

LS² ANNUAL MEETING 2015

JANUARY 29-30, 2015

UNIVERSITY OF ZURICH

15



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WELCOME ADDRESS

WELCOME TO THE LIFE SCIENCES SWITZERLAND (LS²) ANNUAL MEETING, ON THE 29-30 JANUARY, 2015 AT THE UNIVERSITY OF ZURICH!

Light influences all aspects of life as the direct or indirect energy source that fuels virtually all biochemical reactions. Light is also a major signal directing organisms as they interact with their surrounding environment. Yet, light can also be a threat by damaging molecules that are fundamental for life. Last, for life science researchers, light is at the center of many recent technologies aimed at decoding genomes, manipulating molecules, cells and organisms, and of course for imaging.

We welcome internationally renowned speakers to give insight into their latest research results and we are preparing the stage for young scientists to develop their own field of expertise.

LS² is a non-profit organization dedicated to advancing life sciences and researchers within the Swiss academic community and to increasing the interaction between academia and industry.



Benoît Kornmann, Paola Picotti, Claus Azzalin
Chairs of the LS² Annual Meeting 2015, ETH Zurich

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ORGANISING COMMITTEE 2015

LS² ANNUAL MEETING CHAIRPERSON

Paola Picotti, ETH Zurich

Benoît Kornmann, ETH Zurich

Claus Azzalin, ETH Zurich

SCIENTIFIC COMMITTEE

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LS² MEMBER SOCIETIES

Swiss Society for Molecular and Cellular Biosciences (SSMCB)

Swiss Society for Anatomy, Histology and Embryology (SSAHE)

Swiss Society for Experimental Pharmacology (SSEP)

Swiss Physiological Society (SPS)

LS² AFILIATED SOCIETIES

Swiss Society for Microbiology (SSM)

Swiss Society for Pathology (SSP)

Swiss Laboratory Animal Science Association (SGV)

Swiss Proteomics Society (SPS)

Società Ticinese delle Scienze Biomediche e Chimiche (STSBC)

LS² GUEST SOCIETY

Swiss Society for Neurosciences

SPONSORS

LS² and the organising committee gratefully acknowledge the sponsors of the LS² Annual Meeting 2015 in Zurich.

We welcome all participants of the meeting to visit the booths in the foyer (Lichthof).

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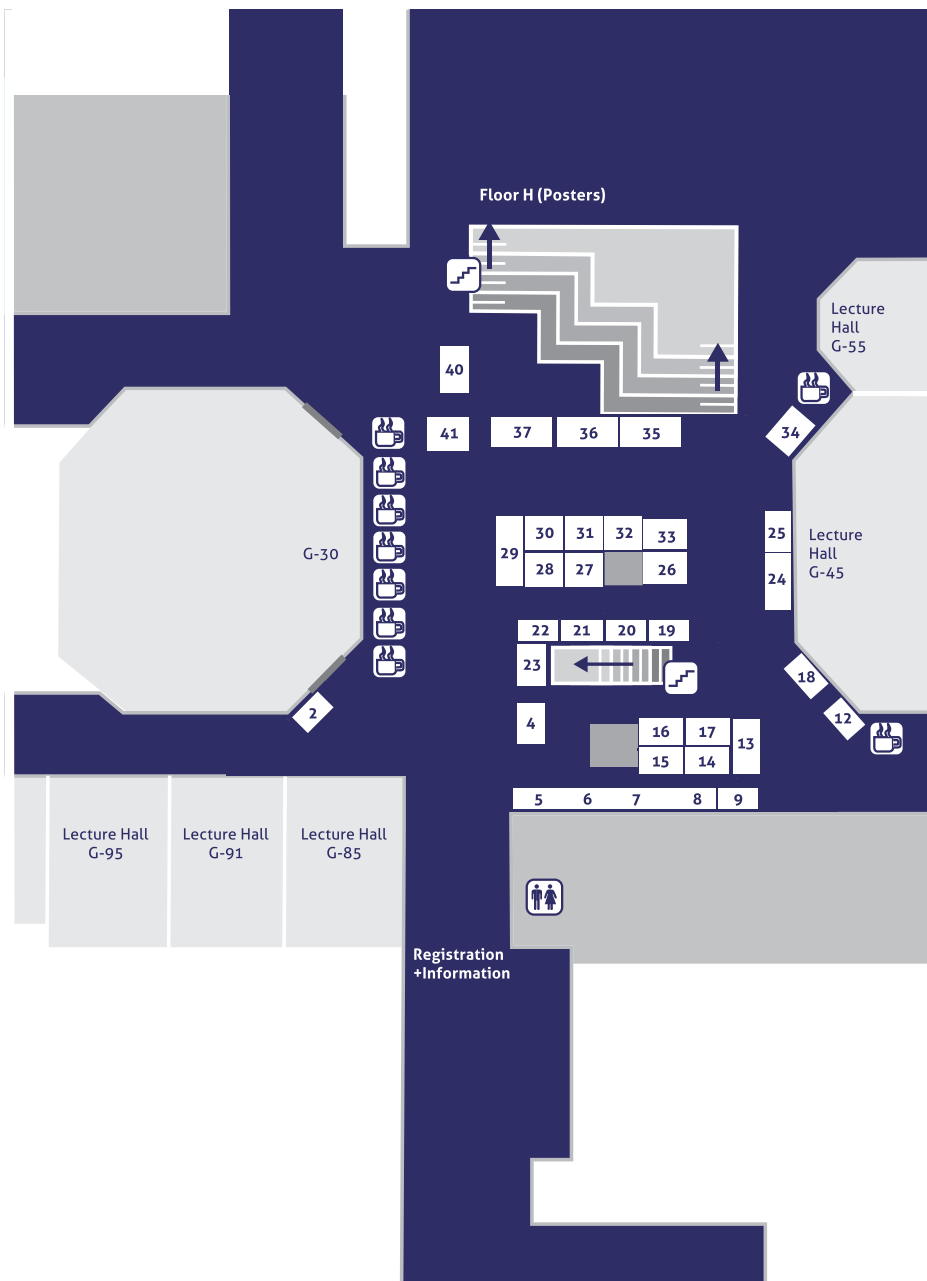
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LIST OF EXHIBITORS

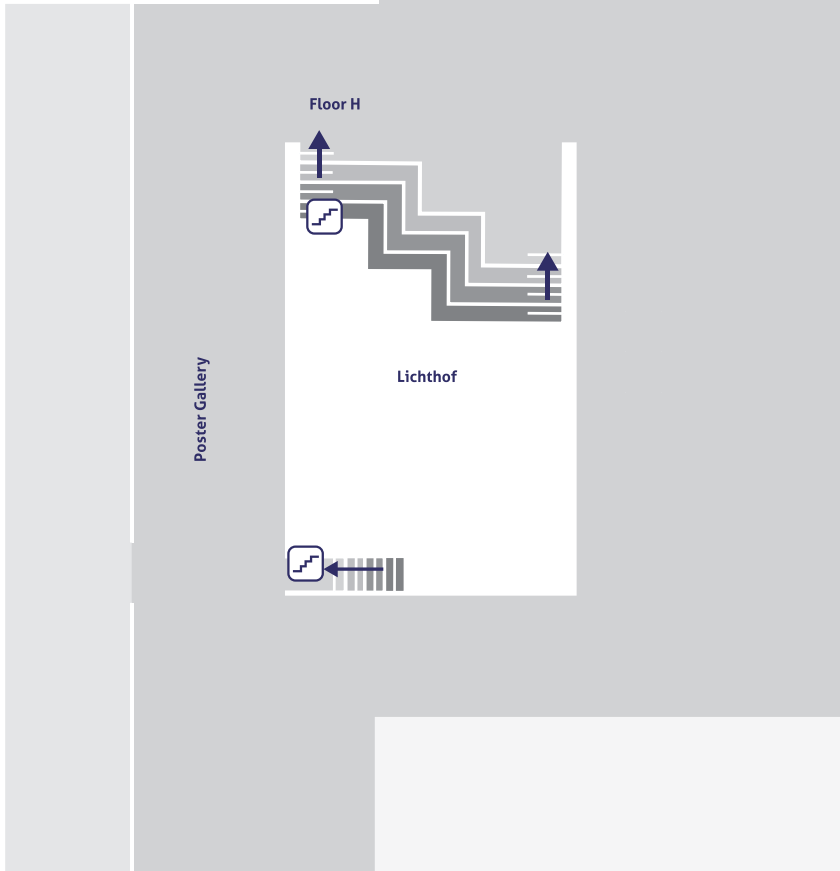
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FLOOR PLAN

Three lecture halls are on the lower floor (F70, F62 and F68) indications on how to get to these rooms will be displayed visibly!



