Microfluidics
Lab-on-a-Chip
Organoids
Organ-on-a-Chip Asia 2024

Flow Chemistry Asia 2024

November 7-8, 2024
Hotel Nikko Narita – Japan

Produced by SelectBIO Conferences

https://www.selectbioconferences.com/

SelectBIO Conference at the Hotel Nikko Narita – At Tokyo-Narita Airport

November 7-8, 2024

Conference is Composed of Two Co-Located, Concurrent Tracks – Full Access to Both Tracks to All Participants, Sponsors and Exhibitors

Flow Chemistry Asia 2024
Lab-on-a-Chip, Microfluidics, Organ-on-a-Chip Asia 2024

November 7, 2024 – Conference Day 1
Flow Chemistry Asia 2024 Conference Track

08:00 Conference Registration, Materials Pick-Up, Coffee, Tea and Networking in the Exhibit Hall [Ozora Banquet Room]

08:50 Welcome by the Conference Chairpersons:
Professor Paul Watts, Nelson Mandela University, South Africa
Professor Guangsheng Luo, Tsinghua University, China

Opening Session:	Focusing on Latest Advancements in Flow Chemistry
Venue:	Tsuru B

09:00 Guangsheng Luo, Professor, Tsinghua University, China
Development of Microreactor Technology: Multiphase Microdispersion, Mass Transfer and Separation Characteristics Under Complex Conditions

09:30 Shengyang Tao, Dean, Dalian University of Technology, China
Continuous Flow Reaction for the Synthesis of Fine Chemicals

10:00 Chao Liu, Head and Director of FEEP Lab, Process Enabling Technology Platform, WuXi STA, China
Recent Progress and Case Studies of Flow Chemistry Technology in Small Molecule API Process R&D and Manufacturing

10:30	Mid-Morning Coffee Break, Networking and Poster Viewing in Exhibit Hall (Ozora Room)

11:00 Di Sha, Chief Scientist, Ou Shisheng (Beijing) Technology Co. Ltd., China
AI-Empowered Flow Chemistry Instrument Manufacturing and Application

11:30 Wei Wang, Professor, School of Chemical Engineering, Sichuan University, China
Controllable Microfluidic Emulsions for Creating Functional Particles

12:00 Shinichiro Fuse, Professor, Nagoya University, Japan
Developing New Microflow Processes Using Classical Reagents

12:30	Networking Lunch in the Exhibit Hall—Ozora Room (Japanese Bento) Network with Exhibitors and Colleagues, View Posters

Afternoon Session Title:	Research Efforts in Flow Chemistry - A Broad Picture of Flow Chem and Its Utility
Session Chairs:	Professor Watts and Professor Luo
Venue:	Tsuru B

14:00 Kai Wang, Associate Professor, Department of Chemical Engineering, Tsinghua University, China
Low Cell Voltage Electrosynthesis of Hydrogen Peroxide

14:30 Fang Zhao, Associate Professor, East China University of Science and Technology, China
Automatic Measurement for Photoreaction Kinetics Based on Single-Liquid-Slug Oscillatory Flow

15:00 Nopphon Weeranoppanant, Associate Professor, Burapha University, Thailand
Sustainable Chemical and Biochemical Processes Through Continuous Synthesis and Separation

15:30	Late Afternoon Coffee and Tea Break in the Exhibit Hall + Poster Viewing (Ozora Room)

16:30 Christian Hornung, Research Group Leader, CSIRO, Australia
Structured Catalysts for Hydrogenations in Chemical Manufacture and for the Storage of Renewable Hydrogen

17:00 Technology Spotlight Presentation
Rob Legg, Director, Precision Catalysts, Australia
The How & Why of Catalytic Static Mixer Technology

Joint Session -- Flow Chemistry Track and Microfluidics Track Joined Together
Venue: Tsuru A&B

17:30 Paul Watts, Distinguished Professor and Research Chair, Nelson Mandela University, South Africa
Has the Flow Changed? From Microfluidic Research to Meso Reactor Synthesis

