

2-3 February 2017

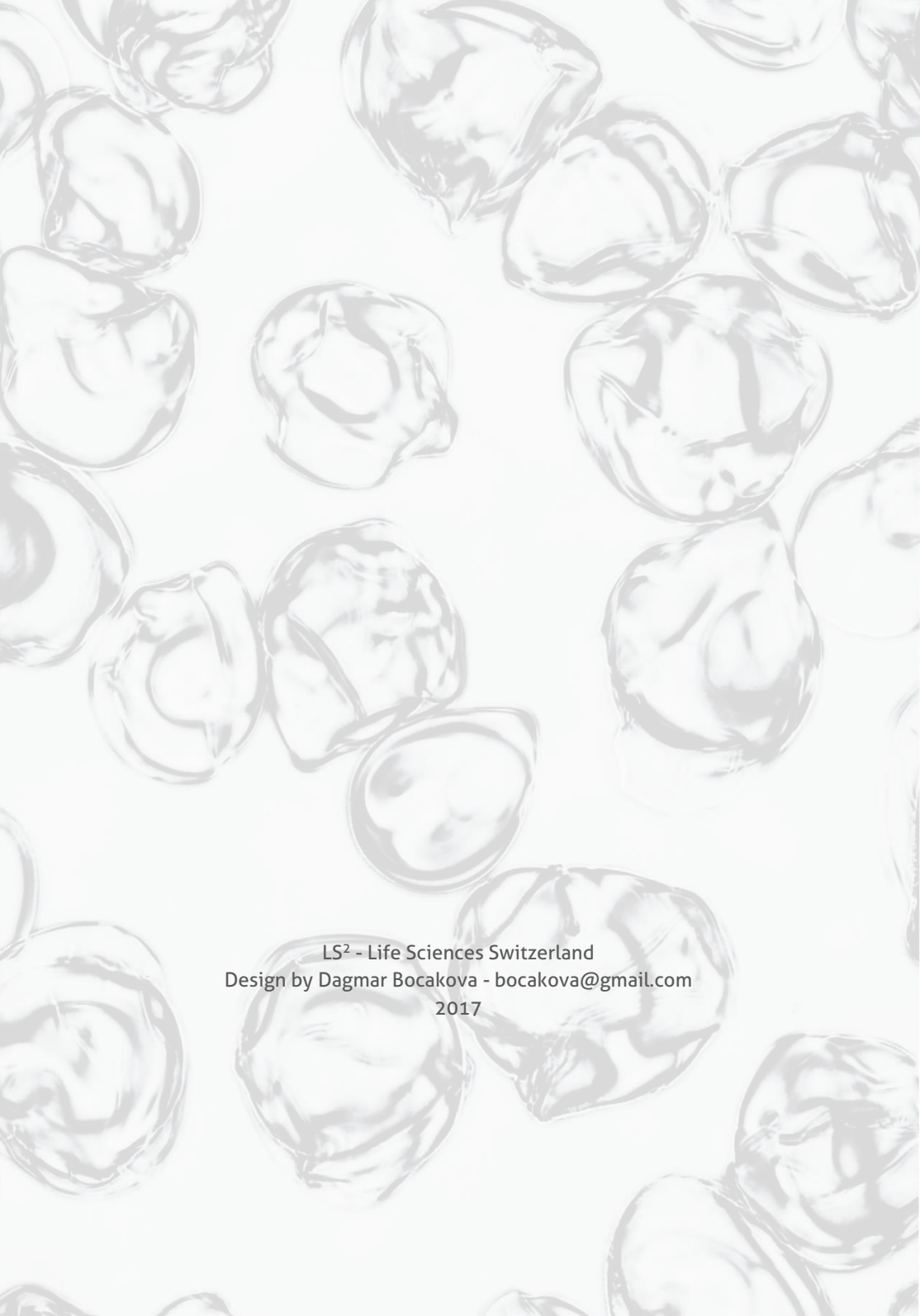
LS² Annual Meeting 2017

Meeting Booklet

Campus Irchel
University of Zurich



University of
Zurich^{UZH}



LS² - Life Sciences Switzerland
Design by Dagmar Bocakova - bocakova@gmail.com
2017



WELCOME ADDRESS

WELCOME TO THE LS² ANNUAL MEETING AT THE UNIVERSITY OF ZURICH ON THE 2/3 FEBRUARY 2017

The same way that LS² is the society of all societies of experimental life scientists in Switzerland, this event is the meeting of all meetings. This is the premier event, the only one that draws such a broad crowd, from undergraduate students to graduate students and postdocs and group leaders and even seasoned retired professors. If you are a life scientist in Switzerland, this is the place to be and to be seen, at least once a year. Its dense program is designed to appeal to everyone, to give everyone the opportunity, again at least once a year, to get exposed to great science in their own field, but also to exciting and thought-provoking stuff from different fields or from the interfaces between science and the real world. The LS² meeting is a great opportunity to network, to meet your old buddies from your undergraduate days, graduate school, and committees you have served on, your former professors, many of your suppliers, your current and future collaborators, and perhaps your future boss.

You may wonder why this year's meeting does not have a specific theme. Themes can make a meeting more attractive to some, but may also shy away others who cannot easily identify with the theme. To emphasize that the LS² meeting is for everyone in and around LS², we deliberately chose no particular theme for the 2017 annual meeting.

How was the program put together? The four plenary speakers were selected by the chair with input from the scientific committee. The goal was to present four outstanding speakers representing as much as possible the breadth of the fields of LS² and its partners, while going beyond the scientists that are frequent visitors at institutions and meetings in Switzerland. With Bernd Bukau, Denis Duboule, Andrew Macpherson, and Sally Temple, you will have four scientific delicacies not to be missed.

Regarding the parallel symposia, these were assigned by the

chair to the different LS² sections and partners, who are responsible for their contents.

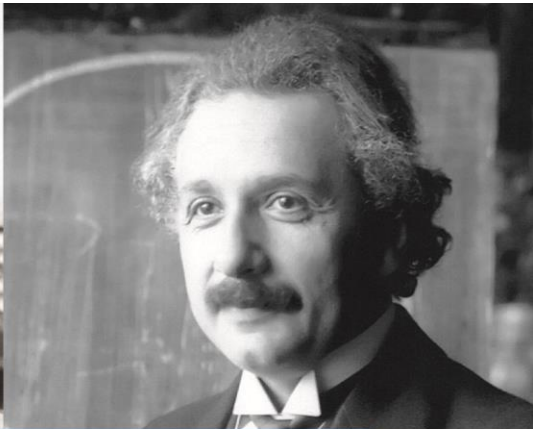
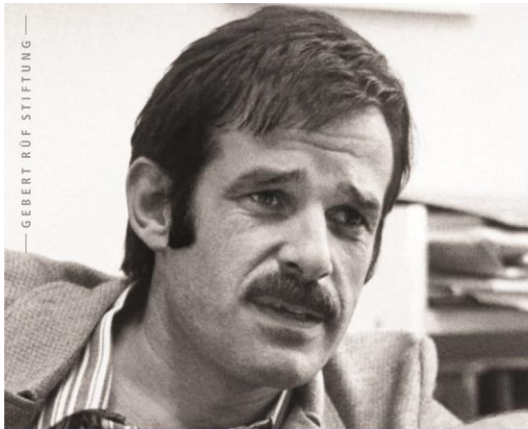
Together with the LS² presidency, the poster sessions were also revisited; their association with food, drinks, and company exhibits should make this display of vibrant science as attractive as possible.

Thus, enjoy two days of science and networking both overlapping and outside your primary interests!

Didier Picard, University of Geneva
Chair of the LS² Annual Meeting 2017







What do these two men have in common?*

*Not only the moustache. Mani Matter and Albert Einstein were both outsiders when they started their careers in music and academia.

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THANKS

TO OUR SPONSORS AND EXHIBITORS

LS² and the organizing committee gratefully acknowledge the sponsors and exhibitors of the LS² Annual Meeting 2017 in Zurich. We welcome all participants of the conference to visit the industry exhibition in the exhibition hall. The industry exhibition is accessible during the entire meeting.





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...and our freelance support: Dagmar Bocakova (design), Dominique Ritter (administration), Michael Vögeli (IT)

LS² - SECTIONS

Molecular and Cellular Biosciences (MCB)

Physiology

Proteomics

LS² PARTNER AND GUEST SOCIETIES

Swiss Chemical Society (SCS) division DMCCB

Swiss Society for Anatomy, Histology and Embryology (SSAHE)

Swiss Society for Experimental Pharmacology (SSEP)

Swiss Laboratory Animal Science Association (SGV/RESAL)

Swiss Society for Neuroscience (SSN)

Swiss Society for Microbiology (SGM-SSM)

Swiss Society of Pathology (SSPath)

Swiss Society for Plant Physiology (SGPP)

Società Toscana delle Scienze Biomediche e Chimiche (STSBC)

Swiss Society for Allergology and Immunology (SSAI)

LS² is a member of the Swiss Academy of Sciences (SCNAT)



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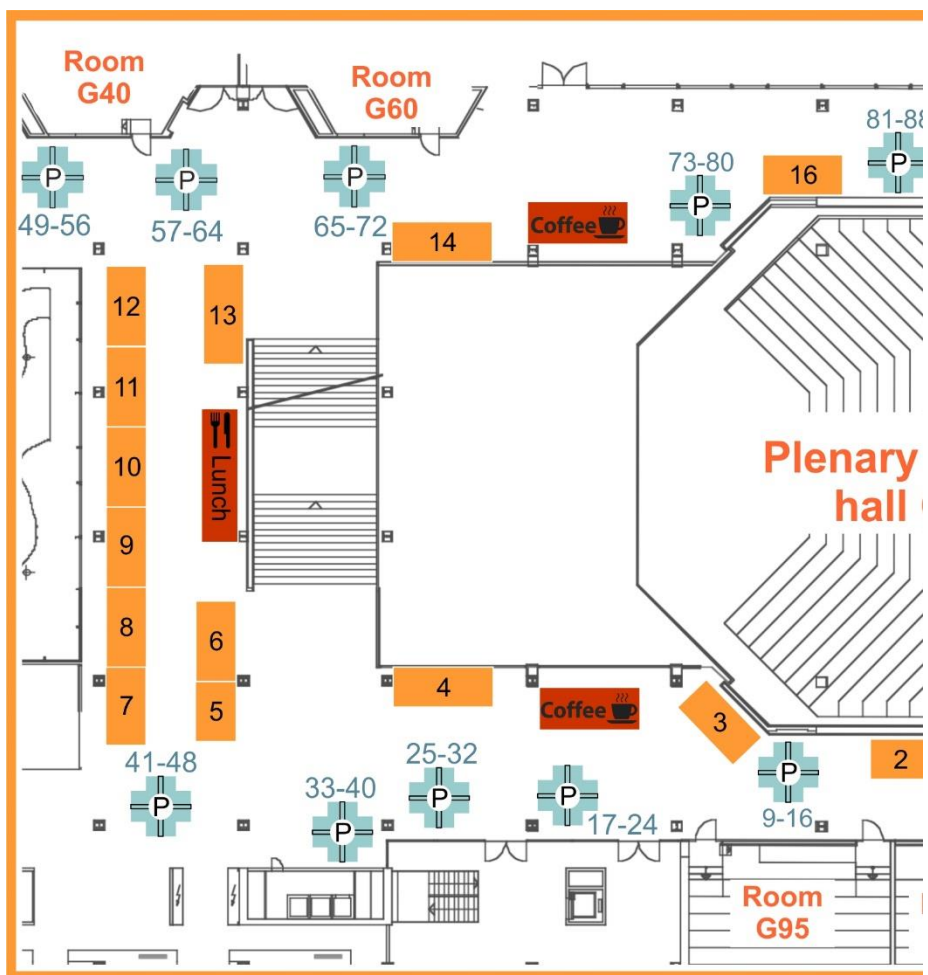
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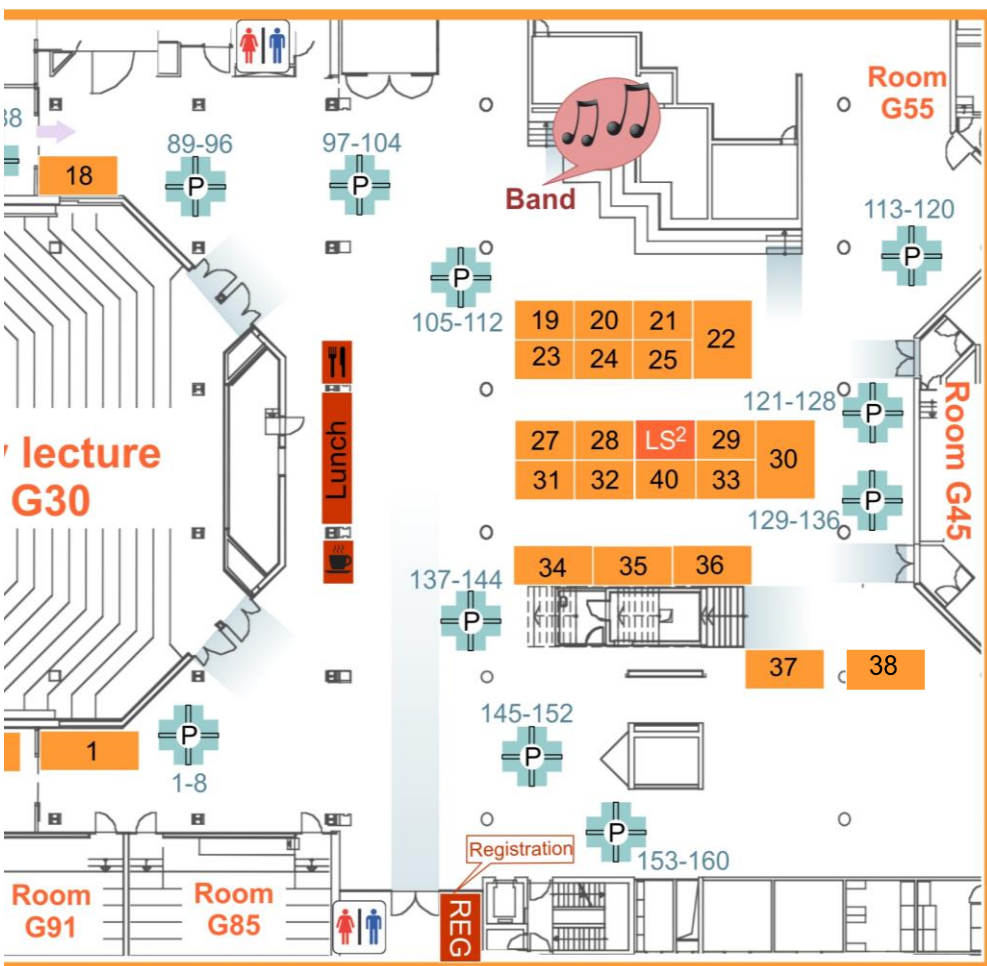
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- | | |
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| 3. PolyGene | 11. CisBio |
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- 33. Vaudaux-Eppendorf AG
- 34. Chemie Brunschwig AG
- 35. BioConcept
- 36. Huberlab AG
- 37. INTEGRA Biosciences AG
- 38. ACCESS - Chemical screening facility
- 40. Takara Bio Europe



