

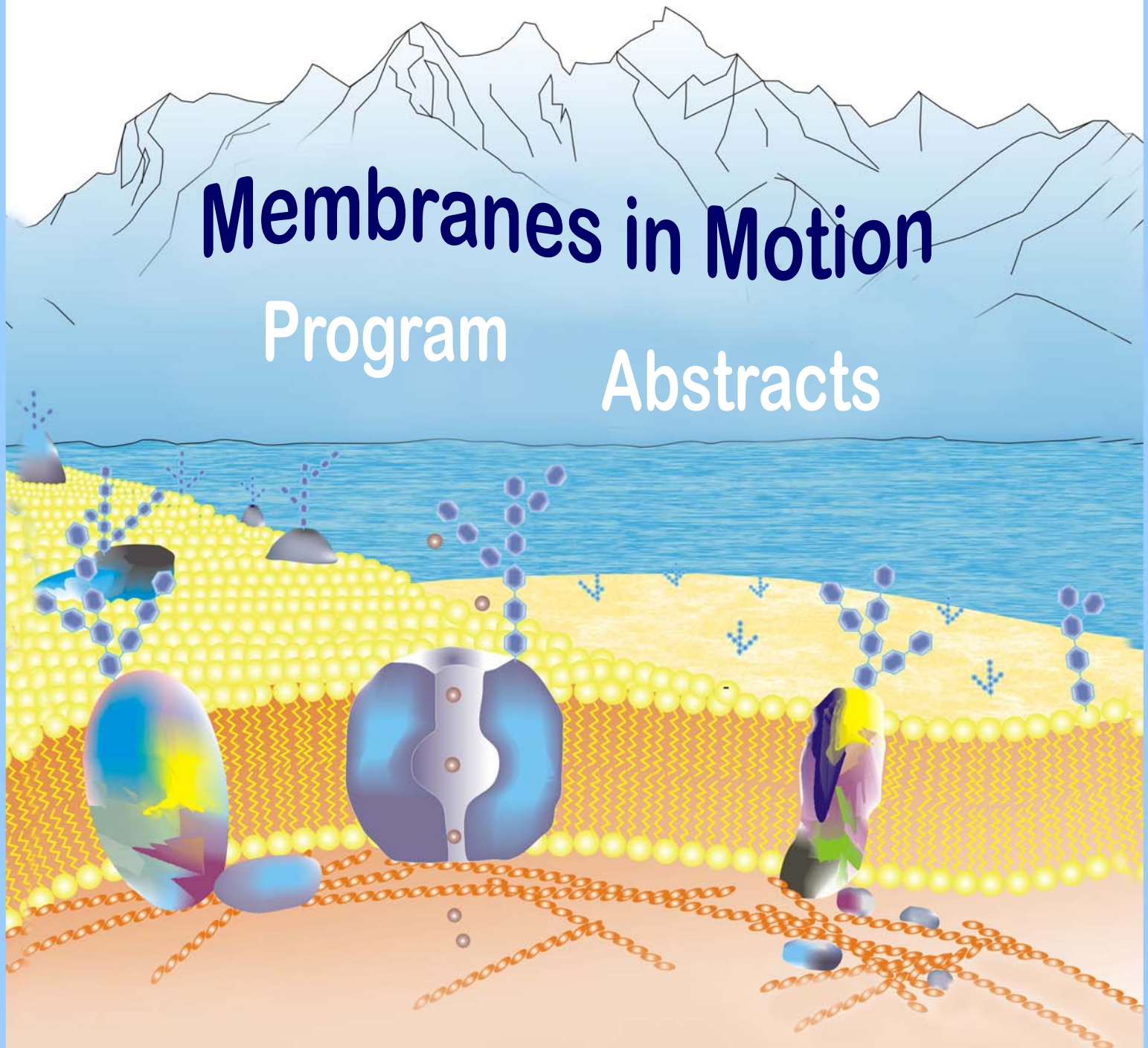
# USGEB 2009

January 29/30 Casino Kursaal Interlaken

## Membranes in Motion

Program

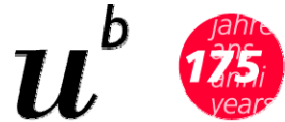
Abstracts



<http://www.usgeb2009.ch>



USSBE USGEB



<sup>b</sup>  
UNIVERSITÄT  
BERN

**41<sup>ST</sup> ANNUAL MEETING OF THE SWISS SOCIETIES FOR  
EXPERIMENTAL BIOLOGY  
(USGEB/USSBE)**

**29 – 30 January 2009  
Casino Kursaal Interlaken**

**Organizing Committee:**

Matthias Hediger, Chairman	Institute of Biochemistry and Molecular Medicine
Rupert Bruckmaier	Veterinary Physiology
Peter Bütikofer	Institute of Biochemistry and Molecular Medicine
Stephan Christen	Institute for Infectious Diseases
Annette Draeger	Institute of Anatomy
Britta Engelhardt	Theodor Kocher Institute
Bernhard Erni	Department of Chemistry and Biochemistry
Pascal Maeser	Institute of Cell Biology
Ernst Niggli	Department of Physiology
Peter Ott	Institute of Biochemistry and Molecular Medicine
Doris Rentsch	Institute of Plant Science
Uwe Simon	Institute of Pharmacology

**Congress Website <http://www.usgeb2009.ch>:**

Informatikdienste der Universität Bern

**Conference Coordinator:**

Tina Rothenbühler

## **ADMINISTRATIVE MEETINGS OF THE MEMBER SOCIETIES**

The administrative meetings of the member societies will take place on

**Friday, January 30, 2009 from 13:30 to 14:30**

in the following rooms:

<b>Society</b>	<b>Room</b>
<b>BIO</b>	<b>Theater-Saal</b>
<b>SGO-SSO</b>	<b>Kongress-Saal</b>
<b>ZMG</b>	<b>Brünig</b>

## **AWARDS**

**Friday, January 30, 2009 from 15:15 to 16:40**

<b>Friedrich Miescher Award</b>	<b>Kongress-Saal</b>
<b>sgAHE Morphologiepreis</b>	<b>Kongress-Saal</b>
<b>Presentation of Poster Awards</b>	<b>Kongress-Saal</b>

# PLENARY LECTURES THURSDAY

Room: Kongress-Saal

**Thursday, January 29, 09:30 – 09:50**

**Uwe Simon** – USGEB President

**Opening and Welcome**

**Matthias Hediger** – Chair USGEB 2009

**Thursday, January 29, 09:50 – 10:30**

**David E. Clapham**

Department of Neurobiology, Harvard University,  