18:00 Noah Malmstadt, Professor of Chemical Engineering and Materials Science, University of Southern California, United States of America
Flow Reactors for Sustainable Colloidal Synthesis of Nanocrystals

18:30 Steven Soper, Professor, Departments of Chemistry and Mechanical Engineering, University of Kansas, United States of America
Label-Free Detection and Identification of Single Molecules for Applications in Medicine and Biology

19:00 Networking Reception in the Exhibit Hall with Japanese Beer and Japanese Sake -- Network with Exhibitors, Colleagues and View Posters
Venue: Ozora Room

20:00 Close of Day One of the Conference

November 8, 2024 – Conference Day 2
Flow Chemistry Asia 2024 Conference Track

08:30 Conference Registration, Materials Pick-Up, Coffee, Tea and Networking in the Exhibit Hall [Ozora Banquet Room]

Introduction to Day Two By Conference Chairpersons.
Overview of the Structure and Programme for Day Two
Venue: Tsuru B

09:00 Marcus Baumann, Associate Professor, School of Chemistry, University College Dublin, Ireland
Overcoming Selectivity and Scalability Challenges via Continuous Photochemistry

09:30 Jie Wu, Associate Professor, National University of Singapore, Singapore
Towards On-Demand Synthesis of Organic Small Molecules Through Advanced Flow Technology

10:00 Christophe Len, Professor, Chimie ParisTech, CNRS, France
Continuous Flow For Biomass-based Chemicals Production

10:30 Mid-Morning Coffee Break and Networking + Poster Viewing in the Exhibit Hall (Ozora Room)

11:30 Yuchao Zhao, Professor, Yantai University, China
Pickering Emulsion Enhanced Interfacial Catalysis Under Taylor Flow in a Microchannel Reactor

12:00 Tao Jian, Vice President and Head of Center of Flow & Continuous Technology (CFCT), Asymchem, China
Presentation by Asymchem Labs

12:30 Networking Lunch in the Exhibit Hall (Japanese Bento)
Network with Exhibitors, Colleagues and View Posters
Venue: Ozora Room

Afternoon Session Title:	Emerging Trends in the Flow Chemistry Field
Venue:	Tsuru B

14:00 Volker Hessel, Professor, The University of Adelaide, Australia
Microfluidics (within small Batches) at New Frontiers: Under Plasma and Reduced Gravity

14:30 Lijing Zhang, Associate Professor, School of Chemistry, Dalian University of Technology, China
Design and Construction of High-Performance Photochemical Reactors for the Synthesis of Fine Chemicals

15:00 Afternoon Coffee Break and Networking in the Exhibit Hall + Poster Viewing -- Discussions in the Exhibit Hall Continue

November 7, 2024 – Conference Day 1
Lab-on-a-Chip, Microfluidics and Organ-on-a-Chip Asia 2024 Conference Track

08:00 Conference Registration, Materials Pick-Up, Coffee, Tea and Networking in the Exhibit Hall [Ozora Banquet Room]

Conference Plenary Session Chaired by:

Professor Noah Malmstadt, University of Southern California

The Plenary Session Sets the Tone for the Conference Topics to be Addressed:

Microfluidics/Lab-on-a-Chip
Lipid Nanoparticles (LNPs)
Organs-on-Chips

Venue: Tsuru A

09:00 Yoshinobu Baba, Professor, Nagoya University, Japan
Nanobiodevices and Quantum Life Science for Future Healthcare

09:30 Nancy Allbritton, Frank and Julie Jungers Dean of the College of Engineering and Professor of Bioengineering, University of Washington, United States of America
Overview of the Organ-on-a-Chip Field

10:00 Steven Soper, Professor, Departments of Chemistry and Mechanical Engineering, University of Kansas, United States of America
Integrated Microfluidic Systems for the Comprehensive Analysis of Liquid Biopsy Samples

10:30 Mid-Morning Coffee Break and Networking with Exhibitors, Colleagues and View Posters (Ozora Room)

