

# 102<sup>nd</sup> ANNUAL MEETING OF THE GERMAN PHYSIOLOGICAL SOCIETY

Joint meeting with the Austrian Physiological Society (APS) & Life Sciences Switzerland (LS<sup>2</sup>) Physiology

21. – 23.09.2023 | BERLIN



Thursday, 21 September 2023, 9:00 a.m. - 11:00 a.m.

## OS 01 | Ion Transport: From Physiology to Pathophysiology

**Chairs:** Markus Bleich (Kiel); Robert Szulcek (Berlin, Germany)

### Presentations:

- |          |          |   |
|----------|----------|---|
| 9:00 am  | OS 01-01 | Glucocorticoids improve contractility and excitation-contraction coupling in human failing myocardial slices<br><b>Benedikt Pfeilschifter</b> (Erlangen, Germany)   |
| 9:15 am  | OS 01-02 | Cystic fibrosis transmembrane conductance regulator modulators attenuate platelet activation and aggregation in blood of healthy donors and COVID-19 patients<br><b>Erik Asmus</b> (Berlin, Germany)  |
| 9:30 am  | OS 01-03 | Vascular Smooth Muscle BK Channel Activation by Cardiotonic Steroids Is Mediated by Na/K-ATPase, Na/Ca exchanger and Src-Kinase<br><b>Anastasia Pyanova</b> (Augsburg, Germany)   |
| 9:45 am  | OS 01-04 | The anion channel TMEM16a/Ano1 modulates agonist-activated CFTR activity, but does not function as an apical anion channel in colonic epithelium from cystic fibrosis patients and healthy individuals<br><b>Ursula Seidler</b> (Hannover, Germany) |
| 10:00 am | OS 01-05 | Claudin 14 gradually replaces claudin 16 to finetune renal calcium transport<br><b>Rozemarijn E. van der Veen</b> (Berlin, Germany)   |
| 10:15 am | OS 01-06 | Renal Basolateral Potassium Channels in Salt Handling and Blood Pressure Control<br><b>Alexander Staruschenko</b> (Tampa, USA)  |
| 10:30 am | OS 01-07 | Role of transmembrane serine protease 2 (TMPRSS2) in proteolytic processing and activation of the epithelial sodium channel (ENaC) in kidney and lung epithelia<br><b>Florian Sure</b> (Erlangen, Germany)  |
| 10:45 am | OS 01-08 | T- and L-type calcium channels maintain calcium oscillations in the murine zona glomerulosa<br><b>Hoang A. Dinh</b> (Berlin, Germany)   |

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## S 01 | Plasticity of the Cardiac Dyad: From Single Contractions to Remodeling in Disease

**Chairs:** Thomas Seidel (Erlangen, Germany); William Louch (Oslo, Norway)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 9:00 am  | S 01-01 | The cardiac dyad as a central signalling structure in myocyte calcium handling<br><b>Christian Soeller</b> (Bern, Switzerland)                                 |
| 9:30 am  | S 01-02 | Plasticity of dyadic structure and function<br><b>William E. Louch</b> (Oslo, Norway)  |
| 9:48 am  | S 01-03 | Ultrastructural reconstruction of the dyad during cardiomyocyte contraction<br><b>Joachim Greiner</b> (Freiburg, Germany)                                      |
| 10:06 am | S 01-04 | The ultrastructure of elementary calcium signals as revealed by realtime nanoscopy<br><b>Qinghai Tian</b> (Homburg, Germany)                                   |
| 10:24 am | S 01-05 | Mechanisms and Pathways of Cardiomyocyte T-Tubule Loss<br><b>Thomas Seidel</b> (Erlangen, Germany)   |
| 10:42 am | S 01-06 | Dysferlin stabilizes the cardiac dyad and mediates hypertrophic remodeling in left-ventricular pressure overload<br><b>Nora J. Paulke</b> (Göttingen, Germany) |

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## S 02 | Novel GPCR-based optical tools to investigate organ function and behaviour

**Chairs:** Tobias Brüggemann (Göttingen, Germany); Simon Wiegert (Mannheim, Germany)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 9:00 am  | S 02-01 | A new family of genetically-encoded catecholamines indicators<br><b>Tommaso Patriarchi</b> (Zurich, Switzerland)                                     |
| 9:25 am  | S 02-02 | Illuminating the brain - genetically encoded sensors to explore neuronal circuitries<br><b>Olivia A. Masseck</b> (Bremen, Germany)                   |
| 9:50 am  | S 02-03 | Synchronization of neuronal networks and modulation of synaptic plasticity by non-visual opsin variants.<br><b>Stefan Herlitze</b> (Bochum, Germany) |
| 10:15 am | S 02-04 | Optogenetic stimulation of G <sub>s</sub> signaling to investigate cardiac arrhythmia mechanisms<br><b>Vanessa Dusend</b> (Bonn, Germany)            |
| 10:35 am | S 02-05 | Finding new OptoGPCRs in nature: broadening the wavelength spectra and dynamic ranges<br><b>Alina Pushkarev</b> (Berlin, Germany)                    |

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## S 03 | Novel approaches in understanding mechanisms of deep brain stimulation in movement disorders (Symposium of CRC 1270 ELAINE Electrically active Implants)

**Chairs:** Rüdiger Köhling (Rostock, Germany)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 9:00 am  | S 03-01 | Synaptic dynamics underlying deep brain stimulation - translating rat to human single cell recordings<br><b>Leon Amadeus Steiner</b> (Berlin, Germany) |
| 9:24 am  | S 03-02 | Electrophysiological Investigations on the mechanisms of DBS in a dystonia model<br><b>Denise Franz</b> (Rostock, Germany)                             |
| 9:48 am  | S 03-03 | Human neural cell models of dystonia<br><b>Philipp Capetian</b> (Würzburg, Germany)  |
| 10:12 am | S 03-04 | Neurophysiological biomarkers to optimize deep brain stimulation in movement disorders<br><b>Karlo Lizarraga</b> (Rochester, USA)                      |
| 10:36 am | S 03-05 | Mathematical Modelling of Deep Brain Stimulation<br><b>Jens Starke</b> (Rostock, Germany)  |

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Thursday, 21 September 2023, 11:20 a.m. - 12:50 p.m.

## **OC | Opening & Award Ceremony**

**Chairs:**

**Presentations:**

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Thursday, 21 September 2023, 1:50 p.m. - 2:35 p.m.

## PL 01 | Development and evolution of the human neocortex – neural stem cells, human-specific genes, and human-specific protein variants

Chairs: Jörg Geiger (Berlin)

### Presentations:

1:50 pm PL 01 Development and evolution of the human neocortex – neural stem cells, human-specific genes, and human-specific protein variants  
**Wieland B. Huttner** (Dresden, Germany)

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Thursday, 21 September 2023, 3:00 p.m. - 4:45 p.m.

## OS 02 | Best Abstract Session

**Chairs:** **Stefan Gründer** (Aachen, Germany); **Wolfgang A. Linke** (Münster, Germany); **Dominik Lenz-Schwab** (Marburg, Germany); **Friederike Stumpff** (Potsdam, Germany); **Jörg Geiger** (Berlin, Germany)

### Presentations:

- |         |          |   |
|---------|----------|---|
| 3:00 pm | OS 02-01 | Renal compartment-specific proteasome alterations in a murine type-2 diabetes model<br><b>Lukas Blume</b> (Hamburg, Germany)  |
| 3:15 pm | OS 02-02 | Role of pericardial cells in myocardial infarction.<br><b>Olesia Omelchenko</b> (Düsseldorf, Germany)   |
| 3:30 pm | OS 02-03 | Relaxin' cortical circuits: Understanding the effect of relaxin on synaptic transmission within cortical circuits<br><b>Sadat Hodzic</b> (Planegg-Martinsried, Germany)                                 |
| 3:45 pm | OS 02-04 | Gain-of-function mutations in <i>CLCN6</i> cause early-onset neurodegeneration<br><b>Maya M. Polovitskaya</b> (Berlin, Germany)   |
| 4:00 pm | OS 02-05 | Renin versus erythropoietin – the endocrine plasticity of renal vascular smooth muscle cells is influenced by the prolyl-4-hydroxylases 2 and 3<br><b>Katharina A.-E. Broeker</b> (Regensburg, Germany) |
| 4:15 pm | OS 02-06 | Alterations in extracellular vesicle microRNAs drive loss of endothelial homeostasis in chronic kidney disease<br><b>Szandor Simmons</b> (Berlin, Germany)  |
| 4:30 pm | OS 02-07 | An ultrasensitive genetically encoded voltage indicator reveals the endogenous electrical activity of non-excitabile cells<br><b>Philipp Rühl</b> (Jena, Germany)                                       |

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Thursday, 21 September 2023, 3:00 p.m. - 5:00 p.m.

## OS 03 | Molecular & Cellular Neurosciences

**Chairs:** **Andreas Draguhn** (Heidelberg); **Christian Rosenmund** (Berlin, Germany)

### Presentations:

- 3:00 pm OS 03-01 Synergistic and distinct roles of GluA1-receptors in the dorsal and ventral hippocampus in schizophrenia-related sensory and cognitive processing  
**Sampath Kumar Kapanaiah** (Ulm, Germany)
- 3:15 pm OS 03-02 Postsynaptic plasticity of cholinergic synapses underlies the induction and expression of appetitive and familiarity memories in *Drosophila*  
**Carlotta Pribbenow** (Berlin, Germany)
- 3:30 pm OS 03-03 Parkinson's related alterations in the  $\alpha$ -synuclein protein network  
**Edgar R. Kramer** (Plymouth, UK)
- 3:45 pm OS 03-04 Human iPSC-derived neurons with reliable synapses and large presynaptic action potentials  
**Torsten Bullmann** (Leipzig, Germany)
- 4:00 pm OS 03-05 Observing single Dynamin-mediated fission events in TIRFM-amenable synapses  
**Sai Krishnan** (Münster, Germany)
- 4:15 pm OS 03-06 A Noelin-organized extracellular network of proteins required for constitutive and context-dependent anchoring of AMPA-receptors.  
**Jochen Schwenk** (Freiburg, Germany)
- 4:30 pm OS 03-07 The lipid transporter ORP2 regulates synaptic neurotransmitter release via two distinct mechanisms  
**Marion Weber-Boyvot** (Berlin, Germany)
- 4:45 pm OS 03-08 TRPV1-dependent nocifensive behavior in larval zebrafish reveals thermal hyposensitivity as a sensory marker of diabetic peripheral neuropathy  
**Jonathan R. Husk** (Mannheim, Germany)



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Thursday, 21 September 2023, 3:00 p.m. - 5:00 p.m.

