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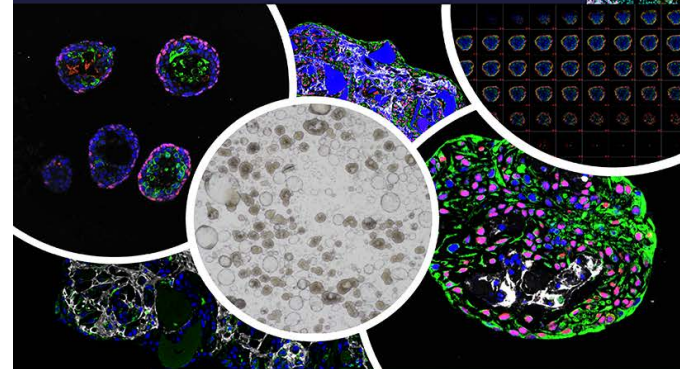
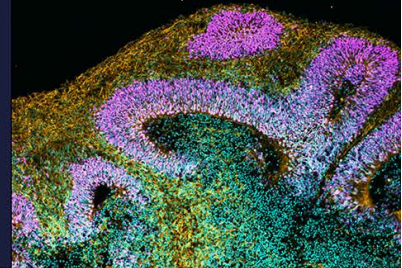
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Joint SCRM Annual Meeting & Organoid and Organ-on-Chip Swiss Society Meeting

SCRM Bern Stem Cell Research and Regenerative Medicine Platform
A collaboration between the University of Bern and the Inselspital, University Hospital Bern

6 November 2026
Auditorium Ettore Rossi
Inselspital Bern
Freiburgstrasse 19
3010 Bern



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Registration & Program:

https://www.scrm.unibe.ch/events/annual_meetings/annual_meeting_2026/index_eng.html

Program Joint SCRM Annual Meeting & Organoid and Organ-on-Chip Swiss Society Meeting

- 08:30 – 09:00 **Registration & Welcome coffee**
- 09:00 – 09:15 **Opening Remarks – SCRM & Organoid and Organ-on-Chip Swiss Society**
- 09:15 – 10:30 **Advances in Stem Cells and Organoids:**
Marlen Knobloch (University of Lausanne)
Metabolic Regulation of Neural Stem Cell
Matthias Lütolf (EPFL / Institute of Human Biology, Roche)
Engineering Next-Generation Organoids for Early Drug Development
- 10:30 – 11:00 **Coffee Break & Poster walk**
- 11:00 – 12:00 **Short talks (selected from submitted abstracts)**
Industry/technology spotlight
- 12:00 – 13:30 **Lunch Break & Poster walk**
- 13:30 – 14:45 **Legal and Ethical Aspects:**
Inesa Fausch (University of Basel)
The Regulatory Future of Organoids: From Research to Commercialization
Pietro Gervasoni (swissethics)
Ethical challenges in human neural organoid research: Navigating innovation, uncertainty, and responsible governance
Jenny Sandström (3RCC)
Building a National Ecosystem for Advanced Cell Technologies: Launching the Swiss Cell Technologies Facilities Network
- 14:45 – 15:15 **Coffee Break & Poster walk**
- 15:15 – 16:30 **Microphysiological Systems & Translational Applications:**
David Pamies (University of Lausanne)
Screening Compounds with iPSC-Derived Brain Organotypic Cultures: A Platform for Human Neurotoxicology
Marianna Rapsomaniki (CHUV / University of Lausanne)
Spatial Organoids: Building predictive models for precision oncology across scales, modalities and perturbations
Matteo Moretti (Università della Svizzera Italiana / EOC)
Exploring complexity in 3D human in vitro models: Biofabricated Platforms for Disease Modeling and Therapeutic Screening
- 16:30 – 17:30 **Short talks (selected from submitted abstracts)**
Industry/technology spotlight
- 17:30 – 17:45 **Award Ceremony & Closing Remarks**
- 17:45 – 19:00 **Apéro / Networking Reception**

Short Info about the speakers



Prof. Dr. Marlen Knobloch has been trained as a neurobiologist, obtaining her PhD with Prof. Nitsch at the University of Zurich, Switzerland, where she developed a novel mouse model for Alzheimer's disease and contributed to a new immunization approach against AD.

Her postdoctoral work with Prof. Jessberger at ETH/University of Zürich focused on the metabolic requirements of adult neural stem cells. Her work has

uncovered an important mechanism how lipid metabolism controls neural stem cell activity.

In 2017, Marlen Knobloch obtained an assistant professorship at the University of Lausanne, Switzerland, and has been promoted to associate professor in 2023. She and her team are studying how metabolism regulates neural stem cell behaviour, from development to adulthood, with a specific focus on lipid metabolism and the lipid storing organelles called lipid droplets.