Campus Irchel
Floor H



PROGRAM OVERVIEW

THURSDAY, JANUARY 29, 2015

8.30 - 9.30	Registration, Welcome Coffee and Croissants, Mounting of Posters	
9.30 - 9.40	WELCOME ADDRESS Thierry Soldati (President of LS ²) Claus Azzalin, Benoît Kornmann and Paola Picotti (Chairpersons)	main plenary hall (G45)
9.40 - 10.30	PLENARY LECTURE Marileen Dogterom Reconstituting cytoskeletal organization in artificial confinement	main plenary hall (G45)
10.30 - 10.35	Basel Declaration	main plenary hall (G45)
10.35 - 11.00	Coffee Break, Poster Session, Industry Exhibition	
11.00 - 13.15	SYMPOSIA	
SSMCB (Part 1)	Optogenetics: new tools to control and study complex cellular networks	room (G 45)
SGV	Light and the 3Rs	room (G 85)
SSAHE	Three-dimensional microscopy: from atoms to organisms	room (G 30)
SPECIAL SESSION	Masters students: Doing a PhD in Switzerland	room (G 95)
SPECIAL SESSION	Media Training	room (G 91)
13.15 - 14.45	Lunch, Poster Session, Industry Exhibition	
13.30 - 14.30	ROUND TABLE: Careers of men and women in Science Salomé LeibundGut	rooms (F 70, F 62, F 68)
13.30 - 14.30	SKILLS: Networking in Science Daniel Roiz, Thomas List	room (G 55)
14.45 - 17.00	SYMPOSIA	
SSMCB (Part 2)	Selected short presentations	room (G 45)
SPS	Pancreas in the limelight: physiopathology of islets, acinar and ductal cells	room (G 85)
SSM	Positive and negative influence of sunlight on microbes	room (G 95)
SPECIAL SESSION	Publishing in the 21st century	room (G 55)
SPECIAL SESSION	Media Training	room (G 91)
17.00 - 17.30	Coffee Break, Poster Session, Industry Exhibition	
17.30 - 18.20	PLENARY LECTURE Peter Quail (UC Berkeley, USA) Dissecting the Phytochrome-PIF Signaling Interface	main plenary hall (G45)
18.20 - 20.00	POSTER SESSION with Apéro and Music	Gallery

FRIDAY, JANUARY 30, 2015

9.00 - 9.50	EMBO KEYNOTE LECTURE Jan Hoeijmakers The impact of DNA damage on aging and cancer and the effect of nutritional interventions	main plenary hall (G45)
9.50 - 10.50	Coffee Break, Poster Session, Industry Exhibition	
9.50 - 10.20	SKILLS workshop: Entrepreneurship in Science Christian Zahnd	main plenary hall (G45)
10.50 - 11.40	PLENARY LECTURE Alexander Gottschalk Optogenetic analyses of synaptic transmission and neuronal networks in <i>C. elegans</i>	main plenary hall (G45)
11.40 - 13.30	Lunch, Poster Session, Industry Exhibition	
11.45 - 13.15	SKILLS: Entrepreneurship in Science Jordan MacAfoose	room (G85)
11.45 - 13.15	LS ² Delegates Assembly	room (F 70)
13.30 - 15.45	SYMPOSIA	
SSEP	Light: potent modulator of fundamental processes in biology and medicine	room (G 85)
SSN	Seeing the light: early visual processing	room (G 95)
SPECIAL SESSION	Non-academic careers in science	room (G 55)
SPECIAL SESSION	Tomorrow's PIs: the future of Swiss research	room (G 45)
15.45 - 16.15	Coffee Break, Poster Session, Industry Exhibition Round table / Discussion	
16.15 - 17.00	AWARDS Friedrich Miescher Award 2015: Martin Jinek Morphologiepreis 2015: Benoît Zuber Poster and Tomorrow's PI Awards	main plenary hall (G45)
17.00 - 17.50	PLENARY LECTURE Tobias Meyer Live-cell microscopy reveals distinct switch mechanisms for the decision of mammalian cells to start the cell cycle	main plenary hall (G45)
17.50 - 18.00	CLOSING REMARKS Thierry Soldati (Presidents of LS ²) Claus Azzalin, Benoît Kornmann and Paola Picotti (Chairpersons)	main plenary hall (G45)

PROGRAM – DAY 01

THURSDAY, 29.1.2015

8.30-9.30 Registration, Welcome Coffee, Mounting of Posters

9.30-9.40 WELCOME ADDRESS
Thierry Soldati (President of LS²),
Claus Azzalin, Benoît Kornmann and Paola Picotti (Chairs)

PLENARY LECTURE

9.40-10.30 **Marileen Dogterom** Department of Bionanoscience,
Delft University of Technology, The Netherlands

„Reconstituting cytoskeletal organization in artificial confinement“

Important functions of eukaryotic cells such as division depend sensitively on cytoskeletal organization. We reconstitute a dynamic microtubule cytoskeleton inside three-dimensional emulsion droplets, using lipids that can be functionalized with dynein molecular motors. We study the positioning of centrosomes, which nucleate microtubules that exert pushing and/or dynein-mediated pulling forces against the boundary. When two centrosomes are present, pushing forces cause the centrosomes to find a stable position at opposite sides of the droplet. When also pulling forces are present, two centrosomes adopt an equilibrium position balancing a dynein-mediated centering effect with steric repulsion, thereby reproducing a 'mitotic spindle' like organization. These experiments allow us to study symmetric situations, but do not yet allow us to study the effect of spatio-temporal variations in for example dynein activity. For this purpose, we are now developing 'opto-control' techniques that should allow us to control the spatial distribution of dynein molecules in our experiments.

10.30-10.35 **Patrick Matthias**, Friedrich-Miescher Institute for Biomedical Research

The Basel Declaration: Trust, Transparency and Communication on Animal Research



Animal experimentation is an essential part of modern biomedical research, and will remain so for the foreseeable future, in spite of advances in alternative methods. In this context, the Basel Declaration Society promotes a responsible and ethical use of animals for research. Society increasingly demands transparency and scientists can only gain by engaging in an open dialogue on animal research.

10.35-11.00 Coffee Break, Poster Session, Industry Exhibition

PARALLEL SYMPOSIA: OVERVIEW, 11.00-13.15

1. SSMCB (Part 1)	Optogenetics: new tools to control and study complex cellular networks	room (G45)
2. SGV	Light and the three R's	room (G85)
3. SSAHE	Three-dimensional microscopy: from atoms to organisms	room (G30)
4. SPECIAL SESSION	Master students: Doing a PhD in Switzerland	room (G95)
5. MEDIA TRAINING	Media Training Part I	room (G91)

SYMPOSIA: DETAILS

1. SSMCB OPTOGENETICS: NEW TOOLS TO CONTROL AND STUDY COMPLEX CELLULAR NETWORKS (11.00-13.15) / PART 1

The combined use of genetically encoded photoreceptors for optical control of biological processes has been termed optogenetics. Optogenetics promises to revolutionize neuroscience and to offer novel routes for the treatment of neuronal disorders. This symposium delivers an overview about recent developments of this fascinating field.

Chairs: Horst Vogel and Daniel Legler

11.00-11.30 Peter Hegemann, Humboldt-Universität Berlin, Germany
"Biophysics of Channelrhodopsin"

11.35-12.05 Ernst Bamberg, MPI Biophysik Frankfurt, Germany
"Microbial Rhodopsins: molecular mechanism and optogenetics"

12.10-12.40 Botond Roska, Friedrich Miescher Institute, Basel

12.45-13.15 Dirk Trauner, Ludwig Maximilian University Munich, Germany
"Photopharmacology"

Industry Speed Presentations

2. SGV LIGHT AND THE THREE R'S (11.00-13.15)

We will investigate how light and imaging could help in animal experimentation and how to adopt the 3R's to improve animal welfare and the quality of scientific research.

Chair: Gisèle Ferrand and Beat Riederer

-
- 11.00-11.30** **Ron Stoop**, University of Lausanne
"Neuromodulation by Oxytocin and Vasopressin: an optogenetic and electrophysiological dissection of the underlying circuitry"
-
- 11.35-12.05** **Martin Fussenegger**, ETH Zurich
"Optogenetic treatment strategies"
-
- 12.10-12.40** **Francois Lassailly**, London Research Institute, UK
"In vivo imaging for basic and translational research in oncology"
-
- 12.45-13.00** 3R FOUNDATION TALK
Christian Heinis, EPF Lausanne
"Antibody phage selection strategy for application in non-specialized laboratories"
-
- 13.00-13.15** General discussion and Speed industry presentations
-

3. SSAHE THREE-DIMENSIONAL MICROSCOPY: FROM ATOMS TO ORGANISMS (11.00-13.15)

The session will present results obtained following recent key developments in electron microscopy and in x-ray tomography instrumentation and image processing. These have enabled solving protein structure at atomic or near-atomic resolution without the need for crystals. On the other hand, organs can now be imaged in three dimension with submicrometer resolution.