## OS 04 | At the Heart of the Matter: Cardiac Physiology and Pathophysiology

**Chairs:** **Mauro Siragusa** (Frankfurt am Main, Germany); **Tobias Brüggemann** (Göttingen, Germany)

### Presentations:

- 3:00 pm OS 04-01 In left heart disease, elastin degradation impairs pulmonary arterial biomechanics and promotes pulmonary hypertension  
**Mariya M. Kucherenko** (Berlin, Germany)
- 3:15 pm OS 04-02 Pro-regenerative Feature of Fibroblasts During Early Postnatal Phase  
**Mona Malek Mohammadi** (Bonn, Germany)
- 3:30 pm OS 04-03 Cardiac fatty acid oxidation after myocardial infarction is restored by insulin-like growth factor 1 treatment.  
**Andre Heinen** (Düsseldorf, Germany)
- 3:45 pm OS 04-04 Electrical auricular tragus stimulation induces release of circulating cardioprotective factors in healthy human volunteers.  
**Helmut Lieder** (Essen, Germany)
- 4:00 pm OS 04-05 Hypertrophic Cardiomyopathy mutation R723G enhances *MYH7*-mRNA stability  
**Judith Montag** (Hannover, Germany)
- 4:15 pm OS 04-06 Dysfunction of human cardiac ventricular myosin due to light chain-2 mutation D166V associated with Hypertrophic cardiomyopathy (HCM)  
**Faris Mehdawi** (Hannover, Germany)
- 4:30 pm OS 04-07 Neonatal model of pulmonary artery banding – a unique model to investigate right ventricular plasticity and intraventricular crosstalk in neonatal mice  
**Fabian Ebach** (Bonn, Germany)
- 4:45 pm OS 04-08 Implementing peer-assisted cardiac ultrasound demonstration in the practical heart physiology class  
**Vivian Blechschmidt** (Mannheim, Germany)

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Thursday, 21 September 2023, 3:00 p.m. - 5:00 p.m.

## S 04 | Ion channels in pulmonary physiology and disease

**Chairs:** Wolfgang Kübler (Berlin); Manfred Frick (Ulm, Germany)

### Presentations:

- 3:00 pm S 04-01 Ion channels in pulmonary physiology and disease  
**Andrea Olschewski** (Graz, Austria)
- 3:25 pm S 04-02 In-depth characterization of CFTR variants for personalized medicine approaches in cystic fibrosis  
**Nicoletta Pedemonte** (Genoa, Italy)
- 3:50 pm S 04-03 CFTR and lung endothelial barrier regulation in respiratory infections  
**Lasti Erfinanda** (Berlin, Germany)
- 4:10 pm S 04-04 K<sub>Ca</sub>3.1 channels in non-small cell lung cancer progression  
**Albrecht Schwab** (Münster, Germany)
- 4:35 pm S 04-05 Endolysosomal ion channels in lung physiology and pathophysiology  
**Christian Grimm** (Munich, Germany)

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Thursday, 21 September 2023, 3:00 p.m. - 5:00 p.m.

## S 05 | Decoding the fine control of interneurons in behavior

**Chairs:** Xianshu Bai (Homburg, Germany); Marlene Bartos (Freiburg, Germany)

### Presentations:

- 3:00 pm S 05-01 The role of dentate gyrus interneuron types in pattern separation  
**Marlene Bartos** (Freiburg, Germany)
- 3:30 pm S 05-02 Long-term stable and context specific spatial representation in somatostatin interneurons and granule cells of the dentate gyrus  
**Antje Kiliás** (Freiburg, Germany)
- 4:00 pm S 05-03 Cortical Vasoactive Intestinal Polypeptide (VIP)-expressing Interneurons and the Broadcasting of Saliency  
**Francesco Ferraguti** (Innsbruck, Austria)
- 4:30 pm S 05-04 Bi-directional communication between oligodendrocyte precursors and interneurons defines interneuron activity and cognition  
**Xianshu Bai** (Homburg, Germany)

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Thursday, 21 September 2023, 5:00 p.m. - 7:00 p.m.

## **A | Poster Session A**

**Chairs:**

**Presentations:**

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Thursday, 21 September 2023, 5:00 p.m. - 7:00 p.m.

## A 01 | K<sup>+</sup> & Cl<sup>-</sup> Transport Across Membranes

**Chairs:** **Olga Garaschuk** (Tübingen, Germany); **Heimo Ehmke** (Hamburg, Germany)

### Presentations:

- 5:00 pm A 01-01 Molecular Basis of TREK K<sub>2P</sub> Channel Gating  
**Marcus Schewe** (Kiel, Germany)
- 5:01 pm A 01-02 Essential role of conserved alanine residues in CLC channel proteostasis  
**Chia-Ying You** (Taipei City, Taiwan)
- 5:02 pm A 01-03 Exploring basics of ion channel gating in viral proteins  
**Indra Schroeder** (Jena, Germany)
- 5:03 pm A 01-04 Understanding the role of individual subunits in concatenated heteromeric Kv2.1/Kv6.4 channels.  
**Debanjan Tewari** (Jena, Germany)
- 5:04 pm A 01-05 Mechanism of voltage sensing in Ca<sup>2+</sup>- and voltage-activated K<sup>+</sup> channels  
**Ignacio Segura** (Jülich, Germany)
- 5:05 pm A 01-06 Unraveling the role of the Ca<sup>2+</sup>-activated K<sup>+</sup> channel K<sub>Ca</sub>3.1 in pancreatic ductal adenocarcinoma  
**Benjamin Soret** (Villeneuve d'Ascq, France)
- 5:06 pm A 01-07 The natural polyphenolic compound  $\alpha$ -Mangostin modulates diverse potassium channel classes  
**Marianne Musinszki** (Kiel, Germany)
- 5:07 pm A 01-08 K<sub>Ca</sub> channels as amplifiers of TRPV4-mediated pulmonary edema formation  
**Mei Li** (Berlin, Germany)

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- 5:08 pm A 01-09 The Role of *Cln2* in the Murine Zona Glomerulosa  
**Marina Volkert** (Berlin, Germany)
- 5:09 pm A 01-10 Activation of TMEM16A channels by methionine oxidation  
**Rama A. Hussein** (Jena, Germany)
- 5:10 pm A 01-11 Current clamp Ussing chamber measurements show different effects of modulators depending on CFTR mutation  
**Vanessa Mete** (Münster, Germany)
- 5:11 pm A 01-12 Analysis of the transport mechanism of SLC26A3 and SLC26A6  
**Annalisa Questino** (Marburg, Germany)
- 5:12 pm A 01-13 The p53-p21 DREAM signaling pathway regulates the TMEM206 ion channel  
**Korollus Melek** (Bern, Switzerland)
- 5:13 pm A 01-14 Regulation of selectivity filter gating in the model system of minimal viral potassium channels  
**Nils Drexler** (Jena, Germany)
- 5:14 pm A 01-15 Exploring the pore structure of THIK1 channels (KCNK13) with blockers and chemical cysteine modification  
**Bisher Eymsh** (Kiel, Germany)

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## A 02 | Non-Selective Cation Channels

**Chairs:** Stefan Hallermann (Leipzig, Germany); Thomas Jentsch (Berlin, Germany)

### Presentations:

- 5:00 pm A 02-01 HCN channels in the context of a potential *Retinitis Pigmentosa* therapy  
**Jana Kusch** (Jena, Germany)
- 5:01 pm A 02-02 Voltage and time dependent gating of endo-lysosomal hTPC2 channels  
**Leon-Patrick Sprenger** (Hannover, Germany)
- 5:02 pm A 02-03 Identification of residues in TRPM3 channels important for the agonist action of pregnenolone sulfate  
**Nuwar Harb** (Marburg, Germany)
- 5:03 pm A 02-04 On the subunit arrangement in heterotetrameric olfactory CNG channels  
**Taulant Kukaj** (Jena, Germany)
- 5:04 pm A 02-05 Hearing loss mutations in human P2X2 receptor channels  
**Christian Sattler** (Jena, Germany)
- 5:05 pm A 02-06 Salivary gland dysfunction is a major factor driving the phenotype of claudin-10b deficient mice  
**Luca Meoli** (Berlin, Germany)
- 5:06 pm A 02-07 Selectivity filter mutation N648A alters voltage-dependence of endo-lysosomal mTPC1 channels  
**Oemer Kocdölü** (Hannover, Germany)
- 5:07 pm A 02-08 Ionic selectivity of the permeation pathways in TRPM3 channels  
**Homa G. Samani** (Marburg, Germany)
- 5:08 pm A 02-09 Negative charges in the S2-S3 linker are involved in voltage-dependent gating of hyperpolarization-activated, cyclic nucleotide-modulated channels  
**Inga Saß** (Jena, Germany)

