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Barabino, Gilda

Olin College of Engineering, USA

Welcome Speech

Gilda A. Barabino, is President of Olin College of Engineering. Previously, she served as the Daniel and Frances Berg Professor and Dean of Engineering at The City College of New York's (CCNY) Grove School of Engineering. Prior to joining CCNY, she served as Associate Chair for Graduate Studies and Professor in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory. At Georgia Tech she also served as the inaugural Vice Provost for Academic Diversity. Prior to Georgia Tech and Emory, she rose to the rank of Full Professor of Chemical Engineering and served as Vice Provost for Undergraduate Education at Northeastern University. She is a noted investigator in the areas of sickle cell disease, cellular and tissue engineering, and the role of race/ethnicity and gender in science and engineering. Her many honors include an honorary degree from Xavier University of Louisiana and the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring, and she is a Fellow of several scientific societies. Dr. Barabino is an elected member of the National Academy of Engineering, the National Academy of Medicine and the American Academy of Arts and Sciences. She chairs the National Academies Committee on Women in Sciences, Engineering and Medicine and is President-elect of the American Association for the Advancement of Science. She received her B.S. degree in Chemistry from Xavier University of Louisiana and her Ph.D. in Chemical Engineering from Rice University.

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Griffith, Linda

Massachusetts Institute of Technology, USA

Deconstructing and Reconstructing the Patient

Linda Gay Griffith is the School of Engineering Teaching Innovation Professor of Biological and Mechanical Engineering and MacVicar Fellow at MIT, where she directs the Center for Gynepathology Research. Dr. Griffith has pioneered approaches in tissue engineering, including the first tissue-engineered cartilage in the shape of a human ear, commercialization of the 3DP™ printing process for manufacture of FDA approved scaffolds, commercialization of the 3D perfused LiverChip for drug development, and synthetic matrices for tissue morphogenesis. She is now establishing the field of physiomimetics, integrating organs-on-chips technologies with systems biology to humanize drug development for the most challenging chronic inflammatory diseases.

She is a member of the National Academy of Engineering (NAE), the National Academy of Medicine, the National Academy of Inventors, the American Academy of Arts and Sciences, and recipient of a MacArthur Foundation Fellowship, Radcliffe Fellowship, and several awards from professional societies. She is a 2021 co-recipient of the NAE Gordon Prize for Innovation in Engineering and Technology Education, recognized for “creating the discipline of Biological Engineering”. Griffith currently serves on the advisory board of the Society for Women’s Health Research and has served on the advisory committee to the director of the National Institutes of Health. At MIT, she led development of the undergraduate major in Biological Engineering (now Course 20). She received her BS from Georgia Tech and PhD from UC Berkeley, both in chemical engineering.

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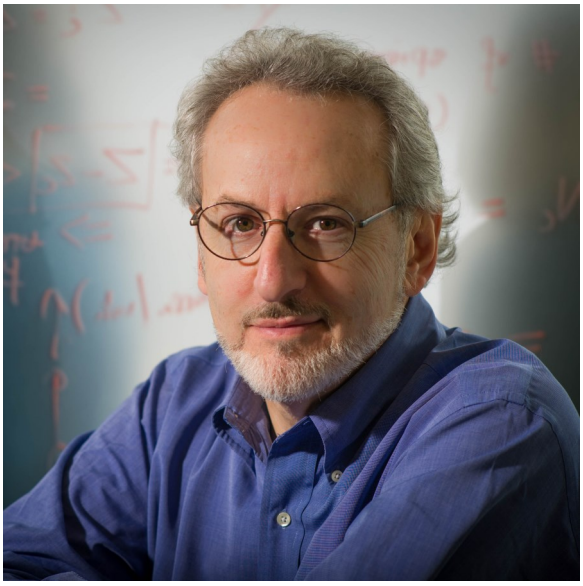

Ingber, Donald

Wyss Institute, USA

Recapitulating human biology, disease states, and therapeutic responses in vitro

Donald E. Ingber,MD,PhD is the Founding Director of the Wyss Institute for Biologically Inspired Engineering at Harvard University, Judah Folkman Professor of Vascular Biology at Harvard Medical School and the Vascular Biology Program at Boston Children's Hospital, and Professor of Bioengineering at the Harvard John A. Paulson School of Engineering and Applied Sciences. He received his B.A., M.A., M.Phil., M.D. and Ph.D. from Yale University. Ingber is a pioneer in the field of biologically inspired engineering, and at the Wyss Institute, he currently leads scientific and engineering teams that cross a broad range of disciplines to develop breakthrough bioinspired technologies to advance healthcare and to improve sustainability. His work has led to major advances in mechanobiology, tumor angiogenesis, tissue engineering, systems biology, nanobiotechnology, and translational medicine, with his most recent pioneering contributions being the development of human Organ-on-Chips as replacements for animal testing and multiplexed electrochemical sensors for medical diagnostics. Through his work, Ingber has helped to break down boundaries between science, art and design, and has made great strides in translating his innovations into commercial products with many now either in clinical trials or currently being sold. He has authored more than 500 publications and over 170 U.S. patents, founded 7 companies, and has been a guest speaker at more than 550 events internationally. Ingber is a member of the National Academy of Medicine, National Academy of Engineering, National Academy of Inventors, American Institute for Medical and Biological Engineering, and the American Academy of Arts and Sciences. He also was listed among the Top 20 Translational Researchers in 2012, 2019, and 2020 (Nature Biotechnology).

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Shuler, Michael

Hesperos, Inc., USA

Body-on-a-Chip: The Potential to Transform Drug Development

Michael L. Shuler is the Eckert Professor of Engineering, Emeritus in the Meing Department of Biomedical Engineering and in the Smith School of Chemical and Biomolecular Engineering at Cornell University, and was director of Cornell's Nanobiotechnology Center. Shuler has degrees in chemical engineering (BS, Notre Dame, 1969 and Ph.D., Minnesota, 1973) and has been a faculty member at Cornell University since 1974. Shuler's research includes development of "Body-on-a-Chip" for testing pharmaceuticals for toxicity and efficacy, creation of production systems for useful compounds, such as paclitaxel from plant cell cultures, and construction of whole cell models relating genome to physiology. Shuler is CEO and President of Hesperos, a company founded to implement the "Body-on-a-Chip" system. Shuler, F. Kargi and M.DeLisa. have authored a popular textbook, "Bioprocess Engineering; Basic Concepts" now in its third edition. He has an honorary doctorate from the University of Notre Dame. Shuler has been elected to the National Academy of Engineering and the American Academy of Arts and Science and is a fellow of numerous professional societies.

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Tagle, Danilo

National Center for Advancing Translational Sciences (NCATS), USA

MPS world summit: how the journey began

Danilo Tagle is currently Director, Office of Special Initiatives at the National Center for Advancing Translational Sciences (NCATS) of the National Institutes of Health (NIH) where he coordinates efforts towards developing microphysiological systems or organs on chips. He also coordinates efforts on 3D bioprinting for drug discovery and development, on automated chemistry, on the use of electronic nose technology for disease diagnosis, and the clinical utility of secreted RNA in exosomes for biomarker and therapy development. Prior to joining NCATS in 2012, Dan was a program director for neurogenetics at the National Institute of Neurological Disorders and Stroke (NINDS, NIH), where he was involved in developing programs concerning genomics-based approaches for basic and translational research in inherited brain disorders. Prior to joining NINDS in 2001, Dan was an investigator and section head of molecular neurogenetics at the National Human Genome Research Institute (NHGRI, NIH) and has been involved in the highly collaborative effort toward the positional cloning of genes for Huntington's disease, ataxia-telangiectasia and Niemann-Pick disease type C. He has served on numerous committees, advisory boards, and editorial boards. Dan obtained his Ph.D. in molecular biology and genetics from Wayne State University School of Medicine in 1990. He was an NIH National Research Service Award postdoctoral fellow in human genetics at the University of Michigan. Dan has authored many scientific publications and has garnered numerous awards, including more recently the Roscoe O. Brady Award for Innovation and Accomplishment, and the Henry J. Heimlich Award for Innovative Medicine.