Chair: Benoît Zuber

-
- 11.00-11.30** **Johannes Schittny**, University of Bern
"How Imaging changes our understanding of lung development"
-
- 11.30-12.00** **Nenad Ban**, ETH Zurich
"Beyond the prokaryotic ribosome: structural and functional insights into eukaryotic and mitochondrial ribosomes"
-
- 12.00-12.30** **Henning Stahlberg**, University of Basel
"High-resolution structural studies of membrane proteins by cryo-electron microscopy: Observing potassium ion channels and bacterial secretion systems in action"
-

12.30-12.45 SHORT PRESENTATIONS
Ali Yasin Sonay, ETH Zurich
"Second Harmonic Generating Nanoprobes for in vivo Imaging"

12.45-13.00 **Patrick Sandoz**, EPF Lausanne
"Regulation of ER-shaping proteins by S-palmitoylation"

13.00-13.15 INDUSTRY TALK
Kristian Wadel, FEI
"Workflows for 3D correlative light and electron microscopy"



4. MASTER STUDENTS: DOING A PHD IN SWITZERLAND (11.00-13.15)

Master in life science, but what now? If you have not decided yet what is next, join our session! Three scientists will share their experience while doing a PhD in Switzerland and Graduate Schools from all around Switzerland will present their programs. This is the perfect opportunity to ask all your questions about doing a doctoral thesis.

Chair: Stefanie Hausammann

11.00-11.15 **Alina von Essen**, University of Fribourg
The decision to do my PhD in Fribourg, Switzerland, was an instinctive decision, which turned out to significantly sway my path of life. I obtained much more than a title...If I had the choice again, I would go for a PhD in Fribourg, Switzerland.

11.20-11.35 **Pascal Pfiffner**, Harvard Medical School, US
Life, Meet Science
How you might get off track when you start focusing on your interests rather than your lecture schedule. And how that might actually be okay.

11.40-11.55 **Moritz Saxenhofer**, University of Bern

12.00-13.15 Presentation of Swiss Life Sciences Doctoral Schools from Switzerland



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Académie des sciences naturelles

13.15-14.45 Lunch, Poster Session, Industry Exhibition

in association with the Basel Declaration Society
Matthes Schaller

The Manager as communicator

Presenting key messages in statements, presentations, interviews, negotiations and panel discussions are some of the key requirements for presenting oneself in the company or the latter and its business to the outside world. The means of communication are text, image, audio or video. However, the focus remains on the manager spreading the message via a variety of channels. Today, special attention is turned to the social media, and part of that is the statement in front of a camera.

**ROUND TABLE DISCUSSIONS (13.30-14.30)****room (F70, F68, F62)**

Salomé Leibundgut, ETH Zurich
„Careers of women and men in Science“

This lunch session aims at providing career support and advice to women and men pursuing a Masters degree, PhD degree or a postdoctoral training. It will consist of a series of round table discussions, each moderated by at least one mentor.

Themes include:

1. Applying for your next position as a PhD student
2. Applying for your next position as a Postdoc
3. Applying for your next position as a PI
4. Career and family
5. Work-Life Balance
6. Leadership and conflict management
7. A scientist's career outside academia

Lunch sponsored by NCCR Chemical Biology

**SKILLS (13.30-14.30)****room (G55)**

„Networking in Science“
Daniel Roiz and Thomas List (LSZYSN)

Whether you are a natural Networker or a private person, together with the Life Science Zurich Young Scientist Network, you will have the opportunity to discuss how to profit from your network and personal brand

GENERAL ASSEMBLY SSMCB (13.30-14.30)

PARALLEL SYMPOSIA: OVERVIEW, 14.45-17.00

1. SSMCB (Part 2)	Selected short presentations	room (G45)
2. SPS	Pancreas in the limelight: physiopathology of islets, acinar and ductal cells	room (G85)
3. SSM	Positive and negative influence of sunlight on microbes	room (G95)
4. SPECIAL SESSION	Publishing in the 21st century	room (G55)
5. SPECIAL SESSION	Media Training Part II	room (G91)

SYMPOSIA: DETAILS

1. SSMCB SELECTED SHORT PRESENTATIONS (14.45-17.00)

Chairs: Daniel Legler and Horst Vogel

- 14.45-15.05** **Björn Hegemann**, ETH Zurich
"A Cellular System for Spatial Signal Decoding in Chemical Gradients"
-
- 15.10-15.30** **Maria Mitsi**, Paul Scherrer Institute
"The role of fibronectin in angiogenesis"
-
- 15.35-15.55** **Nadim Mira**, University of Lausanne
"A New Bimolecular Synthetic Kinase Activity Relocating Sensor To Quantify Localized Activity Of MAPK"
-
- 16.00-16.20** **Laura Merlini**, University of Lausanne
"From pheromone signaling to cell polarity and cell-cell fusion: the role of Ras1 during mating in fission yeast"
-
- 16.25-16.40** INDUSTRY TALK
Michael Elser, Takara Clontech
"Protein localization with fluorescent tags: Get faster results using cloning kits and pre-made viral particles"



16.50 Industry Speed Presentations

2. SPS PANCREAS IN THE LIMELIGHT: PHYSIOPATHOLOGY OF ISLETS, ACINAR AND DUCTAL CELLS (14.45-17.00)

The adult pancreas controls intestinal nutrient digestion as well as blood glucose homeostasis through the activity of the exocrine and endocrine cells. This symposium will focus on different cells forming this dual functioning gland and the current understanding of the etiology of still untreatable diseases.

Chairs: Simone Camargo and Sabrina Sonda

14.45 – 14.50 Introductory remarks

14.50 – 15.15 **Cecile Haumaître**, University Pierre et Marie Curie, Paris, France
"Genetic and epigenetic control of pancreatic endocrine cells in development and disease"

15.20 – 15.45 **Julia Mayerle**, University of Greifswald, Germany
"Pancreatitis, all premature protease activation?"

15.50 – 16.15 **Ivana Novak**, University of Copenhagen, Denmark
"The role of purinergic signaling in exocrine pancreas – in health and disease"

16.20 – 16.45 **Irene Esposito**, Innsbruck Medical University, Austria
"On the origin of pancreatic cancer: hypotheses and evidence"

16.50 – 17.00 General discussion

3. SSM POSITIVE AND NEGATIVE INFLUENCE OF SUNLIGHT ON MICROBES (14.15-17.00)

Exposure to sun- or artificial light can have both positive and negative effects on microbial cells. The most obvious positive result is the harvesting of sunlight for energy production as done by photosynthetic microbes. Furthermore, light can also activate biochemical pathways that lead to the formation of useful metabolites. However, energy-rich light can extensively damage cellular constituents such as proteins or DNA, an effect that is often lethal.

Chair: Thomas Egli

14.15-14.45 **Gerhard Braus**, Georg-August University Göttingen, Germany
"Light-activated secondary metabolite and toxin production in fungi"

14.45-15.15 **Thomas Egli**, EAWAG
"Damaging effects of sunlight on microbial cells and their application for drinking water disinfection"

15.15-15.45 **Matthias Rögner**, Ruhr University Bochum, Germany
"Design of photosynthetic light energy transformation in cyanobacteria: balance between survival and benefit"

15.45-16.00 INDUSTRY TALK
Helene Guillong, Velux Foundation
"VELUX Foundation funds projects aiming to change science or society"

VELUX STIFTUNG

SHORT PRESENTATIONS

16.00-16.15 **Charles Van der Henst**, EPF Lausanne
"Human pathogens into the wild: How *Vibrio cholerae* interact with the amoeba *Acanthamoeba castellanii*"

16.20-16.35 **Helge Abicht**, ETH Zurich
"The role of TlpA and Scol in copper delivery to the CuA-center of aa3-type cytochrome oxidase in *Bradyrhizobium japonicum*"

16.40-16.55 **Caroline Barisch**, University of Geneva
"Lipid Droplet Dynamics at Early Stages of *Mycobacterium marinum* Infection in Dictyostelium"

4. SPECIAL SESSION: "PUBLISHING IN THE 21ST CENTURY" (14.45-17.00)

Rapid publication of scientific results is a cornerstone for the progress in the life sciences. Several developments including electronic media, open-access or increased subscription costs have challenged the traditional journal-based peer-review publication system. In this session, we will present some new developments and discuss challenges and opportunities for scientific publishing in the 21st century. **Followed by a round table discussion.**