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- 5:09 pm A 02-10 The bile acid-sensitive ion channel (BASIC) affects the morphology of pancreatic islets and glucagon secretion  
**Jingyu Yang** (Aachen, Germany)
- 5:10 pm A 02-11 Selectively targeting rod CNG channels for limiting photoreceptor degeneration in *retinitis pigmentosa*  
**Sandeep Kesh** (Jena, Germany)
- 5:11 pm A 02-12 Human monoclonal autoantibody blocks N-methyl-D-aspartate receptors within seconds  
**Jing Yu-Strzelczyk** (Würzburg, Germany)
- 5:12 pm A 02-13 Relating Ligand Binding to Activation Gating in Human P2X Receptors by Using a Novel Fluorescent ATP Derivative  
**Xenia Brünings** (Jena, Germany)
- 5:13 pm A 02-14 Modulation of Acid-Sensing Ion Channel 1a by Thyroid Hormones  
**Lu Qin** (Aachen, Germany)
- 5:14 pm A 02-15 The  $\alpha 5$  subunit in nAChRs contributes to nicotine induced proliferation and migration in human cancer cells  
**Irida Papapostolou** (Bern, Switzerland)
- 5:15 pm A 02-16 Cyclic Adenosine Monophosphate Enhances Electrophysiological Properties and Gap Junction Neof ormation in Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes  
**Jan-Mischa Sauter** (Heidelberg, Germany)



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## A 03 | Hypoxy & HIF

**Chairs:** Carsten Scholz (Greifswald, Germany); Andrea Olschewski (Graz, Austria)

### Presentations:

- 5:00 pm A 03-01 Molecular uncovering of reduced Hypoxia Inducible Factor-1 $\alpha$  content in hereditary hemorrhagic telangiectasia  
**Lars Kleine-Möllhoff** (Essen, Germany)
- 5:01 pm A 03-02 Deciphering the role of hypoxia-inducible factors in ferroptotic cell death in a cell culture model of age-related macular degeneration  
**Annika Schubert** (Essen, Germany)
- 5:02 pm A 03-03 Expression analysis and functional characterization of an oxygen-binding protein in an unconventional physiological model system  
**Carina Osterhof** (Fribourg, Switzerland)
- 5:03 pm A 03-04 Investigation of a crosstalk between hypoxia-inducible factors and mechanistic target of rapamycin in retinal pigment epithelium cells  
**Gesa Weißenberg** (Essen, Germany)
- 5:04 pm A 03-05 The Effect of isoleucine preconditioning on neuroprotection via HIF-1 $\alpha$  signaling after oxygen-glucose deprivation insult  
**Xujin Yao** (Essen, Germany)
- 5:05 pm A 03-06 The Functional relationship between the Hypoxia inducible factor 1alpha and primary cilia in neuronal cells  
**Pascal F. Schneider** (Essen, Germany)
- 5:06 pm A 03-07 Investigating the Role of HIF-1 $\alpha$  in Radiation Sensitivity and Metabolic Changes in Murine Hepatocyte-Derived Cells  
**Akram Hamidi** (Essen, Germany)
- 5:07 pm A 03-08 Cigarette smoke extract causes a bioenergetic crisis in retinal pigment epithelium cells involving the destabilization of hypoxia-inducible factor-1 $\alpha$   
**Yoshiyuki Henning** (Essen, Germany)
- 5:08 pm A 03-09 Hypoxia-Inducible Factor-1 and p53 – friends or foes in the colorectal carcinoma?  
**Stefanie Saoub** (Essen, Germany)

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- 5:09 pm A 03-10 Hypoxia induced activation of Mineralocorticoid receptor alters metabolism in the hepatocytes that can contribute to the progression of liver cirrhosis.  
**Mohammad M. Mohib** (Halle, Germany)
- 5:10 pm A 03-11 Investigating the Role of Hypoxia-induced CD73 in HIV Persistence and Transcription  
**Jouly Sbeiti** (Essen, Germany)

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## A 04 | Mechanisms of Behavior & Cognition

**Chairs:** **Marlene Bartos** (Freiburg, Germany); **Torfi Sigurdsson** (Frankfurt, Germany)

### Presentations:

- 5:00 pm A 04-01 Effects of Cav1.3-inhibition on DA SN neuron in vivo firing and explore – exploit behavior in mice  
**Johannes Boehm** (Frankfurt am Main, Germany)
- 5:01 pm A 04-02 Orthogonal coding of food and voluntary exercise by VTA dopamine neurons  
**Hanna E. van den Munkhof** (Cologne, Germany)
- 5:02 pm A 04-03 Binge eating-induced olfactory cortex suppression promotes feeding  
**Friedrich Johenning** (Berlin, Germany)
- 5:03 pm A 04-04 Parvalbumin expressing excitatory neurons of the subiculum specifically project to areas involved in spatial navigation.  
**Gilda Baccini** (Kiel, Germany)
- 5:04 pm A 04-05 “The role of the prefrontal cortex in the expression of learned safety and fear”  
**Ceylan-Scarlett Steinecke** (Kiel, Germany)
- 5:05 pm A 04-06 Silencing of Cholecystokinin-expressing interneurons in the hippocampal CA1 region impairs social recognition memory  
**Kira Balueva** (Kiel, Germany)
- 5:06 pm A 04-07 Self-paced movement initiation and termination lead to complementary modulations of dopamine neuron firing rates in the medio-lateral axis of the substantia nigra  
**Daniela Schenkel** (Frankfurt am Main, Germany)
- 5:07 pm A 04-08 Olfactory memory consolidation in the mushroom body output layer in *Drosophila melanogaster*  
**Tania Fernandez del Valle Alquicira** (Berlin, Germany)
- 5:08 pm A 04-09 Monitoring memory performance after artificial induction of memory in *Drosophila*  
**Sridhar Jagannathan** (Berlin, Germany)

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- 5:09 pm A 04-10 A highly versatile chemotaxis assay for investigating associative learning in undergraduate laboratories using the nematode *Caenorhabditis elegans*  
**Daniel-Cosmin Marcu** (Potsdam, Germany)
- 5:10 pm A 04-11 A virtual-reality based experimental setup for contact-free measurements of behavioural readouts of the lizard *Anolis carolinensis*  
**Niels Röhrdanz** (Kiel, Germany)
- 5:11 pm A 04-12 Time-invariant prefrontal activity patterns during repeated exposure to intense threat  
**Ole Christian Sylte** (Freiburg, Germany)

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Thursday, 21 September 2023, 5:00 p.m. - 7:00 p.m.

## A 05 | Pathophysiology of Neurons & Networks

**Chairs:** Thomas Mittmann (Mainz, Germany); Simon Wiegert (Mannheim, Germany)

### Presentations:

- 5:00 pm A 05-01 Mechanisms of the olfactory dysfunction in the APP<sup>swe</sup>/PS1<sub>G384A</sub> mouse model of Alzheimer's disease  
**Wen-Yu Tzeng** (Tübingen, Germany)
- 5:01 pm A 05-02 Investigating BACE1's role in mechanosensation and sensory processing  
**Sarina Höller** (Erlangen, Germany)
- 5:02 pm A 05-03 Effects of pubertal stress on affective behavior and GABAergic inhibition in dentate gyrus of adult mice  
**Sriity Melley Sadanandan** (Erlangen, Germany)
- 5:03 pm A 05-04 Neurodegenerative tauopathy in biallelic SPRED2 loss-of-function mouse models elicited by autophagosomal dysfunction  
**Sina Gredy** (Wuerzburg, Germany)
- 5:04 pm A 05-05 Heavy adolescent drinking potentiates neuronal ethanol response later in life: involvement of GIRK current and activin receptor signaling  
**Fang Zheng** (Erlangen, Germany)
- 5:05 pm A 05-06 Heterogenous Distribution of cGMP in Neurons and Astrocytes in the awake brain of a mouse model of Alzheimer's disease  
**Aileen Jehle** (Tuebingen, Germany)
- 5:06 pm A 05-07 Pronounced histopathology but unaltered and heterogeneous Cortical Spreading Depolarization (CSD) in a mouse model of Alzheimer's disease  
**Frank Richter** (Jena, Germany)
- 5:07 pm A 05-08 Shutdown of NHE1 is the primary event at presynapses upon chemically induced ischemia to avoid neurotoxicity  
**Martin Kahms** (Muenster, Germany)

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- 5:08 pm A 05-09 Conserved potential of the neuropeptide Galanin to inhibit Cortical Spreading Depolarization in rodents  
**Frank Richter** (Jena, Germany)
- 5:09 pm A 05-10 Hippocampal spiking activity during Local Field Potential events in a Scn2a epilepsy model.  
**Daniil Kirianov** (Bonn, Germany)
- 5:10 pm A 05-11 Healthy male first-year students do not experience stress in the new environment as evidenced by mental chronometry  
**Ana Chikviladze** (Tbilisi, Georgia)
- 5:11 pm A 05-12 The oxygen-sensing pathway in neural cells controls intrinsic long-term neuroregeneration after ischemic stroke  
**Pinar Kilic** (Heidelberg, Germany)

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Thursday, 21 September 2023, 5:00 p.m. - 7:00 p.m.