PROGRAM OVERVIEW – DAY ONE

THURSDAY 02.02.2017

08:00– 09:00		REGISTRATION, WELCOME COFFEE, MOUNTING OF POSTERS
09:00– 09:10	G30	WELCOME ADDRESS Jean Gruenberg (University of Geneva, President of LS ²) Didier Picard (University of Geneva, Chairman of the LS ² Annual Meeting 2017)
09:10– 09:15	G30	"10 YEARS SYSTEMS.CH: WHAT DID WE DO? WHAT DID WE LEARN?" Daniel Vonder Mühl (Managing Director SystemsX.ch)
09:15– 10:00	G30	PLENARY LECTURE I "SYSTEMS.CH LECTURE" Andrew Macpherson (University of Bern) "The pervasiveness of host-microbial mutualism"
10:00– 10:30		COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING
10:30– 12:30		PARALLEL SYMPOSIA I
	G40	<u>VIROLOGY</u> Viruses, microbes, and their hosts
	G60	<u>SWISS PERSONALIZED HEALTH NETWORK</u> Personalized Medicine
	G85	<u>TOMORROW'S PIS: THE FUTURE OF SWISS RESEARCH</u>
	G95	<u>LEMNIC ANIMAL FACILITY NETWORK (RESAL)</u> Alternative Animal Experimentation
12:30– 13:30		LUNCH BREAK, INDUSTRY EXHIBITION, POSTER VIEWING
12:30– 13:30	F70	LS2 Section Molecular & Cellular Biosciences (MCB) Assembly (upon invitation only)
13:30– 15:30		PARALLEL SYMPOSIA II
	G40	<u>LS2 SECTION PHYSIOLOGY</u> Nutrient metabolism and disease
	G85	<u>SWISS PLANT SCIENCE WEB (SPSW)</u> Plant Genomics
	G60	<u>LS2 SECTION PROTEOMICS</u> Structural and Functional Proteomics
15:30– 16:00		COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING

16:00– 16:30	G30	FRIEDRICH-MIESCHER-AWARD LECTURE Petr Cejka (Institute for Research in Biomedicine, Bellinzona) “Processing DNA double-strand breaks for repair by homologous recombination”
16:30– 17:20	G30	PLENARY LECTURE II Sally Temple (Neural Stem Cell Institute, NY) “Temporal programs in neural stem cell development and aging”
17:20– 17:30	G30	CROWDFUNDING YOUR RESEARCH: TEST IDEAS, SPREAD KNOWLEDGE
17:30– 19:30		POSTER SESSION & MUSICAL APÉRO
18:00– 19:30	F70	LS2 Delegates Assembly (upon invitation only)
19:30	Reg. desk	Leaving for the delegates dinner (upon invitation only)



PROGRAM OVERVIEW - DAY TWO

FRIDAY 03.02.2017

- 09:10– 10:00 G30 **PLENARY LECTURE III**
“THE EMBO KEYNOTE LECTURE”
Bernd Bukau (ZMBH, University of Heidelberg)
“The busy life of nascent chains: Mechanisms of folding and assembly of newly synthesized proteins”
- 10:00– 10:05 G30 **PACE POSTDOC ASSOCIATION**
- 10:05– 10:30 **COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING**
- 10:30– 12:30 **PARALLEL SYMPOSIA III**
- G60 **LS2 SECTION MOLECULAR AND CELLULAR BIOSCIENCES**
From cell biology to single molecules
- G85 **CELLULAR IMMUNOLOGY**
- 10:30 – 13:00 G40 **SATELLITE WORKSHOP**
Non-academic careers in the Life Sciences
Starting with a Start-up
Careers in Pharma
Scientific Management
- 12:30– 14:00 **LUNCH BREAK, INDUSTRY EXHIBITION, POSTER VIEWING**
- 12:30 – 14:00 F70 **SSEP Board meeting** (upon invitation only)
- 14:00– 16:00 **PARALLEL SYMPOSIA IV**
- G60 **EXPERIMENTAL PHARMACOLOGY**
New drugs for pain, sleep, and memory? From basic mechanisms to clinical Implications
- G85 **ANATOMY, HISTOLOGY AND EMBRYOLOGY**
Cellular scissors - New perspectives on proteases
- G95 **SCNAT FORUM FOR GENETIC RESEARCH**
Misuse of biological research: Do we need to be concerned?
- G40 **SATELLITE WORKSHOP**
Academic Careers in the Life Sciences
Young Academia
From Industry back to Academia
Established Academia
- 16:00– 16:30 **COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING**

- 16:30– 17:15 G30 **AWARD SESSION**
16:30– 16:45 **Scientific Quiz Winner**
Poster Award
Tomorrow's PI Award
Lelio Orci Award
- 16:45– 17:15
- 17:15– 18:10 G30 **PLENARY LECTURE IV**
Denis Duboule (University of Geneva and EPF Lausanne)
"Hox genes regulation during vertebrate
development and evolution"
- 18:10– 18:15 G30 **CLOSING REMARKS**
Jean Gruenberg, Didier Picard





DETAILED PROGRAM DAY ONE

THURSDAY 02.02.2017

08:00– 09:00		REGISTRATION, WELCOME COFFEE, MOUNTING OF POSTERS
09:00– 09:10	G30	WELCOME ADDRESS Jean Gruenberg (University of Geneva, President of LS ²) Didier Picard (University of Geneva, Chairman of the LS ² Annual Meeting 2017)
09:10– 09:15	G30	"10 YEARS SYSTEMSX.CH: WHAT DID WE DO? WHAT DID WE LEARN?" Daniel Vonder Mühl (Managing Director SystemsX.ch)
09:15– 10:00	G30	PLENARY LECTURE I "SYSTEMSX.CH LECTURE" Andrew Macpherson (University of Bern) "The pervasiveness of host-microbial mutualism"



SystemsX.ch
The Swiss Initiative in Systems Biology

If we view mammals as host-microbial superorganisms, non-pathogenic microbes at body surfaces comprise 90% of the cellular load and 99% of the genetic diversity. Host and microbial metabolism are intimately integrated and the profound biological influences on almost every host organ system stem not only from signaling at mucosal surfaces and the penetration of a small proportion of live organisms into host tissues, but also the promiscuous circulation of microbial metabolic products. In this talk I shall discuss how these effects start in utero, even before the successive waves of endogenous microbial colonization take place after birth. The functional consequences of host microbial mutualism are critical throughout the trajectory of life including shaping the innate and adaptive arms of the immune system and preparing host metabolism for the challenges of xenobiotic exposure. Despite this intimate arrangement of prokaryotic and eukaryotic metabolism, the two components are physically compartmentalised in health: I shall show how anatomic and immune firewalls set these boundaries.

10:00- 10:30	COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING
10:30– 12:30	PARALLEL SYMPOSIA I
10:30– 12:30	G40 <u>VIROLOGY</u> Viruses, microbes and their hosts <i>Session chairs: Urs Greber (University of Zurich) and Stefan Kunz (University of Lausanne)</i>
10:30– 11:00	Julie Pfeiffer (University of Texas Southwestern) "How gut microbes enhance enteric virus infectivity"
11:00 – 11:30	Jason Mercer (University College London) "28 hours later: Vaccinia-induced cell motility facilitates virus Spread"
11:30 – 11:45	Caroline Tapparel Vu (University of Geneva) "Nanomaterials with virucidal activity against HSPGs dependent viruses <i>in vitro</i> , <i>ex vivo</i> and <i>in vivo</i> "
11:45 – 12:05	FLASH TALKS (5 min) Emilio Yángüez (University of Zurich) "Phosphoproteomic-based kinase profiling of influenza A virus infected cells reveals GRK2 as a crucial host-factor for viral entry" Nikolaos Tsolakos (University of Zurich) "Hijacking of the class IA phosphatidylinositol 3-kinase pathway by a viral protein" Nikolas Friedrich (University of Zurich) "Identification of a novel supersite of neutralization vulnerability within the HIV-1 membrane proximal external region" Fanny Georgi (University of Zurich) "MorphoSphere: A deep learning framework to score cancer cell proliferation and oncolytic virus efficacy in 3D tumor models"
12:05 – 12:25	Luca Clario (Nanolive SA) "The future of non-invasive live cell microscopy... In 4D!"
12:30	End of session

10:30– 12:30 G60 **SWISS PERSONALIZED HEALTH NETWORK**
Personalized Medicine
Session chair: Torsten Schwede (University of Basel & SIB)

10:30 – 10:50 **Peter Meier-Abt** (Past president Swiss Academy of Medical Sciences, Chairman of the National Steering Board SPHN)
 “The Swiss Personalized Health Network (SPHN)”

10:50 – 11:20 **Russ B. Altman** (Stanford University)
 “Informatics methods to advance personalized medicine: Focus on drugs”

11:20 – 11:50 **Cisca Wijmenga** (University Medical Center Groningen)
 “The Health Research Initiative in the Netherlands”

11:50 – 12:00 **Linda Sundermann** (ETH Zurich/Bielefeld University)
 “Onctopus: Subclonal reconstruction of cancer samples based on single nucleotide variants and copy number aberrations”

12:00 – 12:10 **Kathrin Oehl** (University Hospital Zurich)
 “Tracking the clonal origin and chemotherapy resistance of malignant pleural mesothelioma”

12:10 – 12:20 **FLASH TALKS (5 min)**

Sandra Goetze (ETH Zurich)
 “Digitalization of patient samples and multi-omics data in the context of personalized medicine”

Adithi Varadarajan (ETH Zurich)
 “An integrative proteogenomics strategy to identify the entire protein coding potential of prokaryotic genomes”

12:30 **End of session**



10:30– 12:30 G85 **TOMORROW'S PIS: THE FUTURE OF SWISS RESEARCH**
Session chairs: Agnès Michel and Maria Hondele
(ETH Zurich)



Jury members:

Yves Barral (ETH Zurich)
Matthias Peter (ETH Zurich)
Karsten Weis (ETH Zurich)
Prisca Liberali (FMI Basel)
Yaakov Benenson (ETH Zurich)
Constance Ciaudo (ETH Zurich)
Judith Zaugg (EMBL Heidelberg)
Marko Kaksonen (University of Geneva)
Peter Meister (University of Bern)
Andrew Macpherson (University of Bern)



10:30 – 10:50 **Jean Hausser** (Weizmann Institute of Science, Israel)
"Central dogma rates and the trade-off between precision and economy"

10:50 – 11:10 **Lucia Prieto Godino** (University of Lausanne)
"Evolution of olfactory circuits: Zombie genes and other surprises"

11:10 – 11:30 **Moritz Mall** (Stanford University)
"A question of fate: How neurons establish and maintain their identity"

11:30 – 11:50 **Paula Nunes-Hasler** (University of Geneva)
"Networking within the cell: Membrane contact sites as signalling hubs that regulate innate immune cell function"

11:50 – 12:10 **Christian Feller** (ETH Zurich)
"Chromatin chat: Listening to what histones can tell us about aging and cancer"

12:10 – 12:30 **Hannes Röst** (Stanford University)
"Mass spectrometry in the era of personalized medicine – challenges and applications"

12:30 **Final discussion/ Jury meeting**
Lunch bags for the speakers and jury will be delivered into the lecture hall

10:30– 12:30 G95

LEMANIC ANIMAL FACILITY NETWORK (RESAL)

Alternative Animal Experimentation

Session chairs: Fabienne Chabaud (University of Lausanne/RESAL), *Marcel Gyger* (EPF Lausanne)



10:30– 11:05

Martin Schwarzer (Institute of Functional Genomics of Lyon)

“From flies to mice: Selected lactobacilli strains restore juvenile growth dynamics upon undernutrition”

11:05 – 11:40

Aaron Voigt (University Medical Centre, Jülich Aachen Research Alliance)

“Drosophila as a model organism to study human neurodegenerative diseases ”

11:40 – 12:00

Federico Miozzo (University of Geneva)

“Role of the transcription factor *Fer2* in the dopaminergic neurons of *Drosophila*: A novel model of Parkinson’s disease ”

12:00 – 12:15

Samuel Rommelaere (EPF Lausanne)

“A fat body-secreted small protein remotely controls lipid absorption by the gut ”

12:15 – 12:30

Louise Lefrançois (University of Geneva)

“Genome wide mutagenesis strategies in *Dictyostelium discoideum* and *Mycobacterium marinum* to decipher the conserved genetic basis of mycobacteria intracellular infections”

12:30

End of session

12:30– 13:30

LUNCH BREAK, INDUSTRY EXHIBITION, POSTER VIEWING

12:30– 13:30 F70

LS2 Section Molecular & Cellular Biosciences (MCB)

Assembly (upon invitation only)

Lunch bags for the registered participants will be delivered into the lecture hall.