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Aiello, Maurizio React4Life, Italy

New MPS based in vitro models for immuno-oncological applications: circulating immune cells and 3D tissue models cross-talk

In 1994 he obtained his MSc Degree in Physics from the University of Genoa, Italy. He worked in the field of molecular dynamics for Glaxo Wellcome Inc. From 1998 to 2001 he was technical Officer for the University of Genoa (head of ICT infrastructure at the University of Genoa, Department of Physics), and contemporary freelance for primary companies, banks, institutions. From 2001 he is technologist at CNR. His main scientific interests have included: a) nuclear physics; b) molecular dynamics; c) fluid dynamics; d) network security. In 2006 he has founded Cleis Security srl, a spin-off of CNR, and for seven years he covered the role of President and CEO. Since 2016 M. Aiello is founder and CEO of React4life srl, covering a business developer role. His activities in React4life concern the internationalization of the business and lobbying, as well as for the supervision of the part of new product developments.

Ajalik, Raquel University of Rochester, USA

69. Human Tendon-on-Chip (hToC) platform for modeling inflammation, fibrosis, and cell cycle regulation in fibrovascular tendon healing

Aleman, Julio University of Pittsburgh, USA

189. A microphysiological system coupling of metabolic associated fatty liver disease (MAFLD) to endocrine pancreatic islets: Towards the association and causal link between MAFLD and Type 2 diabetes (T2D)

Ashton, Randolph University of Wisconsin-Madison, USA

20. Neural Rosette ArraysTM for Quantitative High-Throughput Screening of Human Developmental Neurotoxicity and Teratogenicity

Autar, Kaveena University of Central Florida, USA

174. Development of a Functional Human iPSC-Cortical Neuron-MEA Model for Long Term Potentiation Analysis and Alzheimer's Drug Testing

Bafti, Sepand Nortis, USA

How Organ-On-Chip Technology is Revolutionizing Drug Discovery
273. Biofabrication of kidney proximal tubules and other organ structures in organ-on-chip devices

Bahinski, Anthony Vivodyne, Inc., USA

Round Table: Developers meet Regulators and End users

Dr. Anthony Bahinski is Chief Technology Officer at Vivodyne, where he leads the translation of Vivodyne's automated platform for massively scalable safety and efficacy testing on lifelike lab-grown human tissues to pharmaceutical and regulatory partners. Prior to joining Vivodyne, he served as the Global Head of Safety Pharmacology at GlaxoSmithKline. At GlaxoSmithKline, his responsibilities were focused on coordinating a global strategy to investigate safety risks of drugs on the cardiovascular, respiratory, CNS, renal, and other specialized tissues, both in vitro and in vivo. Dr. Bahinski's career spans academic research and large Pharma, with more than 20 years' experience in the pharmaceutical industry. He served as Lead Senior Staff Scientist on the Advanced Technology Team at Harvard's Wyss Institute, leading DARPA and FDA collaborative efforts in development of organ chip systems. Dr. Bahinski has served on several advisory boards and is a current member of the Science Board of the US FDA, US EPA Board of Scientific Counselors (BOSC), and the Industrial Advisory Board for Dutch Research Council awarded SMART Organ on Chip (OoC) project. He is a member of the Editorial Board of the journals, Applied In Vitro Toxicology and Frontiers in Pharmacology

Barrile, Riccardo University of Cincinnati, USA

260. Rapid 3D-Bioprinting of a Microfluidic Tissue Model of Glioblastoma

Bell, Luisa University of Basal, Roche, Switzerland

104. Complex In Vitro Models in Preclinical Toxicologic Pathology – Histotechniques and Examples

Bhushan, Abhinav Illinois Institute of Technology, USA

79. Standalone Microphysiological System with Precise Oxygen Control for Intestinal-Microbial Interactions

Bircsak, Kristin MIMETAS, Netherlands

Considerations in setting up a high-throughput organ-on-a-chip culture

119. 3D Nephroscreen: high throughput drug-induced nephrotoxicity screening on a microfluidic proximal tubule model

Bralower, Will Aracari Biosciences, USA

Lessons Learned Engineering MPS platforms as a Physiologist

Campo, Hannes Northwestern University, USA

82. A New Multi-Organ Microfluidic Device to Recapitulate Endocrine Signalling in Vitro: The LATTICE Platform.

Cappiello, Ben AxoSim, USA

194. Peripheral Nervous System Platform towards Disease Modeling and Neurotoxicity

Ben leads the commercial side of AxoSim and was a founding advisor to the company before joining full time in 2017. He is an entrepreneur and biomedical engineer. After graduating from Tulane's biomedical engineering program, he founded Bioceptive, a women's health company where he remains the CEO, splitting his time with AxoSim. Ben was also the past Vice President-Elect President of the North American 3R's Collaborative, focused on reducing the amount of ineffective animal testing done in pharmaceutical development.

Carman, Chris Emulate, USA

180. Modeling Inflammatory Immune Cell Recruitment and Response on Human Colon Intestine-Chip

Dr. Carman received a Ph.D. in Molecular Pharmacology from Thomas Jefferson University in Philadelphia, PA. He then conducted post-doctoral training at Harvard Medical School (Boston, MA) with Timothy A. Springer in fields of immunology and vascular biology. He went on to establish his own laboratory at Harvard where he spent 12+ years creating primary ex vivo models of human immune/inflammatory responses, as well as, serving as a member of the Harvard Immunology Faculty. At the beginning of 2021 he transitioned to biotechnology industry and became Director of Immunology at Emulate Bio. He is currently leading a team that is developing novel Organ-on-Chip models of inflammatory disease to accelerate development of clinically effective anti-inflammatory therapies.

Cho, Young-Jae Seoul National University Bundang Hospital, South Korea

Current Challenges and Perspective MPS R&D in South Korea

As a lung doctor, my primary clinical interest is various respiratory diseases in intensive care unit. I'm focusing on the diagnosis and treatment of severe acute respiratory failure in the intensive care unit, esp. working as a frontline clinician for COVID-19 in my hospital. As a visionary researcher, I'm conducting translational research (funded by government) on 3D cell and organoid culture using lung microphysiological systems to develop toxicologic inhalation models or respiratory disease models for new drug discovery, collaborating with many other scientists around the world.

Cipriano, Madalena Eberhard Karls University of Tübingen, Germany

199. Human stem cell-based retina on chip – a screening platform for retinal drug development

Curley, Lowry AxoSim, USA

210. Chemotherapy-Induced Peripheral Neuropathy Using a Nerve-on-a-Chip Microphysiological System

Lowry is co-founder of CEO of AxoSim. He drives the vision and implementation for product development and commercialization of AxoSim's NerveSim® and BrainSim® drug discovery platforms, with the goal of making a significant impact on medicine and patient care. Lowry received a PhD in biomedical engineering from Tulane University focused on tissue engineering and neuroscience. He is active on HESI's (Health and Environmental Science Institute) Neurotox Committee, which is a national nonprofit that works to resolve global health and environmental challenges through engagement of scientists from academia, government, industry, NGOs, and other strategic partners. Lowry is also an early member of the Nonclinical innovation and Patient Safety Initiative collaboration (NIPSI) which advocates to the FDA for use of safer, more effective non-animal testing models in drug discovery.

Drabbe, Emma University of Miami, USA

32. A Novel Tissue Bioreactor For Retinal Organoid Microenvironmental Control

Durieux, Isabell TissUse GmbH, Charité, Germany

11. Establishment of a human multi-organ-chip platform to replace animal transplant models for preclinical evaluation of Treg cell therapies

Dorne, Jean-Lou European Food Safety Authority, Italy

Round Table: How can we achieve regulatory acceptance?

Dr. Dorne has been working since 2006 in EFSA as a Senior Scientific Officer in the Scientific Committee and Emerging Risks unit. Previously, he spent 9 years at the University of Southampton between a PhD and 5 years of postdoctoral research UK on “human variability in kinetics and metabolism and refinement of uncertainty factors for chemical risk assessment”. His work focuses on chemical risk assessment and toxicology.

Ekert, Jason GlaxoSmithKline, UK

Debate: Concordance MPS vs. in vivo animal and human data

Dr. Jason Ekert is Senior Director, GSK Fellow and Head of the Complex In Vitro Models (CIVM) group at GlaxoSmithKline. He is responsible for an integrated enterprise strategy for R&D applications of complex human-relevant and translatable complex in vitro models (eg Organoids, Microphysiological systems and bioprinting). Before joining GSK he worked at Janssen in biotherapeutic drug discovery. Jason received his PhD from Adelaide University. Post-doctoral training was performed at University of California, Davis and Coriell Institute for Medical Research.He’s currently the past chair for the IQ-MPS affiliate. He is a member of the Society for Lab Automation and Screening (SLAS) and Society of Toxicology (SOT).

