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Opening Ceremony and Keynote

“Human kidney-on-a-chip microphysiological systems (MPS) for drug discovery and development”

Jonathan Himmelfarb

Mount Sinai Hospital,
USA

Jonathan Himmelfarb, M.D., is a board certified physician, director of UW Medicine’s Kidney Research Institute, the UW’s Joseph W. Eschbach Endowed Chair in Kidney Research, president-elect of the American Society of Nephrology and a UW professor of Medicine and Nephrology and adjunct professor of Medical Bioengineering.

Dr. Himmelfarb’s research interests involve metabolic complications of kidney disease. He has also been involved in creating statewide, community-based research into healthcare disparities related to chronic kidney disease. The total patient experience is his primary concern and he provides care that is personal and friendly.

Dr. Himmelfarb earned his M.D. at George Washington University in Washington, D.C. He is board certified in both General Internal Medicine and Nephrology.

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Keynote

"Revolutionizing regulatory safety with NAMs: A transformative journey"

Ellen Fritsche

SCAHT/DNTOX GmbH,
Germany

Ellen Fritsche, MD, is a medical doctor by training and habilitated in environmental toxicology. Currently, she is the Director of the Swiss Centre for Applied Human Toxicology (SCAHT) in Basel, Switzerland, and Scientific Managing Director of the start-up company DNTOX GmbH. For the last >10 years she was a full University Professor at the Heinrich-Heine-University in Düsseldorf, Germany and working group leader of the group 'Alternative method development for environmental toxicity testing' at the IUF – Leibniz Research Institute for Environmental Medicine. She is one of the test method developers of the European Food Safety Authority (EFSA)/Organisation for Economic Cooperation and Development (OECD) developmental neurotoxicity (DNT) in vitro testing battery. In an international collaborative effort she facilitated the transition of DNT NAMs from the bench into regulatory application. Bridging academic science and regulation is her passion.

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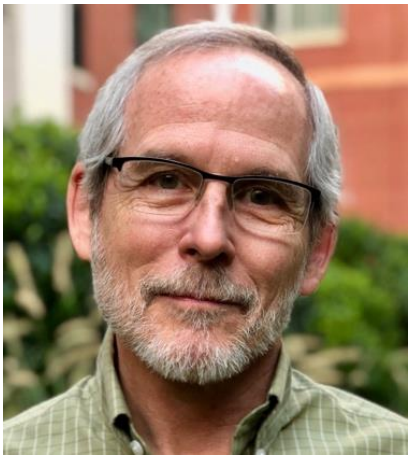
Keynote

„MPS to study the brain and subcutaneous tissue“



Roger Kamm

M.I.T., USA

Kamm is the Cecil and Ida Green Distinguished Professor of Biological and Mechanical Engineering at M.I.T. His research has focused on problems at the interface of biology and mechanics, formerly in cell and molecular mechanics, and in engineered living systems. Current interests are in developing MPS of healthy and diseased organ function with a focus on vascularization. Kamm is recipient of the Lissner Medal, the Nerem Medal, and the Shu Chien Award and is a fellow of the US National Academies of Medicine and Engineering. He is co-founder of AIM Biotech, a manufacturer of microfluidic systems for 3D culture.

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Keynote

„Biofabrication of advanced heart and kidney on-a-chip models“

Milica Radisic

University of Toronto,
Canada

Dr. Milica Radisic is a Professor at the University of Toronto, Tier I Canada Research Chair in Organ-on-a-Chip Engineering and a Senior Scientist at the Toronto General Research Institute. She is an Executive Editor of ACS Biomaterials Science & Engineering, the Director of the NSERC CREATE Training Program in Organ-on-a-Chip Engineering and Entrepreneurship and a co-Founder of the Centre for Research and Applications of Fluidic Technologies at the University of Toronto and a scientific lead of the Human Organ Mimicry Lab. She is a Fellow of the Royal Society of Canada-Academy of Science, Canadian Academy of Engineering, AIMBE, TERMIS and BMES. Her research focuses on structure-function relationships in organ engineering, biophysical modulation of tissues and development of new biomaterials that promote healing and attenuate scarring. She developed new methods to mature iPSC derived cardiac tissues using electrical stimulation. Her research findings were presented in over 260 publications with h-index of 71 and over 21,000 citations in journals such as Cell, Nature Materials, Advanced Materials, Nature Methods etc. She is a co-founder of two companies: TARA Biosystems, that uses human engineered heart tissues in drug development and safety testing (acquired by Valo Health), and Quthero that advances regenerative hydrogels.

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Keynote and Closing Ceremony

„MPS use in drug development: How new models slot into the preclinical paradigm“

Kim Homann

Genentech Inc.,
USA

Kim directs the Complex in vitro Systems lab at Genentech, a core group focused on employing new predictive tools to enhance clinical translational outcomes. She has prior experience holding key leadership positions in two biotech startups, one of which she co-founded while in graduate school at UT Austin. Prior to that, as a co-appointed postdoc at Roche and at the Wyss Institute in Harvard, Kim invented methods to bioprint human tissues and use them to model drug disposition, mode of action, and safety. Kim holds a B.S. degree in chemical engineering and Ph.D. in biomedical engineering; she is also a former United States Marine Corps officer and veteran.