Abstract: Cellular metabolism has emerged as a key player in the regulation of stem cells. This is also true for neural stem/progenitor cells (NSPCs), which form the brain during development, and persist in certain adult brain regions, generating new neurons throughout adulthood. Several recent studies have shown that cellular metabolism directly controls NSPC behaviour and influences their quiescence versus activation state. In this talk, I will present the most recent findings of my laboratory to better understand the metabolic requirements of NSPCs and how metabolic alterations affect their behaviour, with a specific focus on lipid metabolism.



Prof. Dr. Matthias Lütolf is the Founding Director at Roche's Institute of Human Biology (IHB), leading the Translational Bioengineering Department to pioneer advanced organoid platforms for accelerated drug development. A leader in stem cell bioengineering, he is also a Professor at EPFL's Institute of Bioengineering, where he launched his independent lab in 2007 and served as Institute Director from 2014 to 2018. His academic foundation includes a PhD in biomedical

engineering from ETH Zurich (after studying materials engineering) and postdoctoral research at Stanford University. Lütolf's translational research - frequently published in top journals like Nature - has directly spurred new commercial technologies and biotech ventures in personalized medicine.

Abstract: Organoids have emerged as powerful models for human biology. By mimicking key features of native tissues and organs, they offer unprecedented opportunities to investigate disease mechanisms, test drug

responses, and accelerate therapeutic development. However, most contemporary organoid systems form through stochastic, poorly defined self-organization processes: stem and progenitor cells spontaneously assemble in 3D hydrogels or suspension cultures, yielding structures with significant variability in shape, size, and function.

This lack of reproducibility stems from the absence of essential extrinsic patterning cues, such as morphogen gradients and physical boundaries. These inherent inconsistencies, alongside other mismatches with native organs, limit the capacity of organoids to reliably predict patient response in clinical research and drug discovery.

In this presentation, I will discuss our strategies to engineer next-generation organoids by precisely manipulating their local microenvironment. By introducing defined biophysical and biochemical cues, we extrinsically direct cell self-organization toward native tissue architecture and functionality. Finally, I will highlight how these engineered models enable more physiologically relevant, reproducible disease platforms, particularly for modeling solid tumors.



Dr. Inesa Fausch holds a PhD from the University of Basel and is an attorney-at-law specializing in life sciences law. Throughout her career, she has worked at the intersection of law, science, and innovation, gaining experience across academia, industry, and public administration. She currently serves as a Senior Researcher, focusing on the legal and regulatory dimensions of organoid and related biotechnologies. Her work examines how emerging

biomedical innovations can be responsibly developed and governed within evolving legal, regulatory, and ethical frameworks.

Abstract: Recent advances in biomedical research have enabled the development of organoids. While organoids hold significant promise for research, personalized medicine, and commercial innovation, their emergence raises complex legal and ethical questions. Existing legal frameworks were not designed to accommodate such novel biological entities, creating uncertainty regarding their legal status, governance, commercialization, and the protection of donors' rights.

This presentation examines the regulation of organoids under Swiss law and identifies key legal challenges arising throughout their lifecycle, from the procurement of biological materials to the commercialization of organoid-based products. Particular attention is given to informed consent, the legal implications of using human biological materials in research and innovation, and the regulatory treatment of organoids as products derived from the human body.

The presentation proceeds in three parts. First, it analyses the legal distinctions and overlaps between human biological materials, products derived from such materials, and organoids, assessing how organoids are currently regulated in both research and commercial contexts under Swiss law. Second, it explores the legal and ethical issues associated with organoid commercialization, including questions of consent, ownership, benefit-sharing, and the permissibility of commercial activities involving products derived from donated biological materials. Third, it considers the future of organoid governance and evaluates whether existing legislation remains fit for purpose in light of ongoing scientific developments.

By identifying regulatory gaps and legal uncertainties, the presentation offers debate for the future regulation of organoids in Switzerland.



Dr. Pietro Gervasoni is managing director of swissethics since November 2015. Prior to that, he was general manager and director clinical operations at Quintiles (now IQVIA) and held various roles and responsibilities in clinical research in the pharmaceutical industry. Mr. Gervasoni has also worked for the ICRC as a delegate in the Middle East and Africa. He studied at the ETH Zurich and received his PhD in Biochemistry from the University of Zurich.

Abstract: Human neural organoids are transforming neuroscience research. They offer new ways to study brain development, neurological and psychiatric disorders, responses to medicines, and the potential of personalized treatments. They may also help reduce the use of animal models in research. As these applications become more advanced, however, they raise specific ethical, legal, and societal questions.