13:30– 15:30

PARALLEL SYMPOSIA II



13:30– 15:30 G40

LS2 SECTION PHYSIOLOGY

Nutrient metabolism and disease

Session chairs: François Verrey (University of Zurich) and Zhihong Yang (University of Fribourg)

13:30-14:00

Yibin Wang (University of California)
"Branched-chain amino acids: Making new friends with old players in metabolism"

14:00-14:30

Alaa S. Awad (Pennsylvania State University)
"Arginase-2: An emerging key player in diabetic kidney disease"

14:30-14:50

Nouridine Faresse (NCCR Kidney.CH Junior Grant Awardee, University of Zurich)
"Novel developments in aldosterone signaling and its role in lipid metabolism"

14:50 – 15:05

Erika Tarasco (University of Zurich)
"Effect of Roux-en Y gastric bypass in ApoE*3Leiden.CETP mice"

15:05 - 15:25

FLASH TALKS (5 min)

Xu Wang (EPF Lausanne)
"Systems approach to understand the impact of genetics and diet on aging"

Fabrizio Vacca (University of Geneva)
"Lysobisphosphatidic acid and cholesterol storage in Niemann-Pick C"

Ji Huang (University of Fribourg)
"Role of arginase-II in regulation of water balance"

Ilaria Orlando (University of Zurich)
"Regulatory DNA elements modulating oxygen-regulated erythropoietin gene expression"

15:30

End of session

13:30– 15:30	G85	SWISS PLANT SCIENCE WEB (SPSW) Plant Genomics <i>Session chair: Kentaro Shimizu</i> (University of Zurich)	This session is supported by the URPP Evolution in Action
13:30 – 14:00	Hiroyuki Tsuji (Yokohama City University) "Florigen-induced epigenomic reprogramming in the shoot apical meristem"		
14:00 – 14:30	Nils Stein (Leibniz Institute of Plant Genetics, Gatersleben) "Reference sequences for the Triticeae – genomic window to the past, presence and the future"		
14:30 – 14:50	Thomas Wicker (URPP Evolution in Action, University of Zurich) "It's all about repeats - How transposable elements shape genomes"		
14:50 – 15:05	Rie Shimizu-Inatsugi (URPP Evolution in Action, University of Zurich) "Molecular mechanism of adaptation to new environments in allotetraploid species"		
15:05 – 15:25	FLASH TALKS (5 min) Weihong Qi (ETH Zurich) "De novo assemblies of complex genomes based on long reads and chromatin interactions: Continuity, completeness and accuracy" Matthew Barbour (University of Zurich) "Genetic specificity of a plant-insect food web: Implications for linking genetic variation to network structure" Kinga Rutowicz (University of Zurich) "Microscopy screening approach for identifying chromatin modifiers underlying plant cell transdifferentiation"		
	Ayako Izuno (University of Zurich) "Population genomic signature of environmental association in an ecologically divergent Hawaiian tree species"		
15:30	End of session		

13:30– 15:30	G60	<p>LS2 SECTION PROTEOMICS Structural and Functional Proteomics <i>Session chair: Lydie Lane</i> (SIB Swiss Institute of Bioinformatics, Geneva)</p>	
13:30 – 14:00		<p>Martin Beck (EMBL Heidelberg) <i>"In situ structural analysis of the human nuclear pore complex"</i></p>	
14:00 – 14:30		<p>Hui Zhang (Johns Hopkins University) <i>"Genomic, proteomic and glycoproteomic analyses of tumors"</i></p>	
14:30 – 14:45		<p>Yansheng Liu (ETH Zurich) <i>"Proteome-wide expression and turnover analysis quantify genetic impact in Down Syndrome"</i></p>	
14:45 - 15:05		<p>FLASH TALKS (5 min)</p> <p>Vera Bilan (University of Zurich) <i>"Label-free PRM-based identification of quantitative differences in the ADP-ribosylome induced by mild to severe oxidative stress"</i></p> <p>Yuehan Feng (ETH Zurich) <i>"A novel proteomics approach to probe the structural landscape of alpha-Synuclein in cells and tissues"</i></p> <p>Xavier Hernandez-Alias (ETH Zurich) <i>"Systematic investigation of glucose metabolism in various cancers by in silico mining of PCT-SWATH data sets"</i></p> <p>Maik Müller (ETH Zurich) <i>"Singlet oxygen generators enable the identification of proximal proteins"</i></p>	
15:05 – 15:25		<p>Loïc Dayon (Nestlé Institute of Health Sciences) <i>"Clinical-Scale Discovery Proteomics in Human Body Fluids"</i></p>	
15:30		End of session	
15:30– 16:00		COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING	

16:00– 16:30 G30 **FRIEDRICH-MIESCHER-AWARD LECTURE**
Petr Cejka (Institute for Research in Biomedicine, Bellinzona)
 “Processing DNA double-strand breaks for repair by homologous recombination”

16:30– 17:20 G30 **PLENARY LECTURE II**
Sally Temple (Neural Stem Cell Institute, NY)
 “Temporal programs in neural stem cell development and aging”

Neural stem cells (NSCs) are foundational cells in mammalian central nervous system development, and they continue to contribute new neurons and glial cells throughout life in areas of the adult brain important for learning and memory. During development, NSCs produce diverse progeny on a precise time-schedule. For example, during cerebral cortical development, they produce layer-specific neurons in order, from deep to superficial, prior to generating glia. Notably, these temporal changes are programmed within individual progenitor cells, as they can be recapitulated by single cells isolated from the brain and dividing in clonal culture, shown by following cell lineages by time-lapse analysis. In the adult brain, temporal changes also dominate NSC behavior, as they deplete during aging, contributing to memory impairment. Our work is aimed at understanding how NSC gene pathways and networks change over time in mice and human, to provide insight into fundamental neural developmental and aging mechanisms, and how they may lead to congenital defects and age-related neurodegenerative disease.

17:20– 17:30 G30 **CROWDFUNDING YOUR RESEARCH: TEST IDEAS, SPREAD KNOWLEDGE**
 Speakers: Luc Henry and Mirko Bischofberger



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17:30– 19:30 **POSTER SESSION & MUSICAL APÉRO**
 Exhibition area
 17:30-18:30 / A
 18:30-19:30 / B
 Session accompanied by the Soul trio "Soulpotion"
Session A: Odd numbers / Session B: Even numbers

soul potion

18:00– 19:30 F70 **LS2 Delegates Assembly** (upon invitation only)

19:30 Reg. Desk **Leaving for the delegates dinner** (upon invitation only)

DETAILED PROGRAM DAY TWO

FRIDAY 03.02.2017



09:10– 10:00 G30 **PLENARY LECTURE III**

“THE EMBO KEYNOTE LECTURE”

Bernd Bukau (Center for Molecular Biology - ZMBH, University of Heidelberg)

“The busy life of nascent chains: Mechanisms of folding and assembly of newly synthesized proteins”

The process of translation integrates multiple tightly regulated mechanisms ensuring that nascent polypeptide chains are correctly processed, targeted and folded into functional proteins. These include co-translationally acting factors, some of which associate transiently to ribosomes, which mediate spatially and temporally orchestrated protein maturation steps, and mRNA-encoded local translation speed variations which appear to guide these processes. Pro- and eukaryotes share basic principles but differ with respect to major features including the nature of the involved factors, indicating substantial evolutionary diversification. We report the dissection of the flux of newly synthesized proteins through the system of co-translationally engaged factors in *E. coli* and *S. cerevisiae* using ribosome profiling technology.

In *E. coli*, the SRP targets almost exclusively inner membrane proteins to the membrane, whereas the chaperone trigger factor (TF) associates primarily with cytosolic, periplasmic and outer membrane proteins, indicating nascent chains are triaged between SRP and TF pathways. The Hsp70 chaperone DnaK interacts in concerted action with TF, typically with longer nascent chains and reflecting domain boundaries of the emerged nascent chains. We also find evidence that assembly of protein complexes initiates co-translationally once the domain interfaces of the interacting polypeptides are exposed. The organisation of the subunit-encoding genes in operons facilitates the assembly process.

In *S. cerevisiae*, the Hsp70 chaperone Ssb shows a different pattern of early nascent chain association



as compared to its prokaryotic DnaK counterpart. Co-translational protein assembly is also observed, although operon organisation of genes is less common, pointing to differences in the principles governing protein assembly in pro- and eukaryotes.

- 10:00– 10:05 G30 PACE POSTDOC ASSOCIATION
- 10:05– 10:30 COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING
- 10:30– 12:30 G60 **PARALLEL SYMPOSIA III**
LS2 SECTION MOLECULAR AND CELLULAR BIOSCIENCES
From cell biology to single molecules
Session chair: Monica Gotta (University of Geneva)
- 10:30 – 11:00 **Lori Passmore** (University of Cambridge)
"Regulation of polyA tail length by cellular machines"
- 11:00 – 11:30 **Buzz Baum** (University College London)
"The evolution of eukaryotic cell division"
- 11:30 – 11:50 **Sine Yaganoglu** (ETH Zurich)
"Seeing forces: An optical biosensor for mechanical stimuli"
- 11:50 - 12:05 **FLASH TALKS (5 min)**
- Eric Durandau** (University of Lausanne)
"Dynamic measurement of kinase activity in live single cell"
- Qian Feng** (ETH Zurich)
"Mechanical force induces mitochondrial fission via the canonical fission machinery"
- Ali Yasin Sonay** (BSSE-ETH Zurich)
"Second harmonic nanoprobes for hematopoietic stem cell labeling and tracking"
- 12:05 – 12:25 **Michael Elser** (Takara Bio Europe)
"Faster, easier purification of antibodies and proteins with Capturem technology"
- 12:30 **End of session**



10:30 – 12:30 G85 **CELLULAR IMMUNOLOGY**
Session chair: Salomé LeibundGut (University of Zurich)

10:30 – 11:00 **Venizelos Papayannopoulos** (The Francis Crick Institute, London)
"Neutrophil extracellular traps in immunity and disease"

11:00 – 11:30 **Lynn Wong** (University of Zurich)
"Inhibitors of apoptosis proteins in host defense from infection"

11:30 – 11:45 **Pierre-Yves Mantel** (University of Fribourg)
"Extracellular vesicles in the regulation of neutrophil dysfunction during malaria"

11:45 – 12:00 **FLASH TALKS (5 min)**

Ana Teresa Lopez Jimenez (University of Geneva)
"Role of ESCRT in membrane repair during Mycobacterial infection"

Eva Guiducci (University of Zurich)
"The role of neutrophil extracellular traps during systemic *C. albicans* infection"

Jesus Francisco Glaus Garzon (University of Zurich)
"The role of hypoxia and inflammation in the tumor microenvironment of colon carcinoma"

12:00 – 12:20 **Tobias Junt** (Novartis Institutes for BioMedical Research, Basel)
"GPR91 – a metabolic switch in autoimmune inflammation"



12:30 End of session

10:30 – 13:00 G40 **SATELLITE WORKSHOP**
Non-academic careers in the Life Sciences
Session chair: Ulrike Rieder (Philochem AG)



Starting with a Start-up
Simone Bottan (Project Leader Hylomorph)
Doron Shmerling (CEO PolyGene)
Marc Zünd (CEO Vigiltech)

Careers in Pharma

Moreno Wichert (Scientist, Roche)

Christian Jost (RPF-PostDoc, Roche)

Matthias Rosenwald (Medical Science Liaison (MSL), Janssen)

Marco Worch (Head Inspection Management & Head L-SQM, Roche)

Chantel Tu (Execution Manager EU, Regulatory Lifecycle Management, Hexal AG / Sandoz)

Michael Arzt (Medical Advisor, Novartis Pharma Schweiz AG)

Franziska Bootz (Clinical Development Manager, Philochem AG)

Tanja Matt (Vicepresident, Lifecycle Team Project Leader, Roche)

Scientific Management

Lisa Vincenz (Science Journalist, Nature Publishing Group)

Flóra Vajda (Project Coordinator, Wyss Translational Center Zurich)

Sabine Kastner (Scientific Writing, SimplyScience)

Laura Tüshaus (Consultant Life Sciences, Kelly)

Speakers working in the respective domain will give a brief **5' introduction** about their career path and will then be available for the following **1 hour-round table discussion in the theater room F65 downstairs.**

The session will run until 13:00, including a short coffee break in front of F65 at 11:45 just for the session participants!

12:30– 14:00

LUNCH BREAK, INDUSTRY EXHIBITION, POSTER VIEWING

14:00– 16:00

14:00 – 16:00 G60

PARALLEL SYMPOSIA IV

EXPERIMENTAL PHARMACOLOGY

New drugs for pain, sleep, and memory? From basic mechanisms to clinical implications

Session chair: Hans-Peter Landolt (University of Zurich)

14:00 – 14:30

Hanns Ulrich Zeilhofer (University of Zurich)

“New approaches to chronic pain”

14:30 – 15:00

William Wisden (Imperial College London)

“Capturing the neuronal ensembles underlying sleep and sedation”

- 15:00 – 15:30 **Dominique de Quervain** (University of Basel)
"Genes and memory: New approaches in drug discovery"
- 15:30 – 15:40 **Karthik Balakrishnan** (University of Zurich)
"Restoring cell surface expression of GABA (B) receptors: A potential strategy to limit neuronal death in cerebral ischemia"
- 15:40 – 15:50 **Konstantinos Kompotis** (University of Lausanne)
"A functional role for miR-709 in sleep homeostasis"
- 15:50 – 16:00 **Aymeric Monteillier** (University of Geneva)
"Intranasal administration of resveratrol successfully prevents lung cancer in A/J mice"

16:00 **End of session**

14:00 – 16:00 G85 **ANATOMY, HISTOLOGY AND EMBRYOLOGY**
Cellular scissors - new perspectives on proteases
Session chair: Franziska Theilig (University of Fribourg)

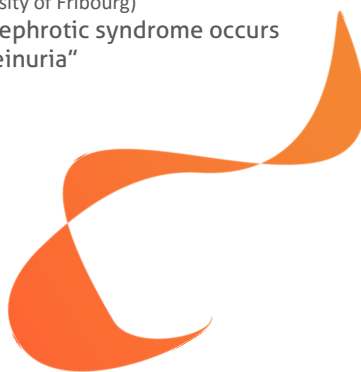
14:00 – 14:40 **Thomas Reinheckel** (University of Freiburg)
"Lysosomal Proteases and Cancer Progression - how does it work?"