## A 06 | Lung & Right Heart

**Chairs:** Daniela Wenzel (Bochum, Germany); Wolfgang Kübler (Berlin, Germany)

### Presentations:

- 5:00 pm A 06-01 A role for syntaxin 3 in airway mucus secretion  
**Hanna Meid** (Ulm, Germany)
- 5:01 pm A 06-02 Role of beta arrestin 1 in respiratory pathophysiology  
**Annika Simon** (Bochum, Germany)
- 5:02 pm A 06-03 The Impact of SARS-CoV-2 M Protein on Tight Junctions in Lung Epithelial Cells  
**Lara A. Gutjahr** (Ulm, Germany)
- 5:03 pm A 06-04 The relationship between air pollution and fractional exhaled nitric oxide in primary school children after walking roadside and park routes at school pick-up time.  
**Scarlett Moloney** (Ipswich, UK)
- 5:04 pm A 06-05 Caspase-6 is necessary and specific for morphological adaptation specifically to shear stresses in pulmonary artery endothelial cells *in vitro*  
**Corey Wittig** (Berlin, Germany)
- 5:05 pm A 06-06 Modelling ER stress in Alveolar Type 2 epithelial cells to study early-stage events in Idiopathic pulmonary fibrosis  
**Louisa Vinkovic** (Ulm, Germany)
- 5:06 pm A 06-07 Knockout of the complex III subunit *Uqcrh* causes respiratory impairment and cardiac contractile dysfunction  
**Marten Szibor** (Jena, Germany)
- 5:07 pm A 06-08 Does cell-type specific silencing of MAO-B interfere with the development of right ventricle (RV) hypertrophy or RV failure in pulmonary hypertension?  
**Paulin Brosinsky** (Giessen, Germany)
- 5:08 pm A 06-09 The ubiquitin E3 ligase SIAH2 contributes to right ventricular hypertrophy through direct interaction with the apelin receptor  
**Nicole S. Molenda** (Giessen, Germany)

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- 5:09 pm A 06-10 Bacterial toxins as selective modulators of excessive monocyte recruitment and differentiation in lung repair  
**Robin J. Schöneegg** (Ulm, Germany)
- 5:10 pm A 06-11 Altered pressure-induced right ventricular cardiac remodeling in a heterozygous titin deletion model  
**Kimberley Stein** (Bochum, Germany)
- 5:11 pm A 06-12 Reversibility of vascular remodeling and right ventricular hypertrophy in pulmonary hypertension with left heart disease in a rat model of aortic banding/debanding  
**Donghai Tian** (Berlin, Germany)
- 5:12 pm A 06-13 Comparison of the stage-dependent mitochondrial changes in response to pressure overload between the diseased right and left ventricle in the rat  
**Ling Li** (Giessen, Germany)



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## A 07 | Renal /Gastrointestinal

**Chairs:** Richard Warth (Regensburg, Germany); Catherine Meyer-Schwesinger (Hamburg, Germany)

### Presentations:

- 5:00 pm A 07-01 Renal acetylcholinesterase as a regulator of kidney function  
**Sabrina Habel** (Regensburg, Germany)
- 5:01 pm A 07-02 Cyclosporin A-associated constriction of renal vasculature is associated with microvascular remodeling  
**Cem Erdogan** (Berlin, Germany)
- 5:02 pm A 07-03 Piezo1 inhibition blunts glomerular hyperfiltration in response to acute hyperglycemia in mice  
**Pratik H. Khedkar** (Berlin, Germany)
- 5:03 pm A 07-04 Inhibition of renoprotective angiotensin I-converting enzyme 2 axis diminishes protection against aristolochic acid nephropathy in mice with reduced renal angiotensin I-converting enzyme  
**Annett Juretzko** (Greifswald, Germany)
- 5:04 pm A 07-05 Autoregulation of renal blood flow in wildtype and P2X1-purinoreceptor-deficient mice  
**Armin Just** (Freiburg, Germany)
- 5:05 pm A 07-06 Androglobin knockout leads to endocrine imbalance and hyperkalemia under high-potassium diet  
**Miguel Correia** (Fribourg, Switzerland)
- 5:06 pm A 07-07 Inflammatory diarrhea in inflammatory bowel disease (IBD) patients may be due to defective terminal differentiation of absorptive enterocytes in the inflamed colon  
**Anna Elisabeth Seidler** (Hannover, Germany)
- 5:07 pm A 07-08 *Organoids as a long-term approach for ruminal epithelial cell culture*  
**Saeed Khomeijani Farahani** (Berlin, Germany)

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- 5:08 pm A 07-09 Effect of secretin stimulation on pendrin (*Slc26a4*) in murine *ex vivo* kidney slices  
**Kimberley Dreger** (Hamburg, Germany)
- 5:09 pm A 07-10 Cannabidiol effects on gastrointestinal tight junction proteins  
**Salah Amasheh** (Berlin, Germany)
- 5:10 pm A 07-11 Characterization of a ruminal 3D epithelial cell model  
**Friederike Stumpff** (Potsdam, Germany)

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Thursday, 21 September 2023, 5:00 p.m. - 7:00 p.m.

## A 08 | Cell Biology & Signal Transduction

**Chairs:** Ingrid Fleming (Frankfurt, Germany); Thomas Korff (Heidelberg, Germany)

### Presentations:

- 5:00 pm A 08-01 The role secreted modular calcium binding protein (SMOC1) on resolution of inflammation and atherosclerosis development  
**Urün Ukan** (Frankfurt am Main, Germany)
- 5:01 pm A 08-02 Interaction of Connexin 43 with SHP-2 augments paxillin de-phosphorylation and controls focal adhesion turnover during migration  
**Kristin Pogoda** (Augsburg, Germany)
- 5:02 pm A 08-03 PKC regulates  $\alpha$ Klotho gene expression in MDCK and NRK-52E cells  
**Julia Vogt** (Stuttgart, Germany)
- 5:03 pm A 08-04 Direct interaction of endothelial progenitor cells (EPC) and endothelial cells (EC) induces the formation of angiogenic networks  
**Christina Steininger** (Augsburg, Germany)
- 5:04 pm A 08-05 Visualization and quantification of spatial inhomogeneities in confluent endothelial cell migration  
**Anselm Hohlstamm** (Dresden, Germany)
- 5:05 pm A 08-06 The tyrosine phosphatase SHP-2 is important for endothelial barrier function by promoting expression of endothelial tight junctional proteins  
**Hanna Mannell** (Augsburg, Germany)
- 5:06 pm A 08-07 Patient age-related changes of redox parameters in female subdermal human adipose-derived stem cells (hASCs)  
**Anne Bernhardt** (Gießen, Germany)
- 5:07 pm A 08-08 Cadmium triggers reactive oxygen species, autophagy and the lysosomal ion channel TRPML1 in human renal cells.  
**Kaya Elisa Witte** (Bielefeld, Germany)
- 5:08 pm A 08-09 Nuclear eNOS interacts with and S-nitrosates RNA-binding proteins to modulate endothelial gene expression.  
**Xiaozhu Zhou** (Frankfurt am Main, Germany)

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- 5:09 pm A 08-10 NoxO1 and Erbin- a cooperation to control EGF-signaling  
**Dana Maureen Hebchen** (Frankfurt, Germany)
- 5:10 pm A 08-11 The pro-inflammatory response of embryoid bodies differentiated from mouse embryonic stem cells towards lipopolysaccharide from gram-negative bacteria  
**Jennifer Scharmacher** (Gießen, Germany)
- 5:11 pm A 08-12 The high proinflammatory secretome is a unique hallmark of Interferon- $\gamma$ - and Tumor Necrosis Factor-induced senescence in melanoma cells  
**Thomas Wieder** (Tübingen, Germany)

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Thursday, 21 September 2023, 5:00 p.m. - 7:00 p.m.

## A 09 | Blood & Immune Cells

**Chairs:** Ivan Bogeski (Göttingen, Germany); Heinrich Sauer (Giessen, Germany)

### Presentations:

- 5:00 pm A 09-01 Effects of propofol on the Hypoxia-inducible factor pathway in human leukocytes under physiological oxygen conditions  
**Jessica Hüssen** (Essen, Germany)
- 5:01 pm A 09-02 TGF- $\beta$  leads to HIF-1 $\alpha$  degradation by increasing PHD2 in human leukocytes  
**Isabel Ruf** (Essen, Germany)
- 5:02 pm A 09-03 Hypoxia inducible factor in a commonly used mouse model of Hereditary Hemorrhagic Telangiectasia and affected human leukocytes  
**Anna Wrobeln** (Essen, Germany)
- 5:03 pm A 09-04 The role of the hypoxia inducible factor 1 alpha in myeloid derived immune cells in urinary bladder infection and cancer  
**Clara Roggendorf** (Essen, Germany)
- 5:04 pm A 09-05 Oxygen tension plays a major role in TH1 cell generation  
**Inga Vorwick** (Essen, Germany)
- 5:05 pm A 09-06 Effects of the ciliary proteasome on the function of hypoxia-inducible factors at primary cilia  
**Stephan Schieren** (Essen, Germany)
- 5:06 pm A 09-07 Modulation of myeloid cell efferocytosis regulates pathological retinal angiogenesis in the mouse oxygen-induced retinopathy model  
**Anne Klotzsche - von Ameln** (Dresden, Germany)
- 5:07 pm A 09-08 ?Comprehensive in silico and functional studies of genetic variants identified in patients with erythrocytosis  
**Darko Maric** (Fribourg, Switzerland)
- 5:08 pm A 09-09 Interactions between SARS-CoV protein 6 and importins – effect on the STAT pathway  
**Johanna-Theres Borutta** (Luebeck, Germany)

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- 5:09 pm A 09-10 Functional analysis of the LncRNA *N342419* in human monocytes  
**Lisa M. Weiss** (Frankfurt, Germany)
- 5:10 pm A 09-11 Hereditary hemorrhagic telangiectasia and its consequences for the immune response - a ciliary view  
**Sebastian Kromat** (Essen, Germany)
- 5:11 pm A 09-12 Red blood cell substitutes: From structure to function  
**Katja B. Ferenz** (Essen, Germany)

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Thursday, 21 September 2023, 7:00 p.m. - 9:00 p.m.

**WR | Welcome Reception**

**Chairs:**

**Presentations:**

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Friday, 22 September 2023, 8:30 a.m. - 10:00 a.m.

## **GA | General Assembly**

**Chairs:**

**Presentations:**



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Friday, 22 September 2023, 10:00 a.m. - 12:00 p.m.