Chair: Karsten Weis

14.45-15.05 **Michaela Torkar**, F1000

15.10-15.30 **Mark Patterson**, CEO e-life

15.35-15.55 **Joanna Young**, Director of the Scientific Editing Company

16.00-16.15 **Barbara Hirschmann**, ETH Zurich library

sc | nat 

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17.00-17.30 Coffee Break, Poster Session, Industry Exhibition

PLENARY LECTURE

17.30-18.20 Peter Quail

Department of Plant and Microbial Biology, UC Berkeley, USA

"Dissecting the Phytochrome-PIF Signaling Interface"

Plants constantly monitor the ambient light environment for signals that enable them to adapt to the prevailing conditions. The phytochrome (phy) family of sensory photoreceptors plays a central role in this process. Light absorption induces conversion of the phy molecule to its active Pfr conformer which then migrates rapidly into the nucleus where it induces expression changes in target-gene expression within minutes. This induction mechanism involves binding of the activated phy molecule to a small set of bHLH transcription factors called PIFs (for Phytochrome (phy)-Interacting Factors). This interaction triggers phosphorylation, polyubiquitination and degradation of the PIFs, with consequent altered expression of their target genes. We have shown that this signaling process requires multisite phosphorylation of the PIF molecule, which triggers PIF recognition and ubiquitination by a subset of BTB-Cullin3-type E3 ubiquitin ligases (called LRBs), and that this results concurrently in both transcriptional regulation and direct feedback attenuation of signaling intensity via concomitant PIF and phy degradation. Using genome-wide transcriptome analysis, we have identified PIF-regulated genes that respond rapidly to phy photoactivation, and using integrated ChIP-seq and RNA-seq analysis, we have identified a diverse network of these rapidly light-responsive genes that are direct targets of PIF-regulated transcription. Moreover, the evidence unveils an intriguing dual-layered mechanism of regulation whereby both the level of promoter binding-site occupancy, and in situ modulation of bound transcription-factor intrinsic activity, combine to generate a complex matrix of shared, but quantitatively differential, gene expression patterns, under the control of the phy-PIF signaling pathway.

POSTER SESSION

18.20-20.00 Jazz Music and Apéro in the poster gallery

Welcome Address by **Erik van den Akker**, Deputy Ambassador of The Netherlands



20.00 - Delegates' Dinner (ATRIUM)

PROGRAM – DAY 02

FRIDAY, 30.1.2015

EMBO KEYNOTE LECTURE

9.00-9.50

Jan Hoeijmakers

Erasmus MC, Rotterdam, The Netherlands

"The impact of DNA damage on aging and cancer and the effect of nutritional interventions"

Inherited defects in the global genome nucleotide excision repair (GG-NER) removing helix-distorting DNA lesions are associated with cancer predisposition as in xeroderma pigmentosum. Defects in transcription-coupled repair, with or without additional GG-NER defects cause severe neurodevelopmental deficits and segmental progeria as in Cockayne syndrome and trichothiodystrophy. Mutations in single NER genes, involved in both pathways such as XPD, are linked with all three disorders in a mutation-specific manner. Various single and double NER mouse mutants reveal that the severity of specific repair defects strictly correlates with the acceleration of selective premature aging features (including prominent neurodegeneration), whereas the type of DNA repair defect determines the kind of progeroid symptoms and/or cancer susceptibility. Microarray, functional and physiological studies revealed that persistent DNA damage down-regulates the IGF1/GH-, lacto- and thyrotropic hormonal axes and upregulates anti-oxidant defenses, favouring maintenance at the expense of growth. This 'survival response' resembles the one elicited by dietary restriction (DR), which promotes longevity and links accumulation of DNA damage and IGF1 control of life span. Micro- and mRNA expression profiling of normal, accelerated and delayed aging also revealed a clear parallel with the expression changes triggered by persistent transcription-blocking DNA lesions. These findings strongly support the DNA damage theory of aging. We will present phenotypes of conditional DNA repair models targeting aging to selected organs, striking parallels with Alzheimer's disease and the remarkable effect of nutritional interventions on the life span of progeroid repair mutants and on features of neurodegeneration.



9.50-10.50

Coffee Break, Poster Session, Industry Exhibition

9.50-10.20

SKILLS

Christian Zahnd, CEO Molecular Partners

"Entrepreneurship in Science"

PLENARY LECTURE

10.50-11.40

Alexander Gottschalk

Johann Wolfgang Goethe University, Frankfurt, Germany

"Optogenetic analyses of synaptic transmission and neuronal networks in *Caenorhabditis elegans*"

Optogenetics allow precise stimulation of neurons and synapses in live animals. We establish optogenetic tools in the nematode *Caenorhabditis elegans*. We then use them to analyze mechanisms of synaptic transmission at chemical synapses, as well as how small neuronal networks drive behavior of

the nematode. Synapses can be stimulated by depolarization using channelrhodopsin. We assessed how synapses respond to prolonged, extreme stimulation, as a model for seizures, by behavior, electrophysiology and by electron microscopy. This allows to follow the formation and recovery of large endocytic structures in the synapses, at the ultrastructural level, in a time-resolved fashion, and to analyze molecular determinants of these processes. Also, photoactivated adenylyl cyclase can induce synaptic stimulation, by increasing the rate of synaptic vesicle priming, thus enhancing transmission in response to intrinsic signals, without overriding network activity. The molecular targets of PKA, mediating this type of stimulation, are currently under investigation. Small neuronal networks drive behaviors in *C. elegans*. We use a "bottom-up" approach, by placing optogenetic tools (channelrhodopsin, halorhodopsin, other rhodopsin optogenetic tools) in previously unstudied neurons, and investigating how stimulation or inhibition of these neurons affects behavior. One such circuit controls the locomotion of the animal in complex ways, allowing navigational steering, for example during food search behavior. This distributed circuit relies on neuropeptide signaling via a "wireless" network, overlaid on top of the "hardwired" synaptic and gap junction networks of the *C. elegans* neural circuitry.

11.40-13.30 Lunch, Poster Session, Industry Exhibition

11.45-13.15 SKILLS **room (G85)**
Chair: **Jordan MacAfoose**
„Entrepreneurship in science“

The 'Entrepreneurship in Science' lunch session aims to provide practical advice and insight for academics (Master's, PhD or Postdocs) wishing to pursue an entrepreneurial idea.

Themes include:

1. Activities organized by entrepreneurial clubs
 2. Overview of tech transfer offices
 3. Overview of CTI
 4. Q&A discussion
-

11.45-13.15 LS² Delegates Assembly **room (F70)**

PARALLEL SYMPOSIA: OVERVIEW, 13.30-15.45

1. SSEP	Light: potent modulator of fundamental processes in biology and medicine	room (G85)
2. SSN	Seeing the light: early visual processing	room (G95)
3. SPECIAL SESSION	Non-academic careers in science	room (G55)
4. SPECIAL SESSION	Tomorrow's PIs: the future of Swiss research	room (G45)

SYMPOSIA DETAILS

1. SSEP **LIGHT: POTENT MODULATOR OF FUNDAMENTAL PROCESSES IN BIOLOGY AND MEDICINE (13.30-15.45)**

The daily alternation between wakefulness and sleep constitutes a fundamental biological rhythm, which is synchronized by light to the 24-hour day-night cycle. Light also potently affects sleep, alertness, as well as clinical outcomes and well-being. Along a molecule-human-medicine continuum, this symposium will discuss striking novel insights into the effects of light as potent modulator of these fundamental processes in health and disease.

Chair: Hans-Peter Landolt

13.30-13.55 **Steven Brown**, University of Zurich
"Circadian behavior is light-reprogrammed by plastic DNA methylation"

14.00-14.25 **Christian Cajochen**, University of Basel
"Impact of light on human circadian physiology and behavior"

14.25-14.50 **Gilles Vandewalle**, University of Liège, Belgium
"Impact of light and melanopsin on human cognitive brain function"

14.50-15.15 **Luc Schlangen**, Dutch Research Foundation Light & Health, Eindhoven, The Netherlands
"Health and well-being effects of light in care settings"

SHORT PRESENTATIONS

15.15-15.30 **Christoph Schneider**, University of Bern
"Potentiating therapeutic effects of intravenous immunoglobulin (IVIG) using protein-destabilizing factors"

15.30-15.45 **Hamed Hesham**, University of Geneva
"Diapocynin, a putative NADPH oxidase inhibitor, ameliorates the phenotype of a mouse model of Duchenne muscular dystrophy"

1. SSN SEEING THE LIGHT: EARLY VISUAL PROCESSING (13.30-15.45)

From the photoreceptors to the neocortex, visual neuroscientists have uncovered molecular, cellular and behavioral processes that explain normal as well as pathological vision. To illustrate the wide range of modern visual neuroscience the symposium will give insight into pathologies of the front-end receptors as well as into interactions between the visual and other sensory systems at the cortical level.