This presentation will explore the main ethical and legal issues arising from research on and with human brain organoids. Topics will include the procurement of human tissue and informed consent, questions of ownership and commercialization, and the ethical implications of transplanting human neural organoids into animals. The talk will also examine the development of increasingly complex neural assembloids and chimeric models.

Attention will be given to the ongoing debate about whether neural organoids could eventually develop capacities linked to sentience, consciousness, or other forms of morally relevant experience and potentially acquire a quasi moral status. While current evidence suggests that existing organoids do not (yet) possess such capacities, the possibility of future developments warrants ongoing discussion regarding appropriate measures for oversight, monitoring, and ethical safeguards. The presentation will argue that responsible innovation in this field requires governance frameworks that are flexible, proportionate, and

internationally coordinated. Encouraging dialogue among scientists, ethicists, regulators, patients, and the wider public is essential to ensuring that scientific advances proceed in a way that remain ethically responsible and maintain public trust.



Dr. Jenny Sandström is a molecular biologist by training and originates from Umeå (Sweden). She obtained her PhD at the Eberhard-Karls University of Tübingen, followed by postdoctoral research in transcriptional regulation and neurotoxicology at the University of Umeå and at the University of Lausanne. In 2015 she joined the Swiss Centre for Applied Human Toxicology working with regulatory toxicology research and research programme coordination and management. Since October 2020, she is leading the Swiss 3Rs Competence Centre.

Abstract: Advanced cell technologies—including organoids, stem cell platforms, organ-on-chip systems and other human-relevant models—are becoming increasingly important tools for biomedical research, drug development and the implementation of the 3Rs. Across Switzerland, substantial expertise has emerged within universities and research institutions, yet these capabilities have largely developed independently, with limited coordination and visibility.

This presentation introduces the newly established Swiss Cell Technologies Facilities Network (SCTFN), a national initiative that brings together cell technology platforms to strengthen collaboration, improve visibility and facilitate knowledge exchange. The network builds on a national mapping exercise and a workshop involving platform managers from across Switzerland, which identified both the strengths of the current landscape and common challenges related to sustainability, governance, standardisation, training and access.

The talk will present the rationale behind the network, highlight key findings from the mapping exercise, and discuss how coordinated infrastructures can accelerate the uptake of advanced human-relevant models. Particular emphasis will be placed on the role of shared expertise, complementary specialisation and collaborative approaches to validation and education in enabling broader scientific impact.

Finally, the presentation will briefly place this initiative within the wider international transition towards advanced non-animal methodologies, highlighting how coordinated research infrastructures can enable both scientific excellence and future policy developments while strengthening Switzerland's position in this rapidly evolving field.



Dr. David Pamies is head of the Stem Cell & Organoid Facility (SCOF) at the University of Lausanne. For more than a decade, his research has focused on developing in vitro models for toxicological assessment and drug screening, centered on iPSC-derived and 3D culture systems, work that began during his postdoctoral training at Johns Hopkins University and has continued through his current appointment at UNIL. He has also been a driving force behind

quality and reproducibility standards in cell-based science, leading the development of the Good Cell Culture Practice guidelines (GCCP/GCCP 2.0), contributing to the PRO-MaP initiative on reusable and open research protocols, and helping lay the groundwork for the emerging Good In Vitro Reporting Standards (GIVReSt). His facility, together with other members of CorEuStem, the European network of stem cell core facilities, was recently honored with the 2026 ISSCR Public Service Award.

Abstract: Despite decades of animal testing, over 90% of drug candidates fail during clinical development, with roughly a third of these failures linked to safety issues undetected preclinically, largely reflecting species differences in physiology and disease biology; animal models correctly predict human toxicity in only about 70% of cases. Our human iPSC-derived brain organotypic model, BrainSpheres, matures over eight weeks into a three-dimensional tissue comprising differentiated neurons, astrocytes, and oligodendrocytes that recapitulate neuronal-glia interactions rarely achieved in vitro. BrainSpheres display synaptogenesis, spontaneous electric field potentials, and up to 40% myelination, confirmed by immunohistochemistry, confocal 3D reconstruction, and electron microscopy, offering a human-relevant platform for neuron-glia and neurotoxicology studies. These platforms enable mechanistic assessment of developmental and adult neurotoxicity from environmental chemicals and pharmaceuticals, capturing endpoints such as synaptogenesis and electrical activity, and support efficacy and safety screening across neurodegeneration, epilepsy, and brain cancer models. Scaling these applications requires throughput. We present high-throughput confocal imaging pipelines enabling automated, quantitative analysis of organoid morphology, cell composition, and function across compound libraries, combined with standardized quality-control frameworks that bridge mechanistic organoid research and regulatory screening needs.