## S 06 | Artificial Intelligence in Physiology... Status, Challenges, Perspectives

**Chairs:** Ralf Mrowka (Jena, Germany); Torfi Sigurdsson (Frankfurt, Germany)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 10:00 am | S 06-01 | AI in Clinical Brain Research<br><b>Moritz Seiler</b> (Berlin, Germany)  |
| 10:25 am | S 06-02 | Photonic Data Science: Linking vibrational spectral data to (bio-)medial information using machine learning and chemometrics<br><b>Thomas Bocklitz</b> (Bayreuth, Germany) |
| 10:45 am | S 06-03 | Explainable AI and its application to molecular data<br><b>Grégoire Montavon</b> (Berlin, Germany)   |
| 11:10 am | S 06-04 | In the Scientific Method we Trust: A Hypothesis-centric Approach to Artificial Intelligence in Biomedicine<br><b>Axel Mosig</b> (Bochum, Germany)                          |
| 11:35 am | S 06-05 | The ethics of AI in medicine: From a local to a global context, and back<br><b>Tijs Vandemeulebroucke</b> (Bonn, Germany)  |

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Friday, 22 September 2023, 10:00 a.m. - 12:00 p.m.

## S 07 | Cellular Communications: When inflammation meets thrombosis

**Chairs:** Robert Szulcek (Berlin, Germany); Grazyna Kwapiszewska (Graz, Austria)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 10:00 am | S 07-01 | Signaling mechanisms of the hemostatic system<br><b>Wolfram Ruf</b> (Mainz, Germany)   |
| 10:24 am | S 07-02 | Inflammation and thrombosis, translational perspective<br><b>Thomas Renné</b> (Hamburg, Germany)   |
| 10:48 am | S 07-03 | Inflammation-induced leukocyte extravasation occurs at specific hotspot at the vascular wall.<br><b>Jaap van Buul</b> (Amsterdam, Netherlands)           |
| 11:12 am | S 07-04 | New insights into the role of hemostatic proteases in lung diseases - translational approach<br><b>Malgorzata Wygrecka</b> (Giessen, Germany)            |
| 11:36 am | S 07-05 | TGF-beta driven thromboinflammation and fibrosis: importance for Chronic Thromboembolic Pulmonary Hypertension<br><b>Katrin Schäfer</b> (Mainz, Germany) |

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Friday, 22 September 2023, 10:00 a.m. - 12:00 p.m.

## S 08 | Synaptic mechanisms of autoimmune encephalitis

**Chairs:** Stefan Hallermann (Leipzig); Christian Geis (Jena, Germany)

### Presentations:

- 10:00 am S 08-01 *Anti-NMDAR autoantibodies disrupt hippocampal structural plasticity and place cell dynamics*  
**Sabine Liebscher** (Martinsried, Germany)
- 10:20 am S 08-02 Blocking human N-methyl-D-aspartate receptors within seconds with a monoclonal autoantibody  
**Manfred Heckmann** (Würzburg, Germany)
- 10:40 am S 08-03 Pathogenic effects of GABA<sub>B</sub> receptor autoantibodies on neuronal signaling and memory consolidation  
**Josefine Sell** (Jena, Germany)
- 11:00 am S 08-04 Glycine receptor autoantibodies and their pathological effects on glycinergic neurotransmission  
**Carmen Villmann** (Würzburg, Germany)
- 11:20 am S 08-05 Human monoclonal LGI1 autoantibodies increase neuronal excitability  
**Dietmar Schmitz** (Berlin, Germany)
- 11:40 am S 08-06 Effects of anti-LGI1 human monoclonal antibodies on mouse behavior, ultrastructure, and ion channel distribution at synapses and axon initial segments  
**Ryuichi Shigemoto** (Klosterneuburg, Austria)

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## S 09 | The Tight Junction: Barrier, Channel, and More

**Chairs:** Dorothee Günzel (Berlin, Germany); Markus Bleich (Kiel)

### Presentations:

- |          |         |   |
|----------|---------|---|
| 10:00 am | S 09-01 | How to seal tricellular corners<br><b>Mikio Furuse</b> (Okazaki, Japan)   |
| 10:40 am | S 09-02 | New molecular and functional insight into the invertebrate septate junctions<br><b>Sima Jonusaite</b> (Kiel, Germany)                                   |
| 11:00 am | S 09-03 | Functionality of claudin-3 in proximal and distal kidney tubules<br><b>Susanne Milatz</b> (Kiel, Germany)   |
| 11:20 am | S 09-04 | Na <sup>+</sup> transport is impaired via claudin-8 and ENaC dysregulation in <i>Campylobacter</i> infection.<br><b>Roland Bücker</b> (Berlin, Germany) |
| 11:40 am | S 09-05 | Angulins and tricellulin: critical players for molecular passage in intestinal epithelia<br><b>Susanne M. Krug</b> (Berlin, Germany)                    |

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Friday, 22 September 2023, 10:00 a.m. - 12:00 p.m.

## S 10 | Advances in the study of physiological and pathophysiological aspects of organic cation transporters

**Chairs:** Carsten Wagner (Zurich, Switzerland); Markus Rinschen (Hamburg)

### Presentations:

- |          |            |   |
|----------|------------|---|
| 10:00 am | S 10-Intro | Welcome address<br><b>Giuliano Ciarimboli</b> (Münster, Germany)  |
| 10:10 am | S 10-01    | Organic cation transporters: from structure to function<br><b>Harald H. Sitte</b> (Vienna, Austria)                           |
| 10:35 am | S 10-02    | Studying organic cation transport using kidneys on chip systems<br><b>Roos Masereeuw</b> (Utrecht, Netherlands)               |
| 11:05 am | S 10-03    | The fruit fly as a model for investigation of solute carrier transporters<br><b>Anne T. Nies</b> (Stuttgart, Germany)         |
| 11:30 am | S 10-04    | The role of lipids in the post-translational regulation and function of OCT2<br><b>Michele Visentin</b> (Zurich, Switzerland) |
| 11:45 am | S 10-05    | Species differences in organic cation transporters<br><b>Marleen J. Meyer-Tönnies</b> (Greifswald, Germany)                   |

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Friday, 22 September 2023, 12:20 p.m. - 1:05 p.m.

## PL 02 | The roles of glia and pericytes in early Alzheimer's disease

**Chairs:** Jörg Geiger (Berlin)

**Presentations:**

12:20 pm PL 02 The roles of glia and pericytes in early Alzheimer's disease  
**David Attwell** (London, UK)

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Friday, 22 September 2023, 2:05 p.m. - 2:50 p.m.

## PL 03 | The physiology of Lysosomal Ion Channels

**Chairs:** Jörg Geiger (Berlin)

**Presentations:**

2:05 pm PL 03 The Physiology of Lysosomal Ion Channels  
**Dejian Ren** (Philadelphia, USA)

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Friday, 22 September 2023, 3:30 p.m. - 5:30 p.m.

## OS 05 | Vascular Reactivity

**Chairs:** Jana Grune (Berlin, Germany); Claudia Göttisch (Aachen, Germany)

### Presentations:

- 3:30 pm OS 05-01 Endothelial basement membrane remodeling regulates smooth muscle cell hyperplasia in pulmonary hypertension due to left heart disease  
**Netra Nambiar Veetil** (Berlin, Germany)
- 3:45 pm OS 05-02 Piezo1 in Pulmonary Arterial Smooth Muscle Cells – a critical player for the Development of Pulmonary Hypertension  
**Fenja Knoepp** (Giessen, Germany)
- 4:00 pm OS 05-03 The role of the Secreted Modular Calcium Binding protein 1 (SMOC1) in endothelial-to-mesenchymal transition and myocardial infarction  
**Fredy Delgado Lagos** (Frankfurt am main, Germany)
- 4:15 pm OS 05-04 The long non-coding RNA *HIF1α-AS1* forms DNA:DNA:RNA triplexes to regulate endothelial cell function  
**Matthias S. Leisegang** (Frankfurt am Main, Germany)
- 4:30 pm OS 05-05 Differential cGMP-reactivity of large and small vessels of mesenteric and renal vascular tree  
**Lubomir T. Lubomirov** (Neuruppin, Brandenburg an der Havel, Germany)
- 4:45 pm OS 05-06 Impaired vasomotor function in mesenteric arteries of Ossabaw minipigs with a genetic predisposition to, but without the phenotype of the metabolic syndrome  
**Chantal Eickelmann** (Essen, Germany)
- 5:00 pm OS 05-07 Vascular smooth muscle epidermal growth factor receptor increases obesity-induced vascular alterations and renal end organ damage.  
**Barbara Schreier** (Halle, Germany)
- 5:15 pm OS 05-08 The role of promyelocytic leukemia protein in vascular inflammation and atherosclerosis  
**Gustav Steinemann** (Berlin, Germany)



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## OS 06 | Kidney & Gastrointestinal Physiology

**Chairs:** Armin Just (Freiburg, Germany); Anna-Lena Forst (Regensburg, Germany)

### Presentations:

- 3:30 pm OS 06-01 Analysis of molecules perturbed by SGLT2 inhibition reveals kidney reconfiguration and metabolic interorgan communication.  
**Markus Rinschen** (Aarhus, Denmark)
- 3:45 pm OS 06-02 TYK2 is required for LIF-induced augmentation of vascular calcification  
**Mehdi Razazian** (Linz, Austria)
- 4:00 pm OS 06-03 Effects of creatine supplementation on expression and protein aggregate formation in a mouse model of GATM-associated kidney disease  
**Allein Plain** (Regensburg, Germany)
- 4:15 pm OS 06-04 Optical and quantitative analysis of diclofenac-induced changes of cellular and nuclear morphology in renal organoids  
**Ralf Mrowka** (Jena, Germany)
- 4:30 pm OS 06-05 Dysregulation of renal polyamine levels after kidney injury  
**Tobias Sieckmann** (Berlin, Germany)
- 4:45 pm OS 06-06 Activation of soluble guanylate cyclase attenuates the progression from acute kidney injury to chronic kidney disease in a rat model  
**Falk B. Lichtenberger** (Berlin, Germany)
- 5:00 pm OS 06-07 The enriched expression of aquaporin-2 in the renal inner medulla is mediated by increased chromatin accessibility  
**Kristina Engel** (Halle, Germany)
- 5:15 pm OS 06-08 Role of NHE1 in renal function  
**Timo Rieg** (Tampa, USA)

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Friday, 22 September 2023, 3:30 p.m. - 5:30 p.m.

