C. Van Hoof^{1,2}, B. Jones¹, and W. De Malsche³
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Poster Session Separation Technologies - Particle Separations

- T.170i**
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K. Yamasaki and M. Motosuke
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¹Peking University, CHINA, ²Multimedia University, MALAYSIA, and ³National Center for Nanoscience and Technology, CHINA

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¹*Council for Scientific and Industrial Research (CSIR), SOUTH AFRICA and*
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¹*IMB-CNM (CSIC), SPAIN and* ²*University of Washington, USA,*
³*Spanish Council for Scientific Research (CSIC), SPAIN*

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¹*National Taiwan University, TAIWAN,* ²*National Tsing Hua University, TAIWAN,* ³*Brigham and Women's Hospital, Harvard Medical School, USA,* ⁴*Massachusetts Institute of Technology, USA,* ⁵*Academia Sinica, TAIWAN,* and ⁶*Harvard University, USA*

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¹Massachusetts Institute of Technology, USA, ²Robert Bosch GmbH, GERMANY, ³Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY, and ⁴University of Freiburg - IMTEK, GERMANY

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Shoji Takeuchi

*University of Tokyo, Kanagawa Academy of Science and Technology, and
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*¹Massachusetts Institute of Technology, USA, ²Robert Bosch GmbH, GERMANY, ³Institute for Micromachining
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*¹Chalmers University of Technology, SWEDEN, ²Northeastern University, USA,
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*¹University of Tokyo, JAPAN, ²Japan Science and Technology Agency (JST), JAPAN, and
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¹Nagoya University, JAPAN, ²Shibaura Institute of Technology, JAPAN, and ³Osaka University, JAPAN

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¹*Kyoto University, JAPAN* and ²*Sony Corporation, JAPAN*

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¹*LTM-CNRS, FRANCE* and ²*Massachusetts's Institute of Technology, USA*

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¹*National University of Singapore, SINGAPORE*, ²*Singapore-MIT Alliance for Research and Technology (SMART), SINGAPORE*, ³*Massachusetts Institute of Technology, USA*, and ⁴*Singapore Institute for Neurotechnology (SiNAPSE), SINGAPORE*

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¹*University of Canterbury, NEW ZEALAND* and ²*University of Freiburg - IMTEK, GERMANY*

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¹MESA+, *University of Twente, THE NETHERLANDS* and ²Wageningen University, *THE NETHERLANDS*

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¹Cornell University, *USA* and ²National Cheng Kung University, *TAIWAN*

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¹Dublin City University, *IRELAND*, ²University of Wollongong, *AUSTRALIA*, and ³CIC microGUNE, *SPAIN*

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¹Institut Curie, *FRANCE* and ²PMMH-ESPCI, *FRANCE*

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¹Lund University, *SWEDEN*, ²Warsaw University of Technology, *POLAND*, and ³Dongguk University, *SOUTH KOREA*

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¹*Academia Sinica, TAIWAN*, ²*University of Virginia, USA*, ³*National Institute of Standards and Technology (NIST), USA*, and ⁴*University of Maryland, College Park, USA*

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¹*University of Freiburg - IMTEK, GERMANY* and ²*Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY*

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¹*Delft University of Technology, THE NETHERLANDS* and ²*Philips Research Eindhoven, THE NETHERLANDS*

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¹*National Nanofab Center, SOUTH KOREA* and ²*University of Michigan, USA*

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¹*University of Southampton, UK* and ²*University of Bologna, ITALY*

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³University of Tokyo, JAPAN

Poster Session Micro- and Nanoengineering - Bonding, Sealing & Interfacing Technologies

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T. Masuda¹, Y. Sun¹, M. Niimi¹, A. Yusa², H. Nakanishi³, and F. Arai¹
¹Nagoya University, JAPAN, ²Aichi Science and Technology Foundation, JAPAN, and ³Aichi Cancer Center Research Institute, JAPAN
- W.103e**
NOVEL MICROFLUIDIC PLATFORMS FOR THE INTERROGATION OF PATIENT-DERIVED CTCs AND TUMOR-DERIVED MICROVESICLES 1665
S.M. Santana, M.A. Antonyak, C. Fischbach-Teschl, R.A. Cerione, and B.J. Kirby
Cornell University, USA
- W.104e**
ULTRA-HIGH PURITY CAPTURE OF CIRCULATING TUMOR CELLS AND GENE MUTATIONS DETECTION 1668
J. Autebert, B. Coudert, J. Champ, F.C. Bidard, J.Y. Pierga, S. Descroix, L. Malaquin, and J.L. Viovy
Institut Curie, FRANCE

Poster Session Cells & Liposomes on Chip - Single Cell Analysis

- W.105e**
CELL ORDERING USING PINCH FLOW MICROCHANNEL FOR SINGLE CELL KINASE ASSAY 1671
R. Ramji¹, A.A.S. Bhagat², C.T. Lim¹, and C.-H. Chen^{1,3}
¹National University of Singapore, SINGAPORE, ²ClearBridge Biomedics Pte. Ltd., SINGAPORE, and ³Singapore Institute for Neurotechnology (SiNAPSE), SINGAPORE
- W.106e**
DYNAMIC BEHAVIOR ANALYSIS OF SINGLE CELLS USING DROPLET MICROFLUIDICS 1674
M.A. Khorshidi¹, P.K. Periyannan Rajeswari¹, C. Wahlby², H.N. Joensson¹, and H. Andersson Svahn¹
¹Royal Institute of Technology (KTH), SWEDEN and ²Uppsala University, SWEDEN
- W.107e**
LAB-ON-A-CHIP SPECTROPHOTOMETRIC "FIELD OF QUALITY" ASSESSMENT OF DOG OOCYTES 1677
P. Śniadek¹, R. Walczak¹, J. Dziuban¹, M. Woźna², M. Rybska², D. Bukowska², and J. Jaskowski²
¹Wroclaw University of Technology, POLAND and ²Poznan University of Life Sciences, POLAND
- W.108e**
MICROFLUIDIC SENSOR USING RESONANCE FREQUENCY MODULATION FOR CHARACTERIZATION OF SINGLE CELLS 1680
N. Haandbæk¹, O. With¹, S.C. Bürgel¹, F. Heer², and A. Hierlemann¹
¹ETH Zürich, SWITZERLAND and ²Zurich Instruments AG, SWITZERLAND
- W.109e**
OOCYTE MECHANICAL CHARACTERIZATION BY ROBOT INTEGRATED MICROFLUIDIC CHIP FOR HIGH-THROUGHPUT QUALITY EVALUATION 1683
S. Sakuma¹ and F. Arai²
¹Osaka University, JAPAN and ²Nagoya University, JAPAN
- W.110e**
REAL-TIME SECRETION ANALYSIS REVEALED CORRELATION OF IL- β RELEASE AND LOSS OF CELL MEMBRANE INTEGRITY 1686
Y. Shirasaki¹, M. Yamagishi¹, K. Izawa², K. Nakagawa², A. Nakahara³, N. Suzuki¹, J. Mizuno³, T. Sekiguchi³, T. Heike², R. Nishikomori², S. Shoji³, and O. Ohara¹
¹Institute of Physical and Chemical Research (RIKEN), JAPAN, ²Kyoto University, JAPAN, and ³Waseda University, JAPAN

