

## Program overview. LS<sup>2</sup> Annual Meeting 2025

University of Fribourg, PER 21-22, Bd de Pérolles 90, 1700 Fribourg, Switzerland

### Program overview

#### YOUNG SCIENTISTS' SATELLITE MEETING (YSS)

Tuesday, 11 February 2025 - Auditorium G140, PER21

**12:00 – 12:30**      **Registration - Young Scientists' Satellite & Welcome Coffee**

*(Registration will remain open during the entire event)*

*(Speakers and chairs should load their presentations)*

**12:30 – 12:35**      **Welcome Address**

**Jörn Dengjel** (Chair of LS<sup>2</sup> AM2025, University of Fribourg)

**Simon Sprecher** (Chair of LS<sup>2</sup> AM2025, LS<sup>2</sup> Vice-president, University of Fribourg)

**Mario P. Tschan** (LS<sup>2</sup> President, University of Bern)

**12:35 – 12:40**      **Introduction from YSSM Chairs**

**Jibira Yakubu** (University of Bern)

**Melvin Alappat** (University of Zurich)

**12:40 – 13:15**      **Keynote Lecture YSS**

**Giovanni D'Angelo** (EPFL)

"The Lipotype Hypothesis"

Single-cell genomics techniques have allowed for the deep profiling of individual cells in multicellular contexts. These new technologies have enabled the building of cell atlases where hundreds of different cell types are categorized according to their transcriptional and epigenetic states. These analyses have led to the depiction of detailed cell transcriptional landscapes that could be interpreted in terms of cell identity. Nonetheless, transcription represents only one axis in the establishment of cell phenotypes and functions and post-transcriptional events crucially concur to cell identity in ways that cannot be simply derived from transcriptional profiles. Thus, the chemical composition of individual cells and the activity of metabolic pathways are likely as good descriptors of cell identity as transcriptional profiles are. Moreover, accumulating findings assign to lipid metabolism an instructive role towards the establishment of cell identity, yet our understanding of the integration of transcriptional and lipid metabolic programs in cell fate determination remains superficial. Here I will report on our attempts to investigate lipidomes at single cell levels and at high spatial resolution by MALDI imaging mass spectrometry.

**13:15 – 14:00**      **Scientific Symposium I**

**13:15 – 13:20**      **Welcome words from chairs**

*Speakers selected from abstracts*

**13:20 – 13:30**      **Yara Ahmed** (University of Fribourg)

"Phosphatidic Acid specificity of its dysferlin domain is required for the establishment of Pex30-dependent membrane contact sites"

**13:30 – 13:40**      **Lina Heistingering** (ETHZ)

"Decision making in the yeast courtship network"

**13:40 – 13:50**      **Florent Lemaitre** (University of Geneva)

"Cryo-Expansion microscopy: unveiling the molecular architecture of the immune synapse"

**13:50 – 14:00**      **Pierre Marchal** (University of Bern)

"Exploring the biological significance of circulating N-linked glycoproteins for the detection and treatment prediction in pleural mesothelioma cancer"

**14:00 – 14:30**      **Coffee Break**

**14:30 – 15:15**      **Scientific Symposium II**

**14:30 – 14:35**      **Welcome words from chairs**

*Speakers selected from abstracts*

**14:35 – 14:45**      **Darko Stojkov** (University of Bern)

"BK and TRPV2 channels induce metabolic changes in neutrophils to prevent life-threatening infections"

14:45 – 14:55

**Tian Xie** (University of Fribourg)

"Arginase II ablation mitigates high salt diet-induced macrophage infiltration/proliferation in heart and kidney"

14:55 – 15:05

**Monika Gjorgjieva** (University Hospital Geneva)

"Hepatic IR and IGF1R signaling govern distinct metabolic and carcinogenic processes upon PTEN deficiency in the liver"

15:05 – 15:15

**Hadja Safiat Simboro** (University of Fribourg)

"Extracellular Vesicles for drug delivery"

15:15 – 15:45

**Coffee Break**

15:45 – 15:55

**Presentation from Fribourg Development Agency**

**Jerry Krattiger** (Managing Director, FDA)

"The Life Science Ecosystem of Western Switzerland"

15:55 – 17:45

**Career Workshop - "Mastering connections: the power of listening and effectively communicating"**

**Elena Barletta** (Erasmus Student Network (ESN Switzerland))

Communication is the milestone of every successful interaction, yet the power of listening is often underestimated. Active listening goes beyond hearing words; it involves understanding emotions, perspectives, and underlying needs. This immersive workshop aims to delve into the principles of effective communication and cultivate the heart of empathetic listening. Participants will explore the meaning and significance of effective communication, identify its key principles, and share their insights and ideas. Through interactive discussions and activities, attendees will unlock deeper connections and meaningful relationships, gaining a thorough understanding of what makes communication truly effective and how to apply these principles in various contexts.