## OS 07 | Ion Transport: From Biophysics to Physiology

**Chairs:** **Marcus Schewe** (Kiel, Germany); **Michael Fromm** (Berlin, Germany)

### Presentations:

- |         |          |  |
|---------|----------|--|
| 3:30 pm | OS 07-01 | Mechanosensitive ion channels are key sensors and transducers for durotaxis in pancreatic stellate cells<br><b>Zoltan Pethö</b> (Münster, Germany)                                       |
| 3:45 pm | OS 07-02 | Electrophysiological characterization of the interaction between secreted protein 1 (SEP1) and acid-sensing ion channel 1a (ASIC1a)<br><b>Sven Kuspiel</b> (Aachen, Germany)             |
| 4:00 pm | OS 07-03 | Learning About Properties of the Voltage-Gated Proton Channel from in silico Methods<br><b>Christophe Jardin</b> (Nuremberg, Germany)  |
| 4:15 pm | OS 07-04 | An integrated microsystems approach towards enhanced resolution and multimodal single-molecule analysis of ion-channels and membrane pores<br><b>Jan C. Behrends</b> (Freiburg, Germany) |
| 4:30 pm | OS 07-05 | Bayesian filtering for macroscopic Hidden Markov Models (HMM): Potential and limits of minimal informative priors to improve parameter inference<br><b>Jan L. Münch</b> (Jena, Germany)  |
| 4:45 pm | OS 07-06 | The TRPV4 channel mutants E278K and N302Y show differential effects on cell adhesion and cytoplasmic calcium levels in HEK 293 cells<br><b>Heinrich Brinkmeier</b> (Greifswald, Germany) |
| 5:00 pm | OS 07-07 | Proton-gated anion transport governs macropinosome shrinkage<br><b>Mariia Zeziulia</b> (Berlin, Germany)   |
| 5:15 pm | OS 07-08 | cAMP binding to resting pacemaker channels – a single molecule approach in native membranes<br><b>Stefan Kuschke</b> (Jena, Germany)   |

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## OS 08 | Network & System Neuroscience

**Chairs:** Alexey Ponomarenko (Erlangen, Germany); Volkmar Lessmann (Magdeburg, Germany)

### Presentations:

- |         |          |  |
|---------|----------|--|
| 3:30 pm | OS 08-01 | Enhanced <i>in vivo</i> firing in chemogenetically identified dopamine midbrain neurons projecting to dorsal medial striatum in freely moving 22q11.2 mice, a genetic model of Schizophrenia<br><b>Solmaz Bikas</b> (Frankfurt am Main, Germany) |
| 3:45 pm | OS 08-02 | Subfield-specific interneuron circuits govern the hippocampal response to novelty<br><b>Aurore Cazala</b> (Freiburg, Germany)  |
| 4:00 pm | OS 08-03 | Human layer 2-3 pyramidal neurons are functionally diverse and differentially embedded in the local network<br><b>Franz Xaver Mittermaier</b> (Berlin, Germany)  |
| 4:15 pm | OS 08-04 | A persistent prefrontal reference frame across time and task rules<br><b>Hannah Muysers</b> (Freiburg im Breisgau, Germany)  |
| 4:30 pm | OS 08-05 | Bacterial infection and behavior: The role of the AMPs and neuromodulation in brain-body communication<br><b>Yujie Wang</b> (Bonn, Germany)  |
| 4:45 pm | OS 08-06 | BDNF-expressing neurons of the lateral hypothalamus limit feeding in an obesogenic environment<br><b>Anne Petzold</b> (Cologne, Germany)   |
| 5:00 pm | OS 08-07 | Global neuron population dynamics predict goal approach<br><b>Yangfan Peng</b> (Oxford, UK)  |
| 5:15 pm | OS 08-08 | DBS in GPi modulates spontaneous cerebellar activity in a dystonic hamster.<br><b>Fabiana S. Kragelund</b> (Rostock, Germany)  |

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## OS 09 | Oxygen, Metabolism & Inflammation

**Chairs:** **Stephan Speier** (Dresden, Germany); **Anna Wrobeln** (Essen, Germany)

### Presentations:

- 3:30 pm OS 09-01 The Omega Amidase NIT2 is a novel redox-sensitive key regulator of glutamine metabolism in endothelial cells  
**Flávia Rezende** (Frankfurt, Germany)
- 3:45 pm OS 09-02 Hypoxia induces MEK/ERK signaling via primary cilia - An unexpected function of the hypoxia-inducible factor-2alpha  
**Tristan Leu** (Essen, Germany)
- 4:00 pm OS 09-03 Differential miR expression during macrophage differentiation  
**Gerhild Euler** (Gießen, Germany)
- 4:15 pm OS 09-04 Androglobin, a chimeric mammalian globin, is associated with ciliogenesis and sonic hedgehog signaling  
**Anna Keppner** (Fribourg, Switzerland)
- 4:30 pm OS 09-05 5000 m Above Sea Level: Experiencing Integrative Exercise Physiology  
**Oliver H. Wittekindt** (Ulm, Germany)
- 4:45 pm OS 09-06 B lymphocyte autoimmunity in patients with mitral valve disease and secondary pulmonary hypertension  
**Teresa C. Funk-Hilsdorf** (Berlin, Germany)
- 5:00 pm OS 09-07 cAMP-dependent Modulation of Calcium Oscillations in Pancreatic Beta Cells  
**Johannes U. Pfabe** (Vienna, Austria)
- 5:15 pm OS 09-08 The loss of gap junctions in excitable cells promotes mitochondrial stress-induced longevity in *Caenorhabditis elegans*  
**Karl E. Busch** (Potsdam, Germany)

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## **PUBLIC | Was sollen wir tun bei dieser Hitze - Die Physiologie von Thermoregulation und Hitzestress**

**Chairs:** Jörg Geiger (Berlin)

**Presentations:**

5:00 pm PL 01 Was sollen wir tun bei dieser Hitze - Die Physiologie von Thermoregulation und Hitzestress  
**Pontus Persson** (Berlin, Germany)

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## **B | Poster Session B**

**Chairs:**

**Presentations:**

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## B 01 | Sodium or Proton Channels & Sodium-dependent Transporters

**Chairs:** Boris Musset (Nürnberg, Germany); Albrecht Schwab (Münster, Germany)

### Presentations:

- 5:30 pm B 01-01 Identification of a binding site for the small molecule activator S3969 in the  $\beta$ -subunit of the human epithelial sodium channel (ENaC)  
**Alexandr Ilyaskin** (Erlangen, Germany)
- 5:31 pm B 01-02 Mg-Protoporphyrin IX is a potent and specific inhibitor of human cardiac voltage-gated sodium channels  
**Mahdi Jamili** (Jena, Germany)
- 5:32 pm B 01-03 Light-sensitive cardiac sodium channels for action potential studies in *Xenopus laevis* oocytes and HEK293 cells  
**Xhevat Berisha** (Jena, Germany)
- 5:33 pm B 01-04 Biophysical properties of sodium channels in dopaminergic midbrain neurons defined by axonal projections.  
**Marle Jahnke** (Frankfurt Am Main, Germany)
- 5:34 pm B 01-05 Sodium/hydrogen exchanger 8 affects proliferation and migration of HT29 human colon epithelial cells via modulation of intracellular pH  
**Ju Wang** (Hannover, Germany)
- 5:35 pm B 01-06 Evaluation of Mg-protoporphyrin IX as a specific inhibitor for Na<sub>v</sub>1.5 channels in non-excitabile human cells  
**Mahdi Jamili** (Jena, Germany)
- 5:36 pm B 01-07 Expression of the Na<sup>+</sup>/H<sup>+</sup> exchanger NHE8 affects single cell behaviour of human mucus-forming colorectal carcinoma cells (HT29-MTX)  
**Merle Gatz** (Hannover, Germany)
- 5:37 pm B 01-08 Response of glioblastoma cells to acidic stress: aberrant regulation of ion dynamics and its impact on intracellular pH  
**Jakob Vanek** (Aachen, Germany)

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- 5:38 pm B 01-09 Structural and functional diversity of novel voltage-gated proton channels  
**Gustavo Chaves** (Nuremberg, Germany)
- 5:39 pm B 01-10 Generation und electrophysiological analysis of a gain-of-function polycystin-1/polycystin-2 heteromeric ion channel  
**Tobias Staudner** (Erlangen, Germany)
- 5:40 pm B 01-11 The sodium-coupled neutral amino acid transporter SNAT2 promotes alveolar fluid clearance and regulates alveolar epithelial cell homeostasis in acute lung injury/ARDS.  
**Juliana Falivene** (Berlin, Germany)
- 5:41 pm B 01-12 Zymosan activates the toll like receptors TLR2 and TLR5  
**Ralf Mrowka** (Jena, Germany)
- 5:42 pm B 01-13 The organic cation transporter 3 (OCT3) as a histamine transporter in granulocytes  
**Moritz Pernecker** (Münster, Germany)
- 5:43 pm B 01-14 The voltage-gated proton channel discovers its family  
**Boris Musset** (Nürnberg, Germany)



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## B 02 | Calcium Dependet Signaling & Methods

