The Second Annual
Microphysiological Systems
WORLD SUMMIT

26th-30th June 2023 BERLIN GERMANY
Hello Fellow Science Enthusiasts,

Buckle Up for a Wild Ride at the MPS World Summit 2023!

The Center for Alternatives to Animal Testing (CAAT) is all set to roll out the red carpet for the second MPS (Microphysiological Systems) World Summit in the ever-vibrant city of Berlin in 2023. Remember our humble beginnings with the MPS workshops in Berlin in 2015 and 2019? Well, those were the seeds that sprouted into the idea of international conferences and a society. And boy, have we grown!

Last year, we rallied 52 organizations in New Orleans to hold the first MPS World Summit. We had a whopping 142 speakers and 189 posters. But hold onto your lab coats, because this year, we’ve outdone ourselves! We’ve got over 60 organizations in the Steering Group, 29 members in the Scientific Advisory Board, 166 speakers, and 553 posters. We’ve had to cap the number of in-person participants at 1,300 (that’s triple from last year!) and we still have over 100 eager beavers on the waiting list. We even ran out of booths for our 95 sponsors!

A big shout-out to our fundraising committee led by J Hickmann for making this possible. Our hosts this year include our very own Marcel Leist from University of Konstanz/CAAT-Europe (Germany), along with co-hosts Uwe Marx and Peter Loskill from the co-organizing European Organ-on-Chip Society (EUROoCS). Together with the program committee and the local organizing committee, we’ve created a program that’s packed with more punch than a caffeine-infused energy drink.

And let’s not forget, we’re officially launching the International MPS Society in Berlin, thanks to the tireless efforts of Lena Smirnova and team. So, 60 years after J.F. Kennedy’s famous speech, let’s all be “Berliners” for a few days, united in our quest for the best cell models to improve biomedical research, product development, and beyond.

So, whether you’re from the academic research community, medical centers, the pharmaceutical, cosmetics, chemical, or food industries, regulatory agencies, health foundations, charities, patients associations, or policy-makers, we welcome you to join us in our motto of ‘emulating human biology for patients’ benefit and a safer environment in the 21st century and beyond!”

The CAAT team (Thomas Hartung, Marcel Leist, Lena Smirnova (iMPSS), Giorgia Pallocca, Camila Sgrignoli Januario, and Anwyn Statnick) wishes you an exhilarating journey into microphysiology and a whole lot of fun at our Macroparty and other social events. Let’s make some memories!

Best,

The CAAT Team
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We are thrilled to reveal that the International MPS Society, announced during our first World Summit in New Orleans, has been officialized!

*All attendees from our first MPS summit in New Orleans are considered founding members.*

*We are extending an invitation to all to become members.*

At the moment, there is no membership fee. You can void your membership by simply not paying the first invoice or opt out now by writing to info@impss.org.

Membership dues will be defined later in 2023, communicated to all members, and start in January 2024.

Please visit our website to review the bylaws and our suggested board. All members attending the MPS WS 2023 in Berlin will be asked to approve it during the iMPSS business meeting.

**What iMPSS offers:**

- A discounted rate for Annual MPS World Summits and free access to virtual webinars and conferences
- Regular newsletters providing summaries of events, publications and general updates in the field
- Our education program with hands-on trainings and workshops for members
- Support for three regional chapters and building interest groups.

**Find the registration form here:**

Send it to a friend!
HOSTS

Uwe Marx is a physician by training. He received his doctorate degree from the Charité in Berlin, Germany and is the founder and Chief Scientific Officer of TissUse, a Berlin based company founded in 2010. Dr. Marx was appointed an Honorary Professor of Medical Biotechnology at the Technische Universität Berlin in 2022. Along his 35-year academic carrier at the Charite Berlin, the University of Leipzig and the Technische Universität Berlin, he always focused on the invention and implementation of innovative biopharmaceutical products and technology platforms. Immunotoxins, human monoclonal antibodies, stem cell transplants and human tissue engineering platforms resulted from his developmental work and have been secured by 30 patent families with several hundred granted patents in place. Dr. Marx published several book chapters and more than 150 peer reviewed papers. He founded numerous German biotech companies, among them ProBioGen and VITA34. Furthermore, he served as a reviewer for various German governmental biotech programmes. Since 1991, Dr Marx is engineering human multi-organ bioreactors, and since 2010 miniaturized human multi-organ-chip systems in collaboration with the Technische Universität Berlin. As a scientist Dr. Marx has developed the theoretical background of the organismoid theory – a concept and its principles to generate miniature mindless and emotion-free equivalents of a human individual’s body on chips. The Russel and Burch award has been awarded to Dr. Marx by the Humane Society of the United States in Sep 2021. Dr. Marx hosted the two stakeholder CAAT-workshops of the MPS-community in 2015 and in 2019 in Berlin.

Uwe Marx
TissUse GmbH & Technische Universitaet
Berlin, Germany
Marcel Leist obtained an MSc in toxicology (Guildford 1989), and a PhD in pharmacology (Konstanz 1993). Since 2006, he has been head of the department of in vitro toxicology and biomedicine at the University of Konstanz (inaugurated by the Doerenkamp-Zbinden foundation), and director of the Center for Alternatives to Animal Testing in Europe (CAAT-Europe), a joint venture with Johns Hopkins University. From 2000-2006, he worked as ‘Head of Department of Disease Biology’ on the discovery of neurology and psychiatry drugs in the Danish pharmaceutical company Lundbeck A/S. The current research addresses stem cell differentiation to neuronal lineages as well as the pharmacological and toxicological characterization of test methods and in vitro disease models. The novel test methods are used both to reduce the use of animals in scientific research and to shift research applications towards the use of human cells. The lab is particularly well-known for its test methods for developmental toxicity and neurotoxicity. It is also broadly involved in work on standardizing and quality controlling new approach methods, for instance in large-scale European research programs or as contributor to the OECD GIVIMP or the good cell culture practices 2.0 guideline. The research resulted in > 400 publications (cited over 30,000 times), and was awarded with many national and international research prizes.
Hosts

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), head of the 3R Center Tübingen for in vitro Models and Alternatives to Animal Testing, as well as Chair of the European Organ-on-Chip Society (EUROoCS). 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 in the Healy lab 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, which enabled him to start an independent research group at Fraunhofer IGB Stuttgart. In 2021, he accepted a W3-professor position heading the Department for Microphysiological Systems in the Faculty of Medicine at EKUT. 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.

Peter Loskill
Eberhard Karls University of Tübingen, Germany; EUROoCS, Europe
Engage with Emulate @ MPS World Summit 2023

Join the Emulate team in Salon 5 – London, instead of the Exhibit Hall. This format will allow us to have dedicated presentations, roundtable discussions, hands-on training sessions, and a lounge environment where you can kick back and relax. Feel free to stop by at any time to Ask an Expert Anything. We look forward to engaging!

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Participating Sessions

Any Organ-Chip 101 Training Session in the Emulate Lab

One of three Roundtable Discussions in the Emulate Lab

Emulate Presentation: Next-Generation Organ-Chips for Novel Experiment Design

Emulate Presentation: Modulation of inflammatory bowel disease (IBD)-specific immune cell recruitment and response with anti-TNF-α therapies in the human Colon Intestine-Chip

Emulate Presentation: Liver-Chip Decision-Making Criteria

Emulate Presentation: Evaluation of the gut-protective aerobic Lactobacillus rhamnosus GG bacteria on the Colon Intestine-Chip

Please stop by Salon 5 – London or scan the QR code for more information on the passport adventure.
Quris is an artificial intelligence innovator with goal to disrupt the drug development process. Our Bio-AI platform better predicts which drug candidates will safely work in humans, avoiding the tremendous costs of failed clinical trials and animal testing. Quris is already working with leading pharma companies to evaluate the safety profile of pre-clinical and clinical assets.

**Unmet Need:** Drug safety is a major unaddressed problem. A staggering 92% of all drugs fail in clinical trials, despite ‘successfully’ passing animal testing, costing pharma companies over $53B each year. There is currently no company or solution that addresses this challenge: predicting which drug candidate will be safe in the human body, and for whom.

**Bio-AI Platform:** Quris uniquely combines the power of cutting-edge ML together with patients-on-chip technology, to better predict drug safety. How does it work? While the science and technology are complex, its essence is a simple, three-tiered process:

- **Generate** millions of interactions between known drugs (safe drugs and toxic ones) and patients-on-chip (miniaturized interconnected human organs on a chip).
- **Train** the AI model, based on the proprietary multi modality labeled data. Including microscopy images and proprietary nano-sensing.
- **Predict** whether a new drug candidate will be safe to the human body, and for whom.

**Stellar Team:** Based in Boston and Tel-Aviv, Quris is led by a team of track-record pioneers in the fields of machine-learning, statistics, biology, software, genomics, engineering, and med-tech – all with a strong track record of success, including Moderna’s co-founder Langer, Nobel laureate Ciechanover, and former Pfizer CEO McKinnell. The founders authored 48 patents, led two FDA approved products, and multiple successful Life-Sci exits (M&A, NASDAQ IPO).

"Quris is going to have a far greater impact on the pharmaceutical industry and world-health than anybody realizes.”