14:40 – 15:20 **Edith Hummler** (University of Lausanne)
"Serine proteases in health and disease"

15:20 – 15:35 **Diego Lopez Leon** (University of Fribourg)
"Granzyme B acts as an innate immune barrier by specifically attenuating bacterial virulence"

15:35 – 15:50 **Alexey Larionov** (University of Fribourg)
"Sodium retention in nephrotic syndrome occurs independently of proteinuria"

16:00 **End of session**



14:00 – 16:00 G95

SCNAT FORUM FOR GENETIC RESEARCH

Misuse of biological research: Do we need to be concerned?

Session chair: Ursula Jenal (Jenal & Partners Biosafety Consulting, Rheinfelden)

sc|nat 

Swiss Academy of Sciences
Akademie der Naturwissenschaften
Accademia di scienze naturali
Académie des sciences naturelles

Cédric Invernizzi (Federal Office for Civil Protection - FOCP,
SPIEZ LABORATORY, Spiez)

“When export controls interfere with the publication
of scientific research: The dual use problem”

Following the talk by Cédric Invernizzi, an interdisciplinary panel of young scientists will evaluate and discuss different options on how to address the misuse potential of biological research. **All are welcome to join the discussion!**



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement des Innern EDI
Bundesamt für Gesundheit BAG

14:00– 16:00 G40

SATELLITE WORKSHOP

Academic Careers in the Life Sciences

Session chair: Ulrike Rieder (Philochem AG)



NCCR
CHEMICAL
BIOLOGY

Young Academia

Johannes Bohacek (Assistant Professor, University of Zurich)

Mirko Santello (Ambitione Fellow, University of Zurich)

Oliver Germershaus (Professor, University of Applied Sciences and Arts Northwestern Switzerland)

Kathrin Lang (Assistant Professor, TU Munich)

From Industry back to Academia

Jonathan Hall (Professor, ETH Zurich)

Caspar Demuth (Lecturer / Head of Centre for Analytical Chemistry, Zurich University of Applied Sciences)

Established Academia

Markus Aebi (Professor, ETH Zurich)

Dagmar Iber (Professor, ETH Zurich)

Anne Spang (Professor, University of Basel)

Speakers working in the respective domain will give a brief **5' introduction** about their career path and will then be available for the following **1 hour-round table discussion in the theater room F65 (downstairs in between entry door and registration desk)**.

16:00– 16:30

COFFEE BREAK, INDUSTRY EXHIBITION, POSTER VIEWING

16:30– 17:15 G30 AWARD SESSION

16:30 – 16:45 Scientific Quiz Winner



Poster Award

Journal of General Virology
'Most Promising Science Prize'

Chair: Urs Greber, Journal of General Virology Editor



Tomorrow's PI Award



16:45 – 17:15

Lelio Orci Award

Markus Aebi (ETH Zurich)

„The making of N-glycoproteins“



17:15– 18:10 G30 PLENARY LECTURE III

Denis Duboule (University of Geneva and EPF Lausanne)

“Hox genes regulation during vertebrate development and evolution“

Unlike in invertebrates, vertebrate Hox gene clusters are found in multiple copies and are tightly packed and organized, with all transcripts encoded by the same DNA strand. This vertebrate genomic synapomorphy has been largely verified by recent genome sequencing efforts and an exception to this rule has not been found thus far. This evolutionary conundrum can be tentatively explained when considering recent work on the various regulatory strategies implemented by these genomic loci. By using recent data addressing these issues, I will try and propose a model for this surprising observation.

18:10– 18:15 G30 CLOSING REMARKS

Jean Gruenberg (University of Geneva, President of LS²)

Didier Picard (University of Geneva, Chairman of the LS² Annual Meeting)



POSTERS

(CATEGORIES INDICATED BY THE AUTHOR IN ALPHABETICAL ORDER)

BIOCHEMISTRY

1

Impact of light on the circadian clock and mood-related behavior

Olejniczak, Iwona

Olejniczak, Iwona (1); Mansencal-Strittmatter, Laureen (1) Fribourg University, Biology

CANCER BIOLOGY

2 Selected for talk

Tracking the clonal origin and chemotherapy resistance of malignant pleural mesothelioma

Oehl, Kathrin

Oehl, Kathrin (1); Vrugt, Bart (1); Wagner, Ulrich (1); Meerang, Mayura (2); Kirschner, Michaela B. (2); Weder, Walter (2); Opitz, Isabelle (2); Wild, Peter J.* (1)

(1) University Hospital Zurich, Pathology and Molecular Pathology; (2) University Hospital Zurich, Division of Thoracic Surgery

3

TGF β mediates the pro-tumor effect in innate immune cells

Stefanescu, Cristina

Stefanescu, Cristina (1); Roblek, Marko (1); Heikenwalder, Mathias (2); Borsig, Lubor* (1)

(1) University of Zurich, Institute of Physiology; (2) DKFZ Heidelberg

4 Selected for talk

The Role of Hypoxia and Inflammation in the Tumor Microenvironment of Colon Carcinoma

Glaus Garzon, Jesus Francisco

Glaus Garzon, Jesus Francisco (1); Jurisica, Igor (2); Heikenwalder, Mathias (3); Hottiger, Michael O. (4);

Wenger, Roland H. (1); Borsig, Lubor* (1)

(1) University of Zurich, Institute of Physiology; (2) Princess Margaret Cancer Centre; (3) German Cancer Research Centre; (4) University of Zurich, Institute of Veterinary Biochemistry and Molecular Biology

5

L-selectin on myeloid cells mediates development of metastasis in a tissue-specific manner

Protsyuk, Darya

Protsyuk, Darya (1); Glaus Garzon, Jesus (1); Borsig, Lubor* (1)

(1) University of Zurich, Institute of Physiology

6

MitoModules as cancer biomarkers

Sajic, Tatjana

Sajic, Tatjana (1); Aebersold, Ruedi* (1)

(1) ETHZ, Department of Biology (IMSB)

7

Proteomic characterization of high-grade serous ovarian carcinoma using SWATH-MS

Friedrich-Grube, Betty

Thomas, Stefani (1); Friedrich-Grube, Betty (2); Aebersold, Ruedi* (3); Zhang, Hui* (1)

(1) Johns Hopkins University School of Medicine, Baltimore, Department of Pathology; (2) ETH Zurich, Department of Biology, Institute of Molecular Systems Biology; (3) ETH Zurich, Department of Biology, Insitute of Molecular Systems Biology

CANCER IMMUNOLOGY

8 Cancelled

CELLULAR IMMUNOLOGY

9

Dictyostelium discoideum cell-intrinsic immunity

Raykov, Lyudmil

Raykov, Lyudmil (1); Soldati, Thierry (1)

(1) UNIGE, Biochemistry

COMPUTATIONAL BIOLOGY

10 **Selected for talk**

Onctopus: Subclonal reconstruction of cancer samples based on single nucleotide variants and copy number aberrations

Sundermann, Linda

Sundermann, Linda (1) (4); Deshwar, Amit G. (2); Morris, Quaid (3); Rättsch, Gunnar (1)

(1) ETH Zurich, Department of Computer Science; (2) University of Toronto, Deep Genomics Inc., Edward S. Rogers Sr. Department of Electrical and Computer Engineering; (3) University of Toronto, The Donnelly Center for Cellular and Biomolecular Research; (4) Bielefeld University

11

HAMAP - leveraging Swiss-Prot curation for the automated annotation of protein sequences

Pedruzzi, Ivo

Pedruzzi, Ivo (1); Rivoire, Catherine (1); Auchincloss, Andrea H. (1); Coudert, Elisabeth (1); Keller, Guillaume (1); Masson, Patrick (1); de Castro, Edouard (1); Baratin, Delphine (1); Cuche, Béatrice A. (1); Bougueleret, Lydie (1); Poux, Sylvain (1); Redaschi, Nicole (1); Xenarios, Ioannis (1); Bridge, Alan* (1)

(1) SIB Swiss Institute of Bioinformatics, Swiss-Prot Group

12

Fresh, high quality, local and global: The UniProt protein resource

Gasteiger, Elisabeth

Gasteiger, Elisabeth (1); Bridge, Alan (1); Poux, Sylvain (1); Redaschi, Nicole (1); Bougueleret, Lydie (1); Xenarios, Ioannis (2); group, Swiss-Prot (1)

(1) SIB Swiss Institute of Bioinformatics, Swiss-Prot group; (2) SIB Swiss Institute of Bioinformatics, Swiss-Prot group, Vital-IT group

13 **Selected for talk**

Hybrid *de novo* assembly of highly

heterozygous allotetraploid cereal genome assisted by its parental diploid genome

Hatakeyama, Masaomi

Hatakeyama, Masaomi (1); Aluri, Sirisha (2); Patrignani, Andrea (2); Grüter, Simon (2); Schlapbach, Ralph (2); Shimizu-Inatsugi, Rie (1); Kuo, Tony (3); Sese, Jun (3); N. Nataraja, Karaba (4); R. L., Ravikumar (5); M. Sreeman, Sheshshayee (4); K. Shimizu, Kentaro* (1)

(1) University of Zurich, Institute of Evolutional Biology and Environmental Studies; (2) Functional Genomics Center Zurich; (3) Computational Biology Research Center, National Institute of Advanced Industrial Science and Technology; (4) University of Agricultural Sciences, GKVK, Department of Crop physiology; (5) University of Agricultural Sciences, GKVK, Department of Agricultural Biotechnology

14

Metagenome annotation with Distributed Reference Graphs

Kahles, Andre

Kahles, Andre (1); Rättsch, Gunnar* (1)

(1) ETH Zurich, Department of Computer Science

DRUG DISCOVERY

15

Experimental verification of in silico predicted protein binder to the FOXO4 transcription factor

Taus, Petr

Taus, Petr (1)

(1) Faculty of Science, Charles University in Prague, Cell Biology

GENETICS

16

Functional Mapping of Yeast Genomes by Saturated Transposition

Michel, Agnès

Michel, Agnes (1); Kimmig, Philipp (1); Kornmann, Benoit* (1)

(1) ETHZ, Institute of Biochemistry

17

Analysis of smad4 gene expression pattern during zebrafish embryonic development

Scepanovic, Jelena

Scepanovic, Jelena* (1); Despotovic, Jovana (1); Nikolic, Aleksandra* (1)

(1) Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Serbia, Laboratory for Molecular Biology

INFECTIOUS DISEASES

18

Cellular communication between Plasmodium falciparum-infected red blood cells and neutrophils via extracellular vesicles

Babatunde, Adebayo

Babatunde, Kehinde-Adebayo (1); Fellay, Isabelle (1); Ghiran, Ionita (2); Filgueira, Luis (1); Walch, Michael (1); Mantel, Pierre-Yves (1)

(1) University of Fribourg, Department of Medicine, Unit of Anatomy, University of Fribourg, 1700 Fribourg, Switzerland; (2) Harvard University, Division of Allergy and Infection, Beth Israel Deaconess Medical Center, Boston, Massachusetts 02115, USA.