Boston, MA, USA

**TRP Ion Channels**

Abstract P1-1

Chair: Matthias Hediger, Institute of Biochemistry  
and Molecular Medicine, University of Bern,  
Switzerland

**Thursday, January 29, 17:00 – 17:40**

**Nathan Nelson**

Department of Biochemistry, Tel Aviv University, Tel  
Aviv, Israel

**Molecular evolution of perfection and  
imperfection**

Abstract P2-1

Chair: Pascal Mäser, Institute of Cell Biology,  
University of Bern, Switzerland

**Thursday, January 29, 17:40 – 18:20**

**Erich Gulbins**

Department of Molecular Biology, University of  
Duisburg-Essen, Germany

**Lipid rafts and redox signaling**

Abstract P2-2

Chair: Annette Draeger, Institute of Anatomy,  
University of Bern, Switzerland

**Thursday, January 29, 18:20 – 18:50**

**Ewald Weibel**

USGEB Founding Member and Former Chairman,  
Professor Emeritus of Anatomy, Institute of Anatomy,  
University of Bern, Switzerland

**40 Years USGEB – Of Roots and Shoots**

Abstract P2-3

Chair: Annette Draeger, Institute of Anatomy,  
University of Bern, Switzerland

## PLENARY LECTURES FRIDAY

Room: Kongress-Saal

**Friday, January 30, 09:10 – 09:50**

**Krzysztof Palczewski**

Department of Pharmacology, Case Western Reserve University, Cleveland, Ohio, USA

**Chemistry of Vision: Inherited Retinal Diseases and Rhodopsin**

Abstract P3-1

Chair: Dimitrios Fotiadis, Institute of Biochemistry and Molecular Medicine, University of Bern, Switzerland

**Friday, January 30, 09:50 – 10:30**

**Kaspar Locher**

Department of Biology, Institute of Molecular Biology and Biophysics, ETH Zürich, Switzerland

**Structure and mechanism of ABC transporters**

Abstract P3-2

Chair: Bernhard Erni, Department of Chemistry and Biochemistry, University of Bern, Switzerland

**Friday, January 30, 14:30 – 15:10**

**Sirpa Jalkanen**

MediCity Research Laboratory, University of Turku, Finland

**Ectoenzymes in control of cell trafficking**

Abstract P4-1

Chair: Britta Engelhardt, Institute Theodor Kocher, University of Bern, Switzerland