Ewart, Lorna Emulate, USA

Debate: Concordance MPS vs. in vivo animal and human data

Lorna Ewart is the Chief Scientific Officer at Emulate. A classically trained pharmacologist, Dr. Ewart spent 20 years at AstraZeneca, where she successfully established and led the Microphysiological Systems Centre of Excellence within the R&D Biopharmaceuticals Unit. Throughout her tenure at AstraZeneca, Dr. Ewart held additional roles of increasing responsibility, including Director of Toxicology Projects (Respiratory, Inflammation and Autoimmune). She obtained her honors degree at the University of Aberdeen and her PhD at the William Harvey Research Institute in London. She is a frequent author on publications showcasing the applicability of organ-on-a-chip technology, a sought-after keynote speaker at conferences surrounding the advancement of alternative methods, and a fellow of the Royal Society of Biology and British Pharmacological Society.

Fang, Jennifer Tulane University, USA

Lessons Learned Engineering MPS platforms as a Physiologist

Ferrer, Marc NIH/NCATS, USA

Biofabricated lung tissue models as assay platforms for drug development

Marc Ferrer is the Director of the NCATS 3D Tissue Bioprinting Laboratory at the NIH. The NCATS 3D Tissue Bioprinting Laboratory is a multidisciplinary group with the goal of creating, validating, and using 3D bioengineered tissues for disease modeling and drug discovery and development. Previously, Marc was a Team Lead at the NIH Chemical Genomics Center working on the discovery of small molecule probes to study protein function. Before joining NIH, he was Director of Assay Development and High Throughput Screening at the Department of Automated Biotechnology at the Merck Research Laboratories. Marc received a BSc degree in Organic Chemistry from the University of Barcelona, and a Ph.D. degree in Biological Chemistry from the University of Minnesota.

Fitzpatrick, Suzanne Food and Drug Administration, USA

Round Table: Developers meet Regulators and End users
Round Table: How can we achieve regulatory acceptance?

Dr. Suzanne Fitzpatrick is the Senior Advisor for Toxicology at the US Food and Drug Administration Foods Program. She is a board-certified toxicologist in the US and in Europe. Dr. Fitzpatrick is the co-chair of the CFSAN, EFSA and OECD work group on advancing new predictive toxicology test methods for food safety. Dr. Fitzpatrick chairs the FDA's Alternative Methods Work Group that is currently focusing on in vitro Microphysiological Systems. This work group published the FDA Report on Advancing Alternative Methodologies. Dr. Fitzpatrick helped develop the FDA DARPA NCATS program on Organs on a Chip and continues to work and give presentations on this evolving area. Dr. Fitzpatrick chaired the FDA Predictive Toxicology Roadmap Committee. Dr. Fitzpatrick is the principal FDA representative to ICCVAM and to the Tox 21 partnership with EPA, NCATS, and NIEHS. Dr. Fitzpatrick is an Adjunct Professor at Johns Hopkins University.

Frazier, Trivia Obatala Sciences, USA

290. Embracing diversity in a microphysiological world

Dr. Trivia Frazier, a native of New Orleans, is the Co-Founder, President, and CEO of Obatala Sciences, Inc. She holds bachelor's degrees in Physics (Dillard University '07') and Biomedical Engineering (Tulane SSE '08'), an MBA (Tulane AB '18'), and a PhD in Biomedical Sciences (Tulane SOM '12'). Dr. Frazier completed her postdoctoral work at Pennington Biomedical Research Center and the Tulane Center for Stem Research and Regenerative Medicine. Dr. Frazier has received numerous awards, including Gambit's 40 under 40, Dillard University's 40 under 40, the Woman of Distinction award, the UNCF MASKED Award, and she was a finalist for the Ada Lovelace Award for Founders in tech. Dr. Frazier is an Advisory Board member for the New Orleans Task Force, The Beach at the University of New Orleans, and for the Journal Biophysics Reviews.

Freedman, Benjamin University of Washington, USA

227. Fluidic absorption drives cystogenesis in a human organoid-on-a-chip model of polycystic kidney disease

Frey, Olivier InSphero, Switzerland

43. Multi-organ experiments scaled up

Olivier Frey is Vice President and Head of Technology & Platforms at InSphero and leads the Microphysiological Systems and Organ-on-Chip programs. Before joining InSphero, he was group leader and SNF Ambizione fellow at the Department of Biosystems Science and Engineering of ETH Zurich, Switzerland. He was responsible for the development of integrated microfluidic systems for single cell handling and 3D tissue cultures, in particular multi-tissue systems, or so-called "Body-on-a-Chip" configurations based on 3D microtissue spheroids for perfusion culturing, on-chip and off-chip analysis and interaction. Olivier Frey received his Doctoral degree in Micro Engineering from EPF Lausanne, Switzerland.

Geisse, Nicholas Curi Bio Inc., USA

172. Assessing Contractility of 3D iPSC-Derived Muscle Models for Safety and Discovery Using a Novel, High-Throughput, and Label-Free Instrumentation Platform

George, Steve UC Davis, Aracari Biosciences, USA

12. Microphysiological Systems for Immune Cell Trafficking and Capture

Steven C. George, M.D., Ph.D. is Professor and Chair of the Department of Biomedical Engineering at the University of California, Davis. He was on the faculty at the University of California, Irvine for 19 years (1995-2014). While at UCI, he served as the William J. Link Professor, founding Chair of the Department of Biomedical Engineering (2002-2009), and founding Director of the Edwards Lifesciences Center for Advanced Cardiovascular

German, Carrie CFD Research Corporation, USA

177. A Multiscale Computational Framework for Modeling Microphysiological Systems

Gjorevski, Nikolche Roche, Switzerland

205. Engineered immunocompetent intestinal models: applications in cancer immunotherapy and beyond

Nikolche completed his doctoral degree in the laboratory of Celeste Nelson at Princeton University. He then joined the laboratory of Matthias Lutolf at EPFL as a postdoc, using synthetic biomaterials and microfabrication to study and control epithelial organoid formation. In 2018, Nikolche joined Roche, where, as a scientist and Lab Head, he focused on establishing patient-derived organoids and microphysiological systems as platforms for preclinical safety assessment. In 2021, Nikolche joined the Roche Institute for Translational Bioengineering, where he leads a team focused on increasing the (patho) physiological relevance and translational impact of organoids.

Golebiewski, Martin Heidelberg Institute for Theoretical Studies, Germany

287. Standards for integrating heterogenous data and metadata from organ-on-chip technologies

Martin Golebiewski has studied biochemistry at the University of Tübingen (Germany) and works since 2005 at the Heidelberg Institute for Theoretical Studies (HITS: https://www.h-its.org/en/), a private non-profit research institute in Heidelberg (Germany). His main interests are data management and data integration for systems biology and systems medicine, as well as data and model standards in the life sciences. He chairs the 'data processing and integration' working group (ISO/TC 276/WG 5) of the ISO technical committee for biotechnology (ISO/TC 276) and is part of the board of coordinators of the COMBINE network (Computational Modeling in Biology Network: http://co.mbine.org/about). As leader of the task area “Standards for FAIR data” of the German National Research Data Infrastructure for Personal Health Data (NFDI4Health) he leads the standardization efforts for health study data. Within the European standardization framework for data integration and data-driven in silico models for personalised medicine (EU-STANDS4PM) he co-leads the work package for data sources and standards. Moreover, he is involved in the reaction kinetics database SABIO-RK (http://sabio.h-its.org) and in the data management initiative FAIRDOM (https://fair-dom.org). Over the years he also was responsible for data management in different large-scale systems biology and systems medicine networks, like the Virtual Liver Network and its successor the Liver Systems Medicine network (LiSyM: http://www.lisym.org) and others.