W.111e
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IN A MICROFLUIDIC CULTURE DEVICE USING A
PROBABILISTIC AUTOMATED IMAGE ANALYSIS TECHNIQUE 1689
F. Yu, K. Song, M.A. Horowitz, and S.R. Quake
Stanford University, USA

Poster Session Cells & Liposomes on Chip - Liposomes/Vesicles

W.112e
ACTIVE DRUG LOADING OF MICROFLUIDIC-SYNTHESIZED LIPOSOMES 1692
R.R. Hood¹, W.N. Vreeland², and D.L. DeVoe¹
¹University of Maryland, College Park, USA and ²National Institute of Standards and Technology (NIST), USA

W.113e
ON THE DYNAMICS OF GIANT UNILAMELLAR VESICLES UNDER FLOW –
TOWARDS A MODEL FOR SHEAR STRESS TRANSDUCTION ON CELLS 1695
B. Sebastian and P.S. Dittrich
ETH Zürich, SWITZERLAND

W.114e
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ELECTROSPRAY FOR MICROSCOPIC MEMBRANE PROTEIN ASSAYS 1698
T. Osaki^{1,2}, K. Kamiya¹, R. Kawano¹, R. Iino^{2,3}, H. Noji^{2,3}, and S. Takeuchi^{1,2}
¹Kanagawa Academy of Science and Technology, JAPAN, ²University of Tokyo, JAPAN, and ³Japan Science and Technology Agency (JST), JAPAN

Poster Session Cells & Liposomes on Chip - Stem Cells

W.115e
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WITH CONTROLLED AGGREGATE SIZE AND GEOMETRICAL
ARRANGEMENT BY INVERTING MICROWELL ARRAY CHIP 1701
T. Satoh¹, S. Sugiura¹, K. Sumaru¹, S. Ozaki², S. Gomi², T. Kurakazu², Y. Oshima², and T. Kanamori¹
¹National Institute of Advanced Industrial Science and Technology (AIST), JAPAN and ²Tokyo Electron Limited, JAPAN

Poster Session Cells & Liposomes on Chip - Cell-Surface Interaction

W.116e
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OBSERVE SPECIFIC CELL RESPONSES TO SUBSTRATE-BOUND CUES 1704
S.G. Ricoult, G.H. Thompson-Steckel, J.P. Correia, T.E. Kennedy, and D. Juncker
McGill University, CANADA

W.117e
MICROSTRUCTURED THERMORESPONSIVE POLYMER COATINGS
AS A PROMISING TOOL FOR CONTROLLING NEURITE OUTGROWTH
IN ARTIFICIAL NEURONAL NETWORKS 1707
M. Kirschbaum, G. Boerner, K. Uhlig, and C. Duschl
Fraunhofer IBMT, GERMANY

Poster Session Cells & Liposomes on Chip - Cell-Culturing & Perfusion (2D & 3D)

- W.118e**
ALGINATE ENCAPSULATION OF CELL-LADEN BEADS FOR MICROFLUIDIC TUMOR SPHEROID CULTURE 1710
C. Bayly, L. Yu, and K.C. Cheung
University of British Columbia, CANADA
- W.119e**
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Z. Zhu, O. Frey, D. Ottoz, F. Rudolf, and A. Hierlemann
ETH Zürich, SWITZERLAND
- W.120e**
MATRIGEL-ALGINATE CORE-SHELL BEADS FOR CONTROLLED TUMOR SPHEROID FORMATION 1716
L. Yu, C. Bayly, and K. Cheung
University of British Columbia, CANADA
- W.121e**
MONO-, CO- AND MIXED CULTURE OF CELLS IN THE MICROSYSTEM FOR PHOTODYNAMIC THERAPY PROCEDURES 1719
E. Jastrzebska, N. Bajkowska, K. Zukowski, M. Chudy, A. Dybko, and Z. Brzozka
Warsaw University of Technology, POLAND
- W.122e**
RECONSTRUCTION OF CAPILLARY NETWORKS IN HUVEC-MSC COCULTURE CULTURED IN STATIC/FLOW CONDITIONS IN A MICROFLUIDIC PLATFORM 1722
K. Tanimura, K. Yamamoto, and R. Sudo
Keio University, JAPAN

Poster Session Cells & Liposomes on Chip - Inter- & Intracellular Signaling, Cell Migration

- W.123e**
A PDMS-SEALED HYDROGEL DEVICE FOR RAPID AND ACCUARATE GENERATION OF VARIOUS CONCENTRATION GRADIENTS 1725
M. Kim, M. Jia and T. Kim
Ulsan National Institute of Science and Technology (UNIST), SOUTH KOREA
- W.124e**
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Y. Nakashima¹, Y. Yang², and K. Minami²
¹Kumamoto University, JAPAN and ²Yamaguchi University, JAPAN
- W.125e**
ON-CHIP IMMUNOELECTROPHORESIS FOR EVALUATING SURFACE PROTEINS OF EXOSOMES AT SINGLE-PARTICLE LEVEL FOR DIAGNOSTIC APPLICATION 1731
T. Akagi¹, K. Kato¹, N. Hanamura¹, N. Kosaka², T. Ochiya², and T. Ichiki¹
¹University of Tokyo, JAPAN and ²National Institute Cancer Center, JAPAN

Poster Session Cells & Liposomes on Chip - Others

- W.126e**
DIRECT ELECTROPORATION OF ADHERENT CELLS BY HYDROGEL-BASED MICROELECTRODES 1734
M. Nishizawa¹ and K. Nagamine²
¹Tohoku University, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN

W.127e
PARALLEL cDNA SYNTHESIS FROM THOUSANDS OF INDIVIDUALLY ENCAPSULATED CANCER CELLS – TOWARDS LARGE SCALE SINGLE CELL GENE EXPRESSION ANALYSIS 1737
L.M. Soderberg, H.N. Joensson, and H. Andersson Svahn
Royal Institute of Technology (KTH), SWEDEN

W.128e
TIME-LAPSE SCREENING BY PARALLELIZED LENSFREE IMAGING 1740
V. Haguët^{1,2,3}, P. Obeïd^{1,2,3}, R. Griffin^{1,2,3,4}, D. Freida^{1,2,3}, L. Guyon^{1,2,3}, and X. Gidrol^{1,2,3}
¹Commissariat à l'énergie atomique (CEA), FRANCE, ²INSERM, FRANCE,
³University Grenoble-Alpes, FRANCE, and ⁴CNRS, FRANCE