**Friday, January 30, 15:15 – 15:55**

**Teresa Fitzpatrick**

Department of Botany and Plant Biology, University of Geneva, Switzerland

**Vitamin B6 biosynthesis: Steps towards unraveling a complex puzzle**

Abstract P4-2

Winner of the 2009 Friedrich Miescher Award

## CONCURRENT SYMPOSIA PROGRAM THURSDAY

Society	Title	Speakers	Day	Time	Room
<b>PHA</b>	<b>Ion channels as drug targets: from function to therapeutic application</b>  Symposium 1	D. Beech, A. Brüggemann, A. Arcangeli  V. Bize, G. Shapovalov, K. Bolanz	<b>Thursday</b>	11:00 - 13:00	Kongress-Saal
<b>STSBC</b>	<b>Viruses and Membranes</b>  Symposium 2	A. Helenius, A. Trkola, A. Macagno  R. Bernasconi, D. Bausch, P. Masson	<b>Thursday</b>	11:00 - 13:00	Brünig
<b>ZMG</b>	<b>Genes and Development</b>  Symposium 3	M. Noll, R. Zeller, H. Riezmann  Ch. Gallo, N. Aeple, St. Meier	<b>Thursday</b>	11:00 - 13:00	Theater-Saal
<b>BIO</b>	<b>Functionalizing membranes by proteins and lipids</b>  Symposium 4	R. Jahn, G. van der Goot, A. Engel  J.-M. Segura, P. Philippsen, H. Ding	<b>Thursday</b>	14:30 - 16:30	Kongress-Saal
	<b>Transporters: Determinants for Nutrient and Drug Absorption and Waste Disposal</b>  Symposium 5	H. Lennernäs, B. Stieger, Y. Hagos, H. Koepsell, F. Winkler	<b>Thursday</b>	14:30 - 16:30	Theater-Saal
<b>SGV</b>	<b>Biosafety</b>  Symposium 6	P. Baehler, A. Foletti, S. Baechler, K. Summermatter	<b>Thursday</b>	14:30 - 16:30	Brünig

## CONCURRENT SYMPOSIA PROGRAM FRIDAY

<b>Society</b>	<b>Title</b>	<b>Speakers</b>	<b>Day</b>	<b>Time</b>	<b>Room</b>
<b>PHY</b>	<b>Channelopathies</b> Symposium 7	F. Lehmann-Horn, I. Decosterd, E. Niggli Y. Suzuki, L. Sintra, M. Grunnet	<b>Friday</b>	11:00 - 13:00	Kongress- Saal
<b>AHE</b>	<b>Advanced Imaging of Membrane Protein Function</b> Symposium 8	J. Peti-Peterdi, A. Stemmer, A. Engel E. Babiychuk, S. Tabone- Eglinger, R. Hilf	<b>Friday</b>	11:00 - 13:00	Brünig
<b>SGO- SSO</b>	<b>Membranes and Cancer</b> Symposium 9	B. Borisch, N. Hynes, Y. Shai P. Forny, D. Ilgen, D. de Beer	<b>Friday</b>	11:00 - 13:00	Theater- Saal

# SYMPOSIA DETAILS

## PHA

### Ion channels as drug targets: from function to therapeutic application

*Recent advances in the pharmacological investigation of ion channels*

**Symposium S1**

Thursday, January 29, 11:00 - 13:00

Chair: **Olivier Staub**, Dept. of Pharmacology and Toxicology,  
University of Lausanne

Room: Kongress-Saal

#### 11:00 – 11:25

David Beech  
Institute of Membrane & Systems Biology,  
University of Leeds, UK

**TRP channels in human rheumatoid arthritis**  
Abstract S1-1

#### 11:25 – 11:50

Andrea Brüggemann  
Research & Development  
Nanion Technologies, Munich, Germany

**Large scale screening of ion channels by automated patch clamping**  
Abstract S1-2

#### 11:50 – 12:15

Annarosa Arcangeli  
Experimental Pathology and Oncology  
University of Florence, Firenze, Italy

**Targeting ion channels in cancer: a novel frontier in antineoplastic therapy**  
Abstract S1-3

#### Short Oral Presentations

#### 12:15 – 12:30

Vincent Bize  
Department of Pharmacology and Toxicology,  
University of Lausanne, Switzerland

**Sodium self-inhibition of the epithelial sodium channel: Identification of residues involved in sodium sensing**  
Abstract S1-4