Goubert, Desiree MIMETAS, Netherlands

96. Modeling ischemic stroke in a triculture neurovascular unit on-a-chip

Gourmelon, Anne Organization for Economic Co-operation and Development (OECD) Test Guidelines Programme, France

287. Standards for integrating heterogenous data and metadata from organ-on-chip technologies

Anne Gourmelon is heading the Test Guidelines Programme at OEC. Ms. Gourmelon has a Master in Environmental Sciences from Wageningen University in the Netherlands, and has been working on chemical safety issues in inter-governmental organisations in the last twenty years. She is accompanying the Programme in the transition to using non-animal and innovative technologies to test more chemicals and generate better data for improved safety. These changes are in line with the globally regulatory needs. There is increasing interest from regulators to create frameworks for standardised testing and reporting using complex in vitro systems such as microphysiological systems, yet a there is still a long way to go and many issues to address.

Grepper, Sue InSphero, Switzerland

56. Ex vivo human 3D NASH model as a screening-based discovery approach for selecting and prioritizing drug candidates

Gu, Zhongze Southeast University in Nanjing, China

Round table: Overview of the global activities in MPS (national societies representatives)

Gutleb, Arno Luxembourg Institute of Science and Technology, Luxembourg

88. Complex in vitro models Representing the Pulmonary System

Dr. Arno Gutleb graduated from the University of Veterinary Medicine Vienna, Austria and holds a PhD in Environmental Sciences with specialization in toxicology from Wageningen University, The Netherlands and is a European Registered Toxicologist (ERT). He is Distinguished Professor at the University Iuliu Hatieganu, Cluj, Romania and Visiting Professor at the Universidad Andrés Bello, Santiago de Chile. Currently he is Group Leader Environmental Health at the Luxembourg Institute of Science and Technology (LIST). His group developed in vitro models for thyroid hormone disruption and concentrates now on in vitro models for the alveolar region of the lung and animal-product free cell culture methods.

Hartung, Thomas Johns Hopkins University, USA

285. From Good Cell and Tissue Culture Practice (GCCP 2.0) to Good In Vitro Reposrting Standards (GIVReSt)

Thomas Hartung, MD PhD, is the Doerenkamp-Zbinden-Chair for Evidence-based Toxicology in the Department of Environmental Health and Engineering at Johns Hopkins Bloomberg School of Public Health, Baltimore, with a joint appointment at the Whiting School of Engineering. He also holds a joint appointment as Professor for Pharmacology and Toxicology at University of Konstanz, Germany; he also is Director of Centers for Alternatives to Animal Testing (CAAT) of both universities. CAAT hosts the secretariat of the Evidence-based Toxicology Collaboration, the Good Read-Across Practice Collaboration, the Good Cell Culture Practice Collaboration, the Green Toxicology Collaboration and the Industry Refinement Working Group. As PI, he headed the Human Toxome project funded as an NIH Transformative Research Grant. He is Chief Editor of Frontiers in Artificial Intelligence.

Herland, Anna Karolinska, Sweden

272. Neurovascular Organ Chips

Anna Herland is an Associate Professor in Nanobiotechnology at Department of Protein Science at KTH Royal Institute of Technology, Sweden and Department of Neuroscience at Karolinska Institute (Sweden). Herland received a Ph.D. in Organic Bioelectronics from Linköping University. She did postdoc fellowships at Karolinska Institutet in stem cell engineering and at Harvard University (USA) in tissue engineering. She is a Wallenberg Academy Fellow and has > 50 peer reviewed journal publications. Her research group focuses on creating microphysiological models of tissue, especially the central nervous system. She develops human primary and stem cell-derived systems combined with microfluidics and uses organic electronics or bioelectronics stimuli and read-outs for real-time assessment of biological functions.

Hickman, James University of Central Florida, Hesperos Inc., USA

232. Human on a chip systems applied to neurodegenative rare diseases"

James J. Hickman is the Founding Director of the NanoScience Technology Center and a Professor of Chemistry, Medicine, MatSci and EE at the University of Central Florida. Dr. Hickman has a Ph.D. from MIT in Chemistry. He is the founder and current Chief Scientist of a biotechnology company, Hesperos, that is focusing on cell-based systems for drug discovery and toxicity. He has 159 publications and 20 book chapters, in addition to 30 issued patents out of 49 total patent applications. He is a Fellow of the American Institute of Medical and Biomedical Engineers (2004), the American Vacuum Society (2007) International Academy of Nanobiotechnology (2019) and the National Academy of Inventors (2020).

Homan, Kimberly IQ MPS Affiliate, USA

253. IQ MPS Affiliates: Accelerating the development and adoption of MPS models in industry

Hobi, Nina AlveoliX, Switzerland

Round Table: Developers meet Regulators and End users

Nina Hobi`s career covers academic and industrial research, lecturing, and biotech development and scale-up. She has more than 10 years' experience in respiratory research, human cell biology and physiology, and the development of healthy and diseased in-vitro models. Completing her Ph.D. in respiratory physiology and cell biology at the University of Innsbruck, she continued as a postdoctoral researcher and lung research group leader at the Universities of Ulm and Bern. Today, Nina Hobi is Co-CEO and Scientific Director of AlveoliX, a young Swiss biotech company with the head-quarter in Bern and the fabrication site in Biel. AlveoliX is providing innovative in-vitro solutions by combining unique microfluidic technology with state-of-the-art organ-on-chip bio-modelling. As part of the AlveoliX research team, Nina Hobi is dedicated to making organs-on-chip technology the new standard for preclinical decision-making and bringing data from bench to clinic.

Honegger, Thibault NETRI, France

Hands-on the new innovative organs-on-chip tool kit: NeuroBento™

Horland, Reyk TissUse GmbH, Germany

97. A PBPK-compliant human intestine-liver-brain-kidney Chip for QIVIVE in drug development

Reyk studied Medical Biotechnology at the Technische Universität Berlin with a focus on tissue engineering concepts. At the German Arthritis Research Center and the TU Berlin in the group of Prof. Roland Lauster, he has pursued the development of tissue models that can mimic human biology in vitro. The group especially focused on emulating the critical development steps during organ neogenesis employing the innate self assembly processes of human organs and tissues. He also investigated the use of novel bioreactor systems to scale up production of tissue engineered skin models for use in transplant surgeries. He currently holds the position of CEO TissUse.

Huang, Jeremy Massachusetts Institute of Technology, USA

245. Modeling Endometrial-Immune Crosstalk in Micro-Physiological Systems

Hughes, Chris UC Irvine, Aracari Biosciences, USA

276. Validation of an MPS human tumor model: Vascularized colon cancer micro-tumors recapitulate in vivo drug responses

Professor Hughes is a faculty member in the Department of Molecular Biology and Biochemistry and in Biomedical Engineering and was Director of the Edwards Lifesciences Center for Advanced Cardiovascular Technology in the Henry Samueli School of Engineering. He also served as co-director of the Onco-Imaging and Biotechnology Program at UCI. Professor Hughes' research focuses on the development and growth of blood vessels. Recently his lab has been pioneering "Body-on-Chip" technology, which allows for micro-organs to be grown on a "chip", each with its own blood vessel network. The technology is now licensed to Aracari Biosciences, for which Dr. Hughes is a founder and CSO.

Hyttinen, Jari Tampere University, Finland

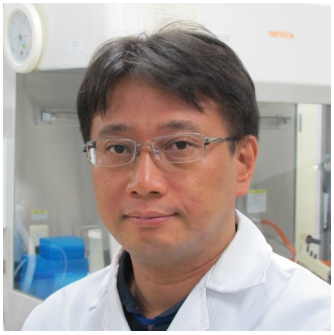
288. Biophysics-based computational modelling as a tool for translational research and drug screening in microphysiological system

Jari Hyttinen is full professor of Biomedical Eningeering and head of BioMediTech unit at the Faculty of Medicine and Health Technology, Tampere University. He leads the Computational Biophysics and Imaging Group that delivers new knowledge and methods for future personalized medicine. Prof. Hyttinen has a long-standing interest in understanding and assessing mechanisms of biophysics by developing in-vitro, 3D bioimaging and computational modelling tools for assessing the cellular functions. Previously, he has been a visiting researcher at University of Pennsylvania, University of Tasmania, Duke University and as visiting professor at University of Wollongong 2017 and ETH Zurich 2018.

Ishida, Seiichi National Institute of Health Sciences, Japan

Round Table: How can we achieve regulatory acceptance?