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Kit Parker

Harvard University, USA

1.1: MPS for cardiovascular diseases

“The first organ on a chip was a heart on a chip: Where we have come from, where we are going in modeling cardiac pathologies in vitro.”

Kit Parker is the Tarr Family Professor of Bioengineering and Applied Physics in the School of Engineering and Applied Sciences at Harvard University. He is the co-director of the Center for Accelerating Therapeutic Development and a Senior Scientist in Cardiology at Boston Children’s Hospital. He is a member of the Harvard Stem Cell Institute and a founding faculty member of the Wyss Institute for Biologically-Inspired Engineering. He is a core faculty member of the Harvard Stem Cell Institute.

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Kambez H. Benam
University of Pittsburgh, USA

1.2: MPS for pulmonary diseases

“Breathing new life into research: Innovating human-relevant models for pulmonary system”

Dr. Benam holds the position of Associate Professor of Medicine and Bioengineering at the University of Pittsburgh. He is the founder of the Translational and Multidisciplinary Lung Microengineering Lab (https://www.benamlab.net/). This innovative space brings together a diverse group of experts and trainees from engineering, biological sciences, and clinical fields. Their collective focus is to develop groundbreaking technologies, including Organs-on-Chips and Biomimetic Robotic Systems, that emulate complex organ pathophysiology and biomechanics of human pulmonary, vascular, and immune systems in vitro. Dr. Benam earned his D.Phil. from the University of Oxford (UK) and was a Technology Development Fellow at Harvard’s Wyss Institute for Biologically Inspired Engineering Prior to establishing his independent research lab.

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Riccardo Barrile
University of Cincinnati, USA

1.3: MPS for cancer research

“Bioprinting paths to decode drug resistance dynamics in glioblastoma”

Dr. Barrile is a cell and molecular biologist with a keen focus on advancing novel alternatives to animal models. Trained at the Wyss Institute, Harvard Medical School, under Prof. Don Ingber, Dr. Barrile excelled in engineering complex vascularized tissues and developing Organ-on-Chip models of the lung and brain. As the former Director of Preclinical Development at Emulate Inc., Dr. Barrile led the establishment of multiple human-relevant platforms, including models for testing chemotherapeutics and immunotherapeutics. Now leading a dynamic lab at the University of Cincinnati, Dr. Barrile's recent research merges 3D printing and bioprinting technologies to propel the next generation of Microphysiological systems, with a particular emphasis on reconstituting the tissue microenvironment of glioblastoma.

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Yu Shrike Zhang
Harvard Medical School, USA

1.4: MPS for rare diseases

“Engineering high-content human-based rare disease models: From chip designs to biology”

Microphysiological systems are microfluidic three-dimensional miniature human tissue and organ models that recapitulate the important biological and physiological parameters of their in vivo counterparts. These biomimetic microtissues are anticipated to supplement the conventional planar, static cell cultures, and to bridge the gaps between the current pre-clinical animal models and the human body. In addition, multiple microtissues may be channeled together through the microfluidics in a similar manner they arrange in vivo, providing the capacity to analyze interactions among these models. This talk will discuss our recent efforts on developing organ-on-chip platforms with a focus on engineering rare vascular disease models as well as associated hardware designs and controls. These platforms will likely provide new opportunities in constructing functional tissue and disease models for drug discovery, therapeutics screening, and precision medicine.

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Peter Loskill

Eberhard Karly University Tübringen, Germany

1.7: MPS for metabolic and endocrine disorders

"Leveraging organ-on-chip technology to model key players of metabolic and endocrine disorders"

Prof. Dr. Peter Loskill is Full Professor for Organ-on-Chip (OoC) Research at the Eberhard Karls University Tübingen (EKUT) and the Natural and Medical Sciences Institute (NMI), and head of the 3R Center Tübingen for in vitro Models and Alternatives to Animal Testing. Dr. Loskill graduated in 2012 from Saarland University with a PhD in Physics focusing on Biointerface science. He then spent three years as postdoctoral fellow at University of California at Berkeley developing hiPSC-based OoC models, funded by the NIH/NCATS TissueChip program and the German Science Foundation. In 2015, he was named as one of Technology Review's "Innovators under 35 Germany" and awarded a Fraunhofer ATTRACT Grant, the highest funded German starting grant program. In 2021, he accepted a W3-professor position heading the Department for Microphysiological Systems in the Faculty of Medicine at EKUT and NMI. From 2021 to 2023, he served as the Chair of the European Organ-on-Chip Society (EUROoCS) and, in 2023, he became part of the governing board of the International MPS Society (iMPSS) and co-hosted the MPS World Summit 2023 in Berlin with more than 1300 participants. Dr. Loskill and his interdisciplinary µOrgano lab (https://www.organ-on-chip.uni-tuebingen.de) merge engineering, biology, physics and medicine to generate next generation tissue models recapitulating complex human biology in vitro. His research focuses on i) development of tailored OoC platforms, ii) application of OoCs for pharmaceutical research, toxicological screening, and biomedical studies, as well as on iii) enabling technologies that support parallelization, automation and ease of use. His 3R Center Tübingen (https://www.the3rs.uni-tuebingen.de) aims to provide all scientists in the state of Baden-Württemberg with low-threshold access to novel alternative methods to animal testing.