Henry McKinnell, former Pfizer CEO
ADVERTISERS/SUPPORTERS

[Logos of various companies and organizations]
| Time  | Monday 26th June | Tuesday 27th June | Wednesday 28th June | Thursday 29th June | Friday 30th June |
|-------|-----------------|-------------------|---------------------|-------------------|-----------------|
| 8:00  |                 |                   |                     |                   | Symposia 8:30-10:30 |
| 9:00  |                 |                   | Keynote 9:00-10:00  |                   |                 |
|       |                 |                   | Hall Berlin A-E     |                   |                 |
| 10:00 |                 |                   | Poster Session      |                   |                 |
|       |                 |                   | Drinks and Snacks Served |               |                 |
| 11:00 |                 |                   | Symposia 11:30-13:30|                   |                 |
| 12:00 | 1.1 2.1 3.1 4.1|                   | 1.3 2.3 3.3 4.5 1.5| 2.2 3.5 4.3      |                 |
| 13:00 | Educational Workshop 13:00-16:30 | Lunch 13:30-14:30 | Symposia 14:30-16:30 |                   | Closing Ceremony |
|       | Salon 21        |                   |                     |                   | Keynote: U. Marx, (TissUse, TU Berlin) |
|       |                 |                   |                     |                   | 13:30-15:30 Hall Berlin A-E |
| 15:00 | 1.2 2.5 3.2 4.2|                   | 1.4 2.4 3.4 4.6 1.6| 2.6 3.6 4.4      |                 |
| 16:00 | Opening Ceremony |                   | Poster Session      |                   |                 |
|       | Keynote: M. Lutolf (Roche) 16:30-18:30 | Drinks and Snacks Served |                   |                 |                 |
|       | Hall Berlin A-E |                   | 16:30-18:00         |                   |                 |
| 17:00 | Keynote 18:00-19:00 | Hall Berlin A-E | Round Table 17:50-18:50 | Round Table 18:00-19:00 |                 |
| 18:00 | Welcome Reception |                   |                     |                   |                 |
|       | 19:00-21:00 Exhibition Hall/Grand Ballroom | Macro Party 20:00-1:00 (next day) |                     |                   |                 |
| 20:00 | Macro Party 20:00-1:00 (next day) Badeschiff/Arena Club Eichenstraße 4, 12435 Berlin |                     |                     |                   |                 |
| 21:00 |                 |                   |                     |                   |                 |
| 22:00 |                 |                   |                     |                   |                 |
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Podium Talks

June 28, 1 PM, Salon 21 | Presenter: Dr. Anna Borgström
Human 3D InSight™ Liver spheroids are a highly predictive in vitro model for predictive and investigative toxicology

June 28, 3:20 PM, Hall Berlin D-E | Presenter: Dr. Michal Rudnik
Development of a high-throughput, 3D spheroid co-culturing platform for investigation tissue interactions

June 29, 3:40 PM, Hall Berlin A | Presenter: Dr. Franziska Linke
Building a multi-tissue microfluidics system of metastatic potential

Educational Workshop

June 26, 1 PM, Salon 21

Poster Presentations on:
- 3D In Vitro Technologies
- Liver Safety
- Liver Discovery
- Islet Biology

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Exhibition stand # 7

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**PROGRAM**

**Monday**

**Exhibition Hours**

13:00-16:30

If you didn’t register for an Educational Workshop, enjoy additional Exhibition Hours in the Exhibition Hall.

**Educational Workshops**

13:00-16:30

**Moderator:** Riccardo Barrile, UC Cincinnati

**Location:** Salon 21

| Organisation                           | Title of Workshop                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------|
| Altertox, Belgium                      | How to validate an organ-on-chip technology with TATAbox                             |
| AlveoliX, Switzerland                  | Mimic the dynamic microenvironment of organ barriers using the AXBarrier-on-Chip System |
| BiomimX, Italy                         | Beating Organs-on-Chip (OoC) as advanced in vitro models of human organs and diseases to progress the drug screening |
| CN Bio, United Kingdom                 | How to build robust predictive human organ models to improve the success of novel therapies discovery |
| Emulate Inc., USA                      | The Human Emulation System® – a complete Organ-on-a-Chip solution for next-generation in vitro models |
| Hesperos Inc., USA                     | Evaluating long-term potentiation in a human iPSC-cortical neuron MPS system for assessing cognitive dysfunction |
| InSphero, Switzerland                  | Advancing MPS towards robust screening applications and microfluidic immune-competent tissue-tissue interactions using scalable plate formats |
| Netri, France                          | A high-throughput microfluidic devices tool to study neurological disorders and dermo-cosmetics |
| Organ-on-Chip Centre, University of Twente, Netherlands | The Translational Organ-on-Chip Platform (TOP): An open platform for modular interfacing of organs-on-chips |
| Ossiform, Denmark                      | 3D printed bioceramics for studying bone and bone-related diseases                   |
| React4Life, Italy                      | New MPS based in vitro models for immuno-oncological applications: co-culture of circulating immune cells and 3D cancer tissues for basic research and drug testing purposes. |
| TissUse GmbH, Germany                  | Connecting 2D and 3D models in a Multi-Organ-Chip for safety and efficacy evaluation |
| Vitrocell, Germany                     | VITROCELL Cloud Aerosol Exposure System for Inhalation Studies using the AlveoliX AX12 lung-on-chip |

**Opening Ceremony**

16:30-18:30

**Keynote Speaker:** Matthias Lutolf, Founding Director of the Roche Institute for Translational Bioengineering and Professor of Bioengineering at the Swiss Federal Institute of Technology in Lausanne (EPFL)

**Location:** Hall Berlin A-E

on “Engineering Organoids”

**Welcome Reception** *(Exhibition Hall/Grand Ballroom)*

19:00-21:00
Keynote

Keynote Speaker: Roser Vento-Tormo, Group Leader at the Wellcome Sanger Institute, United Kingdom

Location: Hall Berlin A-E

on “Mapping the development & regeneration of reproductive tissues”

Poster Session: Coffee, Snacks, and Networking

Symposia

Track 1.1 — Immunology in MPS
Moderators: Pelin Candarlioglu, EUROoCS; Lotte de Winde, University College London
Location: Hall Berlin D-E

| Time   | Speaker               | Organisation                              | Title of Talk                                                                 |
|--------|-----------------------|-------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00 | Annie Moisan            | Wellcome Leap, Switzerland                | 756. A Bioengineering Approach to T Cell Diversity                             |
| 12:00-12:20 | Claudia Teufel*          | Eberhard Karls University Tübingen, Germany | 593. Tonsil-on-chip to test T cell-dependent antibody responses and vaccine efficacy in vitro |
| 12:20-12:40 | Leopold Koenig*         | TissUse GmbH, Germany                     | 38. Modelling natural killer cell development in a microfluidic bone marrow model |
| 12:40-13:00 | Liana Kramer*           | Georgia Institute of Technology, USA      | 73. Multi-niche human bone marrow-on-a-chip for plasma cell survival and differentiation |
| 13:00-13:20 | Raphaël Jeger-Madiot*   | Institut Pasteur, Université de Paris, France | 645. Development of a Lymphoid Organ-Chip to evaluate COVID vaccine boosting strategies |

Track 2.1 — End-users case studies
Moderator(s): Thomas Steger-Hartmann, Bayer; Nicole Anderle, Natural and Medical Sciences Institute
Location: Salon 7

| Time   | Speaker               | Organisation                              | Title of Talk                                                                 |
|--------|-----------------------|-------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00 | Kim Homan              | Genentech, USA                            | 237. Complex Model Adoption at Genentech                                      |
| 12:00-12:20 | Paul Vulto             | MIMETAS, Netherlands                       | 762. 762. Comprehensive tumor modelling and its application in discovery and development of next generation oncology drugs |
| 12:20-12:40 | Stefano Piazza*        | BiomimX Srl, Italy                        | 325. Efficacy assessment of novel anti-OA therapeutic drug candidates within an advanced mechanically active osteoarthritis-on-chip model: the SYN321 case study |
| 12:40-13:00 | Abhinav Sharma*        | AbbVie Inc., USA                          | 137. A microphysiological system to investigate cell death pathways in inflammatory bowel disease for drug discovery and validation |
| 13:00-13:20 | Rui Sun*               | Bayer AG, Pharmaceuticals, Germany        | 157. Efficacy evaluation of AAV delivered liver specific promoters in the Emulate liver chip |
Symposia (Continued)  11:30-13:30

Track 3.1 — ADME and PK/PD modeling with MPS
Moderator(s): Marian Raschke, Queen Mary University of London; Clémentine Richter, Helmholtz Institute for Pharmaceutical Research, Saarland

Location: Salon 21

| Time      | Speaker             | Organisation                                | Title of Talk                                                                 |
|-----------|---------------------|---------------------------------------------|------------------------------------------------------------------------------|
| 11:30-12:00 | Hiroyuki Kusuhara  | University of Tokyo, Japan                  | 757. Application of MPS to the ADME studies: in vitro model for the intestinal drug absorption |
| 12:00-12:20 | Shiny Rajan*       | Javelin Biotech, USA                        | 456. Novel Single- and Multi-Tissue Chips for Predictive Pharmacokinetic Applications |
| 12:20-12:40 | Takeshi Hori       | Tokyo Medical and Dental University (TMDU), Japan | 117. In vitro models for the human placental barrier                            |
| 12:40-13:00 | Pedro Pinto        | University Medicine Greifswald, Germany     | 410. Predicting renal drug clearance using mechanistic modeling based on drug secretion in a kidney microphysiological model |
| 13:00-13:20 | Liam Carr*         | University of Edinburgh, United Kingdom     | 449. Novel body-on-chip system for quantification of compound kinetics, validated using positron emission tomography data |

Track 4.1 — MPS Models for Cardiovascular Diseases
Moderator(s): Marco Rasponi, Polytechnic University of Milan; Ying Betty Li, National Research Council Canada

Location: Hall Berlin A

| Time      | Speaker             | Organisation                                | Title of Talk                                                                 |
|-----------|---------------------|---------------------------------------------|------------------------------------------------------------------------------|
| 11:30-12:00 | Christopher Hughes | UC Irvine, USA                              | 528. Vascular Malformations in a Novel HHT-on-a-Chip Microphysiological System Model |
| 12:00-12:20 | Carla Cofiño Fabres* | University of Twente, Netherlands            | 347. Development of a novel micro-Engineered Heart Tissue platform on chip with multicellular biomimicry |
| 12:20-12:40 | Rebecca Riddle*    | University of Cambridge, United Kingdom     | 61. Multi-faceted role of platelets in inflammation and haemostasis in a vessel-on-a-chip model |
| 12:40-13:00 | Estrela Neto*      | i3S - Instituto de Investigação e Inovação em Saúde da Universidade do Porto, Portugal | 198. Micropathological Chip Modeling the Neurovascular Unit Response to Inflammatory Bone Condition |
| 13:00-13:20 | Tatiana Mencarini* | Politecnico di Milano, Italy                | 444. Developing a 3D blood vessel-on-chip microfluidic model of thrombosis    |