Seiichi Ishida has been Prof. of Division of Applied Life Science, Graduate School of Engineering, Sojo Univ., and Guest Researcher of National Institute of Health Sciences (NIHS) since 2020. He received his PhD in Pharmaceutical Science from the Univ. of Tokyo in 1993, and conducted postdoctoral studies at The Cancer Institute and at Howard Hughes Medical Institute at Duke Univ. Med. Centre. He used to be Senior Researcher (2000-2007) and Section Chief (2007-2020) of Division of Pharmacology at NIHS. His research focuses primarily on the development of in vitro cell assay platform for the evaluation of drug metabolism and drug induced liver injury and their application to the regulatory science field.



Ito, Yuzuru Tsukuba University, Japan

74. Identification of variation factors for the development of assays using MPS

Graduated from the University of Tokyo in September 2001. Obtained a doctor's degree in Science. Studied developmental biology in Kyushu University and the University of Tokyo from 2001 to 2008. Studied space biology in AIST from 2008-2009. Studied stem cell biology in AIST from 2009-2020. From 2020/11, work in the University of Tsukuba and Chiyoda Corporation, developing of stem cell differentiation method, cell-based assay method and stem cell mass culture process. Develop international standard documents as an ISO expert (ISO/TC 276).

Izadifar, Zohreh Wyss Institute, Harvard University, USA

64. Human host-microbiome interactions and mucus physiology modeled in Cervix and Vagina Chips

Jain, Abhishek Texas A&M University, USA

200. Hemorheology and pathophysiology of COVID-19 induced thrombosis predicted by Vein-Chip

Jeger-Madiot, Raphaël Université de Paris, France

107. Development of a lymphoid organ-on-chip to evaluate CD4+ T cell/B cell interactions

Jeon, Noo Li Seoul National University, South Korea

Round Table: Developers meet Regulators and End users

Prof Jeon and his group are working on developing platform MPS technology for vascularized organoids and spheroids. He is interested in developing vascularized cancer models with immune components. He has founded Xona Microfluidics in 2007 (neuron culture microfluidic devices) and Qureator in 2018 (high throughput MPS).

Kan, Ellen Massachusetts Institute of Technology, USA

259. Biophysical and Biochemical Determinants of Angiogenesis into Synthetic PEG Hydrogels from Perfusable Microvasculature

Kasendra, Magdalena Cincinnati Children's Hospital Medical Center, USA

261. Engineering next generation organoids with automated lab workflows.

Kelly, Edward University of Washington, USA

137. Predictive Nephrotoxicity Testing of Ochratoxin A and Linkage to CKDu

Dr. Kelly earned his PhD in Biochemistry from the University of Washington. Active areas of research in the Kelly lab focus on ex vivo modeling of human organ physiology and toxicological responses to drug/xenobiotic challenge. These projects make use of Microphysiological systems (MPS) as an alternative to animal testing. Recent work is applying MPS technologies to model kidney response to the extreme environment of microgravity on the International Space Station. Dr. Kelly holds the position of Associate Professor in the Department of Pharmaceutics, Adjunct Associate Professor in the Department of Environmental and Occupational Health Sciences and serves as Co-Director of the Pharmaceutical Bioengineering Extension Program.

Kiener, Mirjam AlveoliX, University of Bern, Inselspital, Switzerland

100. An Advanced Drug Screening Platform for Respiratory Viruses

Kim, Deok-Ho Johns Hopkins University, USA

286. Instrumented Microphysiological Analytic Platforms for Precision Measurement and Manipulation of Tissue Functions

Kleinstreuer, Nicole National Institute of Environmental Health Sciences, NTP Interagency Center for the Evaluation of Alternative Toxicological Methods, USA

270. MPSCoRe: a global working group applying open science to tackling a pandemic

Dr. Nicole Kleinstreuer is the acting director of the NTP Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM), the US federal resource for alternatives to animal testing, within the Division of the National Toxicology Program at the NIEHS. At NICEATM, she leads domestic and international efforts to develop novel testing and analysis strategies that provide more rapid, mechanistic, and human-relevant predictions of potential environmental chemical hazards. Kleinstreuer's research focuses on mathematical and computational modeling of biological systems and their susceptibility to perturbations that result in adverse health outcomes, and she has authored over 100 peer-reviewed publications in these areas. She holds a secondary appointment in the NIEHS Division of Intramural Research Biostatistics and Computational Biology Branch, and adjunct faculty positions in the Yale University School of Public Health and the Eshelman School of Pharmacy at UNC Chapel Hill.

Koenig, Leopold TissUse GmbH, Germany

112. A microfluidic bone marrow chip for the safety profiling of complex large molecules in preclinical drug development

Kojima, Hajime National Institute of Health Sciences, Japan

Round Table: How can we achieve regulatory acceptance?

Hajime Kojima, Ph.D., is a secretary of Japanese Center for the Validation of Alternative methods (JaCVAM) and the senior researcher of division of risk assessment, Center for Biological Safety and Research (CBSR) in National Institute of Health Sciences (NIHS), Japan contributing to the identification and evaluation of in vitro test methods for their potential validation, in the field of genotoxicity and local toxicity (skin & eye irritation and skin sensitisation). He holds several publications in refereed journals dealing with in vitro toxicity assay as well as validation study.

Kostrzewski, Tomasz CN-Bio, UK

How to effectively use human microphysiological systems to assess ADME properties of novel drug compounds

34. Characterizing the reproducibility of a liver microphysiological system for assaying drug toxicity, metabolism, and accumulation – joint study by an MPS developer and a regulator

Kühnlenz, Julia Bayer SAS, CropScience, Pathology & Mechanistic Toxicology, Sophia Antipolis, France

89. How to best guide the characterization of a thyroid-liver chip: The relevance of combining pathological and metabolic readouts

Julia Kühnlenz, a biotechnologist by training, recently obtained her Doctoral Degree of Engineering at the Technical University in Berlin, Germany. Over the past 3 years, she worked at TissUse GmbH where she acquired a broad knowledge of multi-organ-chip systems and advanced cellular models. Her own PhD project, which was a close collaboration with Bayer Pharma and CropScience, focused on the development of a human based microfluidic liver-thyroid co-culture assay for the evaluation of chemically induced perturbations of the thyroid hormone system. Since August 2021, she is now working at Bayer CropScience in France to implement these new methodologies on site and utilize them for mechanistic toxicology purposes.

LaFollette, Megan The North American 3Rs Collaborative, USA

The North American 3Rs Collaborative Microphysiological Systems Initiative: A focus on commercially available MPS

Dr. Megan LaFollette works with The North American 3Rs Collaborative to advance science, innovation, and research animal welfare. She has her PhD in Animal Behavior & Well-Being from Purdue University, where she also received a Master of Science in Animal Welfare. She currently facilitates all the collaborative's key initiatives focused on topics including environmental health monitoring, refinement, translational digital biomarkers, microphysiological systems, compassion fatigue resiliency, and creation of a 3Rs certification course. She enjoys her work increasing everyday implementation of practical, impactful, and evidence-based 3Rs techniques.

Lebakken, Connie Stem Pharm Incorporated, USA

54. Induced Pluripotent Stem Cell-Derived Neural Organoids Incorporating Microglia for Interrogation of Neural Inflammation

Levner, Daniel Emulate, USA

Round Table: Developers meet Regulators and End users

Lichtenberg, Jan InSphero, Switzerland

Round Table: Developers meet Regulators and End users

Jan Lichtenberg, Ph.D., is Co-Founder and CEO of Swiss- and US-based InSphero Inc., the largest biotech specialized in 3D cell-culture technologies for discovery and safety. InSphero's patented assay-ready 3D microtissues mimic the structure and functionality of organ tissue, e.g. liver, pancreas, or tumors including disease states like diabetes or NASH. The 3D microtissues allow for more predictive and reliable compound profiling for discovery and safety testing in a highly robust, rapid and cost-efficient way. Jan grew the company to 65 employees in Switzerland and the US while expanding the business to encompass all top 15 global pharmaceutical companies. Prior to InSphero, Jan had VP R&D and Product Management positions at Hocoma AG and Uwatec. He holds a Ph.D. from the University of Neuchâtel and managed a research group at the Swiss Federal Institute of Technology (ETH), Zurich. Since 2021 he is a Board Member of the Society of Laboratory Science and Screening (SLAS).