Poster Session Organs & Organisms - Organs on Chip

W.129f
HUMAN SPLEEN-ON-A-CHIP: DESIGN AND VALIDATION OF A MICROFLUIDIC MODEL RESEMBLING THE INTERSTITIAL SLITS AND THE FAST AND SLOW MICROCIRCULATIONS 1743
L.G. Rigat-Brugarolas¹, M. Bernabeu², A. Elizalde², M. de Niz², L. Martin-Jaular², C. Fernandez-Becerra², A. Homs-Corbera¹, H.A. del Portillo², and J. Samitier¹
¹Institute for Bioengineering of Catalonia (IBEC), SPAIN, ²Centro de Investigación Biomédica en Red de Bioingeniería, Biomateriales y Nanomedicina, SPAIN, ³Barcelona Centre for International Health Research (CRESIB), SPAIN, ⁴Barcelona University, SPAIN and ⁵Institució Catalana de Recerca i Estudis Avançats (ICREA), SPAIN

W.130f
ON-CHIP ABSORPTION AND METABOLISM MODEL FOR PHARMACOKINETIC STUDIES 1746
H. Kimura¹, T. Ikeda², Y. Sakai², and T. Fujii²
¹Tokai University, JAPAN and ²University of Tokyo, JAPAN

Poster Session Organs & Organisms - Organisms on Chip (C. elegans, Zebrafish, Arabidopsis, etc.)

W.131f
ELECTROPHYSIOLOGICAL ANALYSIS OF NEMATODE LARVAE WITH AN INTEGRATED MICROFLUIDIC PLATFORM 1749
C. Hu, V. O'Connor, L. Holden-Dye, and H. Morgan
University of Southampton, UK

W.132f
ON-CHIP CHEMOTAXIS ASSAY OF PLANT-PARASITIC NEMATODE TOWARDS INCREASING GLOBAL CROP PRODUCTIVITY 1752
H. Hida^{1,4}, H. Nishiyama², S. Sawa², T. Higashiyama^{1,3}, and H. Arata¹
¹Japan Science and Technology Agency (JST), JAPAN, ²Kumamoto University, JAPAN,
³Nagoya University, JAPAN, and ⁴Kobe University, JAPAN

Poster Session Diagnostics & Analytics - Sample Preparation (Whole blood, Saliva, Cells, Tissue, Food, etc.)

W.133g
A NUCLEIC ACID EXTRACTION MEMBRANE FOR POINT OF CARE DEVICES 1755
R.E. Mackay, N. Garg, P. Craw, J.C. Ahern, and W. Balachandran
Brunel University, UK

W.134g
AUTOMATED WHOLE BLOOD PROCESSING WITH A PORTABLE MICROFLUIDIC DEVICE FOR POINT-OF-CARE DIAGNOSIS 1758
H. Li, H. Jayamohan, C. Lambert, S. Mohanty, and B.K. Gale
University of Utah, USA

W.135g
MICROFLUIDIC IMMUNOPHENOTYPING ASSAY PLATFORM FOR IMMUNOMONITORING OF SUBPOPULATIONS OF IMMUNE CELLS 1761
W. Chen, N. Huang, B. Oh, T.T. Cornell, T.P. Shanley, K. Kurabayashi, and J. Fu
University of Michigan, USA

W.136g
PORTABLE DIGITAL MICROFLUIDIC/MASS SPECTROMETRY METHOD FOR QUANTIFICATION OF DRUGS OF ABUSE IN URINE 1764
N.M. Lafrenière¹, A.E. Kirby¹, B. Seale¹, E. Gritzan¹, J.T. Shelley², P.I. Hendricks²,
R.G. Cooks², and A.R. Wheeler¹
¹*University of Toronto, CANADA and* ²*Purdue University, USA*

Poster Session Diagnostics & Analytics - Nucleic Acid Analysis (e.g. Digital PCR, Next Generation Sequencing)

W.137g
DETECTION OF OIL-UTILIZING MICROORGANISMS BY NUCLEIC ACID SEQUENCE-BASED AMPLIFICATION IN A TOTAL ANALYSIS LAB-ON-A-CHIP DEVICE 1767
B.K. Honsvall^{1,2}, A. Ezkerra^{3,4}, A. Gulliksen⁵, T. Dong¹, and F. Karlsen^{1,5}
¹*Vestfold University College, NORWAY,* ²*Trilobite Microsystems AS, NORWAY,*
³*CIC MicroGUNE, SPAIN,* ⁴*IK4-Ikerlan, SPAIN, and* ⁵*NorChip AS, NORWAY*

W.138g
FOIL-BASED DNA MELTING CURVE ANALYSIS PLATFORM FOR LOW-COST POINT-OF-CARE MOLECULAR DIAGNOSTICS 1770
A. Ohlander¹, S. Bauer¹, H. Ramachandraiah², A. Russom², and K. Bock^{1,3}
¹*Fraunhofer Research Institution for Modular Solid State Technologies EMFT, GERMANY,*
²*KTH Royal Institute of Technology, SWEDEN, and* ³*Technical University Berlin, GERMANY*

W.139g
LEVERAGING PEPTIDE NUCLEIC ACID PROBES AND ISOTACHOPHORESIS FOR ON-CHIP HIGH SENSITIVITY DETECTION OF DNA 1773
N. Ostromohov, O. Schwartz, and M. Bercovici
Technion – Israel Institute of Technology, ISRAEL

W.140g
ON-CHIP MULTIPLEX PCR AMPLIFICATION DIRECTLY FROM WHOLE BLOOD 1776
R.S. Wiederkehr^{1,2}, B. Jones¹, S. Peeters¹, T. Stakenborg¹, O. Ibrahim^{3,4}, P. Fiorini¹, H. Tanaka⁵,
I. Yamashita⁵, T. Matsuno⁵, and L. Lagae^{1,2}
¹*imec, BELGIUM,* ²*Katholieke Universiteit Leuven, BELGIUM,* ³*Alexandria University, Alexandria, EGYPT,*
⁴*Consortium Centre of Excellence for Nano-manufacturing Applications (CENA), SAUDI ARABIA, and*
⁵*Panasonic Corporation, JAPAN*

W.141g
THERMALLY-MULTIPLEXED MICROFLUIDIC PCR 1779
C.R. Phaneuf¹, N. Pak¹, D.C. Saunders¹, E. Popler², N. Nagpal¹, R. Jerris³, A. Shane², and C.R. Forest¹
¹*Georgia Institute of Technology, USA,* ²*Emory University, USA, and* ³*Children's Healthcare of Atlanta, USA*

Poster Session Diagnostics & Analytics - Protein Analysis & Characterization (e.g. Proteomics)