Prof. Dr. Marianna Rapsomaniki is a tenure-track Assistant Professor at the Biomedical Data Science Center of CHUV/UNIL since March 2024, leading the AI for Biomedicine research group. Her research focuses on developing AI and machine learning methods tailored to complex, multimodal biomedical datasets, with the goal of elucidating cancer mechanisms and tumor heterogeneity, from the intracellular to the patient level. She holds a Diploma in Computer Science and a Master's and PhD in Computational Biology from the University of Patras, Greece, while also being a visiting scholar at ETH Zurich. Prior to joining CHUV/UNIL, she was a Staff Research Scientist and Group Leader at IBM Research Zurich.

Abstract: Recent advances in single-cell and spatial omics, digital pathology, and large-scale perturbation technologies are transforming our ability to characterize cancer across molecular, cellular and tissue scales. Yet translating these heterogeneous data into predictive models that can explain disease mechanisms and anticipate therapeutic response remains a central challenge. In this talk, I will present our group's vision for building AI models that move beyond descriptive analysis towards virtual representations of cancer capable of integrating diverse data modalities, uncovering biologically meaningful mechanisms, and predicting responses to therapeutic interventions. I will discuss recent work on multimodal representation learning for integrating spatial omics and histopathology, explainable AI for identifying biological and spatial determinants of tumour behaviour, and generative and optimal transport-based models for simulating cellular responses to genetic, drug and immunotherapy perturbations. Together, these approaches aim to bridge biological organization from cells to tissues and patients, enabling a new generation of predictive models that support virtual experimentation, accelerate hypothesis generation, and ultimately advance precision oncology



Dr. Matteo Moretti directs the Regenerative Medicine Division at the Institute for Translational Research, Università della Svizzera Italiana-Ente Ospedaliero Cantonale, in Bellinzona, Switzerland. He is Adjunct Professor at the Biomedical Sciences Faculty, Università della Svizzera Italiana in Lugano and heads the Cell and Tissue Engineering Laboratory at Ospedale Galeazzi in Milan, Italy. He collaborates with the European Space Agency as facility

definition team member for both ISS and beyond LEO Facilities and director of the Bio-Orbit ESA Ground Based Facility in Switzerland. Previously, he was a post-doc at LangerLab at MIT, and his degrees (Politecnico di Milano, Trinity College Dublin) are in Bioengineering.

His main research interests are within advanced cell culture technologies for musculoskeletal tissues, particularly focusing on in vitro models systems, in pathological contexts as cancer and fibrosis, tissue vascularization and enabling technologies including biofabrication and microfluidics for both earth and space applications.

Abstract: The 3D organization of cells is increasingly considered a crucial feature for better mimicking cellular responses in vitro. In several tissues, this spatial organization can be linked to a hierarchical structure and in turn to tissue functionality (e.g. skeletal muscle). The generation of microphysiological systems (MPS), involving biomaterials replicating the ECM 3D architecture and biophysical cues to replicate the complex in vivo microenvironment, can represent a step towards the biofabrication of more physiologically relevant in vitro model systems. To this end, we will present the development of advanced MPS platforms for bone and muscle tissue through biofabrication and 3D culture systems. These platforms were leveraged to investigate pathological processes, specifically bone metastasis and muscle fibrosis. We found that clinically approved chemotherapeutics showed a decreased response in our bone metastasis model, more representative of clinical results in patients as compared to a simpler three-dimensional culture of cancer cells. Our findings indicate that increasing the physiological fidelity of in vitro models significantly enhances the accuracy of drug efficacy evaluations. Regarding the muscle model of fibrosis, we were able to generate contractile models including myoblasts and either healthy or Duchenne fibroblasts, evidencing a different matrix deposition and contractile strength and then achieving a functional measurement of pathological tissue responses to therapeutic interventions. Overall, these tailored biomimetic systems can represent a scalable yet high-fidelity approach for translating preclinical outcomes towards reliable tools for therapeutic decision-making. The availability of MPS can thus be critical for advancing drug screening and disease modelling, however their architectural complexity must be balanced with experimental throughput to suit specific applications.

Credits of Figures:

Figure 1. Human retina organoid, day 200 (opsin, red & rhodopsin, green). Courtesy of Jelena Murar, Enzmann Lab, Department for BioMedical Research, University of Bern.

Figure 2 Brain organoid micrograph courtesy of the Cell & Infection Biology Lab, University of Bern.

Figure 3. Human and murine prostate organoids. Courtesy of the Translational Organoid Resource (TOR) core, Department for BioMedical Research, University of Bern.