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Sarah Hedtrich
Berlin Institute of Health Charite, Germany
Faculty of Pharmaceutical Sciences, UBC, Canada

2.1: MPS to model physiological barriers

"Human (disease) models to tackle inflammatory & genetic diseases of human epithelia"

Dr. Hedtrich obtained her PhD in Pharmacology & Toxicology from the Freie Universität Berlin in Germany in 2009. During her postdoc, she moved to the Ludwig-Maximilians-University in Munich and Tufts University in Boston, USA. She was appointed as an Assistant Professor at the Freie University of Berlin, Germany, in 2015 and relocated her lab to the U of British Columbia in 2019. Currently, she holds one of the prestigious Johanna-Quandt-Professorships at the Berlin Institute of Health @ Charité in Berlin, Germany, and is an Affiliate Professor at UBC. She co-/authored over 95 peer-reviewed journal articles in high-impact journals including the ACS Nano, Journal of Controlled Release, Small, Nature Reviews Materials, and Theranostics. Her research centers around inflammatory and genetic diseases of human epithelia with a focus on skin and lungs and bioengineering of complex, human disease models which are leveraged to develop personalized next-generation therapies.

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Kazuya Meada
Kitasato University, Japan

2.2: MPS for ADME modeling

„Use of human/animal crypt-derived intestinal stem cells and their differentiated cells for the evaluation of intestinal absorption and toxicity of drugs“

Dr. Maeda is currently working as a full professor in the Laboratory of Pharmaceutics, School of Pharmacy, Kitasato University since April 2021.
Before then, he had been working at the Lab. of Molecular Pharmacokinetics, Graduate School of Pharm. Sci., The University of Tokyo as an assistant professor (2002-2012) and an associate professor (2012-2021). He received Ph.D. degree from the Univ. of Tokyo in 2006.

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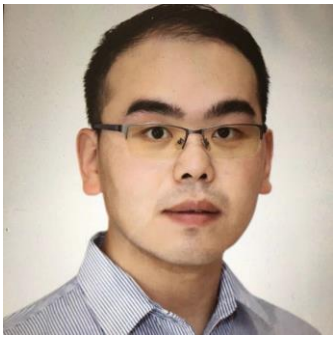

Feng Guo
Indiana University Bloomington,

2.3: Sensors in MPS

“Brain organoid reservoir computing for artificial intelligence”

Dr. Feng Guo is an Associated Professor of Intelligent Systems Engineering at Indiana University Bloomington (IUB). Before joining IUB in 2017, he received his Ph.D. in Engineering Science and Mechanics at Penn State and his postdoc training at Stanford University School of Medicine. His group is developing intelligent biomedical systems with the support of multiple NIH and NSF awards. He is a recipient of the NIH Director's New Innovator Award, the Outstanding Junior Faculty Award at IU, Early Career Award at Penn State, the Dean Postdoctoral Fellowship at Stanford School of Medicine, etc.

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Kerstin Kleinschmidt-Dörr
Merck KGaA, Germany

2.4: Bioconvergence: Artificial intelligence, machine learning and MPS

"Animal testing at a turning point"

Kerstin Kleinschmidt-Dörr is Chief Veterinary Officer (CVO) and Head of Corporate Animal Use Governance at Merck, KGaA, Germany. She is a visionary, pharmacologist and veterinarian, she holds an MBA from Mannheim Business School and a PhD in glioblastoma research from the International Neuroscience Institute Hannover. She spent her postdoctoral years at the University of Heidelberg, where she conducted research on skeletal diseases. For a decade, she headed the In Vivo Osteoarthritis department at Merck Healthcare and worked as a project leader in drug discovery.

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Mandy Esch
National Institute of Standards and Technology (NIST), USA

2.6: MPS for organ cross-talk (3+ organs)

“Prototyping multi-organ MPS with near-physiological amounts of liquid”

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Ivan Rusyn
Texas A&M University, USA

2.7: Modeling diversity and population health with MPS

"Modeling human genetic diversity using cell-based experimental models: Can we make these models microphysiological?"

Ivan Rusyn is University Professor in the Department of Veterinary Physiology and Pharmacology in the School of Veterinary Medicine & Biomedical Sciences at Texas A&M University in College Station. He is also Vice-Chair of the Interdisciplinary Faculty of Toxicology (served as Chair from 2016 to 2023), Director of a NIEHS T32 training program in "Regulatory Science in Environmental Health and Toxicology," and Director of the Texas A&M University Superfund Research Center. His studies on health effects of chemical agents resulted in over 320 peer-reviewed publications which were cited over 34,000 times (h-index=86). He has served on and chaired several US National Academies committees, and World Health Organization/International Agency for Research on Cancer Monographs working groups. He is serving on the advisory board for Texas Department of Public Health. He served on the Board of Environmental Studies and Toxicology for the National Academies, the Board of the Scientific Councilors of the United States National Institute of Environmental Health Sciences, and the Research Committee of the Health Effects Institute. Dr. Rusyn received a Doctor of Medicine degree from Ukrainian State Medical University in Kyiv (1994) and a Ph.D. in toxicology from the University of North Carolina at Chapel Hill (2000). He conducted postdoctoral research at the Massachusetts Institute of Technology and Heinrich-Heine University in Dusseldorf. Dr. Rusyn's laboratory is funded by grants and cooperative research agreements from the National Institutes of Health and US Environmental Protection Agency, institutional funding from Texas A&M University, the industry, and other sources.