W.142g
INTEGRATED MICROFLUIDIC FEMTOLITER ARRAY FOR QUANTITATIVE ELISA AT THE ATTOMOLAR LEVEL 1782
Y. Zeng and T. Wang
University of Kansas, USA

W.143g
**MICROFLUIDICS TO ISOLATE UNTAGGED PROTEINS FROM CELL
EXTRACTS FOR VISUAL ANALYSIS BY ELECTRON MICROSCOPY** 1785
D. Giss, S. Kemmerling, V. Dandey, H. Stahlberg, and T. Braun
University of Basel, SWITZERLAND

W.144g
**TOWARDS A HIGH-THROUGHPUT, DROPLET-BASED VIRAL-FUSION
ASSAY WITH SINGLE-PARTICLE SENSITIVITY** 1788
S. Mashaghi and A.M. van Oijen
University of Groningen, THE NETHERLANDS

Poster Session Diagnostics & Analytics - Clinical Chemistry

W.145g
**AN OPTICAL LAB-ON-A-CHIP SYSTEM BASED ON SPR
SENSOR FOR CONTINUOUS GLUCOSE MONITORING** 1791
D. Li, H. Yu, J. Wu, D. Yang, and K. Xu
Tianjin University, CHINA

W.146g
**QUANTITATIVE DETERMINATION OF BRANCHED-CHAIN AMINO ACIDS
IN HUMAN PLASMA USING PRESSURE-DRIVEN LIQUID
CHROMATOGRAPHY WITH PILLAR ARRAY COLUMNS** 1794
Y. Song¹, K. Takatsuki², M. Isokawa¹, T. Sekiguchi², J. Mizuno², T. Funatsu¹, S. Shoji², and M. Tsunoda¹
¹University of Tokyo, JAPAN and ²Waseda University, JAPAN

Poster Session Diagnostics & Analytics - Drug Development

W.147g
**ELECTRICAL IMPEDANCE SPECTROSCOPY FOR LABEL-FREE, CONTINUOUS
MONITORING OF DRUG IMPACT ON 3D TISSUE SPHEROIDS** 1797
S.C. Bürgel, J.Y. Kim, A. Hierlemann, and O. Frey
ETH Zürich, SWITZERLAND

Poster Session Diagnostics & Analytics - Others

W.148g
**KINETIC MEASUREMENTS USING THE FREQUENCY RESPONSE OF
INTERACTING BIOMOLECULES SUBJECTED TO A THERMAL MODULATION** 1800
K. Bournine, X. Zhao, and C. Gosse
CNRS, FRANCE

W.149g
**RAPID AND HIGH SENSITIVITY MALARIA DIAGNOSIS:
A MICROFLUIDICS APPROACH** 1803
T.F. Kong^{1,2}, W.K. Peng¹, H.W. Hou⁴, Marcos², N.T. Nguyen^{1,2,3}, and J. Han^{1,4}
*¹Singapore-MIT Alliance for Research and Technology (SMART), SINGAPORE, ²Nanyang Technological
University, SINGAPORE, ³Griffith University, AUSTRALIA, and ⁴Massachusetts Institute of Technology, USA*

Poster Session Medical Research & Applications - Cancer Research

W.150h

DETECTION AND QUANTIFICATION OF MINORITY KRAS SUBCLONES IN TUMORS USING DROPLET-BASED MICROFLUIDICS: CLINICAL IMPLICATION 1806
D. Pekin^{1,2}, C. Normand¹, S. Kotsopoulos³, X. Li³, L. Benhaim¹, O. Bouché⁴, T. Lecomte⁵, D. Le Corre¹, T. Hor¹, Z. El Harrak¹, P. Nizard¹, D. Link³, J.B. Hutchison³, P. Laurent-Puig¹, and V. Taly¹
¹University Paris Descartes, FRANCE, ²Université de Strasbourg, FRANCE, ³Raindance Technologies, USA, ⁴Centre Hospitalier Universitaire de Reims, FRANCE, and ⁵Université de Tours, FRANCE

W.151h

INVESTIGATION OF ENDOTHELIAL GROWTH USING A POLYCARBONATE BASED MICROFLUIDIC CHIP AS ARTIFICIAL BLOOD CAPILLARY VESSEL WITH INTEGRATED IMPEDANCE SENSORS FOR APPLICATION IN CANCER RESEARCH 1809
T. Rajabi¹, V. Huck², R. Ahrens¹, Ch. Bassing¹, J. Fauser¹, S.W. Schneider², and A.E. Guber¹
¹Karlsruhe Institute of Technology, GERMANY and ²Heidelberg University, GERMANY

W.152h

STREAMLINING CELL BIOLOGY WORKFLOWS: INTEGRATING SUSPENSION CULTURE, CELL LYSIS, PROTEIN EXTRACTION AND NUCLEIC ACID EXTRACTION 1812
T.E. de Groot, B.P. Casavant, K.S. Vesperat, L.N. Strotman, S.M. Berry, and D.J. Beebe
University of Wisconsin, USA

Poster Session Medical Research & Applications - Personalized Medicine

W.153h

MULTIPLY DETECTION OF KRAS POINT MUTATIONS FROM TUMOR CELL DNA ON A CENTRIFUGAL MICROFLUIDIC CARTRIDGE (GENESLICE) FOR CHOICE OF PERSONALIZED CANCER THERAPY 1815
O. Strohmeier^{1,2}, S. Laßmann^{3,4,5,6}, B. Riedel^{3,6}, M. Werner^{3,5,6}, D. Mark¹, R. Zengerle^{1,2,4}, and F. von Stetten^{1,2}
¹Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY, ²University of Freiburg - IMTEK, GERMANY, ³University Medical Center Freiburg, GERMANY, ⁴University of Freiburg - BIOS, GERMANY, ⁵Comprehensive Cancer Center Freiburg, GERMANY, and ⁶German Cancer Consortium (DKTK) and German Cancer Research Center (DKFZ), GERMANY

Poster Session Medical Research & Applications - Drug Delivery Systems

W.154h

CHARACTERIZATION OF NANOPARTICLE PERMEABILITY ON A MEMBRANE-INTEGRATED MICROFLUIDIC DEVICE 1818
N. Sasaki¹, M. Tatanou², Y. Anraku³, A. Kishimura⁴, K. Kataoka³, and K. Sato²
¹Toyo University, JAPAN, ²Japan Women's University, JAPAN, ³University of Tokyo, JAPAN, and ⁴Kyushu University, JAPAN

W.155h

MICROFLUIDIC DEVICE FOR MICROINJECTION OF CAENORHABDITIS ELEGANS 1821
R. Ghaemi, J. Tong, P.R. Selvaganapathy, and B.P. Gupta
McMaster University, CANADA