11:00 Aram Chung, Professor, School of Biomedical Engineering, Korea University, Republic of Korea
Microfluidic Platforms for Immunotherapy and Genome Editing

11:30 Tae-Joon Jeon, Professor, Inha University, Republic of Korea
Innovative Applications of Lipids and Microfluidics: Tools for Advanced Drug Delivery Systems and Biosensing

12:00 Noah Malmstadt, Professor, Mork Family Dept. of Chemical Engineering & Materials Science, University of Southern California, United States of America
Understanding Three-Dimensional Microfluidic Design to Optimize Lipid Nanoparticle Fabrication

12:30 Manabu Tokeshi, Professor, Division of Applied Chemistry, Hokkaido University, Japan
Fabrication of Engineered Lipid Nanoparticles Using Microfluidic Devices

13:00	Networking Lunch in the Exhibit Hall (Japanese Bento) Network with Exhibitors and Colleagues, View Posters (Venue: Ozora Room)

Afternoon Session Title:	Lab-on-a-Chip and Microfluidics 2024 -- Technologies and Applications
Venue:	Tsuru A

14:00 Daniel Citterio, Professor, Keio University, Japan
CRISPR/Cas Assays Fully Integrated Into Paper-based Platforms

14:30 Hirofumi Shintaku, Professor, Institute for Life and Medical Sciences, Kyoto University
Nanoscale Electrokinetics Empowers Mechano Phenotyping of Single Cells

15:00 Anderson Shum, Professor, Department of Mechanical Engineering
Director Advanced Biomedical Instrumentation Centre
University of Hong Kong
Designer Microstructures by Assembly at Aqueous Phase-Separating Interfaces

15:30	Late Afternoon Coffee and Tea Break in the Exhibit Hall + Poster Viewing (Ozora Room)

16:00 Technology Spotlight Presentation
Sven Kreutel, CEO, Particle Metrix, Inc., USA & Germany
Characterization of Extracellular Vesicles and Other Biological Nanoparticles using Nanoparticle Tracking Analysis (NTA)

16:30 Technology Spotlight Presentation
Jing Chen, Founder & CEO, Hicomp Microtech, United States of America
How to Take Your Chips Out of the Lab? Exploring PDMS Volume Production

17:00 Michael Breadmore, Professor, University of Tasmania
3D Printed Fluidic Devices

Joint Session -- Flow Chemistry Track and Microfluidics Track Joined Together
Venue: Tsuru A&B

17:30 Paul Watts, Distinguished Professor and Research Chair, Nelson Mandela University, South Africa
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20:00 Close of Day One of the Conference

November 8, 2024 – Conference Day 2
Lab-on-a-Chip, Microfluidics and Organ-on-a-Chip Asia 2024 Conference Track

08:30 Conference Registration, Materials Pick-Up, Coffee, Tea and Networking in the Exhibit Hall [Ozora Banquet Room]

Morning Session Title: Convergence of Lab-on-a-Chip/Microfluidics with Related Fields
Venue: Tsuru A

09:00 Jonghoon Choi, Professor, Chung-Ang University, Republic of Korea
Cell-Surface Glycan Targeting Lectin Nanoparticles for the Theragnosis of Tumor

09:30 Jessie S. Jeon, Associate Professor, KAIST, Republic of Korea
Microphysiological System for Disease Modeling and Drug Testing

10:00 Mandy Esch, Project Leader, National Institute of Standards and Technology (NIST), United States of America
Development of Pumpless Single-Organ and Multi-Organ MPS

10:30 Mid-Morning Coffee Break and Networking in the Exhibit Hall + Poster Viewing (Ozora Room)

Session Title and Focus: Organs-on-Chips
Plenary Speaker and Session Chairperson: Dr. Danilo Tagle, NCATS
Venue: Tsuru A

11:30 Danilo Tagle, Director, Office of Special Initiatives, National Center for Advancing Translational Sciences at the NIH (NCATS), United States of America
NIH Translational Centers for Microphysiological Systems (TraCe MPS)