Loskill, Peter Eberhard Karls University of Tübingen, Germany

226. Organ-on-Chip models recapitulating complex human immunocompetent tissues

Prof. Dr. Peter Loskill is W3-Professor for Organ-on-Chip Research at the Eberhard Karls University Tübingen and the Natural and Medical Sciences Institute (NMI) as well as Chair of the European-Organ-on-Chip-Society (EUROoCS). In 2015, he was named as one of Technology Review's "Innovators under 35 Germany" and awarded a Fraunhofer ATTRACT starting grant. He now heads the µOrgano-Lab and the 3R Center Tübingen for In vitro Models and Alternatives to Animal Testing. The interdisciplinary µOrgano-Lab combines approaches to generate and apply novel microphysiological tissue models recapitulating complex human biology in vitro.

Maggiore, Joe University of Pittsburgh, USA

221. The BioSystics Analytics Platform: A comprehensive analytical platform creating actionable knowledge from MPS and other in vitro models to advance human health and safety.

Mair, Devin Johns Hopkins University, USA

110. Microgravity-Induced Mitochondrial Dysfunction in Human iPSC-Based 3D Cardiac Microphysiological System

Maoz, Ben Sagol School of Neuroscience, Tel Aviv University, Israel

Round table: Overview of the global activities in MPS (national societies representatives)

Marx, Uwe TissUse GmbH, Germany

146. Organismoids – aiming for ultimate precision in patient-specific treatment selection

Dr. Uwe Marx is the founder and CSO of TissUse dedicated to the development of human organ- and body-on-a-chip systems for drug testing and precision medicine approaches aimed to shorten the drug development process and to reduce animal experiments. Uwe Marx received his doctorate degree in immunology from the Charité of the Humboldt University in Berlin in 1991 after finishing his medical and biochemistry training. His academic research focused on human monoclonal antibodies, tissue engineering and human multi-organ chip solutions. Between 2000 and 2010, Uwe Marx joined ProBioGen – a biotech Company he founded in 1994 - as CSO.

McAleer, Christopher Hesperos Inc., USA

150. Classical Complement Pathway Inhibition in a 'Human-on-a-Chip' Model of Autoimmune Demyelinating Neuropathies

Moisan, Annie HOPE, Switzerland

Debate: Concordance MPS vs. in vivo animal and human data

Mojica-Santiago, Jorge University of Florida, USA

182. Electrical pulse stimulation and compounds with anti-atrophic potential influence contractile response of patient-derived skeletal muscle cells in a microphysiological system

Moreira Teixera, Liliana University of Twente, Netherlands

17. Engineering spatially organized organs-on-chips

Dr. Liliana Moreira Teixeira is currently assistant professor at the Department of Developmental BioEngineering (University of Twente, NL), and scientific lead of the Organ-on-Chip Center Twente (OoCCT). She holds a BSc degree in Applied Biology (UMinho, PT), specializing in immunology, a MSc degree in Biomedical Engineering (FEUP, PT), and she earned her PhD in Tissue Engineering and Regenerative Medicine by the University of Twente. Her research interests focus on the development of human multiorgan microphysiological systems to investigate the role of organ communication, mechanobiology, and inflammation in disease processes.

Mummery, Christine Leiden University, Netherlands

15. Cardiovascular MPS models for disease and drug discovery

Christine Mummery is Professor of Developmental Biology and heads the iPSC&OoC Hotel facility in the LUMC. She trained in Biophysics from the University of London and since 2015, has been guest professor at the University of Twente. Her research concerns modelling cardiovascular diseases using stem cells from patients and developing organ-on-chip models of multiple organs for safety pharmacology and potential disease and drug targets. She leads a multimillion NWO Gravity grant for this purpose and holds European Research Council Advanced and Proof-of-Concept grants. She co-founded the European Organ on Chip Society and the Netherlands Human Disease Modelling Technology organization (hDMT.technology). She was founding editor of the ISSCR journal Stem Cell Reports. She is on several scientific advisory boards including the Hubrecht Institute, the Allen Institute, Mogrify and Sartorius Gmbh.

Nzou, Goodwell Emulate, USA

Predicting Drug-Induced Liver Injury Caused by Small Molecules Using Human Liver-Chip

Occhetta, Paola Politecnico di Milano, Italy

48. uScar a mechanically active model of human cardiac fibrosis on chip

Ortiz Franyuti, Daniela Roche, Switzerland

139. Industry perspective on the challenges and opportunities in developing, selecting and applying advanced in vitro models to drug development in the context of data-driven decision making.

Daniela completed her doctoral degree in Applied Mechanobiology at Prof.Viola Vogel's Lab at ETH Zurich, working as part of the NIH's Nanomedicine Development Center for Mechanobiology Directing the Immune Response. Daniela joined as a scientist at Roche in 2018 and is part of the Investigative and Immunosafety Department within Roche's Early Research & Development, where she works on the development and application of advanced cellular in-vitro models, including microphysiological systems and organoids, for preclinical safety evaluation of drug candidates. Further, she is developing and implementing a FAIR Data strategy for advanced in-vitro models to support robust data management, processing, and advanced integrative analyses to enable the interpretation of complex data to support decision making today, and fuel the translational capabilities of the future.

Park, Tae-Eun Ulsan National Institute of Science and Technology, South Korea

268. Human blood-brain barrier model empowered by an engineered basement membrane

Pavlou, Georgios Massachusetts Institute of Technology, USA

250. Development of an in vitro 3D neuro-vascular model for Alzheimer's disease

Petrie, Timothy The Charles Stark Draper Laboratory, USA

188. PREDICT96 Demonstrating high-throughput diverse complex tissue, therapeutic efficacy screening, and biomarker identification

Piergiovanni, Monica European Commission Joint Research Centre (JRC), Italy

281. Standards supporting innovation: the case of Organ-on-Chip

Presgrave, Octavio BRACVAM, Brazil

Round table: Overview of the global activities in MPS (national societies representatives)

Octavio Augusto França Presgrave is graduated in Biology and works at Oswaldo Cruz Foundation (FIOCRUZ) since 1982. Octavio got his Master degree in 2003 and his Ph.D. degree in 2012. Octavio and his group started to study alternative methods and published the first paper on this matter in 1989. Since about 1995, this group has been working hardly on alternative methods for toxicological assays for controlling cosmetics, cleaning products and injectable drugs (including biologicals). Octavio was the Coordinator of the Ethics Committee on Animal Use (CEUA, the same as IACUC) of FIOCRUZ, he was Vice-President of the Brazilian Society of Laboratory Animal Science (SBCAL), actually is member of the Technical Committee of Cosmetics (CATEC), at the National Agency of Sanitary Surveillance (ANVISA), and is the Coordinator of the Brazilian Center for Validation of Alternative Methods (BraCVAM).

Raggi, Giulia AlveoliX, Switzerland

159. A patient-derived lung-on-chip model for immunotherapy safety assessment

Raschke, Marian Bayer AG, Germany

102. A microfluidic thyroid-liver platform to enable cross-species comparison of mechanisms of thyroid toxicity in rats and humans

Dr. Marian Raschke is Head of Advanced Cellular Models within Investigational Toxicology at Bayer AG, Pharmaceuticals Division, in Berlin, Germany. Marian studied Nutritional Sciences and holds a PhD from the University of Jena, Germany. He has more than 20 years of experience in mechanistic and molecular toxicology. During his professional career in the pharmaceutical industry, he gained comprehensive expertise in the establishment and application of in vitro models for drug safety testing and mechanistic investigation. In recent years, his activities focused on the utilization of complex 3D cell models and microphysiological systems for drug safety decision-making. He also acts as Toxicology Lead in several Bayer's preclinical oncology programs.

Rasponi, Marco Politecnico di Milano, Italy

122. Towards a comprehensive osteoarthritis modelling on-chip: controlled mechanical stimulation in bi-layered micro-tissues compartments

Marco Rasponi is an Assistant Professor in POLITECNICO DI MILANO, where he leads the MiMic (Microfluidics and biomimetic Microsystems) research group. His main scientific interest is on the development of microfluidic technologies as advanced tools in the fields of cell and tissue bioengineering, with particular focus on microscale 3D cell cultures and organs-on-chip as advanced in vitro patho-physiological models. In 2017 he co-founded BiomimX as a spin-off of PoliMi, innovative startup company developing beating organs-on-chip. He is authors more than 60 articles in peer reviewed international papers, 9 book chapters and 7 patent applications in the fields of microtechnology and microfluidics.