Lunch  13:30-14:30

Symposia  14:30-16:30

Track 1.2 — Microfabrication, Instrumentation & Sensors
Moderator(s): Riccardo Barrile, University of Cincinnati; Anas Munir, University of Salento
Location: Hall Berlin A

| Time      | Speaker          | Organisation                                | Title of Talk                                                                 |
|-----------|------------------|---------------------------------------------|------------------------------------------------------------------------------|
| 14:30-15:00 | Andries van der Meer | University of Twente, The Netherlands       | 732. SMART Organ-on-Chip: from single chips to a standardized open technology platform |
**Program**

**Tuesday**

**Symposia (Continued)**

**Track 1.2 — Microfabrication, Instrumentation & Sensors (cont.)**

**Moderator(s):** Riccardo Barrile, University of Cincinnati; Anas Munir, University of Salento  
**Location:** Hall Berlin A

| Time        | Speaker            | Organisation                                      | Title of Talk                                                                 |
|-------------|--------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 15:00-15:20 | Daniel Carvalho    | Maastricht University, Netherlands                | 46. Thyroid-on-a-chip: An In Vitro Organoid Device to Test Thyroid Disruption |
| 15:20-15:40 | Sebastian Buchmann*| Karolinska Institute, Sweden                      | 441. Defined neuronal-astrocytic interactions enabled with a 3D-printed platform |
| 15:40-16:00 | Zaozao Chen        | Southeast University, China                       | 722. Monitoring of immune cell cross-talks and microdroplet/aerosol transmission in lung-microphysiological system |
| 16:00-16:20 | Yi Ling Yang*      | University of Melbourne, Australia                | 149. The next generation lab-on-chip platform deploying real-time metabolic sensing |

**Track 2.5 — Next-Generation Risk Assessment**

**Moderator(s):** Tamara Zietek, Technical University of Munich; Elisa Batista, IPQ  
**Location:** Salon 7

| Time        | Speaker            | Organisation                                      | Title of Talk                                                                 |
|-------------|--------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00 | Yoko Hirabayashi   | NIHS, Japan                                       | 758. Initiatives for New Approach Methods at Japanese Center for the Validation of Alternative Methods (JaCVAM) |
| 15:00-15:20 | Katharina Koch     | IUF – Leibniz Research Institute for Environmental Medicine, Germany | 696. Application of a human in vitro testing battery for endocrine disruptor (ED)-induced developmental neurotoxicity (DNT) to refine EDC risk assessment |
| 15:20-15:40 | Kasper Renggli     | Philip Morris Life Sciences, Switzerland          | 502. Development of the Human-Relevant Aerosol Test Platform HUMIMIC-InHALES for Evaluating Respiratory Toxicity and Systemic Effects of Inhaled Aerosols |
| 15:40-16:00 | James McKim        | LifeNet Health-IONTOX, USA                        | 581. A New Human Dynamic Integrated Organ (MPS) Platform For Developing In Vitro Pharmacokinetic and Toxicity Data |
| 16:00-16:20 | Lukas Wijaya*      | Leiden University, Netherlands                    | 551. Human-induced pluripotent stem cell reporters for high-content screening of stress response activation identifying target organ-specific toxicities |

**Track 3.2 — MPS for Lung Disease Models**

**Moderator(s):** Lenie van den Broek, MIMETAS; Mariana Gueded, Universität des Saarlandes  
**Location:** Salon 21

| Time        | Speaker            | Organisation                                      | Title of Talk                                                                 |
|-------------|--------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00 | Janna Nawroth      | Helmholtz Munich, Germany                         | 749. Organotypic Chip Models and Applications in Disease Studies              |
| 15:00-15:20 | Queeny Dasgupta*   | Boston Children's Hospital & Harvard Medical School, USA | 492. Modeling Pulmonary Radiation Injury using a Human Lung Alveolus-on-a-Chip |
| 15:20-15:40 | Emily Richardson*  | CN Bio Innovations, United Kingdom                | 370. Communication is key: exploring local and systemic inflammatory responses to infection using a multi-organ lung-liver-immune axis microphysiological system. |
| 15:40-16:00 | Rachel Ringquist*  | Georgia Institute of Technology, USA              | 560. Immune-competent Microvascularized Human Lung-on-a-chip Device for studying Lung Immunopathologies |

* indicates a Young Investigator
Tuesday

**Symposia (Continued)**

**Track 3.2 — MPS for Lung Disease Models**

**Moderator(s):** Lenie van den Broek, MIMETAS; Mariana Gueded, Universität des Saarlandes

**Location:** Salon 21

| Time       | Speaker          | Organisation                                                                 | Title of Talk                                                                 |
|------------|------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 14:30-15:00| Mathieu Hautefeuille | Sorbonne Université, France                                                  | 232. Engineering of development-like tubulogenesis to construct non-embedded liver sinusoid on chip for mechanobiology studies |
| 15:00-15:20| Erika Ferrari*    | Politecnico di Milano, Italy                                                 | 115. 3D Liver-on-Chip with a perfusable physiologic-like vascular channel    |
| 15:20-15:40| Laura Benito Zarza* | KTH Royal Institute of Technology, Sweden                                   | 416. Microvascularized neurovascular unit (NVU) model using human induced pluripotent stem cells (hiPSC) and laser cavitation molding |
| 15:40-16:00| Marie Piantino*   | Osaka University, Japan                                                      | 136. Development of a three-dimensional blood-brain barrier microphysiological system with perfusable capillary opening structures for drug transport assays |
| 16:00-16:20| Kieu Le*         | UMC Groningen, Netherlands                                                   | 495. Using blood vessel-on-chip to characterize endothelial memory           |

**Track 4.2 — MPS for Vascularization 2**

**Moderator(s):** Martin Raasch, Dynamic42 GmbH; Isabel Koh, RIKEN

**Location:** Hall Berlin D-E

| Time       | Speaker          | Organisation                                                                 | Title of Talk                                                                 |
|------------|------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 16:00-16:20| Aghiad Bali*     | Helmholtz Institute for Pharmaceutical Research Saarland (HIPS), Department of Drug Delivery, Germany | 319. 3D-Bioprinting of bacterial biofilm on monolayer of human lung cells as advanced in vitro model for chronic lung infections. |

**Poster Session: Drinks and Snacks Served**

**16:30-18:00**

**iMPSS Board of Trustees Meeting**

**16:45-17:45**

**Keynote**

**18:00-19:00**

**Keynote Speaker:**
**Donna Mendrick, US Food and Drug Administration**

**Location:** Hall Berlin A-E

on “Advancing New Alternative Methods at FDA”
**Wednesday**

**Matchmaking Hours**

**Keynote**

Keynote Speaker: Gordana Vunjak-Novakovic, Columbia University
Location: Hall Berlin A-E
on “Multi-organ on chip platforms for individualized studies of human pathophysiology”

**Poster Session: Coffee, Snacks, and Networking**

**Symposia**

**Track 1.3 — Vascularization of MPS**

Moderator(s): Ming-I Huang, Aracari Biosciences; Noam Demri, Institut Curie
Location: Hall Berlin D-E

| Time       | Speaker               | Organisation                                           | Title of Talk                                                                 |
|------------|-----------------------|--------------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Roger Kamm            | Massachusetts Institute of Technology, USA             | 730. Vascularised models for neurological disease                             |
| 12:00-12:20| Tarek Gensheimer*     | University of Twente, Netherlands                      | 288. An open-top OoC-platform to generate a fully hiPSC-derived model of the outer blood-retinal barrier with a functional microvascular network |
| 12:20-12:40| Riccardo Barrile      | University of Cincinnati, USA                          | 595. Rapid 3D-Bioprinting Approaches for Studying Human Vascular Disorders     |
| 12:40-13:00| Shira Landau*         | University of Toronto, Canada                          | 404. Investigating crosstalk between cardiomyocytes, fibroblasts, endothelial cells & resident macrophage within vascularized cardiac organ-on-a-chip platforms |
| 13:00-13:20| Matthias Ryma*        | Institute for Functional Materials & Biofabrication (IFB) and Bavarian Polymer Institute (BPI), Germany | 584. Melt electrowriting and freeform printing for biofabrication of in vitro vascularization |

**Track 2.3 — Applications in drug development - Efficacy**

Moderator(s): Stefan Kustermann, Roche; Katie Marshall, Unknown
Location: Salon 7

| Time       | Speaker               | Organisation                                           | Title of Talk                                                                 |
|------------|-----------------------|--------------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| James Hickman         | Hesperos, Inc., USA                                    | 588. Neurodegenerative and rare diseases investigations utilizing human-on-a-chip systems |
| 12:00-12:20| Jeong-Won Choi        | Ulsan National Institute of Science and Technology, South Korea | 660. Organ-on-a-Chip Approach for Accurate Phage Display Screening of Organ-Targeting Shuttle Peptide |
| 12:20-12:40| Nagajaran Thirunavukkarasu | U.S Food and Drug Administration (FDA), USA             | 76. Neuro-Muscular System (NMS) for Botulinum Neurotoxin Assays to Replace Animal Testing: Readouts, Applications, and Regulatory Qualification Standards |
| 12:40-13:00| Christopher Carman    | Emulate, Inc., USA                                     | 672. Modulation of inflammatory bowel disease (IBD)-specific immune cell recruitment and response with anti-TNF- therapies in the human Colon Intestine-Chip |
### Symposia (Continued) 11:30-13:30