17:45 – 17:50

**Closing Remarks & Acknowledgements**

18:00 – 19:00

**Apero**

**Program overview**

**MAIN CONFERENCE**

**DAY ONE**

**Wednesday, 12 February 2025**

08:00 – 09:00

**Registration & Welcome Coffee**

*(Registration will remain open during the entire event)*

*(Speakers and chairs of the morning sessions should load their presentations)*

09:00 – 09:10

**Welcome Address**

Joseph Deiss Auditorium

**Jörn Dengjel** (Chair of LS<sup>2</sup> AM2025, University of Fribourg)

**Simon Sprecher** (Chair of LS<sup>2</sup> AM2025, LS<sup>2</sup> Vice-president, University of Fribourg)

**Mario P. Tschan** (LS<sup>2</sup> President, University of Bern)

09:10 – 09:45

**Plenary Lecture: Keynote I**

Joseph Deiss Auditorium

**Sascha Martens** (University of Vienna, AT)

"Mechanisms of selective autophagy"

Autophagy is an intracellular lysosomal bulk degradation pathway that ensures cellular homeostasis by the removal of damaged and dangerous material from the cytoplasm. This is achieved by the sequestration of the cytoplasmic cargo material within double-membraned organelles called autophagosomes. The selective sequestration of only specific cargo material is mediated by cargo receptors that link the cargo to the nascent autophagosomal membrane. How cargo selection, membrane nucleation and growth are coupled is unclear. I will present our recent work on the cargo receptors and the autophagy machinery derived from in vitro reconstitution systems and cell biology. In particular, I will discuss how cargo receptors and the autophagy machinery act sequentially during cargo recognition, membrane nucleation and elongation to mediate the specific sequestration and subsequent degradation of cellular material.

09:45 – 10:15

Joseph Deiss Auditorium

## Plenary Lecture II: LELIO ORCI AWARD 2024

**Anne Spang** (University of Basel)

Introductory words by **Pierre Cosson** (University of Geneva)

"Mechanisms of intracellular compartmentalization"

Cells need to communicate and interact with the environment. These interactions need to be facilitated through intracellular communication pathways, which comprises biosynthetic and endocytic transport and signaling pathways. In recent years it became clear that besides the classical pathways, organellar contact sites and membrane-less organelles are likewise important players of intracellular communication. Moreover, technological advances allowed a more precise dissection of vesicular transport. We are interested in understanding how different cellular – membrane-bounded and membrane-less – organelles interact with each other, how signals are relayed and how mRNAs and proteins are localized correctly in space and time, and how cells adapt their intracellular communication during perturbations such as stress or ageing. We use different experimental models such as *S. cerevisiae*, *C. elegans* and mammalian cells to gain understanding on single cells as well as on tissue and whole organism levels. The endosomal system is a particular interesting system to study intracellular communication as signals from the plasma membrane converge with biosynthetic route and the information has to be processed correctly. Moreover, the connections between organelles of the biosynthetic route with more metabolic organelles continuous to provide new insights in intracellular communication. There is still so much to learn – it is a really exciting time. I will discuss our latest findings on intracellular communication.

10:15 – 10:45

## Coffee Break & Industry Exhibition

10:45 – 12:45

Joseph Deiss Auditorium

## Special Plenary Session: Pls of Tomorrow (PIOT) - The Future of Swiss Research

### Chairs:

**Timur Ashirov** (University of Fribourg)

**Rubén D. Manzanedo** (University of Bern)

**Milad Radiom** (ETHZ)

### Finalists:

**Tetiana Serdiuk** (ETHZ)

"Understanding the Life Cycle of  $\alpha$ -Synuclein in Neurodegeneration"

**Vakil Takhaveev** (ETHZ)

"Aging, Cancer, and Space Travel: DNA-Damage Sequencing for Precision Health"