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Tomoki Imaoka
Daiichi Sankyo Co., Ltd., Japan

2.8: MPS to model metabolism and transport

„Application of microphysiological systems in ADME sciences: Case studies of intestinal absorption and renal secretion“

Finished the University of Tokyo, Graduate school of Pharmaceutical Sciences (M.S. Pharmaceutical Science in 2004, Ph.D. Pharmaceutical Science in 2007) after graduating from the University of Tokyo, School of Pharmacy (B.S. Pharmacy) in 2002.
Joined Daiichi Sankyo Co. Ltd., Drug Metabolism and Pharmacokinetics Research Laboratories in 2007.
Visiting Scientist in the Laboratory of Dr. Edward J. Kelly (University of Washington) from 2018 to 2020.
Daiichi Sankyo Co. Ltd., Drug Metabolism and Pharmacokinetics Research Laboratories from 2020.

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James Hickman
Hesperos Inc., USA

3.2: NIA Symposium on human in vitro systems for aging research

“Human-on-a-chip systems for use in neurological disease and aging research”

Dr. James J. Hickman is a founder and Chief Scientist at Hesperos, Inc., a biotechnology CRO leveraging its' patented, Human-on-a-Chip multi-organ platform to accelerate drug discovery by providing safety and efficacy testing for novel therapeutics. He is also the Founding Director of the NanoScience Technology Center, a Professor of Nanoscience Technology, and Electrical Engineering at the University of Central Florida and has a Ph.D. from MIT in Chemistry. Hesperos has been constructing multi-organ human-on-a-chip or body-on-a-chip systems for toxicology and efficacy with up to 6 organs and has demonstrated long-term (>28 days) evaluation of drugs and compounds, that have shown similar response to results seen from clinical data or reports in the literature. Dr. Hickman created the first serum-free, defined culture system for neuronal systems, and and has He is the sole or co-inventor on over 40 pending and issued U.S. and international patents, as well as over 170 publications and 20 book chapters, and has given over 254 presentations.

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Heather Hsu
Inipharm, USA

3.3: Case studies of MPS use that informed regulatory submission

"Inhibition of HSD17B13 as a treatment of chronic liver disease"

Heather Kay Webb Hsu is the Chief Scientific Officer for Inipharm, a company focused on drugs targeting genetically-defined mechanisms for the treatment of chronic liver disease. She has 23 years experience with nonclinical development and clinical pharmacology. Her research includes programs in oncology, inflammatory and cardiometabolic diseases at companies including Johnson and Johnson and Gilead Sciences as well as small companies.

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Ajit Dash
Genentech Inc., USA

3.4a Round Table:
Separating the tangible from the aspirational in using CIVM/MPS to augment data to support regulatory decision making

Ajit Dash, M.D.,Ph.D., is a Senior Medical Safety Director at Genentech, a member of the Roche group. He leads the clinical safety strategy for early development programs of multiple therapeutic programs, as well as the cross-functional Hepatic Safety Expert Group and drug induced liver injury (DILI) biomarker workstreams at Roche. He is a former co-chair of the IQ-DILI consortium, with 20 biopharmaceutical industry members working alongside academia and FDA to develop consensus guidelines on DILI, and currently serves on the IQ-DILI planning committee. Prior to joining Genentech, Dr.Dash was a Senior Scientific Director at HemoShear Therapeutics, where he led the development of a translational human liver tissue platform for investigative toxicology, and drug discovery applications in NASH and rare inborn errors of metabolism. Ajit received his MD degree from KEM Hospital, Mumbai, India, followed by a Ph.D. in Molecular Toxicology from the Massachusetts Institute of Technology (MIT), Cambridge, MA.

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Prathap Mahalingaiah
Abbvie, USA

3.4a Round Table:
Separating the tangible from the aspirational in using CIVM/MPS to augment data to support regulatory decision making

Prathap Kumar Mahalingaiah DVM, MS, PhD, DABT is a veterinarian by training with specialization in veterinary pathology and board-certification in toxicology (DABT) with 13 years of working experience in CRO and pharmaceutical industry. He is currently working as a Principal Scientist and Head of Investigative Molecular Toxicology at Abbvie. In this role, Prathap is responsible for designing and conducting in vitro and in vivo investigative toxicology studies to understand mechanisms of toxicity. His group is actively involved in evaluating and implementing advanced complex invitro models including Micro physiological systems in preclinical safety evaluation. Prathap also supports early and late-stage immunology and oncology projects as a project safety representative. He is representing Abbvie in multiple external scientific consortium and working groups. Prathap has published several original research papers as well as review papers in peer reviewed journals and authored/co-authored 3 book chapters.