Renggli, Kasper Philip Morris International, USA

44. Development of the Human-Relevant Aerosol Test Platform HUMIMIC–InHALES for Evaluating Respiratory Toxicity and Systemic Effects of Inhaled Aerosols

Richardson, Lauren University of Texas Medical Branch, USA

52. Modeling preterm birth in vitro using a Feto-Maternal interface Organ-On-Chip

Rogal, Julia Eberhard Karls University of Tübingen, Germany

130. Patient-specific human immunocompetent adipose tissue-on-chip models for obesity- and endocrinology research

Roldan, Nuria AlveoliX, Switzerland

275. Organs-on-chips - are we ready for fit-for-use?

Romero, Carolina Johns Hopkins University, USA

62. Multifluorescent human brain organoid model for high throughput chemical toxicity and drug efficacy screening.

Ronaldson-Bouchard, Kacey Columbia University, USA

144. InterOrgan multi-tissue chip system for linking matured tissue niches by vascular flow

Roth, Adrian Roche, Switzerland

Round Table: Developers meet Regulators and End users

211. Human Tissue Models supporting Clinical Development & Personalized Medicine

Adrian is a molecular biologist by training and is Principal Scientific Director Personalized Healthcare Safety within Roche's Clinical development organization, focusing on bringing innovative new scientific approaches into clinical testing with a focus on personalized, patient-centric solutions that aim at optimizing the benefit/risk ratio. Adrian has been the Global Head of Roche's Investigative Safety Department within Roche's Early Research & Development organization. He also holds a Professorship at the University of Basel, Switzerland. A key area of focus of Adrian has been the establishment of modern human cell models such as 'Organs on Chips', Organoids or Microphysiological Systems which his team has introduced for pre-clinical safety assessment at Roche and now are explored as a way to support programs at the clinical stage.

Rudmann, Dan Charles River Laboratories, USA

269. ESTP/STP Collaboration on Complex In Vitro Models & Pathology

Dan has a DVM and PhD from Purdue University in West Lafayette, Indiana and is a diplomate of the American College of Veterinary Pathologists and a Fellow of the International Academy of Toxicologic Pathologists. For over 20 years, he has worked as a Toxicologic and Discovery Pathologist in the pharmaceutical industry. Dan's current position at Charles River Laboratories is Scientific Director of Digital Toxicologic Pathology where he is leading a team in the development of an AI-enabled digital pathology workflow. Dan is active in several professional societies and has promoted the pathologist's role in the assessment of Microphysiologic Systems as translational tools for nonclinical safety assessment.

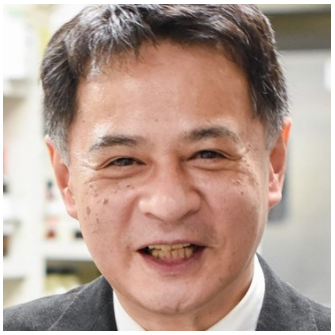
Rusyn, Ivan Texas A&M University, USA

Debate: Concordance MPS vs. in vivo animal and human data

Dr. Rusyn is a professor in the Department of Veterinary Integrative Biosciences of the College of Veterinary Medicine and Biomedical Sciences of Texas A&M University. He is also chair of the Interdisciplinary Faculty of Toxicology at Texas A&M. His research focuses on the mechanisms of action of environmental toxicants, the genetic determinants of susceptibility to toxicant-induced injury, and the use of new approach methods in regulatory toxicology. He is serving on the National Academies' Board on Environmental Studies and Toxicology and is a member of the Research Committee of the Health Effects Institute. Most recently, he chaired the Committee to Review Report on Long-Term Health Effects on Army Test Subjects and the Workshop Committee to Support Development of EPA's IRIS Toxicological Reviews.

Safai, Eric University of Twente, Netherlands

The Translational Organ-on-Chip Platform (TOP), an open platform for modular interfacing of organs-on-chips



Sakai, Yasuyuki University of Tokyo, Japan

Development and Perspective of MPS in Japan

Dr. Sakai is a professor at the Department of Chemical System Engineering, Department of Bioengineering, and Graduate School of Engineering at the University of Tokyo (UTokyo), Japan. He was the president of Japanese Society for Alternatives to Animal Experiments (JSAAE) for 2017-2021 and will be the chair of the Special Committee for MPS promotion, JSAAE starting 2022. His current research topics are large-scale propagation/differentiation of human iPS cells toward pancreatic b and hepatic lineages and engineering of 3D tissues/organs both for clinical applications and advanced cell-based assays such as MPS in combination with comprehensive omics analyses and numerial simulations.

Sato, Kaoru National Institute of Health Sciences, Japan

Round Table: Developers meet Regulators and End users

Head of Neuropharmacological Laboratory, Division of Pharmacology, National Institute of Health Sciences (NIHS), Japan; Member of the Pharmaceutical Affairs Food Sanitation Council, Japan; Expert advisor of Pharmaceuticals and Medical Devices Agency (PMDA), Japan; OECD Expert on Developmental Neurotoxicity; ILSI Health and Environmental Sciences Institute (HESI) NeuTox committee member. Affiliated societies: Society for Neuroscience, Safety Pharmacology Society, etc. Alma mater: The University of Tokyo Focusing goals in MPS project: Bridging between industry and regulation. Regulatory acceptance of MPS in new drug development. Development of BBBMPS.

Scaglione, Silvia React4Life, Italy

267. A novel immunocompetent MPS platform for modeling the cross-talk between 3D tumor tissues and circulating immune cells

Silvia Scaglione received her Ph.D. in Bioengineering in 2005 at the University of Genoa, Italy and is a permanent researcher (Senior researcher since 2021) at the National Council of Research (CNR). She is founder and chief scientist of React4life s.r.l., an Italian biotech company that develops organ on chip technologies for accelerating the human disease understanding and novel personalized therapies development; React4life has won several international awards and projects. Scaglione is currently the coordinator of a Future Emerging Technology (FET-OPEN) European H2020 project, entitled “Modeling spontaneous Breast cancer metastasis TO the Bone with a first-of-its-kind 3D device that recapitulates physiological tissue-level complexity -B2B”.

Schimek, Katharina TissUse GmbH, Germany

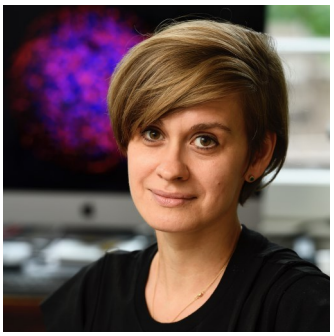
Connecting 2D and 3D models in a Multi-Organ-Chip for safety and efficacy evaluation

Sengupta, Arunima ARTORG, Organs-on-Chip Technologies, Switzerland

90. Dynamic lung inhalation-on-chip: A triple co-culture cellular platform to predict toxicity of aerosolized irritants

Shelton, Sarah Massachusetts Institute of Technology, USA

252. Microvascular Model Incorporating Cancer-Associated Fibroblasts and Immune Cell Perfusion



Smirnova, Lena Johns Hopkins University, USA

277. Organoid Intelligence (O.I.): the new frontier in biocomputing and intelligence-in-a-dish

Dr Smirnova is a researcher at Center of Alternatives to Animal Testing, Johns Hopkins University, where she is leading the Education Program and Program on Microphysiological Systems and Systems Toxicology. She has joint appointments at Johns Hopkins School of Engineering and Georgetown University. Her research focuses on development of new approach methodologies for developmental neurotoxicity testing and understanding gene environmental interactions in autism. She received her PhD from Charite Free University, Berlin and postdoc training at Federal Institute for Risk Assessment, where she studied the role of microRNA in neural development, stem cell specification and developmental neurotoxicity.