**Chairs:** Philipp Sasse (Bonn, Germany); Eric Metzen (Essen, Germany)

### Presentations:

- 5:30 pm B 02-01 Vasopressin modulates calcium oscillations in adrenal cortex via V1a receptor  
**Hoang A. Dinh** (Berlin, Germany)
- 5:31 pm B 02-02 Calcium oscillations regulate endocytotic albumin uptake in subdermal adipose stem cells derived from human patients of different age.  
**Tanvir Morshed** (Gießen, Germany)
- 5:32 pm B 02-03 Pacemaker currents of R5 neurons and their role in sensory filtering in *Drosophila melanogaster*  
**Anatoli Ender** (Berlin, Germany)
- 5:33 pm B 02-04 South american rattlesnake toxin blocks high-voltage-activated calcium channels  
**Markus Eicheldinger** (Jülich, Germany)
- 5:34 pm B 02-05 A novel state-dependent inhibitor of N-type channel (DP-2) Orally Available to Relieve Neuropathic Pain  
**Gustavo A. Guzman** (Jülich, Germany)
- 5:35 pm B 02-06 *Cacna1d*<sup>fl<sup>e772</sup>Met<sup>+</sup></sup> mice with PASNA syndrome  
**Gabriel Stölting** (Berlin, Germany)
- 5:36 pm B 02-07 Orai1 modulates vitamin C-dependent collagen release from pancreatic stellate cells  
**Rieke Schleinehege** (Münster, Germany)
- 5:37 pm B 02-08 Automatic detection, localization, and classification of Ca<sup>2+</sup> release events in cardiomyocytes with a deep learning-based approach  
**Prisca Dotti** (Bern, Switzerland)

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- 5:38 pm B 02-09 A polymer partitioning probe of aerolysin's astonishing asymmetry  
**Jan C. Behrends** (Freiburg, Germany)
- 5:39 pm B 02-10 Evaluating whole cell and single channel data from Patch Clamp experiments with Igor Pro  
**Friederike Stumpff** (Potsdam, Germany)
- 5:40 pm B 02-11 Brightness optimization of an ultrasensitive genetically encoded voltage indicator  
**Anagha G. Nair** (Jena, Germany)

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## B 03 | Endocrinol Metabolism

**Chairs:** **Marjan Slak Rupnik** (Wien, Austria); **David Hoogewijs** (Freiburg, Switzerland)

### Presentations:

- 5:30 pm B 03-01 Use of Pancreas Tissue Slices for the in Situ Study of the Endocrine Pancreas in Health and Disease  
**Christian M. Cohrs** (Dresden, Germany)
- 5:31 pm B 03-02 Does Regular Physical Activity generally reduce Basal Energy Expenditure? Arguments against an Alleged Paradigm Change  
**Dieter Böning** (Berlin, Germany)
- 5:32 pm B 03-03 Impact of extracellular glucose and glutamine concentrations on tumor cell metabolism  
**Christina M. Baumbach** (Halle/Saale, Germany)
- 5:33 pm B 03-04 Local and systemic sex differences of islet of Langerhans physiology in glucose homeostasis  
**Celina Funke** (Dresden, Germany)
- 5:34 pm B 03-05 Thyroid Hormone-Induced Expression of Na<sup>+</sup>/K<sup>+</sup>-ATPase in Neural Cells Depends on Na<sup>+</sup> Influx  
**Heiko M. Lesslich** (Bochum, Germany)
- 5:35 pm B 03-06 Nutritional regulation by leptin receptor-expressing neurons in the lateral hypothalamus under healthy and anorectic conditions  
**Rebecca Figge-Schlensock** (Cologne, Germany)
- 5:36 pm B 03-07 Longitudinal In Vivo Imaging of Islet Physiology and Pathophysiology in the Anterior Chamber of the Mouse Eye  
**Farid Abdallah** (Dresden, Germany)
- 5:37 pm B 03-08 Dysregulation of hypothalamic-pituitary-thyroid hormone secretion in SPRED3- deficient mice  
**Luisa Haas** (Wuerzburg, Germany)

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## B 04 | Cell Biology & Signal Transduction

**Chairs:** **Michael Gekle** (Halle (Saale), Germany); **Karl Emanuel Busch** (Potsdam, Germany)

### Presentations:

- 5:30 pm B 04-01 Detection of citrulline modification in histone peptides using biological nanopore  
**Priyanka Jain** (Freiburg im Breisgau, Germany)
- 5:31 pm B 04-02 Mapping the signaling network of macrophage chemotactic navigation using knockout mouse models  
**Peter J. Hanley** (Potsdam, Germany)
- 5:32 pm B 04-03 High throughput screening strategies for identifying novel PI(3,4)P<sub>2</sub>-sensitive PH domains  
**Julia Jeschke** (Marburg, Germany)
- 5:33 pm B 04-04 Determinants of plasma membrane targeting of mammalian voltage-sensing phosphatase (VSP)  
**Wencai Zhao** (Marburg, Germany)
- 5:34 pm B 04-05 Using Bayesian inference to integrate biological data and mathematical modeling to assess cell cycle dynamics: How does the soluble adenylyate cyclase ADCY10 control the cell cycle of endothelial cells?  
**Mats L. Moskopp** (Dresden, Germany)
- 5:35 pm B 04-06 Gene-COCOA: comparative co-expression analysis focussed on a gene of interest  
**Simonida Zehr** (Frankfurt, Germany)
- 5:36 pm B 04-07 Simultaneous Single Photon Counting and Ion Current Readout from Free-Standing Lipid Bilayers - Membranes under Investigation  
**Tobias Ensslen** (Freiburg i.Br., Germany)
- 5:37 pm B 04-08 FRET measurements of claudins in fixed cells – an inappropriate approach  
**Catrin Przibylla-Diop** (Kiel, Germany)

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- 5:38 pm B 04-09 Modern open-source data analysis platform specialized for beta cells.  
**Johannes U. Pfabe** (Vienna, Austria)
- 5:39 pm B 04-10 The SUMO isopeptidase SENP2-regulated muscle function is disrupted in chemotherapy-induced cachexia  
**Arnab Nayak** (Hannover, Germany)

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## B 05 | Cardiac Function 1

**Chairs:** **Wolfgang A. Linke** (Münster); **Axel Gödecke** (Düsseldorf, Germany)

### Presentations:

- 5:30 pm B 05-01 Endo- to epicardial gradient of the transverse tubular system in failing and non-failing human hearts  
**Zafar Iqbal** (Erlangen, Germany)
- 5:31 pm B 05-02 Metabolic reprogramming of cardiac cells differentiated from mouse embryonic stem cells and rat cardiac myoblasts exposed to diabetic cell culture media  
**Leopold Stabbauer** (Gießen, Germany)
- 5:32 pm B 05-03 Endothelial deletion of Secreted Modular Calcium Binding protein 1 (SMOC1) increased damage in response to myocardial infarction in mice.  
**Bardia Amirmiran** (Frankfurt am Main, Germany)
- 5:33 pm B 05-04 Mild uncoupling in mitochondria by UCP2 does not generally affect functional recovery of rodent hearts at the early reperfusion  
**Laureen Czech** (Giessen, Germany)
- 5:34 pm B 05-05 Protective effects of a cytosolic mitochondrial variant of renin (renin-b) in doxorubicin-induced cell damage in cardiac cells.  
**Miriam Hartmann** (Greifswald, Germany)
- 5:35 pm B 05-06 Treatment with hyperbaric oxygen reveals spatiotemporal plasticity of activity and composition of OXPHOS complexes in the porcine heart  
**Marten Szibor** (Jena, Germany)
- 5:36 pm B 05-07 Regulation of mitochondrial calcium transient decay in atrial and ventricular cardiomyocytes  
**Victoria Hammer** (Marburg, Germany)
- 5:37 pm B 05-08 Growth differentiation factor 6 promotes pulmonary arterial remodeling in pulmonary hypertension due to left heart disease  
**Qiuhua Li** (Berlin, Germany)
- 5:38 pm B 05-09 A kinase anchoring protein 7  $\gamma/\delta$  knockout mice have a normal cardiac function  
**Karoline Morhenn** (Hamburg, Germany)

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- 5:39 pm B 05-10 Remote ischemic conditioning and electrical auricular tragus stimulation in humans – vagal projection to the heart?  
**Umut Paket** (Essen, Germany)
- 5:40 pm B 05-11 Progressive attenuation of ST-segment elevation with ischemic preconditioning cycles does not reflect cardioprotection in Ossabaw minipigs.  
**Virginie Adam** (Essen, Germany)
- 5:41 pm B 05-12 Teaching medical students the QT interval and its autonomous regulation in a practical ECG course in physiology  
**Alexander P. Schwoerer** (Hamburg, Germany)
- 5:42 pm B 05-13 Practical course in Physiology in midwifery science master's curricula - more than just a practical course for medical students?  
**Peter Dreischer** (Tübingen, Germany)