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Kazushige Maki
Pharmaceuticals and Medical Devices Agency (PMDA), Japan

3.4a Round Table:
Separating the tangible from the aspirational in using CIVM/MPS to augment data to support regulatory decision making

Dr. Kazushige Maki is a Principal Senior Scientist for Toxicology of the Pharmaceuticals and Medical Devices Agency (PMDA), Japan. He graduated from Faculty of Veterinary Medicine, Hokkaido University, and received his Ph.D. in medical science from University of Tokyo. He worked at Tokyo Metropolitan Institute, as a researcher; at Tokyo Medical and Dental University, as an assistant; at Massachusetts General Hospital, as a postdoctoral fellow; Kyoto University, as a lecturer. In 2008, he started his review for new drugs in PMDA. Currently he is responsible for the toxicological review and consultation of New Drugs, Cellular and Tissue-based Products, and Vaccines and Blood Products in PMDA.

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Lindsay Tomlinson
Pfizer Inc., USA

3.4a Round Table:
Separating the tangible from the aspirational in using CIVM/MPS to augment data to support regulatory decision making

Lindsay Tomlinson, DVM, DVSc, graduated from the Ontario Veterinary College in Guelph, Ontario, Canada in 1995 and 1999, for her respective degrees. Lindsay researched and defended her thesis on chlamydial disease in sheep in the DVSc program and now serves on INHAND for female reproductive pathology. Lindsay has more than 22 years of toxicologic pathology and project experience between Bristol-Myers Squibb (BMS) in New Brunswick, NJ and Pfizer Inc in Cambridge, MA. She has obtained board certification with the American College of Veterinary Pathologists (ACVP) in anatomic and clinical pathology and with the American Board of Toxicologists (ABT) in toxicology. Her current position is Global Pathology Scientific and Strategic Advisor at Pfizer Inc. in Cambridge, MA. She has been active in her professional societies and has contributed to several key regulatory manuscripts. Highlights of service have included ACVP Awards and Focused Scientific Sessions Chair, ASVCP President of the Executive Board and Regulatory Affairs Committee Chair, and STP Executive Committee Member and Scientific and Regulatory Policy Committee Chair. In Lindsay's current role, she is supporting development of mRNA vaccines, managing the evolution of digital pathology, including artificial intelligence in pathology in a toxicologic setting to assist pathologists, and supporting efforts in the development and incorporation of complex in vitro models into the standard testing paradigm.

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Hugo Vargas
Amgen, USA

3.4a Round Table:
Separating the tangible from the aspirational in using CIVM/MPS to augment data to support regulatory decision making

Hugo Vargas works at Amgen Inc since 2006 and is currently an Executive Director in Translational Safety & Bioanalytical Sciences (TSBA), an integral group within Amgen Research that is responsible for nonclinical safety evaluation of our pipeline molecules.

- He leads the Translational Safety Research group, which is a diverse group of scientists with safety pharmacology, immunology, drug safety and toxicology expertise. His team is located at the Thousand Oaks and San Francisco sites in California.
- His team is responsible for nonclinical safety assessment of candidate drugs (small molecule, large, etc.) across all phases of R&D.
- Hugo is involved with several industry-wide activities, including representing PhRMA as the Deputy Technical Lead to the ICH E4/S7B Implementation Working Group.

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Mathew Wagoner
Takeda Pharmaceuticals, USA

3.4a Round Table:
Separating the tangible from the aspirational in using CIVM/MPS to augment data to support regulatory decision making

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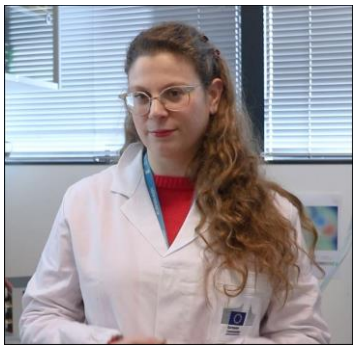

Monica Piergiovanni

European Commission - Joint Research Centre, Italy

3.5: ISO standards for MPS validations

"Qualification principles to scientifically assess MPS-based methods for use in regulatory contexts"

Monica Piergiovanni is a biomedical engineering, graduated at Politecnico di Milano, where she obtained a PhD in bioengineering working at the Laboratory of Biological Structure Mechanics. During her years of university research at Politecnico di Milano and ETH Zurich, she grew interest in the design and development of organ on chip platforms for patient-specific drug screening. She is now working for the Joint Research Centre of the European Commission, in the unit for Safety Toxicology, that hosts the EU Reference Laboratory for alternatives to animal testing (known as ECVAM). Here, she is focusing on standardisation and regulatory acceptance of emerging technologies, including Organ-on-Chip and High Content Imaging.

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Paul Vulto
Mimetas, The Netherlands

3.6: Driving MPS adoption: Successful partnerships between developer and applicant

"Partnering with pharma: How MPS supports the next wave of immune oncology programs"

Paul Vulto is CEO and co-founder of MIMETAS, today's global leader in Organ-on-a-Chip technology. The company develops 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. Prior to founding MIMETAS, Paul held positions at a.o. Leiden University, Freiburg University, and Silicon Biosystems. Paul authored over 60 peer-reviewed publications and is inventor on more than 15 patent families. He holds a *cum Laude* Master's degree in Electrical Engineering and a *cum Laude* PhD in microsystems engineering. Since 2023 Paul is admitted as a fellow to the Netherlands Academy of Engineering.

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Marisa Meloni
VitroScreen, Italy

3.7: Food, cosmetics and consumer products' industry experience in MPS implementation

"3D scaffold free human spheroids applications in cosmetics and nutritionals: Why not?"