12:00 Hiroshi Kimura, Professor, Micro/Nano Technology Center, Tokai University, Japan
User-Friendly MPS Platforms for Commercialization

12:30 Technology Spotlight Presentation
Meghan Hemond, Senior Business Development Engineer, Edge Precision Manufacturing, United States of America
Materials and Manufacturing Methods for Thermoplastic Products

13:00 Networking Lunch in the Exhibit Hall (Japanese Bento)
Network with Exhibitors, Colleagues and View Posters
Venue: Ozora Room

The NIH Complement to Animal Research in Experimentation (Complement-ARIE) Program to Advance New Approach Methodologies (NAMs)

The 21st century has been a time of accelerated technological advancement. New and evolving methodologies, including gene editing, artificial intelligence (AI), induced pluripotent stem cells (iPSCs), and advanced 3D models are fundamentally changing the way biomedical science is done. These technologies have greatly enabled and contributed to the development and application of New Approach Methodologies (NAMs). NAMs can be defined as any in vitro, in chemico or computational (in silico) method that when used alone, or in concert with others, enables improved chemical and drug safety assessment through more human-relevant models and as a result, can contribute to the replacement of in vivo studies. While animal models continue to be vital to advancing scientific knowledge, NAMs offer unique strengths that, when utilized strategically or in combination, can enable researchers to answer previously difficult or unanswerable questions, especially in areas where in vivo models are lacking or have consistently underperformed.

The recent passage into law of the FDA Modernization Act 2.0 enabled drug registration without the absolute requirement for the use of animals in safety toxicology assessment where alternative risk assessment tools are available. An NIH Complement Animal Research In Experimentation (Complement-ARIE) working group (WG) has been engaged in robust strategic planning activities and stakeholder outreach focused on developing a unifying vision for building on ongoing efforts to develop, standardize, validate, and use NAMs, and identifying opportunities for innovation and coordination with other stakeholders.

The overarching goal of the Complement-ARIE program is to catalyze the development, standardization, validation, and use of human-based NAMs that will transform the way we do basic, translational, and clinical sciences. The program goals include:

- Better model and understand human health and disease outcomes across diverse populations.
- Develop NAMs that provide insight into specific biological processes or disease states.
- Validate mature NAMs to support regulatory use and standardization.
- Complement traditional models and make biomedical research more efficient and effective.

Complement-ARIE will significantly advance understanding of human health and etiology of human disease, have near-term application in fields such as mechanism elucidation, precision medicine, safety pharmacology, predictive toxicology, efficacy evaluation of candidate therapeutics, and provide a range of ready and standardized models for health and disease biology.

Session Chaired by: Dr. Danilo Tagle, NCATS
Venue: Tsuru A

14:00 Ryuji Yokokawa, Professor, Department of Micro Engineering, Kyoto University, Japan
Microphysiological Systems (MPS) With Perfusable Vascular Network for Pharmacological and Infectious Disease Applications

14:30 Seiichi Ishida, Guest Researcher, National Institute of Health Sciences, Professor, Sojo University, Japan
Effort of Japan MPS-Projects for the OECD Test-Guideline Proposal of Gut-Liver MPS as the Alternative of Toxicokinetics Test

15:00 Late-Afternoon Coffee Break and Networking in the Exhibit Hall + Poster Viewing (Ozora Room)

15:30 Seiichi Ishida, Guest Researcher, National Institute of Health Sciences, Professor, Sojo University, Japan
Introduction to the Session

15:45 Danilo Tagle, Director, Office of Special Initiatives, National Center for Advancing Translational Sciences at the NIH (NCATS), United States of America
Introduction of Complement Animal Research In Experimentation (Complement-ARIE) Program

16:15 Panel Discussion
Questions and Engagement with Audience
This panel discussion is also supported by the Japan MPS Initiative

Japan MPS Initiative

17:30 Close of Session and Conference