#### Track 2.3 — Applications in drug development - Efficacy (cont.)
**Moderator(s): Stefan Kustermann, Roche; Katie Marshall, Unknown**
**Location:** Salon 7

| Time       | Speaker       | Organisation                                      | Title of Talk                                                                 |
|------------|---------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Mathieu Vinken| Vrije Universiteit Brussel, Belgium               | 725. Ontologies as tools to support MPS-based predictive toxicity screening   |
| 12:00-12:20| José Manuel Rivera Arbelaez* | University of Twente, Netherlands | 592. Assessment of commercial drug compounds in an engineered heart tissue platform using human induced pluripotent stem cell-derived cardiomyocytes in serum-free media |
| 12:20-12:40| Anish Mahadeo* | University of Washington, USA                   | 555. Assessment of risk factors in chronic kidney disease using proximal-tubule microphysiological systems |
| 12:40-13:00| Dylan Fudge*  | DTRA, Fort Belvoir, USA                          | 468. Design and Application of an Adept Aerosol/Vapor Lung-on-a-Chip and Aerosol/Vapor Delivery Systems using Toxic Agents |
| 13:00-13:20| Anna Borgström* | InSphero, Switzerland                           | 583. Human 3D InSight™ Liver spheroids are a highly predictive in vitro model for predictive and investigative toxicology |

#### Track 3.3 — MPS Models for acute and repeated toxicity
**Moderator(s): Heidrun Ellinger-Ziegelbauer, Bayer Pharmaceuticals; Tracey Hurrell, Center for Scientific and Industrial Research**
**Location:** Salon 21

| Time       | Speaker       | Organisation                                      | Title of Talk                                                                 |
|------------|---------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Kaoru Sato    | National Institute of Health Sciences, Japan      | 331. The integrated development of blood brain barrier microphysiological system - from novel BBB MPS development to regulatory acceptance |
| 12:00-12:20| Ségolène Ladaigne* | Institut Curie, France                           | 432. A vascular tumor-on-chip platform to decipher endothelial immunomodulatory function |

#### Track 4.5 — MPS and Cancer
**Moderator(s): Philip Hewitt, Merck Healthcare; Özlem Vural, Bayer Pharmaceuticals**
**Location:** Hall Berlin A

| Time       | Speaker       | Organisation                                      | Title of Talk                                                                 |
|------------|---------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Tudor Petreus | CN-Bio Innovations, United Kingdom                | 345. A PK/PD translational microphysiological system to explore anti-cancer therapies efficacy on 3D tumour spheroids and patient derived organoids |
| 12:00-12:20| Carly Strelez* | Lawrence J. Ellison Institute for Transformative Medicine, USA | 85. Capturing biological complexity in a colorectal cancer-on-a-chip model |
| 12:20-12:40| Azmeer Sharipol* | University of Rochester, USA                    | 530. Recapitulating acute myeloid leukemia (AML) phenotypes in vitro using a 3D model of the bone marrow microenvironment (BMME) |
| 12:40-13:00| Delta Ghosal*  | Georgia Institute of Technology and Emory University, USA | 475. Multi-niche Human Bone Marrow On-A-Chip for Studying Interactions of Cell Therapies With Multiple Myeloma |
| 13:00-13:20| Ségolène Ladaigne* | Institut Curie, France                           | 432. A vascular tumor-on-chip platform to decipher endothelial immunomodulatory function |

### Lunch 13:30-14:30
## Wednesday

**Symposia**

Track 1.4 — Combining MPS with AI and in silico

**Moderator(s):** Alexandra Maertens, Johns Hopkins Univ.; Thomas Steger-Hartmann, Bayer AG

**Location:** Salon 21

| Time       | Speaker              | Organisation            | Title of Talk                                                                 |
|------------|----------------------|-------------------------|-------------------------------|
| 14:30-15:00| Shahar Harel         | Quris AI, Israel        | 761. "The Sound of Safety" - combining MPS with Bio-AI and In-silico to capture the signature of the ordinary (non-toxic) behavior of MPS and the deviations under increasing concentrations of the drugs |
| 15:00-15:20| Florian Huber*       | TissUse GmbH, Germany   | 332. On the way to a digital twin in preclinical studies - how automation and continuous data acquisition enable AI-based in silico models |
| 15:20-15:40| Syed Ahmad*          | University of Rochester, USA | 523. Analyzing Label Free Leukocyte Trafficking Dynamics on a Microvascular Mimetic with Computer Vision Techniques. |
| 15:40-16:00| Anne Beghin          | Nationale University of Singapore | 111. Unlocking the secrets of Organoids: High Content Screening Device with 3D Imaging, Machine Learning and Extreme Condition Studies. |
| 16:00-16:20| Kristen N. Olson*    | Xellar, Inc., USA       | 712. Embracing Complexity to Increase Efficiency and Predictivity: High-Throughput 3D Microfluidic Modeling of Drug-Induced Liver Injury Powered by Image-Based AI Toxicity Profiling |

Track 2.4 — Applications in drug development - Safety

**Moderator(s):** Mario Beilman, Boehringer Ingelheim; Moencopi Bernheim-Dennery, Institut Curie

**Location:** Hall Berlin D-E

| Time       | Speaker             | Organisation            | Title of Talk |
|------------|---------------------|-------------------------|---------------|
| 14:30-15:00| Rhiannon David      | AstraZeneca, United Kingdom | 751. Advancing pre-clinical safety assessment with MPS: the road to model qualification and adoption |
| 15:00-15:20| Carmen Pin          | AstraZeneca, United Kingdom | 574. Mathematical modelling combined with microphysiological systems (MPSs) enables the quantitative assessment of clinical safety in early stages of drug development. |
| 15:20-15:40| Michal Rudnik*      | InSphero AG, Switzerland | 324. Development of a high-throughput, 3D spheroid co-culturing platform for investigation tissue interactions. |
| 15:40-16:00| Stefan Kustermann   | Roche Innovation Center Basel, Switzerland | 313. Chances & challenges for in vitro models to address CNS toxicities |
| 16:00-16:20| Christian Maass*    | esqLABS, Germany        | 301. DigiLoCS – A digital liver-on-chip simulator for predicting human metabolism of drugs |

Track 3.4 — Modeling developmental biology

**Moderator(s):** Lena Smirnova, Johns Hopkins Uni; Chrysanthi-Maria Moysidou, Cambridge. University

**Location:** Hall Berlin A

| Time       | Speaker            | Organisation                              | Title of Talk                                                                 |
|------------|--------------------|-------------------------------------------|-------------------------------|
| 14:30-15:00| Magdalena Kasendra| Cincinnati Children’s Hospital Medical Center, USA | 596. From Developmental Biology to Drug Discovery and Regenerative Medicine: Realizing the Promise of Three-Dimensional Organoids. |
| 15:00-15:20| Julia Boos*        | ETH Zürich, Switzerland                   | 623. Integration of human-stem-cell-based embryoid bodies into a microfluidic multi-tissue platform for systemic embryotoxicity testing |
| 15:20-15:40| Renée Moerkens*    | University Medical Center Groningen, Netherlands | 479. Steering epithelial and mesenchymal cell type composition in an iPSC-derived Intestine-Chip |
Symposia (Continued)  14:30-16:30

Wednesday

Track 3.4 — MPS for Lung Disease Models (cont.)
Moderator(s): Lena Smirnova, Johns Hopkins Uni; Chrysanthi-Maria Moysidou, Cambridge. University
Location: Hall Berlin A

| Time         | Speaker       | Organisation                        | Title of Talk                                                                 |
|--------------|---------------|-------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00  | Joram Mooiweer* | University Medical Center Groningen, Netherlands | 227. Autologous co-cultures of human intestinal CD8+ cells and organoids on-chip to recapitulate a mucosal immune response |
| 15:00-15:20  | Brice Lapin*   | Institut Curie, France              | 228. A kidney-on-a-chip to study the role of hydrodynamic constraints in cyst formation in polycystic kidney disease |
| 15:20-15:40  | Laurène Froment* | Alveolix AG, Switzerland            | 412. A novel gut-on-chip model recreating physiological 3D peristalsis          |
| 15:40-16:00  | Liisa Vilén    | AstraZeneca, Sweden                 | 138. Pancreas-liver in vitro and in silico hybrid model for human diabetic glucose dysregulation |
| 16:00-16:20  | Yoh-ichi Tagawa | Tokyo Institute of Technology, Japan | 330. MPS consisting of intestinal epithelial cells, macrophage, and bacteria for inflammatory bowel disease culture model |

Track 4.6 — MPS for Intestine and Metabolic Diseases
Moderator(s): Olivier Frey, InSphero AG; Ana Mora-Boza, Georgia Institute of Technology
Location: Salon 7

| Time         | Speaker       | Organisation                        | Title of Talk                                                                 |
|--------------|---------------|-------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00  | Erik V        | Maastricht University, Netherlands  | 10. Exposing the pathways in embryo morphogenesis by phenotypic screening of embryo models |
| 16:00-16:20  | Arum Han*     | Texas A&M University, USA           | 188. Modeling a Disease Phenotype Associated with Preterm Birth in vitro using a Feto-Maternal Interface (FMI) Organ-on-Chip (OOC) |

Poster Session: Drinks and Snacks Served  16:30-17:50

Seattle Organizing Committee + iMPSS Executives  16:45-17:45
Location: Salon 7

Round Table  17:50-18:50
Moderator: Ming-I Huang, Aracari Biosciences
Panelists: Dan Tagle, NCATS, USA; Rhiannon Hardwick, BMS, USA; Rhiannon David, AstraZeneca, UK; Milena Mennecozzi, European Commission, Joint Research Centre; Takao Ashikaga, NIHS, Japan; Zhongze Gu, Southeast University, China
Location: Hall Berlin A-E
on “Moving MPS into practice”

Macro Party  20:00-1:00
Location: Badeschiff/Arena Club Berlin
Eichenstraße 4, 12435 Berlin