W.156h

SINGLE-STEP DRUG CRYSTALLIZATION AND FORMULATION - 'DESIGNER' PHARMACEUTICALS ENABLED BY MICROFLUIDICS 1824
R.A.L. Leon¹, W.Y. Wan¹, A.Z.M. Badruddoza¹, T.A. Hatton^{2,3}, and S.A. Khan^{1,2}
¹National University of Singapore, SINGAPORE, ²Singapore-MIT Alliance for Research and Technology (SMART), SINGAPORE and ³Massachusetts Institute of Technology, USA

Poster Session Medical Research & Applications - Regenerative Medicine & Tissue Engineering

W.157h
ENGINEERING OF THREE-DIMENSIONAL LIVER MICRO-TISSUE CONTAINING SINUSOIDAL ULTRASTRUCTURE THROUGH HETEROTYPIC CELL-CELL INTERACTIONS 1827
D.Y. No, S.A. Lee, and S.H. Lee
Korea University, SOUTH KOREA

W.158h
MATHEMATICAL MODELING FOR THE SELF-ORGANIZATION OF CELLS 1830
N. Kojima¹, Y. Ogata², S. Nakaoka³, and Y. Sakai¹
¹Yokohama City University, JAPAN, ²University of Tokyo, JAPAN, and ³Riken Yokohama Institute, JAPAN

W.159h
SKIN PRINTER: MICROFLUIDIC APPROACH FOR SKIN REGENERATION AND WOUND DRESSINGS 1833
L. Leng¹, S. Amini-Nik^{1,2}, Q. Ba¹, M. Jeschke^{1,2}, and A. Günther¹
¹University of Toronto, CANADA and ²Sunnybrook Health Sciences Centre, CANADA

Poster Session Medical Research & Applications - Implantable and Surgical Microdevices

W.160h
LONG-TERM IMPLANTATION OF PRIMARY ISLET CELL-ENCAPSULATING HYDROGEL MICROFIBERS IN DIABETIC MICE 1836
H. Onoe^{1,2}, T. Okitsu^{1,2}, A. Itou^{1,2}, and S. Takeuchi^{1,2}
¹University of Tokyo and ²Japan Science and Technology Agency (JST), JAPAN

Poster Session Medical Research & Applications - Devices for Better Quality-of-Life (QOL)

W.161h
AUTONOMOUS IMPLANTABLE DEVICE WITH APPLICATION IN LATE-PHASE HEMORRHAGIC SHOCK PREVENTION 1839
V. Oncescu, S. Lee, A. Gumus, K. Karlsson, and D. Erickson
Cornell University, USA

W.162h
SKIN-EMITTED ACETONE DETECTION TOWARD SELF-MONITORING OF FAT METABOLISMS 1842
Y. Yamada¹, S. Hiyama¹, T. Toyooka¹, H. Onoe², and S. Takeuchi²
¹NTT DOCOMO, Inc., JAPAN and ²University of Tokyo, JAPAN

Poster Session Medical Research & Applications - Others

W.163h
A NOVEL MICROFLUIDIC “CELL-BASED” BLOOD DIALYSIS PLATFORM FOR MURINE MODEL OF SEPSIS 1845
H.W. Hou¹, M.P. Vera², B.D. Levy², R.M. Baron², and J. Han¹
¹Massachusetts Institute of Technology, USA and ²Brigham and Women’s Hospital, and Harvard Medical School, USA

Poster Session Separation Technologies - Electrophoretic Separations

W.164i
CHARACTERIZATION OF SIALYLATED GLYCANS BY COVALENT DERIVATIZATION AND MICROCHIP ELECTROPHORESIS 1848
I. Mitra, C.M. Snyder, W.R. Alley, M.V. Novotny, and S.C. Jacobson
Indiana University, USA

W.165i
DROPLET-BASED COMPARTMENTALIZATION
AFTER ISOELECTRIC FOCUSING IN A SLIPCHIP 1851
Y. Zhao¹, F. Pereira², A. de Mello², H. Morgan¹, and X. Niu¹
¹University of Southampton, UK, and ²ETH Zürich, SWITZERLAND

W.166i
ELECTROSMOTICALLY ACTUATED ON-CHIP SOLID-PHASE
EXTRACTION WITH MICROCHIP ELECTROPHORESISELECTROSPRAY
IONIZATION MASS SPECTROMETRY 1854
N. Nordman¹, B. Barrios-Lopez¹, S. Laurén², P. Suvanto², T. Kotiaho¹,
S. Franssila², R. Kostianen¹, and T. Sikanen¹
¹University of Helsinki, FINLAND and ²Aalto University, FINLAND

W.167i
HYDRODYNAMIC CONTROL FOR NON-BIASED INJECTION AND
SIMULTANEOUS COMPLEMENTARY ANALYSIS 1857
A.J. Gaudry, M.C. Breadmore, and R.M. Guijt
University of Tasmania, AUSTRALIA

W.168i
MEASURING THE EFFECT OF CRYSTALLINE ORDER ON
DNA ELECTROPHORESIS IN COLLOIDAL CRYSTALS 1860
S.B. King and K.D. Dorfman
University of Minnesota, USA

W.169i
TUNING THE MOBILITY OF FLUORESCENT, DNA-TEMPLATED, SILVER
NANOCCLUSERS FOR ELECTROPHORETIC SEPARATIONS IN MICROCHANNELS 1863
J.T. Del Bonis-O'Donnell, D. Fygenon, and S. Pennathur
University of California, Santa Barbara, USA

Poster Session Separation Technologies - Chromatographic Separations

W.170i
DEVELOPMENT OF MILLION PLATES LIQUID CHROMATOGRAPHY
USING EXTENDED-NANO CHANNEL 1866
Y. Liu^{1,2}, H. Shimizu^{1,2}, A. Smirnova^{1,2}, K. Mawatari^{1,2}, and T. Kitamori^{1,2}
¹University of Tokyo and ²Japan Science and Technology Agency (JST), JAPAN

Poster Session Separation Technologies - Particle Separations

W.171i
A LOW-POWER AND SMALL-VOLUME PARTICLE SEPARATION DEVICE
BASED ON CIRCULAR TRAVELLING-WAVE ELECTROSMOSIS 1869
S.-C. Lin¹, Y.-L. Sung¹, Y.-C. Tung², and C.-T. Lin¹
¹National Taiwan University, TAIWAN and ²Academia Sinica, TAIWAN

W.172i
HAND-HELD BLOOD SEPARATION MICROFLUIDIC CHIP 1872
L. Xu, H. Lee, and K.W. Oh
University of Buffalo, State University of New York, USA

W.173i
LOW CONCENTRATION OIL SEPARATION AND DETECTION FROM
ENVIRONMENTAL WATER SAMPLES THROUGH ACOUSTOPHORESIS 1875
H. Wang¹, S. Kim¹, C. Koo¹, Y. Cho², Y.-J. Kim¹, and A. Han¹
¹Texas A&M University, USA and ²Seoul National University of Science and Technology, SOUTH KOREA