19 **Selected for talk**

Extracellular vesicles in the regulation of neutrophil dysfunction during malaria

Mantel, Pierre-Yves

Babatunde, Bayo (1); Walch, Michael (1); Filgueira, Luis (1); Fellay, Isabelle (1); Ghiran, Ionita (2); Mantel, Pierre-Yves* (1)

(1) University of Fribourg, Department of Medicine; (2) Beth Israel Deaconess Medical Center, Harvard Medical School, Division of Allergy and Infection

20

Antagonistic manipulation of autophagy by the Mycobacterium marinum ESX-1 secretion system

Cardenal Muñoz, Elena

Cardenal-Muñoz, Elena (1); Arafah, Sonia* (1); López-Jiménez, Ana Teresa (1); Kicka, Sébastien (1); Falaise, Alexandra (1); Bach, Frauke (2); King, Jason S. (3);

Hagedorn, Monica (2); Soldati, Thierry* (1)

(1) University of Geneva, Biochemistry; (2) Bernhard Nocht Institute for Tropical Medicine, Parasitology; (3) University of Sheffield, Biomedical Sciences

21

Understanding the role of vacuolins/flotillins in the biogenesis of the Mycobacterium marinum niche

Bosmani, Cristina

Bosmani, Cristina (1); Hagedorn, Monica (2); Soldati, Thierry (1)

(1) University of Geneva, Department of Biochemistry; (2) Bernhard Nocht Institute for Tropical Medicine, Hamburg

22

Evaluation of a new, VLP-based vaccine against infectious laryngotracheitis (ILT)

Schaedler, Julia

Schädler, Julia (1); Sigrist, Brigitte (1); Hoop, Richard (1); Wolfrum, Nina* (1)

(1) University of Zurich, Institute of Veterinary Bacteriology

23

Regulation of Cytoskeletal Dynamics by Post-Translational Glutathionylation: Implications for NET Formation

Stojkov, Darko

Stojkov, Darko* (1); Amini, Poorya (1); Simon, Hans-Uwe* (1); Yousefi, Shida* (1); Sokollik, Christiane (2); Duppenthaler, Andrea (2)

(1) University of Bern, Switzerland, Institute of Pharmacology; (2) University Children's Hospital Bern, Switzerland, Unit of Pediatric Infectious Diseases

24 **Selected for talk**

Role of ESCRT in membrane repair during Mycobacterial infection

Lopez Jimenez, Ana Teresa

López Jiménez, Ana Teresa (1); Gerstenmaier, Lilli (2); King, Jason (3); Hagedorn, Monica (2); Soldati, Thierry* (1)

(1) University of Geneva, Biochemistry; (2) Bernhard Nocht Institute for Tropical Medicine, Parasitology; (3) University of Sheffield, Biomedical Sciences

25

The role of neutrophils in the outcome of drug treatment against *Leishmania (Viannia) panamensis*

Regli, Ivo

Regli, Ivo (1); Fernández, Olga Lucia (2); Gómez, Maria Adelaida (2); Gore Saravia, Nancy (2); Tacchini-Cottier, Fabienne (1)

(1) WHO-Immunology Research and Training Center, University of Lausanne, Department of Biochemistry; (2) Centro Internacional de Entrenamiento e Investigaciones Médicas

26

Reactive oxygen species contribute to the immune response of *Dictyostelium discoideum* to mycobacterial infection

Dunn, Joe Dan

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

(1) Université de Genève, Biochimie

27 **Selected for talk**

Granzyme B acts as an innate immune barrier by specifically attenuating bacterial virulence

Lopez Leon, Diego

Lopez Leon, Diego (1); Walch, Michael* (1); Filgueira, Luis* (1)

(1) University of Fribourg, Unit of Anatomy, Department of Medicine

IMMUNOLOGY

28

Neutrophils are protective in oral mucosal *Candida albicans* infection by releasing soluble mediators

Braunsdorf, Christina

Braunsdorf, Christina (1); Mailänder-Sánchez, Daniela (2); Wagener, Jeanette (3); Schaller, Martin* (4)

(1) University of Zürich, Vetsuisse Faculty, Section of Immunology; (2) University Hospital Tübingen, Department of Internal Medicine I; (3) University of Aberdeen, Institute of Medical Sciences; (4) University Hospital Tübingen, Department of Dermatology

29

The role of neutrophil extracellular traps during systemic *C. albicans* infection

Guiducci, Eva

Guiducci, Eva* (1); LeibundGut, Salomé* (1)

(1) UZH

MICROBIOLOGY

30

Multidrug-resistant bacteria and antibiotic treatments

Vitale, Alessandra

Vitale, Alessandra (1); Pessi, Gabriella (1); Zerbe, Katja (2); Liu, Yilei (1); Omasits, Ulrich (3); Ahrens, Christian (3); Robinson, John* (2); Eberl, Leo* (1)

(1) Plant and Microbial Biology; (2) Chemistry; (3) Agroscope, Research Group Molecular Diagnostics, Genomics and Bioinformatics & SIB Swiss Institute of Bioinformatics

31

A family of PX-domain lipid binding proteins as organizers of the endocytic organelle system in *Giardia lamblia*

Cernikova, Lenka

Cernikova, Lenka (1); Hehl, Adrian* (1)

(1) Institute of Parasitology

32

The large GTPase *atlastin3/Sey1* promotes intracellular replication of *Legionella pneumophila* by remodeling endoplasmic reticulum morphology

Steiner, Bernhard

Steiner, Bernhard (1); Welin, Amanda (1); Weber, Stephen (1); Swart, Leoni (1); Personnic, Nicolas (1); Freyre, Christophe (1); Klemm, Robin (1); Hilbi, Hubert* (1)

(1) University of Zurich, Institute of Medical Microbiology

33 **Characterization of Legionella effector proteins involved in the modulation of small GTPases**

Swart, Leoni

Swart, A. Leoni (1); Schütz, Sabina (1); Hannemann, Mandy (2); Itzen, Aymelt (2); Panse, Vikram Govind (1); Hilbi, Hubert* (1)

(1) University of Zurich, Institute of Medical Microbiology; (2) Technical University Munich, Chemistry Department, Center for Integrated Protein Science Munich (CIPSM)

34 **The Legionella pneumophila effector RidL binds to host Vps29 via its N-terminal domain**

Bärlocher, Kevin

Bärlocher, Kevin (1); Swart, Leoni (1); Steiner, Bernhard (1); Hutter, Cedric (1); Hohl, Michael (1); Seeger, Markus (1); Hilbi, Hubert* (1)

(1) Universität Zürich, Institute of Medical Microbiology

35 **The Legionella pneumophila Lqs and SinR regulatory network: implications for biofilm architecture and virulence**

Hochstrasser, Ramon

Hochstrasser, Ramon (1); Kessler, Aline (2); Arnold, Fabian (1); Hutter, Cedric (1); Seeger, Markus (1); Hilbi, Hubert* (1)

(1) University of Zurich, Institute of Medical Microbiology; (2) Ludwig-Maximilians University Munich, Max von Pettenkofer Institute

36 **Characterization of M. marinum virulence factors involved in micronutrient acquisition**

Knobloch, Paulina

Knobloch, Paulina (1); Koliwer-Brandl, Hendrik (1);

Barisch, Caroline (2); Soldati, Thierry (2); Hilbi, Hubert* (1)

(1) University of Zurich, Institute of Medical Microbiology; (2) University of Geneva, Department of Biochemistry

37 **The role of 6S-like RNAs in Streptomyces coelicolor gene expression**

Burýšková, Barbora

Burýšková, Barbora* (1)

(1) First Faculty of Medicine, Charles University, Institute of Immunology and Microbiology

38 **Genome Wide Mutagenesis strategies in Dictyostelium discoideum and Mycobacterium marinum to decipher the conserved genetic basis of mycobacteria intracellular infections**

Lefrançois, Louise

Lefrançois, Louise (1); Mendum, Tom (2); Burdet, Frédéric (3); Pagni, Marco (3); Stewart, Graham (2); Soldati, Thierry* (1)

(1) University of Geneva, Switzerland, Biochemistry; (2) University of Surrey, United Kingdom, FHMS; (3) Swiss Institute of Bioinformatics, Switzerland

MOLECULAR AND CELLULAR BIOSCIENCES

39 **Selected for talk** **A fat body-secreted small protein remotely controls lipid absorption by the gut**

Rommelaere, Samuel

Rommelaere, Samuel (1)

(1) EPFL, GHI

40 **Recombinant antibodies for academia** **Cosson, Pierre**

Cosson, Pierre (1)

(1) University of Geneva, Faculty of Medicine

41
Endosomal recruitment of ESCRTs induced by the lipid-binding protein ALIX

Larios, Jorge

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

(1) University of Geneva, Biochemistry

42
Control of astral microtubule length in *S. cerevisiae*: All About Balance

Chen, Xiuzhen

Chen, Xiuzhen (1); Barral, Yves* (1)

(1) Institute of Biochemistry, Department of Biology

43 **Selected for talk**
Seeing forces: An optical biosensor for mechanical stimuli

Yaganoglu, Sine

Yaganoglu, Sine (1); Pantazis, Periklis* (1)

(1) ETH Zurich, D-BSSE

44
Deciphering a prototypical MAPK signaling network at the single cell level using an optogenetic circuit

Dessauges, Coralie

Dessauges, Coralie (1); Blum, Yannick (1); Dobrzynski, Maciej (1); Khammash, Mustafa (2); Pertz, Olivier* (1)

(1) University of Bern, Institute of Cell Biology; (2) ETH Zurich, Department of Biosystems Science and Engineering

45
Molecular mechanisms regulating cellular proteostasis in response to misfolded proteins

Bergmann, Timothy

Bergmann, Timothy (1); Rinaldi, Andrea (2); Boersema, Paul (3); Bertoni, Francesco (2); Picotti, Paola (3); Molinari, Maurizio* (4)

(1) IRB, USI, ETHZ; (2) IOSI; (3) ETHZ, DBIOL; (4) IRB, USI, EPFL

46
Towards Understanding the Transcriptional Network Directing Lipid Droplet Biogenesis

Scott, Cameron

Scott, Cameron (1); Vossio, Stefania (1); Gruenberg, Jean (1)

(1) University of Geneva, Department of Biochemistry

47
Biochemical and in-vivo investigations of a peroxidase from the social amoeba *Dictyostelium discoideum*

Nicolussi, Andrea

Nicolussi, Andrea (1); Dunn, Joe Dan (2); Bellei, Marzia (3); Zamocky, Marcel (1); Furtmüller, Paul Georg (1); Battistuzzi, Gianantonio (3); Soldati, Thierry (2); Obinger, Christian* (1)

(1) University of Natural Resources and Life Sciences, Vienna, Chemistry; (2) University of Geneva, Biochemistry; (3) University of Modena and Reggio Emilia, Chemistry and Geology

48
Sensitive detection of GPCR-mediated Erk1/2 phosphorylations in various cellular models with the HTRF® Advanced Phospho-ERK1/2 (Thr202/Tyr204) kit

Lamarque, Anissa

Dupuis, Elodie (1); Vrstor, Angélique (1); Maurin, Fabrice (1); Pannequin, Julie (2); Roux, Thomas (1); Trinquet, Eric (1)

(1) Cisbio Bioassays, Codolet, France I; (2) Institut de Génomique Fonctionnelle, Montpellier, France

49
Investigation of the molecular mechanisms regulating recovER-phagy

Loi, Marisa

Loi, Marisa* (1); Fumagalli, Fiorenza* (1); Molinari, Maurizio* (1)

(1) Institute for Research in Biomedicine

50 **Selected for talk**
Dynamic measurement of kinase activity in

live single cell

Durandau, Eric

DURANDAU, Éric* (1)

(1) UniL / FBM, Département de Microbiologie Fondamentale

51

Roles of intussusception vs. sprouting angiogenesis in vascular plexus remodeling

Handrkova, Helena

Handrkova, Helena (1); Djonov, Valentin* (1)

(1) University of Bern, Institute of Anatomy

52

ESCRTing intraluminal vesicles formation in mammalian cells

Mercier, Vincent

Mercier, Vincent (1); Roux, Aurélien* (1); Gruenberg, Jean* (1)

(1) UNIGE, Biochemistry

53

The price to pay for 53BP1 nuclear bodies

Neelsen, Kai

Neelsen, Kai (1); Lukas, Jiri* (1)

(1) Copenhagen University, Novo Nordisk Foundation Center for Protein Research

54

Maintenance of a robust neuromuscular system as a novel strategy to protect skeletal muscle from sarcopenia

Pannerec, Alice

Pannérec, Alice (1); Feige, Jérôme* (1); Springer, Margherita (1); Chiffelle, Johanna (1)

(1) Nestlé Institute of Health Sciences, Muscle Aging

55

Characterization of the human protein THEM6, a potential thioesterase involved in cellular lipid metabolism

Mary, Camille

Mary, Camille (1); Duek Roggli, Paula (2); Bairoch, Amos* (1); Lane, lydie* (2)

(1) University of Geneva, Department of Human Protein Sciences; (2) SIB-Swiss Institute of Bioinformatics, CALIPHO

56 **Selected for talk**

Mechanical force induces mitochondrial fission via the canonical fission machinery

Feng, Qia

Helle, Sebastian* (1); Feng, Qian* (1); Aebersold, Mathias (2); Hirt, Luca (2); Grüter, Raphael (2); Sirianni, Andrea (3); Mostowy, Serge (3); Snedeker, Jess (4); Zambelli, Tomaso (2); Kornmann, Benoît (1)

(1) Institute of Biochemistry, ETHZ; (2) Laboratory of Biosensors and Bioelectronics, Institute for Biomedical Engineering, ETHZ; (3) Section of Microbiology, MRC Centre for Molecular Bacteriology and Infection, Imperial College London; (4) Institute for Biomechanics, ETHZ

57

Functional organelle remodeling during adipocyte differentiation

Freyre, Christophe

Freyre, Christophe (1); Klemm, Robin* (1)

(1) University of Zürich, Institute of Molecular Life Sciences

58

How to pack ribosomal RNA, stick in ribosomal proteins and squeeze it through the nuclear pore complex to get a functional ribosome?