* indicates a Young Investigator
Thursday

Matchmaking Hours 10:00-18:00

Keynote 9:00-10:00

Keynote Speaker: Thomas Hartung, Johns Hopkins University
Location: Hall Berlin A-E
on “The state of the MPS revolution”

Poster Session: Coffee, Snacks, and Networking 10:00-11:30

Symposia 11:30-13:30

Track 1.5 — Real-time and in-situ monitoring of MPS systems
Moderator(s): Torsten Mayr, Graz University of Technology; Sri Harsha Paladugu, Center for Nanoscience and Engineering (CeNSE)
Location: Hall Berlin A

| Time       | Speaker       | Organisation                                      | Title of Talk                                                                 |
|------------|---------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Boyang Zhang  | McMaster University, Canada                       | 752. Unlocking the Potential of Organoid and Tissue Models for Drug Discovery with Platform Technology |
| 12:00-12:20| Stephanie Fuchs| Graz University of Technology, Austria            | 445. Optical glucose sensor for on-line and at-line measurements of MPS        |
| 12:20-12:40| Giorgia Zambito*| University Medical Center, Netherlands          | 385. Bioluminescence imaging of microfluidic chips for continuous, non-invasive, and on-situ bio-screening. |
| 12:40-13:00| Julia Marzi*  | University of Tübingen, Germany                   | 372. Molecular-sensitive imaging enables in situ monitoring of cellular dynamics at spatial and temporal resolution |
| 13:00-13:20| Narasimhan Sriram*| Hesperos, Inc., USA                             | 690. High throughput cardiac ischemia Human-on-a-Chip platform with integrated microelectrode arrays and piezo-resistive cantilevers |

Track 2.2 — Scalability, automation and throughput
Moderator(s): Erika Györvary, Swiss Center for Electronics and Microtechnology; Lorenzo Coppadoro, Politecnico di Milano
Location: Hall Berlin D-E

| Time       | Speaker       | Organisation                                      | Title of Talk                                                                 |
|------------|---------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Alice Soragni | University of California Los Angeles, USA         | 734. A patient-derived tumor organoid high-throughput screening platform for precision medicine |
| 12:00-12:20| Moo-Yeal Lee  | University of North Texas, USA                    | 141. Pillar and Perfusion Plate Platform for Dynamic Human Organoid Culture and Analysis |
| 12:20-12:40| Sandro Meucci | Micronit B.V., Netherlands                        | 403. Smart Multi-Well Plate: industrializable open technology platform for tubeless, autonomous OoC applications |
| 12:40-13:00| Sven Fengler  | German Center for Neurodegenerative Diseases (DZNE), Germany | 82. iPSC-derived brain endothelial microvessels in a standardized multi-chip format as 3D human blood-brain barrier model for drug permeability screens |

* indicates a Young Investigator
Symposia (Continued)

**Track 2.2 — Scalability, automation and throughput**
**Moderator(s):** Erika Györvary, Swiss Center for Electronics and Microtechnology; Lorenzo Coppadoro, Politecnico di Milano

**Location:** Hall Berlin D-E

| Time       | Speaker                        | Organisation                  | Title of Talk                                                                 |
|------------|--------------------------------|-------------------------------|-------------------------------------------------------------------------------|
| 11:30-11:35| J. Julie Kim                   | Northwestern University, USA   | 731. The Female Reproductive Microphysiologic System                           |
| 12:00-12:20| Manon Murdeu*                  | Swiss Federal Laboratories for Materials Science & Tech. | 214. Human-based placenta-embryo chip for developmental toxicity assessment of nanoparticles |
| 12:20-12:40| Ilka Maschmeyer                | TissUse GmbH, Germany         | 630. A liver and testis multi-organ-chip: towards a systemic male reprotoxicity model |
| 12:40-13:00| Elena Kromidas*                | Eberhard Karls University Tuebingen, Germany | 575. Modeling the Stages of Cervical Cancer Pathogenesis: Establishment of a healthy Cervix-, a pre-cancerous CIN- and an immunocompetent Carcinoma-on-Chip |
| 13:00-13:20| Iva Sovadinova*                | RECETOX, Czech Republic       | 472. Human Testicular Steroidogenesis Models for Biomedical and Toxicological Research in a Microphysiological Setting |

**Track 3.5 — Addressing Reproduction & Endocrinology with MPS**
**Moderator(s):** Linda Griffith, MIT; Natali Barakat, University of Central Florida

**Location:** Salon 7

| Time       | Speaker                        | Organisation                  | Title of Talk                                                                 |
|------------|--------------------------------|-------------------------------|-------------------------------------------------------------------------------|
| 11:30-12:00| Stéphanie Boder-Pasche         | CSEM, Switzerland             | 317. Automated platform for the micro-perfusion of bioengineered tissues       |
| 12:00-12:20| Marcel Leist                   | CAAT-EU, University of Konstanz, Germany | 755. Novel models and technologies for developmental and adult neurotoxicity prediction |
| 12:20-12:25| Kainat Khan                    | AstraZeneca, United Kingdom   | 489. Investigation of the impact of gap scheduling on the toxicity of PARP1-selective AZD5305 combined with carboplatin using the bone marrow microphysiological system (BM MPS) and mathematical modelling |
| 12:25-12:45| Heidrun Ellinger-Ziegelbauer   | Bayer AG, Germany             | 167. Comparative In vitro DILI characterization of two candidate drugs using advanced in vitro liver models |
| 12:45-13:05| Anne-Karolin Bothe*            | Dynamic42 GmbH, Germany       | 327. Predicting immune-related antibody-induced toxicities with microphysiological organ-on-chip models |
| 13:05-13:25| Anthony Bahinski               | Vivodyne, Inc, USA            | 538. Fully Automated High-Throughput Drug Toxicity Evaluation on the Hematopoietic Niche in a Bone Marrow Model |

**Track 4.3 — MPS for Chemical and Drug Toxicity Testing**
**Moderator(s):** Jan Lichtenberg, InSphero AG; David Pamies, University of Lausanne

**Location:** Salon 21

| Time       | Speaker                        | Organisation                  | Title of Talk                                                                 |
|------------|--------------------------------|-------------------------------|-------------------------------------------------------------------------------|
| 11:30-11:35| Björn Ekwall Memorial Foundation (BEMF) | CAAT-EU, University of Konstanz, Germany | Award presentation: Marcel Leist, 2023 BEMF Award winner |
| 11:35-12:05| Marcel Leist                   | CAAT-EU, University of Konstanz, Germany | 755. Novel models and technologies for developmental and adult neurotoxicity prediction |
| 12:05-12:25| Kainat Khan                    | AstraZeneca, United Kingdom   | 489. Investigation of the impact of gap scheduling on the toxicity of PARP1-selective AZD5305 combined with carboplatin using the bone marrow microphysiological system (BM MPS) and mathematical modelling |
| 12:25-12:45| Heidrun Ellinger-Ziegelbauer   | Bayer AG, Germany             | 167. Comparative In vitro DILI characterization of two candidate drugs using advanced in vitro liver models |
| 12:45-13:05| Anne-Karolin Bothe*            | Dynamic42 GmbH, Germany       | 327. Predicting immune-related antibody-induced toxicities with microphysiological organ-on-chip models |
| 13:05-13:25| Anthony Bahinski               | Vivodyne, Inc, USA            | 538. Fully Automated High-Throughput Drug Toxicity Evaluation on the Hematopoietic Niche in a Bone Marrow Model |

**Lunch**

13:30-14:30
### Thursday

#### Symposia

**Track 1.6 — (Bio)Material Advances in MPS**  
**Moderators:** Sarah Hedtrich, Univ. of British Columbia; Ishan Goswami, Univ. of California Berkeley  
**Location:** Hall Berlin D-E

| Time       | Speaker                     | Organisation                                      | Title of Talk                                                                 |
|------------|-----------------------------|--------------------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00| Róisín Owens                | University of Cambridge, UK                      | 726. 3D Bioelectronic models of the gut, brain and lung                        |
| 15:00-15:20| Alice Stanton*              | Massachusetts Institute of Technology, USA       | 240. Engineering Patient-Specific Vascularized Mini-Brain-Chips of Immuno-Glial-Neurovascular Units for Accelerating Drug Development |
| 15:20-15:40| Gonzalo de Aranda Izuquiza* | Universidad Carlos III de Madrid, Spain          | 114. Intelligent magneto-mechanical system to simulate physio- and pathologically relevant mechanical dynamics in vitro |
| 15:40-16:00| Christina Tringides*        | ETH Zurich, Switzerland                          | 181. Tunable hydrogel scaffolds to support 3D neuronal networks                |
| 16:00-16:20| Viola Sgarminato*           | Politecnico di Torino, Italy                     | 615. Tomographic volumetric bioprinting of 3D pancreatic cancer models        |

**Track 2.6 — MPS for Skin, Cosmetics, Aging and Joint**  
**Moderators:** Seiichi Ishida, National Institute of Health Sciences, Japan; Arjen Gebraad, Tampere Univ.  
**Location:** Salon 7

| Time       | Speaker                      | Organisation                       | Title of Talk                                                                 |
|------------|------------------------------|------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00| Nicky Hewitt                 | SWS, Germany                       | 740. Cosmetics Europe LRSS project: Use of skin-based multi-organ MPS models in the safety assessment of cosmetics ingredients |
| 15:00-15:20| Dmitriy Kepkiy              | NCATS/NIH, USA                     | 576. Tissue Chips in Space: Modeling Human Disease States in Microgravity       |
| 15:20-15:40| Raquel Ajalik*              | University of Rochester, USA       | 238. Human Tendon-on-Chip (hToC) platform for modeling fibrotic disease and screening therapeutic candidates |
| 15:40-16:00| Arianna Kieser              | Curi Bio, USA                      | 569. Mantarray 3D Engineered Muscle Tissue Platform Demonstrates Clinically-Relevant Disease Stratification of an In Vitro Duchenne Muscular Dystrophy Model |
| 16:00-16:20| Hang Lin                     | University of Pittsburgh, USA      | 14. Using microphysiological system to develop treatments for joint inflammation and associated cartilage loss - a pilot study |