**Gea Silvia Sofia Cereghetti** (University of Cambridge)

"Disorder, Order, and Life: Protein Self-Assembly in Cellular Organization, Disease, and Drug Discovery"

**Carlos Flores** (University of Basel)

"Pathogenesis across genitourinary tissue barriers"

12:45 – 14:25

## Lunch Break / Industry Exhibition / Poster Viewing

*(Catering for industry representatives will be open from 12:15)*

*(Speakers and chairs of the afternoon sessions should load their presentations)*

13:00 – 14:00

Room C130

## Physiology Board Meeting

*(Upon invitation only)*

13:15 – 14:25

Room D130

## Feedback Session Pls of Tomorrow

*(For jury, chairs and finalists only)*

14:25 – 16:10

## PARALLEL SYMPOSIA SESSION I

14:25 – 16:10

Auditorium E140

## Cellular oxygen sensing in the post-Nobel era

Organized by LS<sup>2</sup> section Physiology. Chaired by **David Hoogewijs** & **Anna Keppner** (University of Fribourg)

14:25 – 14:26

Welcome words from chairs

### Invited speaker

14:26 – 14:59

**Ben Wielockx** (TU Dresden, DE)

"Oxygen sensing in health and disease"

### Industry speakers

14:59 – 15:14

**Krista Rantanen** (Baker Ruskinn)

"The paradigm shift - from normoxia to physoxia in biomedical research"

15:14 – 15:29

**Valentina Millarte** (Agilent Technologies)

"Real-Time cellular metabolism analysis: Agilent Seahorse analyzers and integrated microscopy for comprehensive mitochondrial and glycolytic function profiling"

Speakers selected from abstracts

15:29 – 15:39

**Marion Dübi** (University Hospital Lausanne)

"Impaired angiogenesis and altered myocardial perfusion and metabolism in a rat model of intrauterine growth restriction"

15:39 – 15:49

**Antonia Louise Herwig** (University of Fribourg)

"The role of androglobin (ADGB) in ciliogenesis: transcriptional regulation and functional analysis of its globin domain"

15:49 – 15:59

**Carina Osterhof** (University of Fribourg)

"Characterisation of the hypoxia response of a non-symbiotic marine invertebrate"

15:59 – 16:09

**Duilio Michele Potenza** (University of Fribourg)

"Arginase-II regulates cardiac circadian tolerance to ischemia/reperfusion injury"

16:09 – 16:10

Closing remarks

14:25 – 16:10

**Imaging-based Spatial Omics**

Auditorium G120

Organized by LS<sup>2</sup> intersection Microscopy. Chaired by **Arne Seitz** (EPFL)

14:25 – 14:30

Welcome words from the chair

Invited speaker

14:30 – 15:05

**Gioele la Manno** (EPFL). **Important update: this talk will be given by Antonio Herrera Camacho (EPFL)**

"Whole-organ spatial lipidomics "

Speakers selected from abstracts

15:05 – 15:20

**Cristina Tocchini** (University of Basel)

"Translation-dependent mRNA localization to apical junctions"

15:20 – 15:35

**Kaivalya Walavalkar** (University of Zurich)

"Elucidating the structure and function of genome-nucleolus interactions in single nucleoli"

15:35 – 15:50

**Anjalie Schlaeppi** (EPFL)

"Establishing a protein panel and RNAScope workflow on the Lunaphore Comet platform: A Core Facility perspective"

Industry speaker

15:50 – 16:00

**Sara Milosevic** (10x Genomics)

"Experience the power of the Xenium platform"

16:00 – 16:10

Closing remarks

14:25 – 16:10

**Mechanisms of selective autophagy in health and disease**

Auditorium G140

Organized by LS<sup>2</sup> section Autophagy. Chaired by **Julien Puyal** (University of Lausanne) & **Patricia Boya** (University of Fribourg)

14:25 – 14:30

Welcome words from chairs

Invited speaker

14:30 – 15:05

**Wade Harper** (Harvard Medical School, US)

"Toward a structural proteome landscape of early endosomes"

Speakers selected from abstracts

15:05 – 15:25

**Lisa Gambarotto** (University of Lausanne)

"Autophagic regulation of RNAs in the brain"

15:25 – 15:45

**Insa Klemt** (ETHZ)

"To degrade or not to degrade: Ribosome abundance control under starvation conditions"