Smith, Virginia Hesperos Inc., USA

Clinically Relevant Testing of Diseased Neuromuscular Junctions for Evaluation and Therapeutic Recovery of Functional Deficits

Sriram, Narasimhan Hesperos Inc., USA

Applications of mathematical modeling in design and translation of microfluidic Organ-on-Chips
258. Biodistribution and PK modeling of a multi-organ human-on-a-chip system consisting of a GI tract, blood brain barrier and neurons

Stewart, Alastair University of Melbourne, Australia

75. Circadian physiology in microphysiological systems

Strelez, Carly University of Southern California, USA

136. Peristalsis-like deformations increase tumor cell intravasation through GABAergic signaling in a colorectal cancer-on-chip model

Suter-Dick, Laura School of Life Sciences FHNW, Switzerland

46. A microphysiological system representing liver fibrosis, the concept of AOP-Chip

Prof. Dr. Laura Suter-Dick is currently Professor for Cell Biology and Molecular Toxicology at the School of Life Sciences, University of Applied Sciences Northwestern Switzerland (FHNW). She is a European Registered Toxicologist (ERT), holds a Ph.D. in biology. During her career, she specialized in mechanistic toxicology, with a strong focus on advanced in vitro systems for toxicity assessment, alternatives to animal methods, and toxicogenomics. Recently her work focused on the application of microfluidics and microphysiological systems for toxicity assessment. She is president of biotechnet Switzerland, and a member of the Swiss Centre for Applied Human Toxicology (SCAHT) and the Swiss 3R Competence Center (3RCC). She is vice president of the Swiss Toxicology Society and member of ESTIV.

Tao, Thi Phuong TissUse GmbH, Germany

Connecting 2D and 3D models in a Multi-Organ-Chip for safety and efficacy evaluation

Tavakol, Daniel Naveed Columbia University, USA

76. Astronaut-on-a-chip: human, multi-organ platform for assessing extended effects of cosmic radiation

Taylor, Lans University of Pittsburgh, USA

237. A Complete Platform for Preclinical Trials of Non-Alcoholic Fatty Liver Disease Including a Patient-Specific, Human, Biomimetic Liver Microphysiology System and a Portal to the BioSystics, Inc Analytical Platform

Teles, Diogo Columbia University, USA

134. Modeling doxorubicin's pharmacokinetics and pharmacodynamics in a human InterOrgan chip

Tetsuka, Kazuhiro Astellas Pharma, Japan

77. Implementation of microphysiological system in a pharmaceutical company

Kazuhiro Tetsuka is currently a Research Fellow at Astellas Pharma Inc. Since receiving his Ph.D. degree from the Graduate School of Pharmaceutical Sciences, Tohoku University, he has had more than 15 years' experience in pharmaceutical companies. Highlights include a two-and-half-year program in translational research at Astellas Research Institute of America which resulted in his receipt of the Award for Young Industrial Scientists from the Japanese Society for the Study of Xenobiotics in 2015. To date, he has published two review articles and 13 original research articles.

Trapecar, Martin Johns Hopkins University, USA

192. Multiorgan Microphysiological Systems as Tools to Understand Interorgan Crosstalk in Health and Disease

Martin Trapecar is an assistant professor of medicine and biomedical engineering at the Johns Hopkins University School of Medicine. He is developing and utilizing advanced multiorgan microphysiological systems technologies in combination with systems biology to gain critical understanding of how fundamental disruption in tissue-tissue and tissue immune crosstalk leads to the early emergence of immunometabolic and neurodegenerative disorders. Insights stemming from his work have broad implications in identifying new approaches in regenerative medicine and treatment of complex diseases.

Tronolone, James Texas A&M University, USA

4. Machine learned vascularized networks improve predictive power of organ-chips

Van der Meer, Andries University of Twente, Netherlands

The Translational Organ-on-Chip Platform (TOP), an open platform for modular interfacing of organs-on-chips

22. Open Platform Technology for Organs-on-Chips

Dr. Andries D. van der Meer is an Associate Professor at the Faculty of Science and Technology of the University of Twente, the Netherlands leading a research team in the Applied Stem Cell Technologies department. He is a scientific leader of the Organ-on-Chip Center Twente (OoCCT). He developed organ-on-chip models of the blood-brain barrier and the alveolus for the Defense Advanced Research Projects Agency (DARPA) Microphysiological Systems program. He served as an Assistant Coordinator for the project ‘Beyond Borders: Organs-on-Chips’ of the Dutch Royal Academy (KNAW). This led to the founding of the Dutch Human Organ and Disease Model Technologies Organ-on-Chip consortium (hDMT), of which Dr. Van der Meer is his university’s current representative.

Verplanck, Nicolas Université Grenoble Alpes, CEA, LETI, France

278. Guidelines for microfluidics: how to simplify your OoC Life ?

Vollertsen, Anke University of Twente, Netherlands

The Translational Organ-on-Chip Platform (TOP), an open platform for modular interfacing of organs-on-chips

Vulto, Paul MIMETAS, Netherlands

274. Organ-on-a-Chip models in early stage drug discovery: A phenotypic screening exercise

Paul Vulto is CEO and co-founder of MIMETAS, today's global leader in Organ-on-a-Chip technology. The company develops highly relevant human tissue and disease models that are used to test and develop novel drugs. MIMETAS works with the majority of large global pharmaceutical companies, deploying her platform to develop drugs for diseases such as cancer, inflammatory diseases, and fibrosis. MIMETAS has operations in the Netherlands, United States and Japan. Prior to founding MIMETAS, Paul held positions at a.o. Leiden University, Freiburg University, and Silicon Biosystems. Paul holds a cum Laude Master's degree in Electrical Engineering and a cum Laude PhD in microsystems engineering.

Wagar, Lisa University of California, USA

279. Tonsil organoids to investigate human adaptive immunity

Lisa Wagar is an Assistant Professor in the Department of Physiology & Biophysics at the University of California Irvine. The foundation of the lab's research is investigating how the specialized microenvironment of lymphoid tissues regulates adaptive immune responses. We developed a novel immune organoid model that is composed of primary human lymphoid tissues to improve the translational value of these studies, allow mechanistic experiments to be done with human samples where previously this was not possible, and appreciate how inter-individual differences contribute to immune responses. We study these factors in the context of vaccines and infectious diseases, with a particular interest in immune responses against respiratory viruses.

Wan, Zhengpeng Massachusetts Institute of Technology, USA

215. Robust strategies for generating perfusable microvasculature-on-a-chip models for cancer studies.

Wardwell-Swanson, Judith InSphero, Switzerland

160. A 3D-optimized microplate enables spheroid production, long-term cultivation, and confocal high content imaging with cell-level resolution in a single plate

Wehl, Ilona Boehringer Ingelheim Pharma GmbH & Co. KG, Germany

245. Integrated human intestine–liver-on-a-chip to elucidate liver injury induced by free fatty acid receptor 1 agonists

Whelan, Maurice European Commission Joint Research Centre (JRC), Italy

Round Table: How can we achieve regulatory acceptance?

Wiest, Joachim Cellasys, Germany

213. Systems Engineering of Microphysiometry

Dr.-Ing. Joachim Wiest studied electrical engineering and information technology at Technische Universität München (TUM) and received the degree Dipl.-Ing. Univ. in 2003. He finished a doctorate on dissolved oxygen sensors for lab-on-chip systems at TUM in 2008. Since 2007 he is founder and CEO of cellasys GmbH which offers system solutions for microphysiometry. From 2009 to 2015 he held a University teaching position at his Alma Mater in the subject “System Engineering for Live Cell Monitoring” and since 2018 he lectures “Microphysiometry”. He is member of IEEE (2013: senior member), EUSAAT (2013 – 2017: Audit committee), VDE, DECHEMA, Gesellschaft für Toxikologie (GT), Bund der Freunde der Technischen Universität München e.V. His main field of activity is the interdisciplinary connection of engineering and life sciences.

Wikswo, John Vanderbilt University, USA

118. A continuous, automated perfusion culture and analysis system (CAPCAS) to enable massive parallelization of organs-on-chips, chemostats, and other miniature bioreactors

Xia, Mengying University of Pittsburgh Drug Discovery Institute, USA

307. A patient-derived iPSC liver acinus microphysiology system is an innovative precision medicine platform for optimizing clinical trial design of nonalcoholic fatty liver disease

Xiao, Shuo Rutgers University, USA

127. The development of a high-throughput screening platform to identify ovarian endocrine disrupting chemicals using a 3D alginate encapsulated in vitro follicle growth system

Yeung, Catherine University of Washington, USA

129. Using in vitro cell models, kidney MPS, and PBPK modeling to predict human renal clearance: health, disease, and drug interaction

Yoo, Sanghee Qureator, USA

289. Development of image-based analysis to support High Throughput Screening using complex biology on MPS

Zhang, Qiao Duke University, USA

179. Modeling skeletal muscle fibrosis and vascular interactions using a human microphysiological system