Chair: Daniel Kiper

13.30-13.50 Daniel Kiper, The Swiss Society for Neurosciences

13.55-14.25 Christian Grimm, University of Zurich
"Oxygen for Vision: The Hypoxic Response of the Retina"

14.30-15.00 Georg Keller, Friedrich Miescher Institute, Basel
"Learning to see – active sensory processing in mouse visual cortex"

SHORT PRESENTATIONS

15.00-15.10 Simon Musall, University of Zurich
"Impact of response adaptation on stimulus perception: Sensory versus optogenetic stimulation of somatosensory cortex"

15.10-15.20 Juan Gerez, ETH Zurich
"Novel insights on internalized alpha-Synuclein homeostasis"

15.20-15.30 Gil Vantomme, University of Lausanne
"Optogenetic activation of glutamatergic afferents into the reticular thalamic nucleus of mouse"

15.30-15.40 Sonja Kleinlogel, University of Bern
"Restoring the ON-switch in blind retinas: Opto-mGluR6, a next-generation, cell-tailored optogenetic tool"

3. SPECIAL SESSION: "NON-ACADEMIC CAREERS IN SCIENCE" (13.30-15.45)

Ever thought about what to do with your PhD if you do not continue in academic research? We will be welcoming several speakers from diverse companies and NGOs who will briefly present their job profile and will give you tips how to manage the transition between academia and industry.

Chairs: Amir Hajihosseini, Nura Schürmann

13.30-13.40 Patrick Descombes, Nestlé Institute of Health Sciences, Lausanne
"From entrepreneurship in academia to basic research & management in industry"

13.40-13.50 Jurgi Camblong, Co-founder and CEO Sophiagenetics
"The adventure of data driven medicine"

- 13.50-14.00** **Birgit Geueke**, Food Packaging Forum, Zurich
"From academic science to science communication in a Swiss NGO"
-
- 14.00-14.10** **Henri Kornmann**, Technical Development Biosimilars, Merck Serono
"Raise the challenge of biosimilarity"
-
- 14.10-14.20** **Vanessa Rezgui**, Regulatory Affairs Associate, CSL Behring
"Why I chose to start a career as a regulatory affairs professional"
-
- 14.20-14.30** **Yvette Miata Peterson**, Novartis Institutes for BioMedical Research
"Working as a Project Manager in Biotech and Pharma"
-
- 14.30-14.40** **Amadou Bah**, Public Health Consultant, WHO
"From chromosomes to public health"
-
- 14.40-14.50** **Nicolas Fischer**, NovImmune
"A path from light to biotech"
-
- 14.45-15.45** Q/A session and panel discussion with all speakers

4. SPECIAL SESSION: "PIs OF TOMORROW- THE FUTURE OF SWISS RESERACH" (13.30-15.45)

This session will give the opportunity to 6 selected young researchers aiming to start their independent career in Switzerland to present their work and future plans. You will hear about regulatory networks, circadian rythms, intra-tumor heterogeneity, pancreas regeneration, neurogenetics and biocompatible fluorophores. The best presentation will be awarded a prize by a diverse jury composed of professors and other life scientists.

Chairs: Agnès Michel and Anna Brandenburg

Panel members:

Anne Spang, University of Basel
Benoît Kornmann, ETH Zurich
Mohamed Bentires-Alj (Momo), FMI Basel
Jan Hoeijmakers, Erasmus MC Rotterdam
Peter Quail, UC Berkeley
Fabienne Lampert, ETH Zurich
Maria Hondele, ETH Zurich

13.30-13.40 Introduction

13.45-14.00 **Gražvydas Lukinavičius**, EPF Lausanne
"Biocompatible fluorophores for imaging of cellular structures"

- 14.00-14.15** **Michalina Janiszewska**, Harvard Medical School
"Intra-tumor heterogeneity: between genotype, epigenome and phenotype of cancer cells"
-
- 14.15-14.30** **Pavan Ramdya**, EPF Lausanne, University of Lausanne
"Discovering how small brains solve big problems for robotics and medicine"
-
- 14.30-14.45** **Yolanda Schaerli**, University of Zurich
"Design principles of gene regulatory networks"
-
- 14.45-15.00** **Guillaume Rey**, University of Cambridge
"Systems-level analysis of circadian metabolic oscillations"
-
- 15.00-15.15** **Simona Chera**, University of Geneva
"Age-related aspects of pancreatic β -cells regeneration"
-
- 15.15-15.45** Panel Discussion and Decision



-
- 15.45-16.15** Coffee Break, Poster Session

AWARDS

- 16.15-17.00** Friedrich Miescher Award 2015: Martin Jinek
"Cutting DNA with the help of RNA: the future of genomic engineering"
- Morphologiepreis 2015: Benoît Zuber
"Structural Biology of the Nervous System and bacteria"
- Poster and Tomorrow's PI Awards
Sponsored by F1000 and BioTek

Poster prizes sponsored by:



BIOTELLIGENCES



UNIVERSITÉ
DE GENÈVE

DÉPARTEMENT DE PHYSIOLOGIE
CELLULAIRE ET MÉTABOLISME

PLENARY LECTURE

17.00-17.50 Tobias Meyer
Stanford University, US

"Live-cell microscopy reveals distinct switch mechanisms for the decision of mammalian cells to start the cell cycle"

One of the most fundamental decisions mammalian cells continuously make is whether to stay quiescent or divide. We have developed live-cell approaches to visualize in single cells the key steps leading to the commitment of cells to start the cell cycle. I will be presenting evidence that one needs to distinguish two commitment points, a first one after which cells do not require any more growth factors, followed several hours later by a second decision point when cells irreversibly commit. This second commitment does not occur if cells are encountering weak stresses along the way. After the second decision, cells become resistant to weak osmotic, DNA and other stresses. We show that the first decision point is controlled by Cyclin D, p21 and phosphorylation of retinoblastoma protein, while the second decision point is controlled by the bistable rapid inactivation of APC-Cdh1, an E3-ligase that degrades critical regulators of DNA replication. Our dynamic studies provide mechanistic insights into one of the most fundamental problems in cell biology and also shows the power of single live-cell microscopy approaches to dissect complex cellular regulatory circuits.

17.50-18.00 CLOSING REMARKS
Thierry Soldati (President of LS²)
Claus Azzalin, Benoît Kornmann and Paola Picotti (Chairpersons)

SAVE THE DATE
LS² ANNUAL
MEETING 2016

15./16.2.2016
LAUSANNE

CONFIRMED PLENARY SPEAKER:
LAKSHMINARAYANAN MAHADEVAN, HARVARD
(USA)

POSTERS

ANIMAL MODELS

1

Blood Flow and Intussusceptive angiogenesis in caudal vein plexus (CVP) of Zebrafish embryos.

Ravikumar, Swapna (1); Djukic, Tijana (2); Hlushchuk, Ruslan (1); Filipovic, Nenad (3); Djonov, Valentin* (1)

(1) Institute of Anatomy, University of Bern; (2) Research and Development Center for Bioengineering, BiolIRC, University of Kragujevac; (3) Development Center for Bioengineering, BiolIRC, University of Kragujevac

BIOCHEMISTRY

2

Keeping the ER membrane clean: Lipid acetylation and export

Darwiche, Rabih* (1); Schneider, Roger* (1); Choudhary, Vineet (2); Gfeller, David (3); Keller, Alan (4); P. Farias, Leonardo (5); C. C. Leite, Luciana (5); A. Asojo, Oluwatoyin (4)

(1) University of Fribourg, Switzerland, Biochemistry; (2) National Institutes of Health, USA, Cell and Molecular Biology; (3) Swiss Institute of Bioinformatics, Lausanne, Switzerland, Molecular Modeling; (4) Baylor College of Medicine, Houston TX USA, National School of Tropical Medicine; (5) Instituto Butantan, Sao Paulo, Brazil, Centro de Biotecnologia

3

The role of lipids in COPII vesicle formation

Melero, Alejandro (1); Riezman, Howard* (1); Humbert, Frédéric (1); David, Fabrice (2); Riezman, Isabelle (1); Roux, Aurélien (1)

(1) University of Geneva, Biochemistry; (2) EPFL

4

Structure Based Design of Novel Allosteric VEGF Receptor Inhibitors

Avramovic, Dragana (1); Asthana, Mayanka* (1); Ballmer-Hofer, Kurt* (1)