Poster Session Microreaction Technology & Synthesis - Microreactors & Micromixers

W.174j
AN ULTRA-LOW CONSUMPTION PLATFORM FOR MEASURING FAST CHEMICAL REACTIONS 1878
E. Fradet, P. Abbyad, and C.N. Baroud
Ecole Polytechnique, FRANCE

W.175j
LOGIC OPERATION IN DNA NANO DEVICE: ELECTRICAL INPUT/OUTPUT THROUGH BIOLOGICAL NANOPORES 1881
K. Inoue^{1,3}, R. Kawano¹, H. Yasuga^{1,3}, M. Takinoue⁴, T. Osaki^{1,2}, K. Kamiya¹, N. Miki^{1,3}, and S. Takeuchi^{1,2}
¹Kanagawa Academy of Science and Technology, JAPAN, ²University of Tokyo, JAPAN, ³Keio University, JAPAN, and ⁴Tokyo Institute of Technology, JAPAN

W.176j
TRANSPARENT P(VDF-TRFE) TRANSDUCER-BASED ACOUSTIC STREAMING FOR MICROFLUIDIC APPLICATIONS 1884
V.F. Cardoso, L. Rebouta, S. Lanceros-Méndez, and G. Minas
University of Minho, PORTUGAL

Poster Session Microreaction Technology & Synthesis - Filtering & Separation

W.177j
NANOWIRE DEVICES FOR EXOSOMAL MICRORNA EXTRACTION 1887
S. Ito¹, T. Yasui¹, H. Yong², T. Yanagida², S. Rahong², M. Kanai², K. Nagashima², H. Yukawa¹, N. Kaji¹, T. Kawai², and Y. Baba^{1,3}
¹Nagoya University, JAPAN, ²Osaka University, JAPAN, and ³National Institute of Advanced Industrial Science and Technology, (AIST), JAPAN

Poster Session Microreaction Technology & Synthesis - Chemical Synthesis

W.178j
COPPER COMPLEXATION OF MACROCYCLIC MOLECULES: TOWARDS ON-CHIP RADIOMETALLIC LABELLING OF PET RADIOTRACERS 1890
M.D. Tarn, B. Lu, R. Smith, B.P. Burke, S.J. Archibald, and N. Pamme
University of Hull, UK

W.179j
MULTI-PASS NANOCRYSTAL PROCESSOR 1893
M. Abolhasani, Y. Hassan, E. Kumacheva, G. Scholes, and A. Günther
University of Toronto, CANADA

Poster Session Microreaction Technology & Synthesis - Particle Synthesis

W.180j
POLYPLEX SYNTHESIS BY "MICROFLUIDIC DRIFTING" BASED THREE-DIMENSIONAL HYDRODYNAMIC FOCUSING METHOD 1896
M. Lu¹, Y.-P. Ho^{2,3}, C.L. Grigsby², A.A. Nawaz¹, P.-H. Huang¹, K.W. Leong², and T.J. Huang¹
¹Pennsylvania State University, USA, ²Duke University, USA, and ³Interdisciplinary Nanoscience Center (iNANO), DENMARK

Poster Session Applications to Green & Environmental Technologies - Fuel Cells

- W.181k**
DEVELOPMENT OF A MICRO FUEL CELL DEVICE
BASED ON THE MICROFLUIDIC CHIP 1899
Y. Pihosh^{1,2}, H. Chinen¹, K. Mawatari^{1,2}, and T. Kitamori^{1,2}
¹University of Tokyo, JAPAN and ²Japan Science and Technology Agency (JST), JAPAN

Poster Session Applications to Green & Environmental Technologies - Water/Air/Soil Management

- W.182k**
LOW-COST PAPER MICROFLUIDICS FOR ECOTOXICOLOGICAL ANALYSIS 1902
J. Petr, P. Svobodová, L. Vojtková, A. Suchomelová, A. Příbylka, and R. Knob
Palacký University, Olomouc, CZECH REPUBLIC

Poster Session Applications to Green & Environmental Technologies - Other Energy/Power Devices

- W.183k**
GATE CONTROLLED HIGH EFFICIENCY
BALLISTIC ENERGY CONVERSION SYSTEM 1905
Y. Xie, D. Bos, H. de Boer, A. van den Berg, and J.C.T. Eijkel
MESA+, University of Twente, THE NETHERLANDS

Poster Session MicroTAS for Other Applications - Synthetic Biology

- W.184I**
PATTERNING AND FUNCTIONALIZATION OF THERMOPLASTIC MICROCHIP
FOR AUTOMATED HIGH-THROUGHPUT MICROARRAY GENE SYNTHESIS 1908
S. Ma, I.A. Saaem, and J. Tian
Duke University, USA

Poster Session MicroTAS for Other Applications - Integrative Biology, Systems Biology

- W.185I**
FATE MANIPULATION OF PC-12 CELL USING MICROFLUIDIC DEVICE 1911
H. Ryu¹, M. Chung¹, S.S. Lee², N.L. Jeon¹, and O. Pertz³
¹Seoul National University, SOUTH KOREA, ²ETH Zürich, SWITZERLAND, and
³University of Basel, SWITZERLAND

Poster Session MicroTAS for Other Applications - Bioinspired, Biomimetic & Biohybrid Devices

- W.186I**
DROPLET-BOX: A PLATFORM FOR BIOLOGICAL-NANOPORE-BASED
LOGICAL OPERATION USING LIPID-COATED DROPLET NETWORK 1914
H. Yasuga^{1,3}, R. Kawano¹, M. Takinoue⁴, Y. Tsuji¹, T. Osaki^{1,2}, K. Kamiya¹, N. Miki^{1,3}, and S. Takeuchi^{1,2}
¹Kanagawa Academy of Science and Technology, JAPAN, ²University of Tokyo, JAPAN,
³Keio University, JAPAN, and ⁴Tokyo Institute of Technology, JAPAN

- W.187I**
NATURAL LEAF REPLICAS TO STUDY CELL CONTACT GUIDANCE 1917
L. MacQueen, Z. Gong, B. Chen, J. Liu, H. Liu, C. Simmons, and Y. Sun
University of Toronto, CANADA

Poster Session MicroTAS for Other Applications - Bioprocess Technology

W.1881

MICROALGAL CULTURE, LIPID PRODUCTION AND EXTRACTION USING AN INTEGRATED MICROFLUIDIC SYSTEM 1920
H.S. Lim, J.Y.H. Kim, H.S. Kwak, and S.J. Sim
Korea University, SOUTH KOREA