**Track 3.6 — MPS in cancer research: next generation tumor models**  
**Moderators:** Silvia Scaglione, React4Life; Elena Kromidas, Eberhard Karls University Tübingen, Germany  
**Location:** Hall Berlin A

| Time       | Speaker                   | Organisation                   | Title of Talk                                                                 |
|------------|---------------------------|-------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00| David Beebe               | University of Wisconsin-Madison, USA | 754. Can Engineered Organotypic Models Predict Patient-Specific Response? |
| 15:00-15:20| Tengku Ibrahim Maulana*   | Eberhard Karls University, Germany | 483. Breast tumor-on-chip applicable for efficacy and safety assessment of CAR-T cell therapy |
| 15:20-15:40| Joanna Burdette           | University of Illinois Chicago, USA | 42. Modeling the role of the fallopian tube in the prevention and spread of high grade serous cancer using a multi-organ platform. |
Thursday

Symposia (Continued) 14:30-16:30

**Track 3.6 — MPS in cancer research: next generation tumor models (cont.)**

*Moderators: Silvia Scaglione, React4Life; Elena Kromidas, Eberhard Karls University Tübingen*

*Location: Hall Berlin A*

| Time          | Speaker                          | Organisation                        | Title of Talk                                                                 |
|---------------|----------------------------------|-------------------------------------|-------------------------------------------------------------------------------|
| 15:40-16:00   | Franziska Linke                  | University Medical Center, Netherlands | 208. Building a multi-tissue microfluidics system of metastatic potential (biomep) |
| 16:00-16:20   | Katerina Apostolopoulou*         | Roche pRED, RICZ, Switzerland        | 250. Human 3D in vitro models for the assessment of Cancer Immunotherapy Mode of Action |

**Track 4.4 — MPS for Drug Efficacy Testing**

*Moderator: Andries D. van der Meer, University of Twente; Aakash Patel, University of Central Florida*

*Location: Salon 21*

| Time          | Speaker                          | Organisation                        | Title of Talk                                                                 |
|---------------|----------------------------------|-------------------------------------|-------------------------------------------------------------------------------|
| 14:30-15:00   | Zheng Maomao Tan*                | The University of British Columbia, Canada | 122. Human atopic diseases on a chip: developing an ex vivo drug discovery platform |
| 15:00-15:20   | Oscar Arrestam*                  | Linköping University, Sweden        | 497. Complementing MPS with mechanistic computer models help overcome limitations: translating the drug exenatide from MPS to humans |
| 15:20-15:40   | Konstantinos Gatzis               | Ksilink, France                     | 79. Integration of deep learning assisted high-content screening and deep tissue-phenotyping to identify cardioprotective compounds in dilated cardiomyopathy |
| 15:40-16:00   | Christopher Carman               | Emulate, Inc., USA                  | 704. Evaluation of the gut-protective aerobic Lactobacillus rhamnosus GG bacteria on the Colon Intestine-Chip |
| 16:00-16:20   | Shifaa Abdin*                    | Hannover Medical School, Germany    | 216. Tailoring human macrophages from iPSC for next generation MPS-based screening of immunotherapies |

**Poster Session: Drinks and Snacks Served** 16:30-18:00

**Round Table** 18:00-19:00

*Moderators: Magdalena Kasendra, Cincinnati Children’s Hospital Medical Center; Annie Moisan, Wellcome Leap*

*Panelists: Solen Pichereau, Debiopharm; Janine Scholefield, Council for Scientific and Industrial Research, South Africa; James McKim, IONTOX by LifeNet Health LifeSciences; Kimberly Homan, Genentech*

*Location: Hall Berlin A-E*

on “Diversity and inclusion in preclinical studies”

Join our expert panelists as they discuss:

- How does the lack of diversity in preclinical studies impact drug development and clinical trials, and what can be done to mitigate these effects?
- What are some of the biggest challenges in achieving diversity and inclusion in preclinical studies, and what strategies could be effective in overcoming these challenges?
- What’s the role of regulatory agencies in promoting diversity and inclusion in preclinical studies, and what policies or initiatives could they implement to drive progress in this area?
- How can individual scientists/other professionals help increase diversity and inclusion in preclinical studies?
### Friday

#### Symposia 8:30-10:30

**Track 1.7 — Cell sources for multi-organ systems**

**Moderator(s): Elizabeth Baker, Physicians Committee for Responsible Medicine; Eleonora De Vitis, CNR-Nanotec**

**Location: Salon 7**

| Time       | Speaker                  | Organisation                                | Title of Talk                                                                 |
|------------|--------------------------|---------------------------------------------|-------------------------------------------------------------------------------|
| 8:30-9:00  | Jeremy Sugarman          | Johns Hopkins University, USA               | 748. Ethical Considerations in Obtaining Human Cells for Multi-Organ Microphysiological Systems Research |
| 9:00-9:20  | Lena Sophie Koch*        | University of Twente, Netherlands           | 442. An iPSC-derived microbiome-gut-brain axis on a microfluidic chip to model systemic effects of neurodegenerative diseases |
| 9:20-9:40  | Bas van Balkom           | UMC Utrecht, Netherlands                    | 590. A human kidney and liver organoid-based multi-organ-on-a-chip model to study the therapeutic effects and biodistribution of mesenchymal stromal cell-derived extracellular vesicles. |
| 9:40-10:00 | Susanna Narkilahti       | Tampere University, Finland                 | 457. Towards physiologically realistic/relevant body-on-chip models; introducing organ-specific innervation |
| 10:00-10:20| Ishan Goswami*           | University of California Berkeley, USA      | 711. Heuristic method for the discovery of a common media to support integration of a hiPSC-derived type 2 diabetes mellitus microphysiological system |

**Track 2.7 — MPS from development to commercialization**

**Moderators: Magdalena Kasendra, Cincinnati Children’s Hospital Medical Center; Shiny Rajan, Javelin Biotech**

**Location: Hall Berlin D-E**

| Time       | Speaker                  | Organisation                                | Title of Talk                                                                 |
|------------|--------------------------|---------------------------------------------|-------------------------------------------------------------------------------|
| 8:30-9:00  | Murat Cirit              | Javelin Biotech, USA                        | 736. Development and Commercialization of Predictive Drug Discovery Platforms Merging Human Tissue Chips and Translational Software |
| 9:00-9:20  | Seiichi Ishida           | National Institute of Health Sciences, Japan | 129. Development of evaluation methods of “points to consider” for industrial implementation of MPS |
| 9:20-9:40  | Joris Kaal*              | Univ. Grenoble Alpes, CEA, Leti, France     | 394. Rapid prototyping ISO compatible organ-on-chip devices |
| 9:40-10:00 | Ben Cappiello            | AxoSim, USA                                 | 210. The 3Rs Collaborative’s MPS Initiative: Collaborating to accelerate adoption of MPS in scientific research |
| 10:00-10:20| Maria Emmerich*          | Technical University of Munich, Germany     | 426. Design Automation and Simulation for Microphysiological Systems |

**Track 3.7 — MPS in Precision Medicine**

**Moderators: Dan Tagle, NIH/NCATS; Estrela Neto, i3S - Instituto de Investigação e Inovação em Saúde da Universidade do Porto**

**Location: Hall Berlin A**

| Time       | Speaker                  | Organisation                                | Title of Talk                                                                 |
|------------|--------------------------|---------------------------------------------|-------------------------------------------------------------------------------|
| 8:30-9:00  | Passley Hargrove-Grimes | NIH/NCATS, USA                              | 17. The Use of Tissue Chips for Precision Medicine Studies |
Sympoiria (Continued)

Track 3.7 — MPS in Precision Medicine (cont.)
Moderator(s): Dan Tagle, NIH/NCATS; Estrela Neto, i3S - Instituto de Investigação e Inovação em Saúde da Universidade do Porto

Location: Hall Berlin A

| Time       | Speaker                | Organisation                       | Title of Talk                                                                                   |
|------------|------------------------|------------------------------------|------------------------------------------------------------------------------------------------|
| 9:00-9:20  | Camilla Ceroni*        | Doppl SA, Switzerland              | 71. Standardized patient-derived rectal organoids predict clinical efficacy of CFTR modulator in a patient with the rare 1677delTA/R334W genotype |
| 9:20-9:40  | Sheena Kerr            | University of Wisconsin-Madison, USA | 209. Patient-specific head and neck tumor microenvironment models for stratification of treatment efficacy. |
| 9:40-10:00 | Thomas Richardson      | Ourotech Ltd t/a Pear Bio Ltd, United Kingdom | 309. Pan-Cancer microfluidic platform for functional precision medicine aided by computer vision |
| 10:00-10:20 | Arturs Abols           | Latvian Biomedical Research and Study Center, Latvia | 550. PDMS-free gut on a chip as a tool for patient derived anaerobic microbiota research. |

Track 4.7 — (Bio)Material Advances in MPS 2
Moderator(s): Yashoda Chandorkar, Swiss Federal Laboratories for Materials Science and Technology
Location: Salon 21

| Time       | Speaker            | Organisation                              | Title of Talk                                                                                     |
|------------|--------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------|
| 8:30-9:00  | Noam Demri*        | Institut Curie, France                    | 52. Remote Magnetic Alignment of Spheroids in 3D Matrix for Muscle-on-chip                           |
| 9:00-9:20  | Marta Garcia Valverde* | Utrecht University, Netherlands          | 47. Engineering a Biomimetic Glomerular Filtration Barrier Chip for Diabetic Nephropathy Modeling  |
| 9:20-9:40  | Suji Choi*         | Harvard School of Engineering and Applied Sciences, USA | 119. Printing 3D Anisotropic Heart Chamber Scaffolds with Fiber Infused Gel Inks                |
| 9:40-10:00 | Hanna Vuorenpää    | Tampere University, Finland               | 314. Vascularization and cellular rearrangement in bioactivated gellan gum hydrogels              |
| 10:00-10:20| Federico Vozzi     | Institute of Clinical Physiology IFC-CNR, Italy | 587. BIOENGINEERED 3D CARDIAC TISSUE MODEL FOR CARDIOTOXICITY STUDIES                              |