(1) Paul Scherrer Institute, Laboratory of Biomolecular Research

5

The Mechanism and Role of Palmitoylation in Capillary Morphogenesis Gene 2

Blaskovic, Sanja (1); Abrami, Laurence (1); Lemmin, Thomas (2); Dallavilla, Tiziano (3); Kunz, Béatrice (1); Hatzimanikatis, Vassily (3); Dal Peraro, Matteo (4); van der Goot, Gisou* (1)

(1) EPFL, Global Health Institute; (2) UCSF, Pharmaceutical Chemistry; (3) EPFL, Institute of Chemical Sciences and Engineering; (4) EPFL, Institute of Bioengineering

6

Exploring the functions of the adherens junction protein PLEKHA7

Shah, Jimit* (1); Citi, Sandra* (1)

(1) University of Geneva, Cell Biology

7

High content screening reveals new compounds perturbing endocytic lipids homeostasis

Moreau, Dimitri (1); Gruenberg, Jean (1)

(1) University of Geneva, Biochemistry

8

Towards understanding phosphoinositide 3-kinase γ (PI3K γ)-dependent signaling network

Vujcic Zagar, Andreja (1); Scapozza, Leonardo (1); Vadas, Oscar* (1)

(1) University of Geneva, School of Pharmacy

9

ALIX recruits ESCRTIII protein to endosomes depending on its interaction with LBPA

Larios, Jorge (1); Roux, Aurélien (1); Gruenberg, Jean* (1)

(1) University of Geneva, Biochemistry

10

Mapping the Food entrainable oscillator of mice

Chavan, Rohit (1); Albrecht, Urs* (1)

(1) University of Fribourg, Biology

11

Circadian clocks and depression: Molecular pathway of bright light therapy

Strittmatter, Laureen (1); Sandrelli, Federica (1); Albrecht, Urs* (1)

(1) University of Fribourg, Biology

BIOMATERIALS

12

Charge transfer in bio-hybrid photoelectrodes combining light-harvesting proteins and hematite for solar water splitting cells

Faccio, Greta* (1); Ihssen, Julian (1); Schrantz, Krisztina (2); Thöny-Meyer, Linda (1); Braun, Artur* (3)

(1) Empa, Lab. Bioactive Materials; (2) University of Szeged, HU, Dep. of Inorganic and Analytical Chemistry; (3) Empa, Lab. for High Performance Ceramics

BIONANOTECHNOLOGY

13

Second Harmonic Generating Nanoprobes for in vivo Imaging

Sonay, Ali Yasin* (1); Yaganoglu, Sine* (1);

Dempsey, William (1); Pantazis, Periklis* (1)

(1) ETH Zurich, Biosystems Science and Engineering

BIOPHYSICS

14

Using time-resolved fluorometry to study the transport cycle of Na⁺-coupled phosphate

cotransporter

Patti, Monica (1); Forster, Ian* (1)

(1) University of Zurich, Institute of Physiology

15

Uncultivated ultra-small bacterial cells from novel phyla with extraordinary structural organization

Comolli, Luis R.* (1); Luef, Birgit* (2)

(1) Molecular Biology Consortium; (2) Birgit Luef, Norwegian University of Science and Technology, Department of Biotechnology

16

Cortical tension and stiffness during asymmetric cell division

Pham, Tri (1); Helenius, Jonne (2); Müller, Daniel (2); Cabernard, Clemens* (1)

(1) University of Basel, Biozentrum; (2) ETH Zurich, D-BSSE

17

Buckling of a physically-constrained growing epithelium

Trushko, Anastasiya (1); Alessandri, Kevin (1); Roux, Aurelien* (1)

(1) University of Geneva, Biochemistry

CANCER BIOLOGY

18

Vascular Damages Induced by Synchrotron Microbeam Radiation Therapy (MRT)

Brönnimann, Daniel (1); Bouchet, Audrey (1); Serduc, Raphael (2); Bräuer, Elke (2); Graber, Werner (1); Laissue, Jean Albert (3); Djonov, Valentin* (1)

(1) University of Bern, Institute of Anatomy; (2) European Synchrotron Radiation Facility; (3) University of Bern, Institute of Pathology

19

In vivo role of TGF- β superfamily in melanomagenesis

Tuncer, Eylül (1); Zingg, Daniel (1); Sommer, Lukas* (1); Kleiter, Ingo (2)

(1) Institute of Anatomy, University of Zurich, Winterhurerstrasse 190, 8057 Zurich, Switzerland, Cell and Developmental Biology; (2) University Medical Centre Regensburg, Regensburg, Germany, Department of Neurology

CELL BIOLOGY

20

Bac-MultiLabel: a Baculovirus-based multigene expression system for mammalian cells

Mansouri, Maysam (1); Rizk, Aurélien (1); Xie, Ye (1); Berger, Imre (2); Ballmer-Hofer, Kurt (1); Berger, Philipp (1)

(1) Paul Scherrer Institute, Molecular Cell Biology; (2) EMBL

21

The microcephaly protein Wdr62/CG7337 is required to maintain centrosome asymmetry in *Drosophila* neuroblasts

Ramdas Nair, Anjana (1); Singh, Priyanka (1); Rodriguez Crespo, David (2); Salvador Garcia, Jose David (1); Egger, Boris* (2); Cabernard, Clemens* (1)

(1) Biozentrum, University of Basel, Growth and Development; (2) University of Fribourg, Department of Biology

22

Myosin dynamics during asymmetric stem cell division

Tsankova, Anna (1); Cabernard, Clemens* (1)

(1) Biozentrum, Uni Basel

23

S-Palmitoylation in Endoplasmic Reticulum (ER) – Mitochondria Contact Sites

Zaballa, Maria Eugenia (1); Blanc, Mathieu (1); van der Goot, Gisou* (1)

(1) EPF Lausanne, Global Health Institute

24

Revealing mechanisms involved in recovery from transient ER stress in mammalian cells

Fumagalli, Fiorenza* (1); Noack, Julia* (2); Molinari, Maurizio* (3)

(1) Institute for Research in Biomedicine, 6500 Bellinzona, Graduate School for Cellular and Biomedical Sciences, University of Bern, 3000 Bern, Switzerland; (2) Max Planck Institute for Biology of Ageing, 50931 Cologne, Germany; (3) Institute for Research in Biomedicine, 6500 Bellinzona, Ecole Polytechnique Fédérale de

Lausanne, School of Life Sciences, 1015 Lausanne, Switzerland

25

Maintenance of cellular proteostasis through adaptive mechanisms regulating endoplasmic reticulum quality control and degradation machineries

Bergmann, Timothy (1); Molinari, Maurizio* (2)

(1) Institute for Research in Biomedicine, 6500 Bellinzona, Switzerland, ETH Zurich, 8092 Zurich, Switzerland; (2) Institute for Research in Biomedicine, 6500 Bellinzona, Switzerland, EPF Lausanne, School of Life Sciences, 1015 Lausanne, Switzerland

26

Novel mechanistic insights into anthrax toxin endocytosis

Friebe, Sarah (1); Abrami, Laurence (1); Blaskovic, Sanja (1); van der Goot, Gisou* (1)

(1) EPFL, GHI

27

Characterization of the translationally controlled tumor protein in *Trypanosoma brucei* (TbTCTP)

Jojic, Borka (1); Ochsenreiter, Torsten* (2)

(1) Insitute of Cell Biology, Graduate School for Cellular and Biomedical Sciences, University of Bern; (2) Insitute of Cell Biology, University of Bern

28

Junctate drives ER-Phagosome membrane contact site formation that promotes periphagosomal Ca²⁺ microdomains

Guido, Daniele (1); Nunes, Paula (1); Demaurex, Nicolas* (1)

(1) University of Geneva, Department of Cell Physiology and Metabolism

29

Distinct levels in Pom1 gradients limit Cdr2 activity and localization to time and position division

Bhatia, Payal (1); Martin, Sophie* (1)

(1) UNIL, Department of Fundamental Microbiology

30

The role of ANTXR2 in the TGF-Beta pathway: a potential cause of nodule formation in Hyaline Fibromatosis Syndrome

Burgi, Jerome* (1); van der Goot, Gisou* (1)

(1) EPFL, GHI

31

Moesin mediates actin-dependent biogenesis of multivesicular endosomes

Muriel, Olivia (1); Tomas, Alejandra (2); Gruenberg, Jean* (1)

(1) University of Geneva, Biochemistry; (2) UCL, Cell Biology

32

SLC38A9 is a component of the lysosomal amino acid-sensing machinery that controls mTORC1.