Poster Session MicroTAS for Other Applications - Food & Nutrition

W.1891

AUTOMATED ON-SITE DETECTION OF ORGANOPHOSPHOROUS PESTICIDES IN REAL FOOD SAMPLES 1923
L. Drechsel¹, M. Schulz¹, F. von Stetten^{1,2}, R. Zengerle^{1,2,3}, and N. Paust^{1,2}
¹*Institute for Micromachining and Information Technology (HSG-IMIT), GERMANY,*
²*University of Freiburg – IMTEK, GERMANY, and* ³*University of Freiburg – BIOS, GERMANY*

Session 3A3 - Single Cell Processing and Analysis 2

TOWARDS A MICROFLUIDIC SINGLE-CELL IMMUNE CHIP 1926
M. Junkin, A. Kaestli, and S. Tay
ETH Zürich, SWITZERLAND

OPTICAL CELL PICKING IN PHOTODEGRADABLE HYDROGELS BASED ON CELLULAR MORPHOLOGY IN 3D CULTURE ENVIRONMENT 1929
M. Tamura¹, F. Yanagawa², S. Sugiura², T. Takagi², K. Sumaru², H. Matsui¹, and T. Kanamori²
¹*University of Tsukuba, JAPAN and*
²*National Institute of Advanced Industrial Science and Technology (AIST), JAPAN*

CIRCUMFERENTIAL MOLECULAR DELIVERY INTO SINGLE CELLS VIA CELL-ROLLING MEDIATED ELECTROPORATION IN MICROFLUIDIC CHANNELS 1932
M. Zheng, J.W. Shan, H. Lin, D.I. Shreiber, and J.D. Zahn
Rutgers, USA

LIPID SCREENING IN SINGLE MICROALGAE USING HYDROGEL MICROCAPSULE ARRAYS 1935
D.-H. Lee, J.-I. Han, and J.-K. Park
Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA

Session 3B3 - Droplets & Plugs

SHAKEN, AND STIRRED 1938
M. Abolhasani, A. Oskooei, E. Kumacheva, and A. Günther
University of Toronto, CANADA

DROPLET INCUBATION CHAMBER ARRAY: JOURNEY OF DROPLETS ON A CHIP 1941
H.S. Rho, and H. Gardeniers
MESA+, University of Twente, THE NETHERLANDS

AUTOSIZING, CLOSED-LOOP DROP GENERATOR USING MORPHOMETRIC IMAGE FEEDBACK 1944
R. Kebriaei and A.S. Basu
Wayne State University, USA

CHARACTERIZATION OF DYE LEAKAGE IN MICROFLUIDIC DROPLETS 1947
Y. Chen, M. Pan and S.K.Y. Tang
Stanford University, USA

Session 3C3 - Tools for Cancer Analysis

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| MICROENGINEERED HYDROGEL FIBERS FOR EVALUATING CANCER CELL INVASION UNDER 3D COCULTURE CONDITIONS | 1950 |
| Y. Kitagawa, M. Yamada, and M. Seki <i>Chiba University, JAPAN</i> | |
| CANCER CELL-SPECIFIC OLIGOPEPTIDE SELECTED BY MICROFLUIDIC SYSTEM FROM A PHAGE DISPLAY LIBRARY FOR OVARIAN CANCER DIAGNOSIS | 1953 |
| C.H. Wang ¹ , C.-H. Weng ² , Y.-J. Che ¹ , K. Wang ³ , and G.-B. Lee ^{1,2} ¹ <i>National Tsing Hua University, TAIWAN</i> , ² <i>National Cheng Kung University, TAIWAN</i> , and ³ <i>Academia Sinica, TAIWAN</i> | |
| UNDERSTANDING TUMOR HETEROGENEITY AS AN ENCOURAGER FOR CANCER METASTASIS (IN VITRO MODEL OF TUMOR HETEROGENEITY) | 1956 |
| Y. Shin and S. Chung <i>Korea University, SOUTH KOREA</i> | |
| MULTIPLEX REAL-TIME MONITORING OF CELLULAR METABOLIC ACTIVITY USING A REDOX-REACTIVE NANOWIRE BIOSENSOR | 1959 |
| L.C. Hsiung, V. Krivitsky, V. Naddaka, Y.K. Conroy, H. Peretz-Soroka, and F. Patolsky <i>Tel Aviv University, ISRAEL</i> | |

Day 4 - Thursday 31 October

Plenary Presentation VIII

- FROM SINGLE CELLS TO ARTIFICIAL CELLS: HOW MICROFLUIDICS CAN CONTRIBUTE TO A BETTER UNDERSTANDING OF CELLULAR PROCESSES** 1962
Petra S. Dittrich
ETH Zürich, SWITZERLAND

Session 4A1 - Micromixers and Gradient Generators

- COAXIAL TURBULENT JET MIXER FOR CONTROLLED SYNTHESIS OF NANOPARTICLES** 1965
J.-M. Lim¹, L.M. Gilson¹, S. Chopra¹, R.S. Langer¹, O.C. Farokhzad², and R. Karnik¹
¹*Massachusetts Institute of Technology, USA and*
²*Brigham and Women's Hospital-Harvard Medical School, USA*

- TUNABLE MICROFLUIDIC GRADIENT GENERATOR VIA ACOUSTICALLY OSCILLATED SHARP EDGES** 1968
P.H. Huang¹, C.Y. Chan¹, D. Ahmed¹, Y. Xie¹, L. Wang², and T.J. Huang¹
¹*Pennsylvania State University, USA and* ²*Ascent Bio-Nano Technologies Inc., USA*

- PARTICLE SEPARATION, CHEMICAL GRADIENT CONTROL AND MICROMIXING VIA FOCUSED TRAVELLING SURFACE ACOUSTIC WAVES (F-TSAW)** 1971
G. Destgeer¹, S. Im¹, J.H. Jung¹, B.H. Ha¹, H.W. Kang¹, K.H. Lee¹, M.A. Ansari¹, A. Alazzam², and H.J. Sung¹
¹*Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA and*
²*Khalifa University of Science, Technology & Research (KUSTAR), UAE*

Session 4B1 - Molecular Separation

- DEVELOPMENT OF SUBSECOND TIME-SCALE LIQUID-LIQUID EXTRACTION PROCESSES UTILIZING MONODISPERSE MICROFLUIDIC DROPLETS** 1974
S. Kakegawa, M. Yamada, M. Mizuno, N. Nakajima, and M. Seki
Chiba University, JAPAN

- ULTRA HIGH FLEXIBLE UV-VIS RADIATION SOURCE AND NOVEL DETECTION SCHEMES FOR SPECTROPHOTOMETRIC HPLC DETECTION** 1977
K. Kraiczek¹, R. Bonjour², Y. Salvadé², and R. Zengerle^{3,4}
¹*Agilent Technologies, GERMANY,* ²*University of Applied Sciences, SWITZERLAND, and*
³*University of Freiburg - IMTEK, GERMANY*