#### 12:30 – 12:45

George Shapovalov  
Pharmacology, University of Geneva, Switzerland

**Role of TRPC1 and Orai1 channels in the regulation of store-operated currents in muscular dystrophy**  
Abstract S1-5

#### 12:45 – 13:00

Katrin A. Bolanz  
Institute of Biochemistry and Molecular Medicine,  
University of Bern, Switzerland

**Tamoxifen inhibits TRPV6 activity via estrogen receptor independent pathways in TRPV6 transfected MCF-7 cells**  
Abstract S1-6

## Viruses and Membranes

Symposium S2

Thursday, January 29, 11:00 - 13:00

Chair: **Antonio Lanzavecchia**, Laboratory of Immune Regulation, Institute for Research in Biomedicine, Bellinzona Switzerland

Room: Brünig

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**11:00 – 11:25**

Ari Helenius  
Institute of Biochemistry, ETH Zürich, Switzerland

**The role of membrane lipids in virus entry**  
Abstract S2-1

**11:25 – 11:50**

Alexandra Trkola  
Division of Infectious Diseases, University Hospital Zürich, Switzerland

**HIV entry inhibition**  
Abstract S2-2

**11:50 – 12:15**

Annalisa Macagno  
Laboratory of Cellular Immunology, Institute for Research in Biomedicine, Bellinzona, Switzerland

**Selection of novel HCMV antigens for vaccination**  
Abstract S2-3

**Short Oral Presentations**

**12:15 – 12:30**

Riccardo Bernasconi  
Molinari Lab, Institute for Research in Biomedicine, Bellinzona, Switzerland

**Role of ERAD substrate topology in selection of E3 ubiquitin ligases**  
Abstract S2-4

**12:30 – 12:45**

Damaris Bausch  
Institute for Molecular Systems Biology, ETH Zürich, Switzerland

**The Cell Surface Protein Atlas**  
Abstract S2-5

**12:45 – 13:00**

Patrick Masson  
Virus Program, Swiss Institute of Bioinformatics, Geneva, Switzerland

**Virus-cell membrane interactions in ViralZone**  
Abstract S2-6

Thursday, January 29, 11:00 - 13:00

Room: Theater-Saal

Chairs: **François Karch**, Zoology and Animal Biology,  
University of Geneva, Switzerland

**11:00 – 11:25**

Markus Noll  
Institute of Molecular Biology, University of Zürich,  
Switzerland

**Formation of bicoid morphogen gradient: an mRNA gradient dictates the protein gradient**

Abstract S3-1

**11:25 – 11:50**

Rolf Zeller  
Center for Biomedicine, University of Basel,  
Switzerland

**A Self-Regulatory Feedback Signaling System controls Vertebrate Limb Development**

Abstract S3-2

**11:50 – 12:15**

Howard Riezman  
Biochemistry, Sciences II, University of Geneva,  
Switzerland

**Sterols and Sphingolipids in Biological Membranes: an Intimate Relationship**

Abstract S3-3

**Short Oral Presentations****12:15 – 12:30**

Chiara Gallo  
Section des Sciences pharmaceutiques,  
Laboratoire de Pharmacologie, University of  
Geneva, Switzerland

**Role of the cationic channel TRPC1 in Duchenne muscular dystrophy: Analysis of double knock-out TRPC1 -/- DYS -/- skeletal muscles**

Abstract S3-4

**12:30 – 12:45**

Natalia Aeple  
Institute of Molecular Biology, University of Zürich,  
Switzerland

**The Role of Ku80 in DSB Repair in Drosophila melanogaster**

Abstract S3-5

**12:45 – 13:00**

Stefan Meier  
Department for Plant Physiology, University of  
Bern, Switzerland

**AtGAT1 and AtGAT2 the GABA transporters of Arabidopsis thaliana**

Abstract S3-6

**Functionalizing membranes by proteins  
and lipids****Symposium S4**

Thursday, January 29, 14:30 – 16:30

Room: Kongress-Saal

Chairs: **Marcus Thelen**, Institute for Research in  
Biomedicine, Bellinzona, Switzerland**Margot Thome**, Department of Biochemistry, University of  
Lausanne, Switzerland**14:30 – 14:55**Reinhard Jahn  
Department of Neurobiology, Max-Planck-Institute  
for Biophysical Chemistry, Göttingen, Germany**Membrane fusion in the secretory pathway of eukaryotic  
cells**

Abstract S4-1

**14:55 – 15:20**Gisou van der Goot  
Global Health Institute, EPFL, Lausanne,  
Switzerland**Ubiquitin dependent quality control of a membrane  
protein in the ER**