Rebsamen, Manuele (1); Pochini, Lorena (2); Stasyk, Taras (3); de Aranjó, Mariana E. G. (3); Galluccio, Michele (2); Kandasamy, Richard K. (1); Snijder, Berend (1); Fauster, Astrid (1); Bruckner, Manuela (1); Bennett, Keiryn L. (1); Indiveri, Cesare (2); Huber, Lukas A. (3); Superti-Furga, Giulio* (1)

(1) CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences; (2) University of Calabria, Department Biology, Ecology and Earth Sciences; (3) Innsbruck Medical University, Division of Cell Biology

33

Lysteriolysin O treatment leads to reduced viability and microparticle release in acid sphingomyelinase knock-down Jurkat T cells

Schoenauer, Roman (1); Wolfmeier, Heidi (1); Atanassoff, Alexander P. (1); Schneider-Schaulies, Sibylle (2); Babiychuk, Eduard B. (1); Draeger, Annette* (1)

(1) University of Bern, Department of Cell Biology; (2) University of Würzburg, Institute of Virology and Immunobiology

34

Social amoebae trap and kill bacteria by casting DNA nets

Zhang, Xuezhong* (1); Zhuchenko, Olga* (2)

(1) University of Geneva, Department of Biochemistry; (2) Baylor College of Medicine, Departments of Molecular and Human Genetics and Pharmacology

35

An outlier pattern underlies the non-random cell cycle length variations in MDCK cells

Kroschewski, Ruth

Berge, Ulrich (1); Bochenek, Daria (1); Stadler, Tanja (2); Kroschewski, Ruth* (1)

(1) ETH Zurich, Institute of Biochemistry; (2) ETH Zurich, Department of Biosystems Science & Engineering

36

Cyclodextrin-induced exocytosis of endocytic organelles and cholesterol storage clearance in NPC cells

Vacca, Fabrizio (1); Gruenberg, Jean (1)

(1) University of Geneva, Biochemistry

37

Characterization of new regulators of the Estrogen Receptor alpha

Segala, Gregory* (1); Pandey, Deo Prakash (1); Picard, Didier* (1)

(1) University of Geneva, Cell Biology

38

Wnt directs the endosomal flux of LDL-derived cholesterol and lipid droplet homeostasis

Scott, Cameron (1); Vossio, Stefania (1); Vacca, Fabrizio (1); Snijder, Berend (2); Larios, Jorge (1); Schaad, Olivier (1); Guex, Nicolas (3); Kuznetsov, Dimitry (3); Martin, Olivier (3); Chambon, Marc (4); Turcatti, Gerardo (4); Pelkmans, Lucas (2); Gruenberg, Jean* (1);

(1) University of Geneva, Department of Biochemistry; (2) University of Zurich, Institute of Molecular Life Sciences; (3) University of Lausanne, Vital-IT; (4) Swiss Federal Institute of Technology (EPFL), Biomolecular Screening Facility

39

Correct timing of cortical flows determine the position of the cleavage furrow during asymmetric cell division

Roubinet, Chantal (1); Cabernard, Clemens (1)

(1) Biozentrum, Growth & Development, Neurobiology

40

Confinement of the Whi3 mneumon in the yeast mother cell prevents its transformation into a prion

Caudron, Fabrice (1); Barral, Yves* (1)

(1) IBC-ETHZ, D-BIOL

41

Fatty infiltration of rotator cuff muscles after tenotomy is associated with degeneration of fast type muscle fibers

Möhl, Christoph (1); Wieser, Karl (1); Valdivieso, Paola (1); Ferrié, Céline (1); Meyer, Dominik (1); von Rechenberg, Brigitte (2); Benn, Mario (2); Gerber, Christian (1); Flück, Martin (1)

(1) University Hospital Balgrist, University of Zurich, Laboratory of Muscle Plasticity, Department of Orthopedics; (2) Vetsuisse Faculty, University of Zurich, Musculoskeletal Research Unit, Center for Applied Biotechnology and Molecular Medicine, Equine Department

42

Asymmetrically dividing Drosophila neuroblasts utilize two spatially and temporally independent cytokinesis pathways

Roth, Michaela (1); Roubinet, Chantal (1); Iffländer, Niklas (1); Ferrand, Alexia (1); Cabernard, Clemens* (1)

(1) University of Basel, Biozentrum

43

Mitochondrial genome segregation: Characterization of the core machinery in single celled eukaryotes

Ochsenreiter, Torsten* (1); Hoffmann, Anneliese* (1)

(1) Institute of Cell Biology, University of Bern

44

A Cellular System for Spatial Signal Decoding in Chemical Gradients

Hegemann, Björn (1); Unger, Michael (2); Lee, Sung Sik (1); Stoffel-Studer, Ingrid (1); van den Heuvel, Jasmin (1); Pelet, Serge (3); Koepl, Heinz (4); Peter, Matthias* (1)

(1) Institute of Biochemistry, ETHZ, Department of Biology; (2) Automatic Control Laboratory, ETHZ, Department of Information Technology and Electrical Engineering; (3) University of Lausanne, Department of Fundamental Microbiology; (4) Technical University Darmstadt, Department of Electrical Engineering and Information Technology

45

Glutathione and Nrf2 collaborate to maintain cell integrity in the normal and wounded epidermis

Telorack, Michele (1); Meyer, Michael (1); Bloch, Wilhelm (2); Werner, Sabine* (1)

(1) Institute of Molecular Health Sciences, Department of Biology; (2) Department of Molecular and Cellular Sport Medicine

46

Cingulin acts as an upstream regulators of the Hippo pathway controlling YAP nucleocytoplasmic shuttling

Domenica, Spadaro (1); Sandra, Citi (1)

(1) University of Geneva, Cell Biology

47

PDZD11: a novel junctional interactor of PLEKHA7

Guerrera, Diego (1); Citi, Sandra* (1)

(1) University of Geneva, Cell Biology

COMPUTATIONAL BIOLOGY

48

Open source software for three-dimensional cell-based modelling of tissue morphogenesis
Feng, Chao (1); Tanaka, Simon (1); Iber, Dagmar* (1)

(1) ETH Zurich, Department of Biosystems Science and Engineering

49

Structural insights into Phosphoinositide 3-kinase (PI3K) regulation using molecular dynamics simulations

Patmanidis, Ilias* (1); Chiriano, Gianpaolo* (1); Vadas, Oscar (1); Scapozza, Leonardo* (1)

(1) University of Geneva, Pharmaceutical Biochemistry

DRUG DISCOVERY

50

Structure-based discovery of new rhodanine derivatives as Staphylococcus aureus FabI inhibitors

Tessaro, Francesca* (1); Chiriano, Gianpaolo* (1); Slepikas, Liudas (2); Perozzo, Remo (1); Perron, Karl (3); Tarasevicius, Eduardas (2); Scapozza, Leonardo (1)

(1) University of Geneva, Pharmaceutical Biochemistry; (2) Lithuanian University of Health Sciences, Medicinal Chemistry; (3) University of Geneva, Botany and Plant Biology

51

Diapocynin, a putative NADPH oxidase inhibitor, ameliorates the phenotype of a mouse model of Duchenne muscular dystrophy

M Ismail, Hesham (1); Scapozza, Leonardo (2); T Ruegg, Urs (3); M. Dorchies, Olivier* (1)

(1) School of Pharmaceutical Sciences, University of Geneva, Pharmaceutical Biochemistry; (2) School of Pharmaceutical Sciences, University of Geneva, Pharmaceutical Biochemistry; (3) School of pharmaceutical Sciences, University of Geneva, Pharmacology

HUMAN PATHOLOGIES

52

Role of Bcl-2 Family member BOK in Human Malignancies

Rabachini, Tatiana (1); Bachmann, Daniel (1); Tschan, Mario (2); Loforese, Giulio (3); Stroka, Debora (3); Strasser, Andreas (4); Kaufmann, Thomas (1)

(1) University of Bern, Institute of Pharmacology (2) University of Bern, Institute of Pathology (3) University of Bern, Department of Clinical Research (4) WEHI Australia

IMAGING

53

A New Bimolecular Synthetic Kinase Activity Relocating Sensor To Quantify Localized Activity Of MAPK

Mira, Nadim (1); Pelet, Serge* (1)

(1) University of Lausanne, Department of Fundamental Microbiology

IMMUNOLOGY

54

The human IgG anti-carbohydrate repertoire exhibits a universal architecture and contains specificity for microbial attachment sites

Schneider, Christoph (1); Smith, David F (2); Cummings, Richard D (2); Frias Boligan, Kayluz (1); Hamilton, Robert G (3); Bochner, Bruce S (4); Miescher, Sylvia (5); Simon, Hans-Uwe (1); Pashov, Anastas (6); Vassilev, Tchavdar (6); von Gunten, Stephan* (1)