Gerhardy, Stefan

Gerhardy, Stefan (1); Gillet, Ludovic (1); van Nues, Rob (2); Moursy, Ahmed (1); Petkowski, Janusz (1); Allain, Frederic (1); Aebersold, Rudi (1); Grannemann, Sander (2); Panse, Vikram* (1)

(1) ETH Zürich, Department of Biology; (2) University of Edinburgh, Centre for Synthetic and Systems Biology

59

Next generation high capacity DNA damage detection assay for chemotherapy and genotoxic compound screening

Peter Sykora

Peter Sykora (1), Sandra Woodgate (2), Jay George (2), Robert W. Sobol (1), Maja Petkovic* (3)

(1) University of South Alabama, Mobile, AL; (2) Trevigen Inc., Gaithersburg, MD; (3) AMSBIO, Bioggio-Lugano, CH

60 **Selected for talk**

Lysobisphosphatidic acid and cholesterol storage in Niemann-PickC

Vacca, Fabrizio

Fabrizio Vacca (1), Dimitri Moreau (1), Stefania Vossio (1), Jonathan Paz Montoya (2), Marc Moniatte (2) & Jean Gruenberg (1)

(1) Dept. of Biochemistry, University of Geneva, Switzerland; (2) Proteomics core facility, École polytechnique fédérale de Lausanne, Switzerland

61

Neutrophil Necroptosis is Triggered by Ligation of Adhesion Molecules following GM-CSF Priming

Wang, Xiaoliang

Wang, Xiaoliang (1); Hans-Uwe, Simon* (1)

(1) University of Bern, Institute of Pharmacology

NANO BIOTECHNOLOGY

62 **Selected for talk**

Second harmonic nanoprobes for hematopoietic stem cell labeling and tracking

Sonay, Ali Yasin

Sonay, Ali Yasin* (1); Sugiyama Matsuda, Nami* (1); Pantazis, Periklis* (1)

(1) ETH Zurich, Biosystems Science and Engineering

NEUROSCIENCE

63

Prediction of seizure outcome improved by fast ripples detected in low-noise intraoperative corticogram

Fedele, Tommaso

Fedele, Tommaso (1); Ramantani, Georgia (2); Burnos, Sergey (1); Hilfiker, Peter (2); Curio, Gabriel (3); Grunwald, Thomas (2); Krayenbühl, Niklaus* (1); Sarnthein, Johannes (1)

(1) Universitätsspital Zürich, Klinik für Neurochirurgie; (2) Swiss Epilepsy Center, Zurich, Switzerland; (3) Campus Benjamin Franklin, Charité, Berlin, Germany, Neurology

64

Reconstruction and Simulation of Neocortical Microcircuitry

Ramaswamy, Srikanth

Ramaswamy, Srikanth (1); Muller, Eilif (1); Reimann, Michael (1); Markram, Henry* (1)

(1) EPFL, Blue Brain Project

65

An open-source framework for scalable analysis of brain imaging data

Luetcke, Henry

Lütcke, Henry (1); Roškar, Rok (1); Murri, Riccardo (2); Gilad, Ariel (3); Helmchen, Fritjof (3); Wüst, Thomas (1); Rinn, Bernd (1)

(1) ETH Zurich, Scientific IT Service; (2) University of Zurich, S3IT; (3) University of Zurich, Brain Research Institute

66

Studying axonal energy metabolism in compact white matter

Saab, Aiman

Saab, Aiman S. (1); Looser, Zoe J. (1); Barrett, Matthew J. (1); Stobart, Michael J. (1); Wyss, Matthias T. (1); Grimm, Christian (2); Hirrlinger, Johannes (3); Barros, Felipe (4); Weber, Bruno* (1)

(1) UZH, Institute of Pharmacology and Toxicology, Experimental Imaging and Neuroenergetics; (2)



University Hospital Zurich, Department of Ophthalmology; (3) Max-Planck-Institute for Experimental Medicine, Department of Neurogenetics; (4) Centro de Estudios Científicos, Valdivia, Chile

67
Diversity of microvascular endothelial cell markers in different regions of the human brain

Mbagwu, Smart

Mbagwu, Smart* (1); Filgueira, Luis* (1)

(1) University of Fribourg, Anatomy

68
Molecular determinants of transepithelial calcium transport in the endolymphatic sac of the murine inner ear

Bächinger, David

Bächinger, David (1); Egli, Hannes (2); Wunderlin, Sabina (3); Monge Naldi, Arianne (1); Eckhard, Andreas* (1)

(1) University Hospital Zurich, Department of Otorhinolaryngology, Head and Neck Surgery; (2) University of Zurich; (3) University of Zurich, Institute of Veterinary Pathology

69 **Selected for talk**
Restoring cell surface expression of GABA (B) receptors: A potential strategy to limit neuronal death in cerebral ischemia

Balakrishnan, Karthik

Balakrishnan, Karthik (1); Benke, Dietmar* (1)

(1) Inst. of Pharmacology and Toxicology, UZH

70
Electrophysiological and behavioral characterization of a genetic mouse model of diminished synaptic inhibition in the spinal dorsal horn

Tudeau, Laetitia

Tudeau, Laetitia (1); Ralvenius, William T (2); Poe, Michael M (3); Cook, James M (3); Johannssen, Helge C (2); Zeilhofer, Hanns Ulrich* (1)

(1) University of Zurich; ETHZ, Institute of

Pharmacology and Toxicology; (2) University of Zurich, Institute of Pharmacology and Toxicology; (3) University of Wisconsin-Milwaukee, USA, Department of Chemistry and Biochemistry

71 **Selected for talk**
A functional role for miR-709 in sleep homeostasis

Kompotis, Konstantinos

Kompotis, Konstantinos* (1); Mang, Geraldine* (1); Jimenez, Sonia (1); Emmenegger, Yann (1); Franken, Paul* (1)

(1) University of Lausanne, Centre for Integrative Genomics

72
Rhythmic sensory stimulation in mice and its effects on sleep

Kompotis, Konstantinos

Kompotis, Konstantinos (1); Perrault, Aurore (2); Emmenegger, Yann (3); Bayer, Laurence (2); Schwartz, Sophie (2); Muhlethaler, Michel (2); Franken, Paul* (3)

(1) University of Lausanne, Center for Integrative Genomics; (2) University of Geneva, Department of Basic Neurosciences; (3) University of Lausanne, Centre for Integrative Genomics

PHARMACOLOGY

73
Accelerated ligand-induced nuclear transport of the AHR but not nucleocytoplasmic shuttling is strictly dependent on histidine 291

Tkachenko, Anna

Tkachenko, Anna (1); Irmer-Stooff, Stefanie (1); Bermudez, Marcel (2); Wolber, Gerhard (2); Henkler, Frank (1); Luch, Andreas* (1)

(1) Federal Institute for Risk Assessment, Department Chemicals and Product Safety; (2) Freie Universität Berlin, Institute of Pharmacy

74
Investigation of Xanthine Oxidase Inhibition and Carbonic Anhydrase Properties of Metal

Phthalocyanine Compounds Containing Chalcone

Baran, Arif

Özen, Furkan* (1); Baran, Arif* (1)

(1) Faculty of Arts and Sciences, Chemistry

75 Selected for talk

Intranasal administration of resveratrol successfully prevents lung cancer in A/J mice

Monteillier, Aymeric

Monteillier, Aymeric (1); Furrer, Pascal (1); Allémann, Eric (1); Cuendet, Muriel* (1)

(1) University of Geneva, University of Lausanne, School of pharmaceutical sciences

76

Repurposing tamoxifen for severe myopathies: from preclinical evaluation in animal models to clinical trials in patients

Dorchies, Olivier

Dorchies, Olivier (1); GAYI, Elinam (1); Ismail, Hesham (1); Neff, Laurence (1); Dor, Talya (2); Fischer, Dirk (3); Ruegg, Urs (1); Scapozza, Leonardo (1)

(1) University of Geneva, School of Pharmaceutical Sciences, Geneva, Switzerland; (2) Hadassah Medical Center, Pediatric Neurology Unit, Jerusalem, Israel; (3) University Children's Hospital, Division of Neuropaediatrics, Basel, Switzerland

PHYSIOLOGY

77 Selected for talk

Sodium retention in nephrotic syndrome occurs independently of proteinuria

Larionov, Alexey

Larionov, Alexey (1); Kern, Ursula* (2); Schilling, Oliver (2); Mollet, Geraldine (3); Magnin, Jean-Luc (4); Theilig, Franziska* (1)

(1) University of Fribourg, Medicine; (2) University of Freiburg, Institute of Moleculare Medicine and Cell Research; (3) Hopital Necker, Paris, Inserm 983; (4) HFR Fribourg, Service Laboratoire

78

Role of arginase-II in regulation of aging

Xiong, Yuyan

Xiong, Yuyan (1); Yepuri, Gautham (1); Montani, Jean-Pierre (1); Yang, Zhihong (1); Ming, Xiu-Fen (1)

(1) University of Fribourg, Department of Medicine

79 Selected for talk

Regulatory DNA elements modulating oxygen-regulated erythropoietin gene expression

Orlando, Ilaria

Orlando, Ilaria (1); Wenger, Roland H.* (1)

(1) University of Zurich, Physiology

80 Selected for talk

Role of arginase-II in regulation of water balance

Huang, Ji

Huang, Ji (1); Montani, Jean-Pierre (1); Verrey, François (2); Feraille, Eric (3); Ming, Xiu-Fen (1); Yang, Zhihong* (1)

(1) University of Fribourg, Department of Medicine, Division of Physiology; (2) University of Zurich, Institute of Physiology; (3) University of Geneva, Department of Cell Biology and Metabolism

81 Selected for talk

Effect of Roux-en Y gastric bypass in ApoE*3Leiden.CETP mice

Tarasco, Erika

Tarasco, Erika (1); Neuner-Boyle, Christina (1); Whiting, Lynda (1); Pellegrini, Giovanni (2); Lutz, Thomas* (1)

(1) Institute of Veterinary Physiology, University of Zurich; (2) Institute of Veterinary Pathology, Laboratory for Animal Model Pathology, University of Zurich

82

Functional characterization of Calsequestrin-1 mutation identified in patients affected by a vacuolar myopathy

Polverino, Valentina

Polverino, Valentina (1); Gamberucci, Alessandra (1);

Saüc, Sophie (2); Frieden, Maud (2); Demaurex, Nicolas (2); Sorrentino, Vincenzo* (1)

(1) University of Siena, Molecular Medicine Section, Department of Molecular and Developmental Medicine; (2) University of Geneva, Department of Cell Physiology and Metabolism

83

Differential localization and role of STIM1 and STIM1L in skeletal muscle

Frieden, Maud

Saüc, Sophie (1); Bernheim, Laurent (2); Demaurex, Nicolas (3); Frieden, Maud* (3)

(1) University of Geneva, Cell Physiology and Metabolism; (2) University of Geneva, Basic Neurosciences; (3) University of Geneva, Cell Physiology and Metabolism

84

STIM1 promotes migration, phagosomal maturation and antigen cross-presentation in dendritic cells

Nunes-Hasler, Paula

Nunes-Hasler, Paula (1); Maschalidi, Sophia (2); Castelbou, Cyril (1); Bouvet, Samuel (1); Bassoy, Esen Y. (1); Lippens, Carla (3); Page, Nicolas (3); Merkle, Doron (3); Hugues, Stéphanie (3); Manoury, Bénédicte (2); Demaurex, Nicolas* (1)

(1) University of Geneva, Department of Cell Physiology and Metabolism; (2) Université Paris Descartes, INSERM, Unité 1013; (3) University of Geneva, Department of Pathology and Immunology

85

Ion channel(s) gated by the new STIM1L isoform

Dyrda, Agnieszka

Dyrda, Agnieszka (1); Saüc, Sophie (1); Demaurex, Nicolas (1); Frieden, Maud* (1)

(1) University of Geneva, Département de Physiologie Cellulaire et Métabolisme

PLANT SCIENCES

86 **Selected for talk**

***De novo* assemblies of complex genomes based on long reads and chromatin interactions: continuity, completeness and accuracy**

Qi, Weihong

Qi, Weihong (1); Kuon, Joel-Elias* (2); Patrignani, Andrea (1); Aquino, Catharine (1); Rehrauer, Hubert (1); Gruissem, Wilhelm (2); Schlapbach, Ralph (1)

(1) Functional Genomics Center Zurich, University and ETH Zurich; (2) Institute of Agricultural Sciences, Department Biologie, ETH Zurich

87 **Selected for talk**

Genetic specificity of a plant-insect food web: Implications for linking genetic variation to network structure

Barbour, Matthew

Barbour, Matthew (1); Fortuna, Miguel (1); Bascompte, Jordi* (1); Nicholson, Joshua (2); Julkunen-Tiitto, Riitta (3); Jules, Erik (4); Crutsinger, Greg (5)

(1) University of Zurich, Evolutionary Biology and Environmental Studies; (2) University of British Columbia, Zoology; (3) University of Eastern Finland, Biology; (4) Humboldt State University, Biological Sciences; (5) Parrot

88

Adaptive Reduction of Male Gamete Number in a Selfing Species

Kakui, Hiroyuki

Kakui, Hiroyuki (1); Tsuchimatsu, Takashi* (2); Yamazaki, Misako (3); Shimizu, Kentaro* (3)

(1) University of Zürich, Evolutionary and Ecological Genomics; (2) Chiba University; (3) University of Zurich, Evolutionary and Ecological Genomics

89

Flowering phenology and the environmental factors in the tropical tree genus *Macaranga* (Euphorbiaceae)

Yamasaki, Eri

Yamasaki, Eri (1); Briskine, Roman (1); Kume, Tomonori



(2); Nagai, Shin (3); Diway, Bibian (4); Shimizu, Kentaro* (1)

(1) Department of Evolutionary Biology and Environmental Studies, University of Zurich; (2) School of Forestry and Resource Conservation, National Taiwan University; (3) Japan Agency for Marine-Earth Science and Technology; (4) Botanical Research Centre Semenggoh, Malaysia

90 Selected for talk

Population genomic signature of environmental association in an ecologically divergent Hawaiian tree species

Izuno, Ayako

Izuno, Ayako (1); Kitayama, Kanehiro (2); Onoda, Yusuke (2); Tsujii, Yuki (2); Shimizu, Kentaro (1); Isagi, Yuji* (2)

(1) University of Zurich, Department of Evolutionary Biology and Environmental Studies; (2) Kyoto University, Graduate School of Agriculture

91

Environment-dependent homeolog expression in an allopolyploid *Cardamine flexuosa* in field

Akiyama, Reiko

Akiyama, Reiko (1); Hatakeyama, Masaomi (2); Shimizu-Inatsugi, Rie (1); Lischer, Heidi E.L. (3); Sese, Jun (4); Shimizu, Kentaro K.* (1)

(1) University of Zurich, Department of Evolutionary Biology and Environmental Studies; (2) *1 University of Zurich, *2 Functional Genomics Center Zurich, *3 Swiss Institute of Bioinformatics (SIB), * 1 Department of Evolutionary Biology and Environmental Studies; (3) *1 University of Zurich, *3 Swiss Institute of Bioinformatics (SIB), Department of Evolutionary Biology and Environmental Studies; (4) AIST, Computational Biology Research Center (CBRC)

92

Genome assembly and annotation of *Arabidopsis halleri*, a model for heavy metal hyperaccumulation and evolutionary ecology