Marisa, a PhD in Drug Delivery and Cutaneous Bio-physic from Renée Descartes University in Paris, has been contract Professor of safety assessment and technology of cosmetic products at Milano, Salerno and Padova Universities. In 2001, passionate by the emerging In Vitro Science, she founded VitroScreen, a research laboratory committed to Alternatives, creating a team with a unique expertise in performing pre-clinical studies for Life Sciences Industries. Since 2020 she has been focusing on ORA platform based on 3D scaffold free human spheroids.

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Jan Lichtenberg
InSphero, Switzerland/USA

3.8: MPS towards high-throughput screening of chemicals

"Enhancing high-throughput screening with versatile 3D microtissue models"

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 co-founded InSphero in 2009 and grew the company to 75 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 (medical robotics) and Uwatec (microelectronics). He holds a Ph.D. from the University of Neuchâtel and managed a research group at the Swiss Federal Institute of Technology (ETH), Zurich. He was a Board Member of the Society of Laboratory Science and Screening (SLAS) from 2021 - 2022 and served as President in 2023. Jan also serves as a Board Member for Tessara Therapeutics (Australia), Scailyte Bioscience (Switzerland), and Venturekick (Switzerland).

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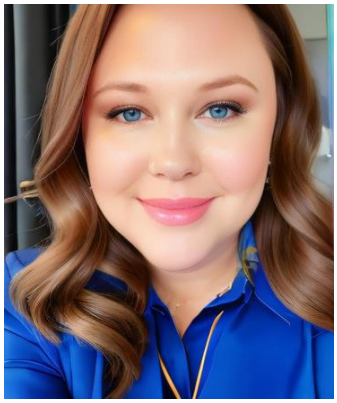

Samantha Atkins
Moderna, USA

4.1: MPS for cell and gene therapy development

“Using human liver-on-a-chip to predict and de-risk LNP toxicities”

Samantha Atkins is a bioengineer and holds a Bachelor of Science (BS), Master of Science (MS), and Doctor of Philosophy (PhD) in Bioengineering from Rose-Hulman, Purdue, and the University of Notre Dame. After completing her PhD, she joined Brigham and Women's Hospital/Harvard Medical School as a Post-Doctoral Researcher where she focused on the development of iPSC- derived models for studying human physiology and disease mechanisms as well as high throughput screening for drug discovery. In 2022 she joined Moderna to help create their Investigative Pathology team where she utilizes organ-on-a-chip technology to predict and mitigate drug-mediated toxicities. She also spearheads mechanistic modeling of pathologies associated with Moderna's molecules, contributing to the development of safer and more effective therapeutic interventions.

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Linda Griffith
Massachusetts Institute of Technology (MIT), USA

4.2a Round Table: Synthetic hydrogels to enhance MPS and organoid function

Linda G. Griffith is Professor of Biological and Mechanical Engineering MIT, where she also directs the Center for Gynepathology Research. Her lab focuses on merging systems biology and microphysiological systems to illuminate chronic inflammatory diseases including endometriosis, adenomyosis, and Lyme. She is a member of the National Academy of Engineering, the National Academy of Medicine, the American Academy of Arts and Sciences, and MacArthur Foundation Fellow. 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.

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Kevin Healy
University of California, USA

4.2a Round Table: Synthetic hydrogels to enhance MPS and organoid function

Kevin E. Healy, Ph.D. is the Jan Fandrianto and Selfia Halim Distinguished Professor in Engineering at the University of California at Berkeley in the Departments of Bioengineering, and Materials Science and Engineering. He is a thought leader and innovator working at the interface between stem cells and materials science to develop dynamic engineered systems to explore both fundamental biological phenomena and new applications in translational medicine. His group currently conducts research in the areas of: bioinspired stem cell microenvironments to control stem cell lineage specification and self-organization into microtissues or organoids; bioinspired systems for regenerative medicine; biological interfaces; and, microphysiological systems for drug development, gene editing, and drug toxicity screening. Professor Healy is an elected Fellow of AIMBE, AAAS, FBSE, BMES, and has received an Alexander von Humboldt Foundation Award. He is a named inventor on numerous issued United States and international patents relating to biomaterials, therapeutics, stem cells, and medical devices, and has founded several companies to develop these systems for applications in biotechnology and regenerative medicine.

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Bill Murphy
University of Wisconsin, USA

4.2a Round Table: Synthetic hydrogels to enhance MPS and organoid function

Bill Murphy is the Harvey D. Spangler Professor of Biomedical Engineering and Professor of Orthopedics & Rehabilitation at the University of Wisconsin. His research group has developed new classes of biomimetic materials inspired by nature. They have used their materials to create new medical devices, human cells, and human tissues. He has over 200 publications, filed over 60 patents and co-founded 4 start-up companies based on those inventions. He also serves as Founding Director of the Forward BIO Institute, which catalyzes innovation in research, entrepreneurship and training, and pushes groundbreaking technologies out of academia and into the private sector.