(1) University of Bern, Institute of Pharmacology; (2) Emory University School of Medicine, Consortium for Functional Glycomics, Core H; (3) John's Hopkins University School of Medicine, Department of Medicine; (4) John Hopkins University School of Medicine, Department of Medicine; (5) CSL Behring AG, Research and Development; (6) Bulgarian Academy of Science, Stefan Angelov Institute of Microbiology

55

Potentiating therapeutic effects of intravenous immunoglobulin (IVIg) using protein-destabilizing factors

Schneider, Christoph (1); Smith, David F (2); Cummings, Richard D (2); Seibold, Frank (3); Daudel, Fritz (4); Yawalkar, Nikhil (5); Vassilev, Tchavdar (6); von Gunten, Stephan* (1)

(1) University of Bern, Institute of Pharmacology (2) Emory University School of Medicine, Consortium for Functional Glycomics, Core H; (3) Spital Netz Bern, Gastroenterology; (4) Spital Netz Bern, Intensive Care Unit; (5) University

Hospital of Bern, Department of Dermatology;
(6) Bulgarian Academy of Science, Stefan Ange-
lov Institute of Microbiology

56

Poor glycan recognition in patients with primary immunodeficiency

Frias Boligan, Kayluz* (1); Jandus, Peter* (2);
Jandus, Camilla (3); von Gunten, Stephan* (1)

(1) Institute of Pharmacology, University of
Bern; (2) Service of Immunology and Allergol-
ogy, University Hospital of Geneva; (3) Transla-
tional Tumor Immunology Group, Ludwig Center
for Cancer Research, University of Lausanne

57

Delineating the functions of reactive oxygen species in immune responses using the social amoeba *Dictyostelium discoideum* as a model phagocyte.

Dunn, Joe Dan (1); Zhang, Xuezhi (1); Soldati,
Thierry* (1)

(1) Université de Genève, Biochemistry

58

Immuno-modulatory isoforms of the Peptidoglycan Recognition Receptor PGRP-LC engage endocytic mechanisms to regulate NF- κ B kinetics after Gram-negative infection

Neyen, Claudine (1); Runchel, Christopher (2);
Schüpfer, Fanny (1); Meier, Pascal (2); Lemaître,
Bruno* (1)

(1) EPFL, Global Health Institute; (2) Institute of
Cancer Research, Chester Beatty Laboratories

INFECTIOUS DISEASES

59

TOR and autophagy during *Mycobacterium marinum* infection

Cardenal Muñoz, Elena* (1); Arafah, Sonia* (1);
Soldati, Thierry* (1)

(1) University of Geneva, Biochemistry

60

Take the bitter with the sweet: Discoidins and mycobacterial infection

Lopez Jimenez, Ana Teresa (1); Guého, Aurélie
(1); Soldati, Thierry* (1)

(1) University of Geneva, Biochemistry

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Role of vacuolins/flotillins in the biogenesis of the *Mycobacterium marinum* niche

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hard Nocht Institute for Tropical Medicine

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Appiah, Joddy* (1); Barisch, Caroline* (1)

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Vllasaku, Ilmije (1); Kurteshi, Kemajl (2); Ismaili,
Muharrem (3); Vehapi, Idriz (2); Letaj, Kasum (2);
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pastureland; (2) University of Prishtina, Faculty
of Natural Science, Biology; (3) Vifor Interna-
tional, Laboratory of Microbiology; (4) Master
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Yamauchi, Yohei (1); Decamps, Laure (1); Xuan,
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Helenius, Ari (1)

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The role of TlpA and Scol in copper delivery to the CuA-center of aa3-type cytochrome oxidase in *Bradyrhizobium japonicum*

Abicht, Helge (1); Schaerer, Martin (2)

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Van der Henst, Charles* (1); Blokesch, Melanie* (1)

(1) EPFL, SV-GHI

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Pino, Paco* (1); Sojka, Daniel* (1); Jacot, Damien* (1); Hammoudi, Pierre-Mehdi* (1); Bul-len, Hayley Elise* (2); Soldati-Favre, Dominique* (3)

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EZH2 controls neural progenitor pool size and regional identity in the developing mouse midbrain

Zemke, Martina (1); Draganova, Kalina (1); Schoeler, Anne (2); Koseki, Haruhiko (3); Schuebeler, Dirk (4); Sommer, Lukas* (1)

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Towards understanding the in-vivo enantioselective specificity of (R) and (S)-fluoxetine in animal models for cognitive learning

Marwari, Subhi* (1); Dawe, Gavin* (2)

(1) Life Sciences Institute, Drug Development Unit, National University of Singapore; (2) Life Sciences Institute, Department of Pharmacology

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Discovering how small brains solve big problems for robotics and medicine

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Reisenhofer, Miriam (1); Pannicke, Thomas (2); Reichenbach, Andreas (2); Enzmann, Volker* (1)

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Sousek, Alexandra (1); Franken, Paul (2); Landolt, Hans-Peter (1); Tafti, Mehdi (2)

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The mTOR co-factor NONO modulates circadian gene expression and regulates sleep-characteristic neuronal firing

Spinnler, Andrea (1); Mircsof, Dennis (1); Muheim, Christine (1); Brown, Steven A.* (1)

(1) Institute of Pharmacology and Toxicology, University of Zurich

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Optogenetic Approach towards Mapping Inhibitory Inputs to LII Spinal Dorsal Horn Neurons

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Two-photon imaging of light-induced nociceptive processing in the mouse nervous system in vivo

Johannssen, Helge* (1); Zeilhofer, Hanns Ulrich* (2)

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Impact of response adaptation on stimulus perception: Sensory versus optogenetic stimulation of somatosensory cortex

Musall, Simon (1); von der Behrens, Wolfger* (2); Mayrhofer, Johannes (3); Weber, Bruno (3); Helmchen, Fritjof (4); Haiss, Florent (3)

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Novel insights on internalized alpha-Synuclein homeostasis

Gerez, Juan* (1); Picotti, Paola* (1)

(1) Institute of Biochemistry - ETHZ, Biology

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Optogenetic activation of glutamatergic afferents into the reticular thalamic nucleus of mouse

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(1) University of Fribourg, Biology; (2) University of Bern, Physiology

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Valomon, Amandine (1); Borrello, Alessandro (1); Holst, Sebastian (1); Sommerauer, Michael (2); Berger, Wolfgang (3); Baumann, Christian (4); Landolt, Hans-Peter (5)

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Garcia-Lopez, Amparo* (1); Scapozza, Leonardo* (1); Comte, Arnaud (2); Fournet, Guy (2); Goekjian, Peter (2); Joseph, Benoît (2)

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Impact of phosphorylation site mutations on human amino acid uniporter LAT4 expression, localization and function in *Xenopus laevis* oocytes

Oparija, Lalita (1); Guetg, Adriano (1); Verrey, François* (1)

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Ferrié, Céline (1); Wanivenhaus, Florian (1); Flück, Martin* (1)

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ora1 Mutations associated with Tubular Aggregate Myopathy

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Rosselin, Manon (1); Santo-Somingo, Jaime (2); Rieger, Bettina (3); Busch, Karin (3); Demaurex, Nicolas* (1)

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Amino acid transporters and enzymes involved in glutathione synthesis are altered in pancreatic acinar cells during acute pancreatitis

Kuster, Evelyne (1); Sonda, Sabrina (2); Graf, Rolf (2); Verrey, François (1); Camargo, Simone* (1)

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Tocchini, Cristina (1); Keusch, Jeremy J. (1); Miller, Sarah (1); Finger, Susanne (1); Gut, Heinz

(1); Stadler, Michael (1); Ciosk, Rafal* (1)
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Guillermin, Oriane (1); Egger, Boris* (1)

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Gay, Max (1); Sommer, Lukas* (1)

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Radecke, Julika (1); Zuber, Benoît* (1)

(1) University of Bern, Institute of Anatomy

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Milias-Argeitis, Andreas (1); Rullan Sabater, Marc (1); Khammash, Mustafa* (1)

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Rizk, Aurélien (1); Schelb, Mauno (1); Bugarski, Milica (1); Mansouri, Maysam (1); Schertler, Gebhard (1); Berger, Philipp* (1)

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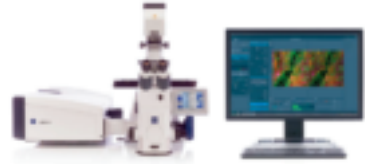
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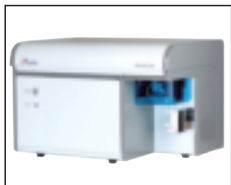
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