15:45 – 16:05

**Alexandre Leytens** (University of Fribourg)

"Targeted proteomics addresses selectivity and complexity of protein degradation by autophagy"

16:05 – 16:10

Closing remarks

16:10 – 16:40

**Coffee Break - Meet the speakers & Industry Exhibition**

16:40 – 17:15

**Plenary Lecture: Keynote II**

Joseph Deiss Auditorium

**Bernhard Küster** (Technical University of Munich, DE)

"Adding a proteomic component to molecular tumor boards"

Cancer is a disease of malfunctioning proteins and the pathways they operate in. Many oncogenic signalling events are not discernible from genomic or transcriptomic data because they are strongly regulated by protein phosphorylation.

In this keynote lecture, I will present how we apply proteomics and phosphoproteomics to the analysis of cancer patients in a molecular tumor board setting. Discussed aspects are how we can turn around data from biopsy to tumor board meeting within one week, what the proteome does and does not tell us and what needs to happen next in order to roll this out to broader patient populations.

17:15 – 19:15

**Apero, Poster Session I & Industry Exhibition**

*(Posters: 17:45 - 18:25 odd numbers, 18:25 - 19:15 even numbers)*

## DAY TWO

Thursday, 13 February 2025

08:15 – 09:00

**Registration & Welcome Coffee**

*(Registration will remain open during the entire event)*

*(Speakers and chairs of the morning sessions should load their presentations)*

09:00 – 09:05

**Welcome Address**

Joseph Deiss Auditorium

**Jörn Dengjel** (Chair of LS<sup>2</sup> AM2025, University of Fribourg)

**Simon Sprecher** (Chair of LS<sup>2</sup> AM2025, LS<sup>2</sup> Vice-president, University of Fribourg)

**Mario P. Tschan** (LS<sup>2</sup> President, University of Bern)

09:05 – 09:40

**Plenary Lecture: Keynote III**

Joseph Deiss Auditorium

**Irene Miguel-Aliaga** (Francis Crick Institute, UK)

"On sex and form"

Our research explores the idiosyncrasies of adult organs: how they differ between the sexes and are remodelled by their environment. Our work in *Drosophila* uncovered a gut-gonad axis that differs between the sexes and impacts food intake, gamete production and tumour susceptibility. Investigating how the intestine senses and responds to nutrients, we also discovered an intestinal zinc sensor that promotes TOR signalling to sustain food intake and developmental growth. More recently, we have investigated the sex and reproductive plasticity of the mammalian intestine in both mice and humans. We have also become very interested in the idea that the shape and position of the intestine constrain or enable its functions, and we have developed new methods to describe and interrogate these new dimensions to organ function. I will likely present some of this work.

09:40 – 10:20

**Coffee Break, Industry Exhibition & Poster Viewing**

10:20 - 12:05

**PARALLEL SYMPOSIA SESSION II**

10:20 - 12:05

**Seeing the Complexity of Life: Advances in Structural Cell Biology**

Auditorium G140

Organized by LS<sup>2</sup> section Biophysics. Chaired by **Wanda Kukulski** & **Benoît Zuber** (University of Bern)

10:20 - 10:25

Welcome words from chairs

*Invited speaker*

10:25 - 10:50

**Paula Navarro** (University of Lausanne)

"Cryo-ET as a tool that enables structural cell biology: unraveling the cellular function of PBP1b"

Speakers selected from abstracts

10:50 - 11:02

**Leonie Anton** (University of Bern)

"Visualizing Plasmodium falciparum 80S ribosome using in situ cryoET"

11:02 - 11:14

**Dawid Warmus** (University of Bern)

"Investigating the role for alpha-giardins in unconventional secretion of Giardia's virulence factors"

11:14 - 11:26

**Cristian Rocha** (University of Fribourg)

"Lipid scrambling is a general feature of protein insertases"

11:26 - 11:38

**Sim Sakong** (EPFL)

"Eukaryotic transcription factor target search beyond DNA binding domains"

11:38 - 11:50

**Giorgio Tortarolo** (EPFL)

"Gentle and multi-color imaging of region of interests through Smart Scanning Event Driven Acquisition"

11:50 - 12:05

Closing remarks

10:20 - 12:05

Auditorium E140

**Evolutionary Cell Biology-cell function and structure through an evolutionary lens**

Organized by **Omayra Dudin** (EPFL) & **Carmen Faso** (University of Bern)

10:20 - 10:25

Welcome words from chairs

Invited speaker

10:25 - 10:50

**Flora Vincent** (EMBL Heidelberg, Germany)

"Symbiosis in marine unicellular eukaryotes"

Speakers selected from abstracts

10:50 - 11:03

**Crisalida Borges** (University of Geneva)

"Who takes over when centrosomes are missing?"