Briskine, Roman

Briskine, Roman V. (1); Paape, Timothy (1); Shimizu-

Inatsugi, Rie (1); Nishiyama, Tomoaki (2); Akama, Satoru (3); Sese, Jun (3); Shimizu, Kentaro K.* (1)

(1) University of Zurich, Department of Evolutionary Biology and Environmental Studies; (2) Kanazawa University, Advanced Science Research Center; (3) National Institute of Advanced Industrial Science and Technology, Biotechnology Research Institute for Drug Discovery

93

Genetic diversity of two tropical trees (Dipterocarpaceae) following enrichment-planting strategy in Borneo: negative impact of planting in monocultures

Ang, Cheng Choon

Ang, Cheng Choon (1); O'Brien, Michael J. (2); Ng, Kevin Kit Siong (3); Lee, Ping Chin (4); Hector, Andy (5); Schmid, Bernhard (1); Shimizu, Kentaro K.* (1)

(1) Department of Evolutionary Biology and Environmental Studies; (2) Estación Experimental de Zonas Áridas, Consejo Superior de Investigaciones Científicas; (3) Genetics Laboratory, Forest Research Institute Malaysia; (4) Biotechnology Program, Faculty of Science and Natural Resources; (5) Department of Plant Sciences

94 Cancelled

95

Genome wide evolution and heavy metal hyperaccumulation in an emerging model allopolyploid *Arabidopsis* species: *Arabidopsis kamchatica*

Paape, Tim

Paape, Timothy (1); Shimizu, Kentaro* (1); Briskine, Roman (1); Hatakeyama, Masaomi (1); Shimizu-Inatsugi, Rie (1); Lischer, Heidi (1); Sese, Jun (2)

(1) University of Zurich, Dept. of Evolutionary Biology and Environmental Studies; (2) National Institute of Advanced Industrial Science and Technology (AIST), Artificial Intelligence Research Center

96 Selected for talk

Molecular mechanism of adaptation to new environments in allotetraploid species

Shimizu-Inatsugi, Rie

Shimizu-Inatsugi, Rie* (1); Akiyama, Reiko (1); Sese, Jun (2); Shimizu, Kentaro* (1)

(1) University of Zurich, Evolutionary biology and environmental studies; (2) National Institute of Advanced Industrial Science and Technology, The Artificial Intelligence Research Center

97

Using and developing Genomics tools for molecular breeding of a tetraploid crop plant

Aluri, Sirisha

Aluri, Sirisha (1); Patrignani, Andrea (1), Grüter, Simon (1), Schlapbach, Ralph (1), Shimizu-Inatsugi, Rie (2), Shimizu, K. Kentaro, (2), Karaba, N. Nataraja, (3), Ravikumar R. L., (4), Sreeman M. Sheshshayee (3)

(1) Functional Genomics Center Zurich, Switzerland; Department of Evolutionary Biology and Environmental Studies, University of Zurich, Switzerland; (2) Department of Evolutionary Biology and Environmental Studies, University of Zurich, Switzerland; (3) Department of Crop physiology, University of Agricultural Sciences, GKVK, India; (4) Department of Plant biotechnology, University of Agricultural Sciences, GKVK, India

98 **Selected for talk**

Microscopy screening approach for identifying chromatin modifiers underlying plant cell transdifferentiation

Rutowicz, Kinga

Rutowicz, Kinga* (1); Baroux, Célia* (1)

(1) University of Zurich, Institute of Plant and Microbial Biology, Plant Developmental Genetics

PROTEOMICS

99 **Selected for talk**

Proteome-wide expression and turnover analysis quantify genetic impact in Down Syndrome

Liu, Yansheng

Liu, Yansheng (1); Beyer, Andreas (2); Antonarakis, Stylianos* (3); Aebersold, Ruedi* (1)

(1) Institute of Molecular Systems Biology, ETH Zurich,

Department of Biology; (2) University of Cologne; (3) University of Geneva Medical School, Department of Genetic Medicine and Development

100

Site-specific N-glycosylation in the endoplasmic reticulum and Golgi of mammalian cells

Mathew, Corina

Mathew, Corina (1); Losfeld, Marie Estelle (1); Lin, Chia-wei (1); Grant, Oliver (2); Aebi, Markus (1)

(1) ETH Zürich, D-BIOL; (2) University of Georgia, Biochemistry and Molecular Biology

101

Differential Protein Expression Analysis by Mass Spectrometry as a Service

Nanni, Paolo

Nanni, Paolo* (1); Grossmann, Jonas* (1); Fortes, Claudia (1); Wolski, Witold (1); Kunz, Laura (1); Schlapbach, Ralph* (1); Roschitzki, Bernd (1); Panse, Christian (1)

(1) UZH / ETH Zurich, Functional Genomics Center Zurich

102

Proteomic interaction analysis of cancer mutations in the Dyrk2 kinase complex

Mehnert, Martin

Mehnert, Martin (1); Gstaiger, Matthias (1); Aebersold, Ruedi* (1)

(1) Institute of Molecular Systems Biology, Biology

103

Pathway monitoring identifies effectors of rescue from alpha-synuclein toxicity

Soste, Martin

Soste, Martin (1); Picotti, Paola* (1)

(1) Biochemistry, Biology

104 **Selected for talk**

Systematic investigation of glucose metabolism in various cancers by in silico mining of PCT-SWATH data sets

Hernandez-Alias, Xavier

Hernandez-Alias, Xavier (1); Zhong, Qing (2); Buljan, Marija (1); Guo, Tiannan (1); Wild, Peter (2); Aebersold, Ruedi* (3)

(1) ETH Zurich, Department of Biology, Institute of Molecular Systems Biology; (2) University Hospital Zürich, Department of Pathology and Molecular Pathology; (3) ETH Zurich and University of Zurich, Department of Biology (Institute of Molecular Systems Biology) and Faculty of Science

105

Quantitative proteomic analysis of human liver cells exposed to cyproconazole suggests complex mechanisms underlying the observed lipid accumulation

Stamou, Marianna

Stamou, Marianna (1); Hauser, Klara (1); Dietrich, Sabine (1); Wollscheid, Bernd (1); Sturla, Shana* (1)

(1) ETH Zurich, D-HEST

106 **Selected for talk**

Digitalization of patient samples and multi-omics data in the context of personalized medicine

Goetze, Sandra

Goetze, Sandra (1); Guo, Tiannan (2); Wild, Peter (3); Aebersold, Ruedi (2); Wollscheid, Bernd (1)

(1) ETHZ, IMSB/DHEST; (2) ETHZ, IMSB; (3) USZ

107

Quantitative proteomic profiling of key members of TNFR1-associated complex I and II by SWATH-MS and XL-MS

Ciuffa, Rodolfo

Ciuffa, Rodolfo (1); Aebersold, Ruedi* (1)

(1) ETHZ, IMSB

108

Surfaceome analysis of skeletal muscle to elucidate molecular mechanism behind glucose uptake

Jaleh, Fateme

Jaleh, Fateme (1); Goetze, Sandra (2); Gilardoni, Paola

(1); Soro Arnáiz, Ines (1); De Bock, Katrien (1); Wollscheid, Bernd (2)

(1) Institute of Human Movement Sciences and Sport, Dep. of Health Sciences and Technology; (2) Institute of Molecular Systems Biology, Dep. of Health Sciences and Technology

109

Diversity and plasticity of the synaptic proteotype

van Oostrum, Marc

van Oostrum, Marc (1); Wollscheid, Bernd* (1)

(1) ETH Zürich, D-HEST

110 **Selected for talk**

Label-free PRM-based identification of quantitative differences in the ADP-ribosylome induced by mild to severe oxidative stress

Bilan, Vera

Bilan, Vera (1); Leutert, Mario (1); Nielsen, Michael (2); Hottiger, Michael O.* (1)

(1) University of Zurich, Department of Molecular Mechanisms of Disease; (2) The Novo Nordisk Foundation Center for Protein Research, Department of Proteomics

111

Two surfaceomes on the same cell - Polarized signal transduction in epithelial cells

Kötemann, Anika

Kötemann, Anika (1); Wollscheid, Bernd* (1)

(1) ETHZ, D-HEST

112

Investigation of the molecular mechanism of resistance in the wild relatives of pigeonpea against pod borer infestation

Roschitzki, Bernd

Roschitzki, Bernd (1); Nanni, Paolo (1); Sreevathsa, Rohini* (2); Kunz, Laura (3); Panse, Christian (1); Schlapbach, Ralph* (3)

(1) UZH, FGCZ; (2) Indian Council of Agricultural

Research, NRCPB; (3) ETHZ, FGCZ

113

Decoding ligand-receptor interactions

Wendt, Fabian

Wendt, Fabian (1); Sobotzki, Nadine (1); Rudnicka, Alina (2); Schafröth, Michael (3); Götze, Sandra (1); Carreira, Erick (3); Milani, Emanuela (1); Yamauchi, Yohei (2); Wollscheid, Bernd* (1)

(1) Institute of Molecular Systems Biology, Department of Health Science and Technology, ETHZ; (2) Institute of Molecular Life Sciences, University of Zurich; (3) Laboratory of Organic Chemistry, Department of Chemistry and Applied Biosciences, ETHZ

114

Identification of the cellular and organ protein ADP-ribosylome by liquid chromatography - tandem mass spectrometry

Nowak, Kathrin

Nowak, Kathrin (1); Leutert, Mario (1); Bilan, Vera (1); Martello, Rita (2); Nielsen, Michael (2); Hottiger, Michael (1)

(1) University of Zurich, Department of Molecular Mechanisms of Disease; (2) The Novo Nordisk Foundation Center for Protein Research, Department of Proteomics

115 **Selected for talk**

Singlet oxygen generators enable the identification of proximal proteins

Müller, Maik

Müller, Maik (1); Wollscheid, Bernd* (1)

(1) Institute of Molecular Systems Biology, Department of Health Sciences and Technology

RESEARCH DATA MANAGEMENT

116

OpenBIS ELN-LIMS: An open resource for academic laboratories

Barillari, Caterina

Barillari, Caterina* (1); Fuentes, Juan* (1); Wüst, Thomas (1); Rinn, Bernd* (1)

(1) ETH Zurich, Scientific IT Services, Informatikdienste

SINGLE-MOLECULE STUDY

117

Single-Molecule Chemistry: Formation and Identification of Guanine Oxidation Products Studied by Using Zero-Mode Waveguide Technology

Sobek, Jens

Sobek, Jens (1); Rehrauer, Hubert (1); Schlapbach, Ralph (1)

(1) Functional Genomics Center Zurich

STEM CELLS

118

Modeling Neural Crest Stem Cell Maintenance and Lineage Specification using Pluripotent Stem Cells

Marzorati, Elisa

Marzorati, Elisa (1); Varum Tavares, Sandra (1)

(1) University of Zurich, Institute of Anatomy, Cell and Developmental Biology

119

Quantitative imaging of transcription factor dynamics to study the emergence of early developmental asymmetry *in vivo*

Welling, Maaïke

Welling, Maaïke* (1); Pantazis, Periklis* (1)

(1) ETH Zurich, D-BSSE

120

Understanding single cell - level MAPK activation dynamics for manipulation of neuronal stem cell self - renewal and differentiation fates

Ender, Pascal

Ender, Pascal (1); Dobrzynski, Maciej (1); Song, Jiyoung (2); Jeon, Noo Li (2); Pertz, Olivier* (1)

(1) University of Bern, Institute of Cell Biology; (2) Seoul National University, Department of Mechanical and Aerospace Engineering

STRUCTURAL BIOLOGY

121 **Selected for talk**

A novel proteomics approach to probe the structural landscape of alpha-Synuclein in cells and tissues

Feng, Yuehan

Feng, Yuehan (1); Verbeke, Lynn (2); Malinowska, Liliana (1); Chen, Serene (3); Gerez, Juan (1); Bergqvist, Filip (1); Outeiro, Tiago (4); Lindquist, Susan (5); Dobson, Christopher (3); Cremades, Nunilo (3); Reiter, Lukas (2); Picotti, Paola* (1)

(1) ETH Zurich; (2) Biognosys AG; (3) University of Cambridge; (4) University of Göttingen; (5) Whitehead Institute

122

The role of human DNA repair protein APE1/Ref-1 in transcriptional regulation of genes involved in cancer development

Bazlekowa - Karaban, Milena

Bazlekowa - Karaban, Milena (1); Tudek, Barbara (1); Saparbaev, Murat (2); Prorok, Paulina (3); Taipakova, Sabira (2); Akishev, Zhiger (4); Kládova, Olga (5); Kuznetsov, Nikita (5); Ishchenko, Alexander (2); Le Cam, Eric (6)

(1) University of Warsaw, Poland, Institute of Genetics and Biotechnology, Faculty of Biology; (2) Gustave Roussy Cancer Center, Villejuif, France, PR2, UMR 8200 CNRS; (3) Institute of Human Genetics, Montpeiller, France, UPR 1142 CNRS; (4) University Al-Farabi, Almaty, Kazakhstan; (5) Institute of Chemical Biology and Fundamental Medicine, Novosibirsk, Russia; (6) Gustave Roussy Cancer Center, Villejuif, France, PR2, UMR 8126 CNRS

SYSTEMS BIOLOGY

123

Cell-wide analysis of protein thermal unfolding across species reveals the determinants of proteome stability

Leuenberger, Pascal

Leuenberger, Pascal (1); Picotti, Paola* (1)

(1) Institute of Biochemistry ETH Zurich, D-BIOL

124 **Selected for talk**

Systems approach to understand the impact of genetics and diet on aging

Wang, Xu

Jha, Pooja (1); Auwerx, Johan* (1)

(1) EPFL, School of Life Sciences

125

Regulatory networks reconstruction using literature based knowledge

Dorier, Julien

Dorier, Julien (1); Niknejad, Anne (1); Crespo, Isaac (1); Roller, Andreas (2); Tarditi, Alessia (2); Pradel, Leon P. (3); Maisel, Daniela (2); Berntenis, Nikolaos (4); Liechti, Robin (1); Ebeling, Martin (4); Xenarios, Ioannis* (1)