Abstract S4-2

**15:20 – 15:45**Andreas Engel  
CINA, Maurice E. Müller Institut, Biozentrum,  
Basel, Switzerland**To visualize membrane proteins in their native  
environment**

Abstract S4-3

**Short Oral Presentations****15:45 – 16:00**Jean-Manuel Segura  
Life Technologies, HES-SO Valais, Sion,  
Switzerland**Visualizing cytotoxic T cell activation at the single-  
molecule level**

Abstract S4-4

**16:00 – 16:15**Peter Philippsen  
Applied Microbiology, Biozentrum, University  
Basel, Switzerland**Exocytic membrane fusions and endocytic membrane  
internalisation: Two interdependent processes in fast  
growing fungal cells**

Abstract S4-5

**16:15 – 16:30**Heidrun Ding  
Pathology and Immunology, University of Geneva,  
Switzerland**Raft-based signalosomes in human lymphoma cell  
membranes**

Abstract S4-6

## Stieger / Hediger

# Transporters: Determinants for Nutrient and Drug Absorption and Waste Disposal

Symposium S5

Thursday, January 29, 14:30 – 16:30

Chairs: **Bruno Stieger**, Division of Clinical Pharmacology and Toxicology, University of Zürich, Switzerland

Room: Theater-Saal

**Matthias Hediger**, Institute of Biochemistry and Molecular Medicine, University of Bern, Switzerland

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### 14:30 – 14:55

Hans Lennernäs  
Department of Pharmacy, Uppsala University,  
Sweden

### Gastrointestinal permeability and drug absorption

Abstract S5-1

### 14:55 – 15:20

Bruno Stieger  
Division of Clinical Pharmacology and Toxicology,  
University Hospital, Zürich, Switzerland

### Hepatic Bile Salt and Drug Transport

Abstract S5-2

### 15:20 – 15:45

Yohannes Hagos  
Georg-August-University Göttingen, Department  
Vegetative Physiology und Pathophysiology,  
Germany

### Transport Systems in Renal Drug Elimination

Abstract S5-3

### 15:45 – 16:10

Hermann Koepsell  
Institute of Anatomy and Cell Biology, University  
Würzburg, Germany

### Investigation of structure and function of organic cation transporters using homology modeling and mutagenesis

Abstract S5-4

### 16:10 – 16:30

Fritz K. Winkler  
Paul Scherrer Institut, Villigen, Switzerland

### Bacterial Transport of Ammonia

Abstract S5-5

Thursday, January 29, 14:30 – 16:30

Chairs: **Beat Riederer**, Department of Cell Biology and Morphology, University of Lausanne, Switzerland

Room: Brünig

**Ingrid Kohler**, Institute for Immunology and Immunoprophylaxis, Mittelhäusern, Switzerland

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**14:30 – 15:00**

Pascal Baehler  
Security Officer, University of Lausanne,  
Switzerland

**Safety around the animal house**

Abstract S6-1

**15:00 – 15:30**

Alesandro Foletti  
Biosecurity Officer CHUV, Lausanne, Switzerland

**Biosafety in the animal house**

Abstract S6-2

**15:30 – 16:00**

Sebastien Baechler  
University Institute for Radiation Physics,  
University Hospital & University of Lausanne  
(CHUV-UNIL), Switzerland

**Radioprotection in the animal house**

Abstract S6-3

**16:00 – 16:30**

Kathrin Summermatter  
Institute of Virology and Immunoprophylaxis (IVI),  
Federal Veterinray Office FVO, Mittelhäusern,  
Switzerland

**Biosafety of highly contagious animal pathogens**

Abstract S6-4

## Channelopathies

*New insights in physio(patho)logical mechanisms provided by investigation of dysfunctional ion channels*

**Symposium S7**

Friday, January 30, 11:00 – 13:00

Room: Kongress-Saal

Chairs: **Hugues Abriel**, Pharmacology and Toxicology, University of Lausanne, Switzerland

**Eric Raddatz**, Department of Physiology, University of Lausanne, Switzerland

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### 11:00 – 11:25

Frank Lehmann-Horn  
Institute of Applied Physiology, Ulm University,  
Germany

### Pathogenetic patterns in channelopathies

Abstract S7-1

### 11:25 – 11:50

Isabelle Decosterd  
University Hospital Center (CHUV) and Lausanne  
University, Switzerland