11:03 - 11:16

**Saloni Koli** (University of Fribourg)

"Comparative analysis of Snf1 and SnRK1: evolutionary and functional roles of catalytic  $\alpha$ -subunits"

11:16 - 11:29

**Joseph Oddy** (University of Geneva)

"The role of proteases in bacterial killing in Dictyostelium discoideum"

11:29 - 11:42

**Armando Rubio Ramos** (University of Geneva)

"Charting the landscape of cytoskeletal diversity in microbial eukaryotes"

11:42 - 11:55

**Tina Zajec Hudnik** (ETHZ)

"Characterizing UV light-induced protein modifications in RNA-protein cross-linking: A biophysical approach"

11:55 - 12:05

Closing remarks

10:20 - 11:10

Auditorium G120

**Half-symposium: Personalized and systems pharmacology**

Organized by Swiss Society of Experimental Pharmacology (SSEP). Chaired by **Georgia Konstantinidou** (University of Bern) and **Patrycja Nowak-Sliwinska** (University of Geneva)

10:20 - 10:25

Welcome words from chairs

Invited speaker

10:25 - 10:50

**Olivier Michielin** (University of Geneva)

"Data science and AI for precision oncology"

Speakers selected from abstracts

10:50 - 10:58

**Paolo Armando Gagliardi** (University of Torino, Italy)

"Targeting emergent properties of signaling dynamics: collective ERK-activity waves in PIK3CA H1047R mutant Cells"

10:58 - 11:06

**Sacha Jacobs** (University of Geneva)

"Investigation of the anti-tumour immune response in advanced colorectal cancer co-culture model"

<b>11:06 - 11:10</b>	Closing remarks
<b>11:15 - 12:05</b> Auditorium G120	<b>Half-symposium: Strategies at the forefront of 3Rs to Replace, Reduce, and Refine animal experiments</b> Organized by Swiss 3RCC. Chaired by <b>Michael Walch &amp; Andrina Zbinden</b> (University of Fribourg)
<b>11:15 - 11:20</b>	Welcome words from chairs
<b>11:20 - 11:45</b>	<u>Invited speaker</u> <b>Barbara Fuenzalida</b> (University of Bern) "Engineering a novel cell-based model for assessing maternal-fetal transfer processes during pregnancy"
<b>11:45 - 11:53</b>	<u>Speakers selected from abstracts</u> <b>Lisa Conrad</b> (University of Bern) "Utilizing cardioids for the identification of transcriptional enhancer landscapes underlying human cardiac morphogenesis"
<b>11:53 - 12:01</b>	<b>Pierre Cosson</b> (University of Geneva) "How recombinant antibodies can change your life"
<b>12:01 - 12:05</b>	Closing remarks
<b>12:05 – 13:05</b>	<b>Lunch Break &amp; Industry Exhibition</b> <i>(Catering for industry representatives will be open from 11:35)</i> <i>(Speakers and chairs of the afternoon sessions should load their presentations)</i>
<b>12:05 – 13:05</b> Room D130	<b>SSEP Board Meeting</b> <i>(Upon invitation only)</i>
<b>12:30 – 13:30</b> Room C130	<b>MCB Board Meeting</b> <i>(Upon invitation only)</i>
<b>13:05 – 14:05</b>	<b>Poster Session II</b> <i>(Posters: 13:05 - 13:35 odd numbers, 13:35 - 14:05 even numbers)</i>
<b>14:05 – 15:50</b>	<b>PARALLEL SYMPOSIA SESSION III</b>
<b>14:05 – 15:50</b> Auditorium E140	<b>Spatial proteomics: giving up on a bulk</b> Organized by LS <sup>2</sup> section Proteomics. Chaired by <b>Alexander Schmidt</b> (University of Basel) & <b>Maria Pavlou</b> (EPFL)
<b>14:05 – 14:10</b>	Welcome words from chairs
<b>14:10 – 14:25</b>	Poll from chairs
<b>14:25 – 14:55</b>	<u>Invited speaker</u> <b>Isabelle Fournier</b> (University of Lille, France) "Deciphering patient evolution by studying cancer microenvironment with spatial proteomics"
<b>14:55 – 15:15</b>	<u>Industry speaker</u> <b>Lisa Schweizer</b> (OmicVision Biosciences ApS) Online talk: "AI-Powered spatial proteomics unlocks insights into pancreatic cancer"
<b>15:15 – 15:30</b>	<u>Speakers selected from abstracts</u> <b>Melanie Brunner</b> (University of Fribourg) "Proteome-wide in vitro kinase and phosphatase assays to determine enzyme-substrate interactions"
<b>15:30 – 15:45</b>	<b>Thibault Courtellemont</b> (EPFL) "Democratizing spatial proteomics: creative solutions for an affordable pipeline"
<b>15:45 – 15:50</b>	Closing remarks
<b>14:05 – 15:50</b>	<b>The Complexity of GPCR networks</b>