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Lynn Clary
NASA, USA

4.2b: MPS and space

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Dmitriy Krepkiy
NCATS, USA

4.2b: MPS and space

Dmitriy Krepkiy is a program officer in NCATS' Office of Special Initiatives, where he oversees the NIH-wide Tissue Chip for Drug Screening program. In this capacity, he serves as a liaison between funded investigators, NIH administrative and program management staff, and external collaborators. These collaborators include the U.S. Food and Drug Administration, the National Aeronautics and Space Administration, the Defense Advanced Research Projects Agency, other U.S. Department of Health and Human Services agencies, and representatives from the pharmaceutical industry.

Prior to joining NCATS in November 2022, Krepkiy was a program director in the Biomedical Technology Branch of the Division of Biophysics, Biomedical Technology, and Computational Biosciences at the National Institute of General Medical Sciences (NIGMS). In this position, he oversaw technology development grants, national facilities, biomedical technology research resources, and Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants. Krepkiy also was the NIGMS SBIR/STTR coordinator. Before his tenure at NIGMS, Krepkiy was a staff scientist at the National Institute of Neurological Disorders and Stroke, where he worked on ion channels involved in neurological diseases.

Krepkiy earned his doctorate in chemistry from the University of Wisconsin–Milwaukee, studying transcription factors. He conducted postdoctoral research at the Medical College of Wisconsin, where he worked on kinases, and at the National Institute on Alcohol Abuse and Alcoholism, where he focused on G-protein-coupled receptors.

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Michael Roberts
ISS National Laboratory, USA

4.2b: MPS and space

Michael Roberts is chief scientist of the International Space Station (ISS) National Laboratory, managed by the Center for the Advancement of Science in Space, Inc. (CASIS) in partnership with NASA. Before joining CASIS in 2013, Michael worked as principal investigator in the NASA Advanced Life Support program at Kennedy Space Center. Prior to arriving at Kennedy Space Center in 1999, Michael completed a BA in biology at Maryville College, a PhD in microbiology at Wesleyan University, and post-doctoral research at Michigan State University and the RIKEN Institute in Wako-shi, Japan.

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Rhiannon Hardwick
Bristol Myers Squibb, USA

4.3: MPS for drug discovery, from target identification to candidate selection

"Characterizing GI and liver MPS models for use in discovery toxicology applications"

Rhiannon received her PhD in pharmacology and toxicology from the University of Arizona and postdoctoral training at the University of North Carolina-Chapel Hill. She is a Scientific Associate Director in Discovery Toxicology at Bristol Myers Squibb with laboratory interests in the use of complex in vitro models for drug discovery applications. She is a member of the European Organ on a Chip Society Industrial Advisory Board, and the IQ Consortium MPS Affiliate.

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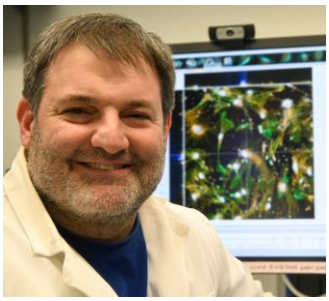

Mark Miedel
University of Pittsburgh, USA

4.5: In vitro clinical trials and precision medicine: real, digital and MPS twins

“Patient-specific microphysiology systems as an innovative precision medicine platform for metabolic-dysfunction associated steatotic liver disease ”

Mark is an Assistant Professor at the University of Pittsburgh Drug Discovery Institute where he uses human biomimetic liver microphysiology systems (MPS) to model both normal and disease-state liver physiology. His interests are in coupling the use of quantitative systems pharmacology and liver MPS as a precision medicine platform to identify novel biomarkers and targets for drug discovery for MASLD/MASH, 3D bioprinting of complex liver models, and using MPS to examine the impact of the liver tumor microenvironment on the progression of different cancer types.

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Cathy Yeung

University of Washington, USA

4.6: MPS to define physiologically-relevant doses

"Defining organotypic models: Quantitative benchmarks of human airway epithelial structure and function"

Cathy is an Associate Professor in the Department of Pharmacy at the University of Washington School of Pharmacy and an Investigator in the Kidney Research Institute at the UW School of Medicine. She received her PharmD from the University of Michigan, a PhD (Medicinal Chemistry) from the University of Washington, and MPH (Epidemiology) from the University of Washington. She completed postdoctoral fellowships in Pharmaceutical Chemistry (University of Michigan) and Pharmaceutics/Pharmacokinetics (University of Washington). Her work currently centers on using kidney microphysiological systems to better understand drug safety and dosing in people living with kidney disease.

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Emily Lee
NCATS, USA

Educational Workshop Track 2:
Career in academia

Emily M. Lee, Ph.D., is a Team Lead and Staff Scientist in the Early Translation Branch (ETB) within NCATS' Division of Preclinical Innovation (DPI), where she leads the Advanced Models & Cell Discovery Assay group within the Antiviral Program for Pandemics (APP), as well as the Neural Spheroid Team in the NCATS' 3-D Tissue Bioprinting Laboratory. She uses her diverse background in virology, high-throughput screening, and induced pluripotent stem cells and primary cells to lead her teams to investigate, evaluate and implement new assay technologies to develop cost-effective physiologically relevant assays, including 3-D organotypic models, for drug discovery and development in the context of viral infections and neurological diseases.