### Dysregulation of voltage-gated sodium channels in the context of chronic pain

Abstract S7-2

### 11:50 – 12:15

Ernst Niggli  
Department of Physiology, University of Bern,  
Switzerland

### Cardiac ryanodine receptor Ca<sup>2+</sup> release channels: channelopathies and hypersensitivity

Abstract S7-3

## Short Oral Presentations

### 12:15 – 12:30

Yoshiro Suzuki  
Institute of Biochemistry and Molecular Medicine,  
University of Bern, Switzerland

### A haplotype of the epithelial Ca<sup>2+</sup> channel TRPV6 is a risk factor for renal Ca<sup>2+</sup> stone formation: Possible selection pressure during the migration from Africa to Europe

Abstract S7-4

### 12:30 – 12:45

Liliana Sintra Grilo  
Pharmacology and Toxicology, University of  
Lausanne, Switzerland

### Characterization of a novel 7-amino-acid duplication located in the PAS domain of hERG found in a patient with congenital long QT syndrome

Abstract S7-5

### 12:45 – 13:00

Morten Grunnet  
Biomedical Sciences, University of Copenhagen,  
Denmark

### Increased repolarization reserve as a new anti-arrhythmic principle

Abstract S7-6

## Advanced Imaging of Membrane Protein Function

Symposium S8

Friday, January 30, 11:00 – 13:00

Room: Brünig

Chairs: **Johannes Loffing**, Institute of Anatomy, University of Zürich, Switzerland

**Andres Käch**, Center for Microscopy and Image Analysis, University of Zürich, Switzerland

### 11:00 – 11:25

Janos Peti-Peterdi  
Physiology & Biophysics, Medicine, University of Southern California, USA

### In vivo multiphoton imaging of ion transporting renal epithelia

Abstract S8-1

### 11:25 – 11:50

Andreas Stemmer  
Nanotechnology Group, ETH Zürich, Switzerland

### Sub-100-nm resolution in TIRF microscopy

Abstract S8-2

### 11:50 – 12:15

Andreas Engel  
CINA, Maurice E. Müller Insitut, Biozentrum, Basel, Switzerland

### Imaging membrane proteins by atomic force microscopy in their native environment

Abstract S8-3

## Short Oral Presentations

### 12:15 – 12:30

Eduard Babiychuk  
Cell Biology, Institute of Anatomy, University of Bern, Switzerland

### Fluorescent Annexin A1 Reveals Dynamics of Ceramide Platforms in Living Cells

Abstract S8-4

### 12:30 – 12:45

Séverine Tabone-Eglinger  
Cellular Physiology and Metabolism, Centre Médical Universitaire, Geneva, Switzerland

### Dimerization and ER-export of Kit-ligand is induced by a conserved glycine repeat motif in its transmembrane domain

Abstract S8-5

### 12:45 – 13:00

Ricarda Hilf  
Department of Biochemistry, University of Zürich, Switzerland

### Open and Closed Structures of two Pentameric Ligand Gated Ion Channels

Abstract S8-6

## Membranes and Cancer

Symposium S9

Friday, January 30, 11:00 – 13:00

Chair: **Bruno Fuchs**, Department of Orthopedics, University of Zürich, Balgrist, Switzerland

Room: Theater-Saal

### 11:00 – 11:25

Bettina Borisch  
Santé et médecine communautaire, University of Geneva, Switzerland

### Cell Membranes in Human Tumours as Therapeutic Targets

Abstract S9-1

### 11:25 – 11:50

Nancy Hynes  
Growth Control, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland

### Targeting receptor tyrosines in breast cancer

Abstract S9-2

### 11:50 – 12:15

Yecheil Shai  
Dept. of Biological Chemistry, The Weizmann Institute of Science Rehovot, Israel

### A lesson from nature: Membrane disrupting peptides and ultrashort lipopeptides as novel weapons against bacteria fungi and cancer

Abstract S9-3

### Short Oral Presentations

### 12:15 – 12:30

Patrick Forny  
Institute of Anatomy, University of Zürich, Switzerland

### Photodynamic effects of hypericin and Foslipos in head and neck squamous cell carcinoma in-vitro

Abstract S9-4

### 12:30 – 12:45

Denise Ines Ilgen  
Pharmaceutical Sciences, ETH Zürich, Switzerland

### Investigation on lipid bilayer permeation of P-glycoprotein substrates

Abstract S9-5

### 12:45 – 13:00

Dirk de Beer  
Haematology, University of Bern, Switzerland

### Deficient nuclear expression of the Ku86 autoantigen in lymphocytes of patients with chronic lymphocytic leukaemia (CLL)

Abstract S9-6