Auditorium G120	Organized by LS <sup>2</sup> section MCB. Chaired by <b>Mirian Stoeber</b> (University of Geneva) & <b>Daniel Legler</b> (University of Konstanz)
<b>14:05 – 14:10</b>	<b>Welcome words</b> from chairs
	<u><i>Invited speakers</i></u>
<b>14:10 – 14:40</b>	<b>Vladimir Katanaev</b> (University of Geneva) "The Frizzled family of GPCRs: signaling mechanisms and targeting"
<b>14:40 – 15:10</b>	<b>Stephan Grzesiek</b> (University of Basel) "Seeing functional motions of GPCRs by NMR"
	<u><i>Speakers selected from abstracts</i></u>
<b>15:10 – 15:20</b>	<b>Sofia Papadogkonaki</b> (University of Geneva) "Identification of opioid receptor trafficking regulators by unbiased screens"
<b>15:20 – 15:32</b>	<b>Patrick Masson</b> (SIB) "Systematic capture of human receptor-ligand interactions as Gene Ontology Causal Activity Models (GO-CAMs)"
<b>15:32 – 15:44</b>	<b>Julia María Coronas-Serna</b> (University of Geneva) "The Cdc42 effector Pak2 ensures fission yeast cell-cell fusion by antagonizing cell-wall repair mechanism"
<b>15:44 – 15:50</b>	Closing remarks
<b>14:05 – 15:50</b> Auditorium G140	<b>Sensing and responding to the environment: An integrative systems biology approach</b> Organized by LS <sup>2</sup> section Systems Biology. Chaired by <b>Thomas Michaels</b> (ETHZ)
<b>14:05 – 14:10</b>	<b>Welcome words</b> from the chair
	<u><i>Invited speaker</i></u>
<b>14:10 – 14:35</b>	<b>Markus Basan</b> (Harvard University, USA) "Mechano-transduction via membrane potential for growth control"
	<u><i>Speakers selected from abstracts</i></u>
<b>14:35 – 14:45</b>	<b>Elliott Bernard</b> (University of Lausanne) "NINJ1 mediated plasma membrane rupture is a two-step process requiring cell swelling"
<b>14:45 – 14:55</b>	<b>Cristina Casals</b> (Swiss Institute of Bioinformatics) "Linking the human metabolome and proteome in UniProtKB through Rhea"
<b>14:55 – 15:05</b>	<b>Vojislav Gligorovski</b> (EPFL) "A geometrical model of cell fate transitions in the budding yeast life-cycle"
<b>15:05 – 15:15</b>	<b>Omar Keshk</b> (EPFL) "Genome-scale metabolic models for a synthetic soil microbial community as a path for understanding community functioning"
<b>15:15 – 15:25</b>	<b>Seraina Olivia Moser</b> (University of Basel) "Inhibition of 11 $\beta$ -Hydroxysteroid dehydrogenase 2 by a metabolite derived from the gut microbiome"
<b>15:25 – 15:35</b>	<b>Thomas Peskett</b> (ETHZ) "A biomolecular condensation network adjusts cell fate decisions to cellular context"
<b>15:35 – 15:45</b>	<b>Prashant Rawat</b> (ETHZ) "Early transcriptional reprogramming upon chronic nucleolar stress leads to pro-metastatic phenotypes via the TP53-Golgi-TGFB2axis"
<b>15:45 – 15:50</b>	Closing remarks
<b>15:50 – 16:10</b>	<b>Coffee Break / Industry Exhibition / Poster Viewing / Meet the speakers</b>
<b>16:10 – 16:40</b>	<b>Plenary Lecture V: FRIEDRICH MIESCHER AWARD 2025</b>