Coffee Break

Symposium

Track 1.8 — MPS for Organ Interactions
Moderator(s): Hitoshi Naraoka, Astellas Pharma; Alessandra Grillo, University College London
Location: Hall Berlin A

| Time       | Speaker          | Organisation                                       | Title of Talk                                                                                   |
|------------|------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 11:00-11:30| Stefan Krauss    | University of Oslo, Norway                         | 759. Reconstructing metabolic cross talk on chip                                               |
| 11:30-11:50| Martin Trapecar | The Johns Hopkins Center for Microphysiological Systems, USA | 474. Reconstructing same-donor multiorgan physiology for studies of systemic immunity          |
| 11:50-12:10| Madalena Cipriano* | Eberhard Karls University Tübingen, Germany    | 621. Quantification of insulin response in a modular multi-organ chip approach: white adipose tissue-liver axis |
### Symposia (Continued)

**Track 1.8 — MPS for Organ Interactions (cont.)**

**Moderator:** Hitoshi Naraoka, Astellas Pharma; Alessandra Grillo, University College London  
**Location:** Hall Berlin A

| Time       | Speaker             | Organisation                                      | Title of Talk                                                                 |
|------------|---------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:00-11:30| Isabel Koh*         | RIKEN, Japan                                      | 233. Replicating Organ-Organ (BBB-Brain) Interaction with Modular Tissue-in-a-CUBE Chip |
| 11:30-11:50| Thi Phuong Tao*     | TissUse GmbH, Germany                             | 568. Development of a microphysiological skin-liver-thyroid Chip3 and its application to evaluate the effects on thyroid hormones of topically applied cosmetic ingredients under consumer-relevant conditions |

**Track 2.8 — Reproducibility of MPS**

**Moderator(s):** Monica Piergiovanni, Joint Research Centre, Europe; Deephsika Arasu, Poietis  
**Location:** Hall Berlin D-E

| Time       | Speaker             | Organisation                                      | Title of Talk                                                                 |
|------------|---------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:00-11:30| Sonja Beken         | 3Rs Working Party (3RsWP), European Medicines Agency (EMA) | 753. Advancing acceptance of MPS for regulatory testing of medicinal products in the EU |
| 11:30-11:50| David Pamies*       | University of Lausanne, Switzerland               | 172. Establishing a Quality Management Plan for Microphysiological Systems (MPS): quality parameters and monitoring reproducibility. |
| 11:50-12:10| Pu Chen             | Wuhan University TaiKang Medical School (School of Basic Medical Sciences), China | 77. Reproducible production of bioengineered homogenous hPSC-derived organoids on a microplate |
| 12:10-12:30| Darwin Reyes        | National Institute of Standards and Technology, USA | 413. Developing Guidelines for Microfluidic-Based Systems: a Window into the Future Standardization of Microphysiological Systems |
| 12:30-12:50| Molly McCloskey*    | University of Rochester, USA                      | 447. A reproducible human blood-brain barrier model (µSiM-hBBB) for in vitro studies cognitive disorders |

**Track 3.8 — MPS to Address Infections**

**Moderator(s):** Abhinav Sharma, AbbVie; Beatrice Brugger, Medical University of Graz, Austria  
**Location:** Salon 21

| Time       | Speaker             | Organisation                                      | Title of Talk                                                                 |
|------------|---------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:00-11:30| Alexander Mosig     | Jena University Hospital, Germany                 | 746. "Dissecting mechanisms of host-pathogen interaction in organ-on-chip"    |
| 11:30-11:50| Rebeccah Luu*       | Draper, USA                                       | 552. Uncovering SARS-CoV-2 Pathogenic Insights and Screening Therapeutics in a Reproducible and High-Throughput BSL3 Human Airway-on-Chip Platform |
| 11:50-12:10| Raquel Alonso-Roman*| Hans-Knoell-Institute, Germany                    | 106. Studying the therapeutic potential of live microbes and antifungals in vitro: an intestine-on-chip approach |
| 12:10-12:30| Mirjam Kiener*      | University of Bern, Switzerland                   | 251. Targeting respiratory viruses: A novel alveolus-on-chip infection model for pre-clinical applications |
| 12:30-12:50| Coraline Chéneau*   | CR2TI, INSERM, France                             | 401. A microphysiological human renal tubulointerstitium model as a testing platform for drug-inducing nephrotoxicity and dynamics of infectiosity |
Symposia (Continued)

Track 4.8 — MPS for Pathology
Moderator(s): Nadine Stokar, Roche; Julia Kühnlenz, Bayer SAS
Location: Salon 7

| Time          | Speaker            | Organisation                                      | Title of Talk                                                                 |
|---------------|--------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
| 11:00-11:30   | Danilo Tagle       | NIH/NCATS, USA                                    | 480. Collaborative Teams of Biologists, Engineers, and Pathologists Driving Complex in vitro Model Engineering and Characterization |
| 11:30-11:50   | Luisa Bell*        | Roche, Switzerland                                | 680. Tissue technology enables further morphologic readouts for efficacy/toxicity in early drug screening using blood-brain barrier organoids |
| 11:50-12:10   | Randolph Ashton    | University of Wisconsin-Madison, USA              | 567. Scalable application of RosetteArrayTM technology for modeling the complex etiology of human Neural Tube Defects and screening for risk factors |
| 12:10-12:30   | Tomomi Kiyota      | Genentech Inc., USA                               | 713. Application of Renal Proximal Tubule-on-a-Chip: Challenge and Benefit for Supporting Drug Development in a Pharmaceutical Industry |
| 12:30-12:50   | Samy Aliyazdi*     | Helmholtz-Institute for Pharmaceutical Research Saarland, Germany | 289. 3D-Printed Human Hair Follicle Model to Investigate Topically Administered Nano-Antibiotics |

Coffee Break 13:00-13:30

Keynote 13:30-14:30
Keynote Speaker: Uwe Marx, TissUse
Location: Hall Berlin A-E
on “Integrating human organoids into organismoids – how to achieve human body homeostasis in vitro?”

Closing Ceremony 14:30-15:30
Location: Hall Berlin A-E
Closing ceremony, awards ceremony and iMPSS member meeting.
SOCIAL EVENTS

Sunday, June 25

**Early Arrival — Get Together**  16:00
boat cruise — a historic tour of Berlin along the River Spree.

**Early Arrival — Beer Garden**  18:00
summer weather, freshly tapped beer, and warm food in Café am Neuen See!

Monday, June 26

**Morning Run**  7:00
Led by Reyk Horland, Tissuse; meet at the hotel lobby.

**Welcome Reception**  19:00-21:00
Free and open to all attendees! No registration — we look forward to welcoming you here!

Tuesday, June 27

**Morning Run**  7:45
Led by Kathrin Herrmann, Johns Hopkins University; meet at the hotel lobby.

Tuesday, June 27-Thursday, June 29

**Matchmaking**  20:00-22:00
Organized by the Enterprise Europe Network: a great way for attendees to connect! Free and part of the official conference program; for attendees of the 2023 MPS World Summit only.

Wednesday, June 28 and Friday, June 30

**Tai Chi Program**  7:00-8:00
in Salon I
Ming-I Huang, Aracari Biosciences, will lead the Tai Chi program. She has volunteered for several summers at New York City’s Bryant Park. She will start with a set of chi kung exercises that coordinate movement with deep breathing techniques to improve your ability to relax and manage stress, among other benefits. Developed by Grandmaster C. K. Chu, these are good for all levels and ages. The program will end with a full set of Yang style Tai Chi short form.

**Macro Party**  Wednesday, June 28

**DJ Fabian Kross**  20:00-22:00
melodic set of organic and minimal house music during sunset at the Beach. Pool open until midnight! Bring a towel and swim-wear!

**DJ Daniel Neuland**  22:00-01:00
authentic groovy bass-lines and bouncy beats inside the Arena Club

**DJ Jörg Stuhldreier**  22:00-01:00
relaxing soul music and drinks at the Glauhaus

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Course Contents
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/ Training in Dynamic Chip Operation
/ Training in Readouts & Downstream Analysis

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• IFER and NAVS collaborate within the scientific community and with regulatory agencies to identify areas of research and testing that would benefit from the development and use of MPS devices.

• NAVS is introducing high school students to MPS devices and other non-animal models as part of its new curriculum, “Animal Use in Science: Exploring the 3Rs.”