- CUSTOMIZED HPLC IN GLASS CHIPS** 1980
S. Thürmann, and D. Belder
Universität Leipzig, GERMANY

Session 4C1 - Neurobiology

- CONTACTLESS THREE-DIMENSIONAL GUIDANCE OF AXONAL GROWTH** 1983
T. Honegger, M. Thielen, and J. Voldman
Massachusetts Institute of Technology, USA

- MOBILE MICROPLATES FOR HANDLING MORPHOLOGICALLY CONTROLLED SINGLE NEURAL CELLS** 1986
S. Yoshida¹, T. Teshima¹, K. Kuribayashi-Shigetomi¹, and S. Takeuchi^{1,2}
¹*University of Tokyo, JAPAN and* ²*Japan Science and Technology Agency (JST), JAPAN*

- ANALYSIS OF AXON GUIDANCE IN SINGLE NEURONS USING A LARGE ARRAY OF MICROFLUIDIC GRADIENT GENERATORS** 1989
N. Bhattacharjee, and A. Folch
University of Washington, USA

Session 4A2 - Nucleic Acid Processing

- ISOTHERMAL AMPLIFICATION OF DNA ON TIPS OF SILICON NANOTWEEZERS AND ITS ELECTRICAL AND MECHANICAL CHARACTERIZATION** 1992
M. Kumemura¹, S.L. Karsten², N. Lafitte¹, H. Guillou³, L. Jalabert¹, H. Fujita¹, and D. Collard¹
¹University of Tokyo, JAPAN, ²NeuroInDx. Inc., USA, and ³CNRS and University Joseph Fourier, FRANCE
- NON-INVASIVE HANDLING OF CHROMATIN FIBERS ISOLATED FROM INDIVIDUAL CELLS IN A MICROCHANNEL UTILIZING AN OPTICALLY DRIVEN MICROTOOL – TOWARD DIRECT EPIGENETIC ANALYSIS BY MICROSCOPY–** 1995
H. Oana¹, K. Nishikawa¹, H. Matsuhara², A. Yamamoto², T.G. Yamamoto³, T. Haraguchi³, Y. Hiraoka⁴, and M. Washizu¹
¹University of Tokyo, JAPAN, ²Shizuoka University, JAPAN, ³National Institute of Information and Communications Technology (NICT), JAPAN, and ⁴Osaka University, JAPAN
- DRY SAMPLE PRESERVATION USING A SLIPCHIP** 1998
S. Begolo¹, F. Shen² and R.F. Ismagilov¹
¹California Institute of Technology, USA and ²Slipchip LLC, USA
- MICROFLUIDICS TO EXPLORE SPATIAL BEHAVIOR OF SYNTHETIC BIOCHEMICAL NETWORKS** 2001
A. Estévez-Torres¹, L. Mzali¹, A. Kalley¹, A. Zadorin¹, Y. Rondelez², and J.-C. Galas¹
¹LPN-CNRS, FRANCE and ²University of Tokyo, JAPAN

Session 4B2 - Cell Biology

- HYDROGEL DROPLET PLATFORM FOR HIGH-THROUGHPUT, HIGH-RESOLUTION IMAGING AND SORTING OF EARLY LARVAL CAENORHABDITIS ELEGANS** 2004
G. Aubry, M. Zhan, and H. Lu
Georgia Institute of Technology, USA
- NEUTROPHILS MIGRATE LONGER DISTANCES IN MOVING MICROFLUIDIC CONCENTRATION GRADIENTS COMPARED TO STATIC ONES** 2007
M.A. Qasaimeh, M. Astolfi, M. Pyzik, S. Vidal, and D. Juncker
McGill University, CANADA
- DISPOSABLE MICROFLUIDIC CHIP WITH INTEGRATED LIGHT SHEET ILLUMINATION ENABLES DIAGNOSTICS BASED ON MEMBRANE VESICLES** 2010
H. Deschout¹, K. Raemdonck¹, S. Stremersch¹, P. Maoddi², G. Mernier², P. Renaud², S. Jiguet², A. Hendrix³, M. Bracke³, R. Van den Broecke³, M. Röding⁴, M. Rudemo⁴, J. Demeester¹, S. De Smedt¹, F. Strubbe¹, K. Neyts¹, and K. Braeckmans¹
¹Ghent University, BELGIUM, ²Ecole Polytechnique Fédérale de Lausanne, SWITZERLAND, ³Ghent University Hospital, BELGIUM, and ⁴Chalmers University of Technology, SWEDEN
- PULSED STIMULATION VIA MICROFLUIDICS REVEALS SHORT AND LONG-TERM MEMORIES IN MAST CELLS** 2013
Y. Liu¹, W.S. Hlavacek³, B.R. Schudel¹, A. Mahajan³, C.H. Hayden¹, D.S. Lidke², B.W. Wilson², and A.K. Singh¹
¹Sandia National Laboratory, USA, ²Los Alamos National Laboratory, USA, and ³University of New Mexico, USA

Session 4C2 - Tissue Engineering

- HANGING MICROFLUIDICS: A HIGHLY VERSATILE PLATFORM FOR PRODUCTION AND CULTIVATION OF 3D SPHERICAL MICROTISSUES** 2016
O. Frey, P.M. Misun, and A. Hierlemann
ETH Zürich, SWITZERLAND

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| MICROFLUIDIC TISSUE: A BIODEGRADABLE SCAFFOLD WITH BUILT-IN VASCULATURE FOR CARDIAC TISSUE VASCULARIZATION AND SURGICAL VASCULAR ANASTOMOSIS | 2019 |
| B. Zhang ¹ , M. Montgomery ¹ , A. Pahnke ¹ , L. Reis ¹ , S.S. Nunes ^{1,2} , and M. Radisic ¹ | |
| ¹ University of Toronto, CANADA and ² University Health Network, CANADA | |
| CURVATURE-INDUCED SPONTANEOUS DETACHMENT OF VASCULAR SMOOTH MUSCLE CELL SHEETS: TOWARDS VASCULAR SELF ASSEMBLY IN MICROCHANNELS | 2022 |
| T. Yamashita ¹ , P. Kollmannsberger ² , K. Mawatari ^{1,3} , V. Vogel ² , and T. Kitamori ^{1,3} | |
| ¹ University of Tokyo, JAPAN, ² ETH Zürich, SWITZERLAND, and | |
| ³ Japan Science and Technology Agency (JST), JAPAN | |
| MICROFLUIDIC PERFUSION CULTIVATION SYSTEM FOR A MULTILAYER STRUCTURED TUBULAR TISSUES | 2025 |
| Y. Yamagishi ¹ , T. Masuda ¹ , N. Takei ¹ , M. Matsusaki ² , M. Akashi ² , and F. Arai ¹ | |
| ¹ Nagoya University, JAPAN and ² Osaka University, JAPAN | |