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Sheila Chari
Cell Stem Cell, USA

Educational Workshop Track 2:
Career in academia

Sheila Chari, Ph.D, is Editor-in-Chief at Cell Stem Cell and Executive Editor at Cell Press. Her primary responsibilities are knowing and publishing the top stem cell discoveries, driving journal publishing strategy, and managing a global editorial staff. Sheila holds a doctorate from Northwestern University in immunology, and conducted post-doctoral research on cellular reprogramming at the University of Chicago. Sheila is based in California, USA.

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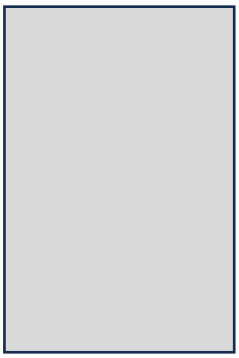

Rebecca Fuldner
NIH, USA

Educational Workshop Track 2:
Career in academia

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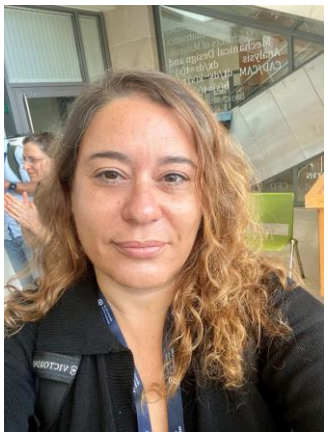

Elena Martínez Fraiz
Institute for Bioengineering of Catalonia (IBEC), Spain

Educational Workshop Track 2:
Career in academia

Dr. Elena Martínez holds a PhD in Physics by the University of Barcelona. After postdoctoral stages at the EPFL and Imperial College, she settled as Group Leader at the Institute for Bioengineering of Catalonia (IBEC) and as Professor at the University of Barcelona, in Spain. There she develops new systems that mimic 3D tissue microfeatures for biomimetic *in vitro* assays. She has published 129 papers (h-index: 37), supervised 15 MSc and 14 PhD thesis. She is the PI of national and international projects (ERC-Consolidator grant, ERC-PoC, EU-Pathfinder among them). She has been deputy director for Training and Career development activities during the last 5 years, involved in recruiting policies, mentoring and training activities. She is also involved frequently in evaluation panels for recruiting scientists within and outside Spain.

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Zane Martin
NIH, USA

Educational Workshop Track 2:
Career in academia

Dr. Martin is a Program Director in the Translational Research Branch in the Division of Neuroscience. She is responsible for overseeing research on Alzheimer's Disease (AD) and AD-related dementias (ADRD) drug discovery and preclinical drug development. Prior to her position as Program Director, Dr. Martin was an AAAS Science & Technology Policy Fellow at NIA and a Christine Mirzayan Science and Technology Policy Fellow at the National Academies of Sciences, Engineering, and Medicine.
Dr. Martin has a Ph.D. in Neuroscience and M.S. in Pharmacology from the University of Texas Medical Branch. She received postdoctoral training in the Department of Neurochemistry at the New York State Institute for Basic Research in Developmental Disabilities. Her research career has focused on drug discovery strategies to combat AD/ADRD.

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Shuo Xiao
Rutgers University School of Pharmacy, USA

Educational Workshop Track 2:
Career in academia

Dr. Shuo Xiao is an Assistant Professor from Department of Pharmacology and Toxicology at Rutgers University School of Pharmacy. He received his PhD in Reproductive Toxicology from University of Georgia (UGA) and completed his postdoctoral training at Northwestern University. Dr. Xiao's current research is focused on female reproductive toxicology, disease, and non-hormonal contraceptive using traditional animal model and emerging organoid and organ-on-chip models. Dr. Xiao has published > 60 research articles, reviews, and book chapters, and has mentored > 20 undergraduate, graduate, and postdoctoral trainees. Dr. Xiao's research is funded by NIH, DOD, NSF, and Bill & Melinda Gates Foundation. Dr. Xiao now serves as the Editorial Board Member for the journals of Reproductive Toxicology, Endocrinology, and Biology of Reproduction. Dr. Xiao is now the Treasurer and Secretary of the Society of Toxicology (SOT) Reproductive and Developmental Specialty Section (RDTSS) and the President of American Association of Chinese in Toxicology (AACT).

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Andrei Georgescu
Vivodyne, USA

Educational Workshop Track 3:
Career in industry

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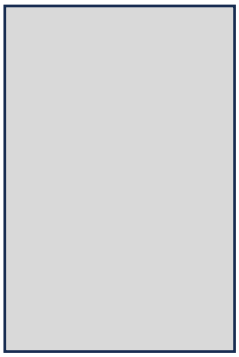

Yufang He
Merck, Germany

Educational Workshop Track 3:
Career in industry

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Madhu Nag
InSphero AG, Switzerland/USA

Educational Workshop Track 3:
Career in industry

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Thomas Neumann
University of Washington, USA

Educational Workshop Track 2:
Career in industry

Dr. Neumann is an entrepreneur in the MPS space. His career started at the University of Halle, Germany, where he developed some of the first organoid models. At the University of Washington in Seattle, he developed a technology for generating perfusable living microtissues in microfluidic devices. In 2007 he founded Nortis, one of the first organ-on-chip companies which he led as CEO and CSO until recently. Dr. Neumann has been playing a prominent role in promoting the emergence and growth of the MPS field through scientific collaborations, involvement in MPS-focused consortia, and interactions with the NIH, FDA, NASA, and other organizations.