For more information, visit IFER.org/MPS-Summit

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| 2  | AxoSim Inc.                  | 17 | IVTech srl                    | 31 | Fluicell                     | 45 | Essent Biologics             | 59 | Molecular Devices            |
| 3  | BEOnChip                     | 18 | Ossiform                     | 32 | Dynamic42                    | 46 | Promega GmbH                 | 60 | Netri                        |
| 4  | Celvivo                      | 19 | Xellar Biosystems            | 33 | PyroScience GmbH             | 47 | Altertox                     | 61 | Merck KGaA                   |
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| 6  | Bio-Technne                  | 21 | faCellitate GmbH             | 35 | AlveolIX                      | 49 | Elvisys                      | 63 | Bayer AG                     |
| 7  | CN Bio Innovations           | 22 | Jobst Technologies GmbH      | 36 | AMSBIO                       | 50 | VitroScreen Srl              | 64 | Epithelix                    |
| 8  | Hesperos                     | 23 | Nikon BioImaging Lab         | 37 | InSCREENeX                   | 51 | 51 Synvivo                   | 65 | 3Brain AG                    |
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| 12 | Newcells Biotech             | 27 | STEMCELL Technologies        | 41 | Kirkstall Ltd                | 55 | Yokogawa Deutschland GmbH    | 69 | Neurosetta                   |
| 13 | Ushio Inc.                   | 28 | BiomimX                      | 42 | MIMETAS                      | 56 | Metatissue                   | 70 | InnoVitro GmbH               |
| 14 | Obatala Sciences             | 29 | Cherry Biotech               | 43 | Systemic Bio, a 3D Systems Company | 57 | CRAFT                        | 71 | ibidi GmbH                   |
| 15 | Microfluidic ChipShop        | 30 | 4Dcell                       | 44 | Curi Bio                     | 58 | inSphero                     | 59 | Molecular Devices            |
| 16 | SUN bioscience SA            | 31 | Fluicell                     | 45 | Essent Biologics             | 59 | Netri                        |
| 17 | IVTech srl                    | 32 | Dynamic42                    | 46 | Promega GmbH                 | 60 | Merck KGaA                   |
| 18 | Ossiform                     | 33 | PyroScience GmbH             | 47 | Altertox                     | 61 | BIOND Solutions BV (Bi/ond)  |
| 19 | Xellar Biosystems            | 34 | Altis Biosystems             | 48 | DNTOX GmbH                   | 62 | Bayer AG                     |
| 20 | Flugent                      | 35 | AlveolIX                      | 49 | Elvisys                      | 63 | Epithelix                    |
| 21 | faCellitate GmbH             | 36 | AMSBIO                       | 50 | VitroScreen Srl              | 64 | 3Brain AG                    |
| 22 | Jobst Technologies GmbH      | 37 | InSCREENeX                   | 51 | 51 Synvivo                   | 65 | FemtoPrint                   |
| 23 | Nikon BioImaging Lab         | 38 | Avatarget Co.                | 52 | BioSystics                   | 66 | Nanobiose                    |
| 24 | micronit                     | 39 | LifeNet Health LifeSciences  | 53 | World Precision Instruments  | 67 | Readily3d                    |
| 25 | React4Life                   | 40 | CSEM                         | 54 | VITROCELL Systems GmbH       | 68 | Neurosetta                   |
| 26 | Mepsgen, Co.                 | 41 | Kirkstall Ltd                | 55 | Yokogawa Deutschland GmbH    | 69 | InnoVitro GmbH               |
| 27 | STEMCELL Technologies        | 42 | MIMETAS                      | 56 | Metatissue                   | 70 | CRAFT                        |
| 28 | BiomimX                      | 43 | Systemic Bio, a 3D Systems Company | 57 | 3Brain AG                    | 71 | ibidi GmbH                   |
MAPS
Exhibition Hall (inside)
| Board # | Abstract ID | Board # | Abstract ID |
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| 3      | 7          | 97     | 128        |
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| 7      | 15         | 101    | 133        |
| 9      | 19         | 103    | 135        |
| 11     | 21         | 105    | 140        |
| 13     | 23         | 107    | 143        |
| 15     | 25         | 109    | 145        |
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| 19     | 29         | 113    | 151        |
| 21     | 31         | 115    | 153        |
| 23     | 33         | 117    | 155        |
| 25     | 35         | 119    | 158        |
| 27     | 37         | 121    | 160        |
| 29     | 40         | 123    | 162        |
| 31     | 44         | 125    | 164        |
| 33     | 48         | 127    | 166        |
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| 37     | 53         | 131    | 171        |
| 39     | 55         | 133    | 174        |
| 41     | 57         | 135    | 177        |
| 43     | 59         | 137    | 179        |
| 45     | 62         | 139    | 182        |
| 47     | 64         | 141    | 184        |
| 49     | 66         | 143    | 186        |
| 51     | 68         | 145    | 189        |
| 53     | 70         | 147    | 191        |
| 55     | 74         | 149    | 193        |
| 57     | 78         | 151    | 195        |
| 59     | 81         | 153    | 197        |
| 61     | 84         | 155    | 200        |
| 63     | 87         | 157    | 202        |
| 65     | 89         | 159    | 204        |
| 67     | 91         | 161    | 206        |
| 69     | 93         | 163    | 211        |
| 71     | 95         | 165    | 213        |
| 73     | 97         | 167    | 217        |
| 75     | 99         | 169    | 219        |
| 77     | 101        | 171    | 221        |
| 79     | 103        | 173    | 223        |
| 81     | 105        | 175    | 225        |
| 83     | 108        | 177    | 229        |
| 85     | 110        | 179    | 231        |
| 87     | 113        | 181    | 235        |
| 89     | 118        | 183    | 239        |
| 91     | 121        | 185    | 242        |
| 93     | 124        | 187    | 244        |
| 1      | 246        | 95     | 364        |
| 3      | 249        | 97     | 366        |
| 5      | 253        | 99     | 368        |
| 7      | 255        | 101    | 371        |
| 9      | 257        | 103    | 374        |
| 11     | 259        | 105    | 376        |
| 13     | 261        | 107    | 378        |
| 15     | 263        | 109    | 381        |
| 17     | 265        | 111    | 383        |
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| 23     | 271        | 117    | 390        |
| 25     | 273        | 119    | 392        |
| 27     | 275        | 121    | 395        |
| 29     | 277        | 123    | 398        |
| 31     | 279        | 125    | 400        |
| 33     | 282        | 127    | 405        |
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| 39     | 290        | 133    | 414        |
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| 43     | 295        | 137    | 419        |
| 45     | 297        | 139    | 421        |
| 47     | 300        | 141    | 424        |
| 49     | 303        | 143    | 427        |
| 51     | 305        | 145    | 429        |
| 53     | 307        | 147    | 431        |
| 55     | 310        | 149    | 434        |
| 57     | 312        | 151    | 436        |
| 59     | 318        | 153    | 438        |
| 61     | 321        | 155    | 440        |
| 63     | 323        | 157    | 445        |
| 65     | 328        | 159    | 448        |
| 67     | 333        | 161    | 451        |
| 69     | 335        | 163    | 453        |
| 71     | 337        | 165    | 455        |
| 73     | 340        | 167    | 459        |
| 75     | 342        | 169    | 461        |
| 77     | 344        | 171    | 463        |
| 79     | 348        | 173    | 465        |
| 81     | 350        | 175    | 467        |
| 83     | 352        | 177    | 470        |
| 85     | 354        | 179    | 473        |
| 87     | 356        | 181    | 477        |
| 89     | 358        | 183    | 481        |
| 91     | 360        | 185    | 485        |
| 93     | 362        | 187    | 487        |

**June 27th 2023**

**June 28th 2023**

**June 29th 2023**

**Time:** 10:00-11:30
| Board # | June 27th 2023 | Board # | June 28th 2023 | Board # | June 29th 2023 |
|--------|----------------|--------|----------------|--------|----------------|
| 2      | 5              | 2      | 247            | 2      | 490            |
| 4      | 8              | 4      | 252            | 4      | 493            |
| 6      | 12             | 6      | 254            | 6      | 496            |
| 8      | 16             | 8      | 256            | 8      | 499            |
| 10     | 20             | 10     | 258            | 10     | 501            |
| 12     | 22             | 12     | 260            | 12     | 504            |
| 14     | 24             | 14     | 262            | 14     | 506            |
| 16     | 26             | 16     | 264            | 16     | 508            |
| 18     | 28             | 18     | 266            | 18     | 510            |
| 20     | 30             | 20     | 268            | 20     | 512            |
| 22     | 32             | 22     | 270            | 22     | 515            |
| 24     | 34             | 24     | 272            | 24     | 517            |
| 26     | 36             | 26     | 274            | 26     | 520            |
| 28     | 39             | 28     | 276            | 28     | 522            |
| 30     | 41             | 30     | 278            | 30     | 525            |
| 32     | 45             | 32     | 280            | 32     | 527            |
| 34     | 49             | 34     | 283            | 34     | 531            |
| 36     | 51             | 36     | 285            | 36     | 533            |
| 38     | 54             | 38     | 287            | 38     | 535            |
| 40     | 56             | 40     | 291            | 40     | 537            |
| 42     | 58             | 42     | 294            | 42     | 540            |
| 44     | 60             | 44     | 296            | 44     | 542            |
| 46     | 63             | 46     | 297            | 46     | 544            |
| 48     | 65             | 48     | 302            | 48     | 547            |
| 50     | 67             | 50     | 304            | 50     | 549            |
| 52     | 69             | 52     | 306            | 52     | 554            |
| 54     | 72             | 54     | 308            | 54     | 557            |
| 56     | 75             | 56     | 311            | 56     | 559            |
| 58     | 80             | 58     | 315            | 58     | 562            |
| 60     | 83             | 60     | 320            | 60     | 564            |
| 62     | 86             | 62     | 322            | 62     | 566            |
| 64     | 88             | 64     | 326            | 64     | 571            |
| 66     | 90             | 66     | 329            | 66     | 577            |
| 68     | 92             | 68     | 334            | 68     | 579            |
| 70     | 94             | 70     | 336            | 70     | 585            |
| 72     | 96             | 72     | 338            | 72     | 589            |
| 74     | 98             | 74     | 341            | 74     | 594            |
| 76     | 100            | 76     | 343            | 76     | 598            |
| 78     | 102            | 78     | 346            | 78     | 601            |
| 80     | 104            | 80     | 349            | 80     | 603            |
| 82     | 107            | 82     | 351            | 82     | 604            |
| 84     | 109            | 84     | 353            | 84     | 605            |
| 86     | 112            | 86     | 355            | 86     | 607            |
| 88     | 116            | 88     | 357            | 88     | 609            |
| 90     | 120            | 90     | 359            | 90     | 611            |
| 92     | 123            | 92     | 361            | 92     | 613            |
| 94     | 125            | 94     | 363            |        | 616            |
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