(1) SIB Swiss Institute of Bioinformatics, Vital-IT; (2) Roche Innovation Center Munich, Pharmaceutical Sciences / Translational Technologies and Bioinformatics; (3) Roche Innovation Center Munich, Discovery Oncology; (4) Roche Innovation Center Basel, Pharmaceutical Sciences / Translational Technologies and Bioinformatics

126

Systems analysis of the polyol pathway in tumorigenesis

Uzozie, Anuli

Uzozie, Anuli (1); Aebersold, Ruedi (1)

(1) Institute of Molecular Systems Biology, Department of Biology

127

Rhea, an expert curated resource of biochemical reactions for enzyme annotation and genome-scale metabolic modeling

Lombardot, Thierry

Lombardot, Thierry (1); Morgat, Anne (1); Axelsen, Kristian (1); Aimo, Lucila (1); Niknejad, Anne (2); Hyka-Nouspikel, Nevila (1); Rosanoff, Steven (3); Onwubiko, Joseph (3); Coudert, Elisabeth (1); Redaschi, Nicole (1); Bougueleret, Lydie (1); Xenarios, Ioannis (1); Bridge, Alan* (1)

(1) SIB Swiss Institute of Bioinformatics, Swiss-Prot group; (2) SIB Swiss Institute of Bioinformatics, Vital-IT

group; (3) EMBL-EBI, Protein function development team

128

The SwissLipids knowledgebase for lipid biology

Bridge, Alan

Aimo, Lucila* (1); Liechti, Robin* (2); Hyka-Nouspikel, Nevila (1); Niknejad, Anne (2); Gleizes, Anne (2); Götz, Lou (2); Kuznetsov, Dmitry (2); David, Fabrice (3); van der Goot, Gisou (4); Riezman, Howard (5); Bougueleret, Lydie (1); Xenarios, Ioannis (6); Bridge, Alan* (1)

(1) SIB Swiss Institute of Bioinformatics, Swiss-Prot group; (2) SIB Swiss Institute of Bioinformatics, Vital-IT Group; (3) École Polytechnique Fédérale de Lausanne, Bioinformatics and Biostatistics Core Facility; (4) École Polytechnique Fédérale de Lausanne, Global Health Institute; (5) University of Geneva, Department of Biochemistry; (6) SIB Swiss Institute of Bioinformatics, Vital-IT Group/Swiss-Prot group

129

Integration of multilayered systems approaches optimizes the identification of metabolic genes

Li, Hao

Li, Hao (1); Wang, Xu (1); Sorrentino, Vincenzo (1); Rukina, Daria (2); Huang, Qingyao (3); Luan, Peiling (1); Komljenovic, Andrea (4); Williams, Evan (5); Robinson-Rechavi, Marc (4); Schoonjans, Kristina (3); Morgenthaler, Stephan (2); W. Williams, Robert (6); Auwerx, Johan* (1)

(1) École Polytechnique Fédérale de Lausanne, Laboratory of Integrative and Systems Physiology; (2) École Polytechnique Fédérale de Lausanne, Institute of Mathematics; (3) École Polytechnique Fédérale de Lausanne, Metabolic Signaling, Institute of Bioengineering; (4) University of Lausanne, Swiss Institute of Bioinformatics; (5) ETH Zurich, Institute of Molecular Systems Biology; (6) University of Tennessee, Department of Anatomy and Neurobiology and Center for Integrative and Translational Genomics

130

Inferring biological tasks using Pareto analysis of high-dimensional data

Hausser, Jean

Hausser, Jean* (1); Hart, Yuval* (1); Sheftel, Hila* (1); Szekeley, Pablo* (1); Bossel, Noa* (1); Korem, Yael (1); Tendler, Avichai (1); Mayo, Avi (1); Alon, Uri* (1)

(1) Weizmann Institute of Science, Molecular Cell Biology

131

SourceData: A semantic platform to make data and figures discoverable

Liechti, Robin

Götz, Lou* (1); George, Nancy (2); El-Gebali, Sara (2); Crespo, Isaac (1); Chasapi, Anastasia (1); Xenarios, Ioannis (1); Lemberger, Thomas* (2); Liechti, Robin* (1)

(1) SIB Swiss Institute of Bioinformatics, Vital-IT; (2) EMBO, SourceData

132

The transcription regulator BRD3 at the crossroads between lipid metabolism and membrane remodeling by oxidative stress

Jiménez Rojo, Noemi

Jiménez-Rojo, Noemi (1); Gehin, Charlotte (2); Leonetti, Manuel (3); Riezman, Isabelle (1); Weissman, Jonathan (4); Riezman, Howard* (1)

(1) University of Geneva, Biochemistry; (2) EMBL, Heidelberg; (3) UCSF, San Francisco; (4) UCSF, California

133 **Selected for talk**

Deep learning approach for predicting CB2 affinities using recurrent convolutional neural networks

Mikotaj Mizera

Mizera M (1), Ostrowicz M (1), Cielecka-Piontek J (1)

(1) Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Poznan University of Medical Sciences, Grunwaldzka 6, 60-780 Poznań, Poland

134

Universal sample preparation for Omics-based applications in personalized medicine

Poveda, Lucy

Poveda, Lucy* (1); Selevsek, Nathalie* (1); Schlapbach,

Ralph* (1); Opitz, Lennart (1); Tracy, Jay (1)

(1) Functional Genomics Center Zurich

135

Analysis of Translational Pausing by Disome Profiling

Arpat, Bulak

Arpat, Bulak (1); Janich, Peggy (2); Gatfield, David* (3)

(1) University of Lausanne and SIB, CIG and Vital-IT; (2) Krebsliga Schweiz; (3) University of Lausanne, CIG

136 **Selected for talk**

An integrative proteogenomics strategy to identify the entire protein coding potential of prokaryotic genomes

Varadarajan, Adithi

Varadarajan, Adithi (1); Omasits, Ulrich (1); Goetze, Sandra (2); Robinson, Mark (3); Wollscheid, Bernd (2); Ahrens, Christian* (4)

(1) Agroscope & SIB Swiss Institute of Bioinformatics, Research Group Molecular Diagnostics, Genomics and Bioinformatics; (2) Swiss Federal Institute of Technology Zurich, Department of Health Sciences and Technology, Institute of Molecular Systems Biology; (3) University of Zurich, Institute for Molecular Life Sciences & SIB Swiss Institute of Bioinformatics; (4) Agroscope & SIB Swiss Institute of Bioinformatics

137

Elucidation of dynamic cell surface protein-protein interactions by using chemoproteomic technologies

Bausch, Damaris

Bausch-Fluck, Damaris (1); Wollscheid, Bernd (2)

(1) ETH Zurich, IMSB; (2) ETH Zurich, D-Biol / D-Hest

138

Assessing proteome organization by native SEC coupled to SWATH-MS

Moritz, Heusel

Heusel, Moritz (1); Rosenberger, George (1); Hafen, Robin (1); C. Collins, Ben (1); Gstaiger, Matthias (1); Aebersold, Rudolf* (1)

(1) Institute of Molecular Systems Biology, D-BIOL

VIROLOGY

139

Antigen-loaded oxidation sensitive polymersomes enhance B cell immunity towards a weakly immunogenic viral surface antigen

Clara, Galan Navarro

Clara, Galan Navarro (1); Stefan, Kunz* (2); Melody, Swartz* (1); Sachiko, Hirotsue (1)

(1) EPFL, Institute of Bioengineering; (2) UNIL, Institute of Microbiology

140 **Selected for talk**

Phosphoproteomic-based kinase profiling of influenza A virus infected cells reveals GRK2 as a crucial host-factor for viral entry

Yángüez, Emilio

Yángüez, Emilio (1); Dobay, Maria Pamela (2); Stertz, Silke* (1)

(1) University of Zurich (UZH), Switzerland, Institute of Medical Virology (IMV); (2) Swiss Institute of Bioinformatics (SIB), Lausanne, Switzerland

141

Investigation of the IFITM-mediated restriction of influenza A virus

Lanz, Caroline

Lanz, Caroline (1); Müller, Eva Eleonora (1); Stertz, Silke* (1)

(1) University of Zurich, Institute of Medical Virology

142

Characterization of bat influenza virus entry

Karakus, Umut

Karakus, Umut (1); Stertz, Silke* (1); Yángüez, Emilio (1); Corrales Aguilar, Eugenia (2); Martinez-Romero, Carles (3); Garcia-Sastre, Adolfo (3); Schwemmle, Martin (4)

(1) University of Zurich, Institute of Medical Virology; (2) University of Costa Rica, Faculty of Microbiology; (3) Icahn School of Medicine at Mount Sinai, Department of Microbiology; (4) University Medical Center Freiburg, Institute of Virology

143 Selected for talk

Hijacking of the class IA phosphatidylinositol 3-kinase pathway by a viral protein

Tsolakos, Nikolaos

Tsolakos, Nikos* (1); Ayllon, Juan* (2); Siempelkamp, Braden (3); Burke, John (3); Garcia-Sastre, Adolfo (2); Hale, Benjamin* (1)

(1) University of Zurich, Zurich, Switzerland, Institute of Medical Virology; (2) Icahn School of Medicine at Mount Sinai, New York, USA, Department of Microbiology; (3) University of Victoria, Victoria, Canada, Department of Biochemistry & Microbiology

144

Influenza virus employs ubiquitin and deubiquitinating enzymes to enter the host cell

Rudnicka, Alina

Rudnicka, Alina* (1); Yamauchi, Yohei* (2)

(1) University of Zurich, Institute of Molecular Sciences; (2) University of Bristol, School of Cellular and Molecular Medicine

145

Assessment of the Antiviral Activity of MxA against Influenza A Virus

Steiner, Fiona

Steiner, Fiona (1); Nigg, Patricia (2); Murer, Luca (3); Crameri, Michel (1); Moritz, Eva (1); Pavlovic, Jovan* (1)

(1) Institute of Medical Virology; (2) Friedrich Miescher Institute for Biomedical Research; (3) Institute of Molecular Life Sciences

146

Identification of novel ISGs involved in the antiviral response against influenza A virus

Müller, Eva

Müller, Eva E. (1); Stertz, Silke* (1); Hale, Benjamin G.* (1)

(1) Institute of Medical Virology

147

Characterising the function of SUMO E3 ligase TRIM28 during influenza A virus infection

Schmidt, Nora

Schmidt, Nora (1); Domingues, Patricia (1); Patzina, Corinna (1); Golebiowski, Filip (1); Hale, Benjamin G.* (1)

(1) University of Zurich, Institute of Medical Virology

148

SUMOylation in the Regulation of Antiviral Host Innate Immunity

Patzina, Corinna

Patzina, Corinna (1); Harms, Sonja (1); Golebiowski, Filip (1); Tatham, Michael H. (2); Hay, Ronald T. (2); Hale, Benjamin G.* (1)

(1) University of Zurich, Institute of Medical Virology; (2) University of Dundee, College of Life Sciences

149 Selected for talk, no poster

Nanomaterials with virucidal activity against HSPGs dependent viruses *in vitro*, *ex vivo* and *in vivo*

Tapparel Vu, Caroline

Tapparel Vu, Caroline (1)
(1) University of Geneva

150 Selected for talk

Identification of a novel supersite of neutralization vulnerability within the HIV-1 membrane proximal external region

Friedrich, Nikolas

Stiegeler, Emanuel* (1); Friedrich, Nikolas* (1); Reinberg, Thomas (2); Morin, Mylène (3); Hansen, Simon (2); Eroglu, Mustafa (1); Schaefer, Jonas V. (2); Zerbe, Katja (3); Marrero Nodarse, Aniebrys (3); Robinson, John (3); Plückerthun, Andreas (2); Trkola, Alexandra (1)

(1) University of Zurich, Institute for Medical Virology; (2) University of Zurich, Institute of Biochemistry; (3) University of Zurich, Department of Chemistry

151

The interferon-induced MxB protein is a novel herpes virus restriction factor

Crameri, Michel

Crameri, Michel (1); Walker, Raphael (1); Kucera, Talissa (2); Franzoso, Francesca (3); Fraefel, Cornel (3); Caduff, Nicole (4); Münz, Christian (4); Pavlovic, Jovan* (1)

(1) University of Zurich, Institute of Medical Virology;

(2) University of Zurich, Faculty of Medicine; (3)

University of Zurich, Institute of

Virology; (4) University of Zurich, Institute of

Experimental Immunology

152

ViralZone: Recent updates to the virus knowledge resource

Masson, Patrick

Masson, Patrick (1); Hulo, Chantal (1); De Castro, Edouard (1); Bougueleret, Lydie (1); Xenarios, Ioannis (1); Le Mercier, Philippe (1)

(1) SIB Swiss Institute of Bioinformatics, Swiss-Prot

153

MorphoSphere: A deep learning framework to score cancer cell proliferation and oncolytic virus efficacy in 3D tumor models

Georgi, Fanny

Fanny Georgi* (1), Vardan Andriasyan* (1), Arthur Yakimovich* (1) (2), Robert Witte (1), Urs Greber (1)

* These authors contributed equally.)

(1) Institute of Molecular Life Sciences, University of

Zurich; (2) Department of Infectious Diseases and

Hospital Epidemiology, University Hospital Zürich





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Proteomics

Chair: Anna Hélène Bizard
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Talks from submitted abstracts

Q&A session with PI's

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(Washington University School of Medicine, USA)

Andrea Ballabio

(Telethon Institute of Genetics and Medicine, Pozzuoli, Italy)

Beth Levine

(UT Southwestern, USA)

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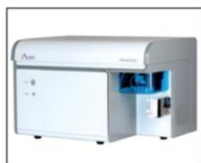
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