Joseph Deiss Auditorium

**Claudia Isabelle Keller Valsecchi** (Institute of Molecular Biology, Mainz, Germany) & **Li Tang** (EPFL)  
Introductory words by **Prof. Daniel Legler** (Biotechnology Institute Thurgau at the University of Konstanz)

**Claudia Isabelle Keller Valsecchi** (Institute of Molecular Biology, Mainz, Germany)  
"Epigenetics of Sex Differences"

Males and females of the same species often exhibit marked differences, extending beyond reproductive characteristics to encompass variations in size, appearance, and behavior. A striking example is seen in mosquitoes, where only females need a blood meal to produce eggs and, consequently, can transmit the malaria-causing parasite. Such "sexual dimorphism" is also evident in humans and can even influence the occurrence, severity, and treatment of diseases. While sex chromosomes often underlie these differences, the regulation of gene expression from sex chromosomes has primarily been studied in a few model organisms, overlooking the vast diversity of sex chromosome evolution and regulation. Even among well-studied mammalian species, it is increasingly clear that substantial differences exist, such as in the extent of X chromosome inactivation. Our research aims to uncover the molecular and cellular mechanisms responsible for sex differences. This knowledge will not only provide fundamental new insights into gene regulation, dosage-sensitivity and their evolution but will also unravel the impact of sex differences on human health.

**Li Tang** (EPFL)

"Type 2 immunity may hold key to long-term cancer remission"

Our immune system interacts with many diseases in a multidimensional manner involving substantial biological, chemical, and physical exchanges. Manipulating the disease-immunity interactions may afford novel immunotherapies to better treat diseases such as cancer. My lab aims to develop novel strategies to engineer the multidimensional immunity-disease interactions (or termed 'immunoengineering') to create safe and effective therapies against cancer. We leverage the power of metabolic and cellular bioengineering, synthetic chemistry and material engineering, and mechanical engineering to achieve controllable modulation of immune responses. In this talk, I will share our recent discovery of IL-10 and IL-4 as metabolic reprogramming agents that reinvigorate the terminally exhausted CD8<sup>+</sup> tumor infiltrating lymphocytes. This strategy has been extended to develop metabolically armored CAR-T cells with IL-10 secretion to counter exhaustion-associated dysfunction in the tumor microenvironment for enhanced anticancer immunity. This new CAR-T cell therapy has shown promise in several on-going IIT clinical trials (ClinicalTrials.gov ID: NCT05715606, NCT05747157, NCT06120166) in the treatment of refractory/relapsed CD19<sup>+</sup> B cell leukemia and lymphoma.

**16:40 – 17:10**

Joseph Deiss Auditorium

#### **Award Ceremony**

**Jörn Dengjel** (Chair of LS<sup>2</sup> AM2025, University of Fribourg)

**Simon Sprecher** (Chair of LS<sup>2</sup> AM2025, LS<sup>2</sup> Vice-president, University of Fribourg)

**Mario P. Tschan** (LS<sup>2</sup> President, University of Bern)

Pls of Tomorrow: Jury and Public

Experimental Pharmacology (by SSEP): Best poster prize

Molecular and Cellular Biosciences (MCB): 3x Best poster prize

Bioinformatics & Systems Biology: 2x Best poster prize

Physiology: 2x Best poster prize

Cardiovascular Biology & Proteomics: 1x Best poster prize

Autophagy & Microscopy: 1x Best poster prize

Ion Channels and Membrane Transporters (ICMT) & Biophysics: 1x Best poster prize

Best Poster Design: Public prize

Exhibition quiz prizes

**17:10 – 17:15**

Joseph Deiss Auditorium

#### **Closing Remarks & Acknowledgements**

**Jörn Dengjel** (Chair of LS<sup>2</sup> AM2025, University of Fribourg)

**Simon Sprecher** (Chair of LS<sup>2</sup> AM2025, LS<sup>2</sup> Vice-president, University of Fribourg)

**Mario P. Tschan** (LS<sup>2</sup> President, University of Bern)