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## B 06 | Renal

**Chairs:** Frank Schweda (Regensburg, Germany); Dorothee Günzel (Berlin, Germany)

### Presentations:

- 5:30 pm B 06-01 Blood pressure increase upon high dietary potassium supplementation is not associated with renal sodium retention or plasma volume expansion  
**Helga Vitzthum** (Hamburg, Germany)
- 5:31 pm B 06-02 Mineralocorticoid receptor-dependent and -independent renal outer medullary K<sup>+</sup> channel activity in mouse distal nephron  
**Viatcheslav Nesterov** (Erlangen, Germany)
- 5:32 pm B 06-03 AQP1 expression in the thick ascending limb of Henle is reduced in the absence of claudin-10  
**Markus Bleich** (Kiel, Germany)
- 5:33 pm B 06-04 Expression of TMEM16J modulates release of interleukin-2 and controls intracellular calcium signaling in Jurkat T- lymphocytes  
**Rainer Schreiber** (Regensburg, Germany)
- 5:34 pm B 06-05 Protein analysis and activity-based protein profiling in human extracellular vesicles  
**Sarah Frömbling** (Hamburg, Germany)
- 5:35 pm B 06-06 Stimulation of NO-sGC-cGMP signaling prevents vasoconstriction in ex vivo acute kidney injury model  
**Minze Xu** (Berlin, Germany)
- 5:36 pm B 06-07 Cadmium-induced mitochondrial membrane fluidity changes cause respiratory supercomplex disruption and peroxide production in the kidney.  
**Nadiya Romanova** (Bielefeld, Germany)
- 5:37 pm B 06-08 Spatial resolution of gene expression by single cell sequencing analysis in a mouse model of kidney transplantation and immunosuppression  
**Robert Labes** (Berlin, Germany)



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- 5:38 pm B 06-09 Medullary *Nfat5* deregulation results in substantial kidney fibrosis  
**Vera A. Kulow** (Berlin, Germany)
- 5:39 pm B 06-10 Can podocytic extracellular vesicles affect the metabolism of tubular epithelial cells?  
**Johannes Jägers** (Essen, Germany)
- 5:40 pm B 06-11 Renal expression of natriuretic peptide receptors and their protective effects in proximal tubular cells  
**Elena-Sofia Heini** (Regensburg, Germany)

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## B 07 | Vascular Function

**Chairs:** **Markus Hecker** (Heidelberg, Germany); **Flavia Rezende** (Frankfurt, Germany)

### Presentations:

- 5:30 pm B 07-01 Modulation of the endothelial SWI/SNF chromatin remodelling complex by long non-coding RNAs  
**James A. Oo** (Frankfurt, Germany)
- 5:31 pm B 07-02 Role of RhoA-kinase and ribosomal S6-kinase II pathways in the regulation of vascular contractility of senescent human renal and mesenteric arteries  
**Olaf Grisk** (Neuruppin, Germany)
- 5:32 pm B 07-03 Piezo1 is a mediator of endothelial nanomechanics and vascular inflammation  
**Johanna-Theres Borutta** (Luebeck, Germany)
- 5:33 pm B 07-04 Mathematical model for diffusion and enzymatic degradation of AMP in rat aorta predicts concentration gradients of nucleotides/nucleosides in vessel wall  
**Arvid Pietsch** (Dresden, Germany)
- 5:34 pm B 07-05 The nuclear Corepressor NCoR1 limits endothelial angiogenic function  
**Tom Teichmann** (Frankfurt, Germany)
- 5:35 pm B 07-06 Magnesium-Oxygen-Therapy – a physiological effective treatment of patients with Long Covid and Post Vac  
**Elfriede Leniger-Follert** (Hagen, Germany)
- 5:36 pm B 07-07 Red blood cells mediate endothelial glycocalyx and actin adaptation in response to flow speed variation  
**Max Dietrich** (Lübeck, Germany)
- 5:37 pm B 07-08 Role of lipid mediator in lymphangiogenesis and lymphatic maturation  
**Zumer Naem** (Frankfurt, Germany)
- 5:38 pm B 07-09 Deletion of the Soluble Epoxide Hydrolase Impairs Intestinal Angiogenesis and Lacteal development  
**Yanis Afir** (Frankfurt am Main, Germany)

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- 5:39 pm B 07-10 Activation of free fatty acid receptors modulates pulmonary vascular tone *ex vivo*  
**Alexander Seidinger** (Bochum, Germany)
- 5:40 pm B 07-11 Role of A2B receptor activation in tone regulation of the pulmonary vasculature  
**Jana Lewandowski** (Bochum, Germany)
- 5:41 pm B 07-12 Modulation of purinergic contractions of murine vas deferens by carbachol  
**Pei Yee Wong** (Dundalk, Ireland)
- 5:42 pm B 07-13 Non-coding genetic variation contributes to human physiology and pathology via disrupted RNA:DNA:DNA triple helix formation  
**Timothy Warwick** (Frankfurt am Main, Germany)
- 5:43 pm B 07-14 Uremic toxin-induced damage of the endothelial surface is mediated by the Aryl hydrocarbon receptor (AhR) in CKD  
**Nadina Kompalla** (Lübeck, Germany)
- 5:44 pm B 07-15 Endothelial cytochrome P450 reductase-derived cholesterol limits angiogenesis  
**Pedro Malacarne** (Frankfurt, Germany)

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## B 08 | Synapses, Neurons & Glia

**Chairs:** **Manfred Heckmann** (Würzburg, Germany); **Xianshu Bai** (Homburg, Germany)

### Presentations:

- 5:30 pm B 08-01 10x Cryo-Expansion Microscopy of Primary Oligodendrocyte Progenitor Cell Growth Cones  
**Annika Haak** (Bochum, Germany)
- 5:31 pm B 08-02 Proteomic and Metabolomic Assessment of Lipopolysaccharide-induced Inflammation in Cellular Metabolism of Brain Microglia  
**Canelif Yilmaz** (Dresden, Germany)
- 5:32 pm B 08-03 THIK-1 controls microglial interleukin-1 $\beta$  release in the human brain  
**Ali Rifat** (Berlin, Germany)
- 5:33 pm B 08-04 Microglia contribute to full maturation of glutamatergic networks but are dispensable for pruning of synapses during hippocampal development  
**Michael Surala** (Berlin, Germany)
- 5:34 pm B 08-05 A molecular definition of the readily-retrievable pool at presynaptic terminals  
**Lakshmi Penothil Sunil** (Muenster, Germany)
- 5:35 pm B 08-06 Microglia modulate gamma oscillatory network activity by P2Y12 receptor-mediated purinergic signaling  
**Ecem Tütüncü** (Berlin, Germany)
- 5:36 pm B 08-07 Human synapses on artificial substrate  
**Alexander Ivanenko** (Münster, Germany)
- 5:37 pm B 08-08 Distinct GABAergic Modulation of Spike Timing-Dependent Plasticity in Mouse CA1 Pyramidal cells across the Longitudinal Axis of the Hippocampus  
**Babak Khodaie** (Magdeburg, Germany)
- 5:38 pm B 08-09 Dynamin disruption acutely alters synaptic morphology  
**Robert Jacobi** (Würzburg, Germany)

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- 5:39 pm B 08-10 Identification and functional characterization of distinct phenotypes in complexin N-terminus domain  
**Estelle Toulme** (Berlin, Germany)
- 5:40 pm B 08-11 Fast synaptic vesicle docking and re-arrangement of the vesicle cluster after short stimuli  
**Junxiu Duan** (Münster, Germany)

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Friday, 22 September 2023, 5:30 p.m. - 7:30 p.m.

## B 09 | Neuronal Networks

**Chairs:** Heiko Luhmann (Mainz, Germany); Jochen Röper (Frankfurt, Germany)

### Presentations:

- 5:30 pm B 09-01 Development of prefrontal afferents in health and disease  
**Malte F. Stelzer** (Hamburg, Germany)
- 5:31 pm B 09-02 Network synchrony creates neural filters that switch brain state from navigation to sleep in *Drosophila*  
**Raquel Suárez-Grimalt** (Berlin, Germany)
- 5:32 pm B 09-03 Behavioural classes and assembly of lateral hypothalamic neurons during synchronous and non-rhythmic states.  
**Mahsa Altafi** (Erlangen, Germany)
- 5:33 pm B 09-04 Dopamine's role as a modulator of dopaminergic neuron response in *Drosophila*  
**Michael-Marcel Heim** (Berlin, Germany)
- 5:34 pm B 09-05 Neuromodulatory mechanisms of rebound timing and gain control in dorsolateral striatum-projecting dopamine substantia nigra neurons  
**Strahinja Stojanovic** (Frankfurt am Main, Germany)
- 5:35 pm B 09-06 Environmental Enrichment increases GABAergic dendritic inhibition in dentate gyrus of mouse hippocampus  
**Stylianos Kouvaros** (Basel, Switzerland)
- 5:36 pm B 09-07 Neuronal Basis of interindividual Differences in Microcircuits  
**Henrike Planert** (Berlin, Germany)
- 5:37 pm B 09-08 Hippocampal neurons driven by sleep spindles are uniquely regulated during sleep  
**Yury Kovalchuk** (Tübingen, Germany)
- 5:38 pm B 09-09 Cross-species analysis of ex vivo high-frequency oscillations using multi-electrode arrays  
**Michael D. Hadler** (Berlin, Germany)

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5:39 pm B 09-10 Morphological correlates of electrophysiological changes in prefrontal network activity along adolescent development  
**Timo Schwarze** (Hamburg, Germany)

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## B 10 | Cardiac Function 2

**Chairs:** **Martina Krüger** (Düsseldorf, Germany); **Susanne Rohrbach** (Giessen, Germany)

### Presentations:

- 5:30 pm B 10-01 sEH derived PUFAs affect pericyte-endothelial cell integrity and the function of the diabetic heart  
**Sebastian Kempf** (60590, Germany)
- 5:31 pm B 10-02 Elevated expression of acetylcholine receptor and collagen in hearts of db/db mice  
**Tobias Hofebauer** (Duesseldorf, Germany)
- 5:32 pm B 10-03 Chemogenetic generation of hydrogen peroxide in cardiac endothelial cells induces cardiac remodeling  
**Melina Lopez** (Frankfurt am Main, Germany)
- 5:33 pm B 10-04 Altered sarcomere properties in adult murine cardiomyocytes in response to lipid droplet accumulation  
**Maurice Brucker** (Düsseldorf, Germany)
- 5:34 pm B 10-05 Course of immune cell infiltration and the onset of cardiac fibrosis in pressure overload induced heart failure  
**Anne Hemmers** (Düsseldorf, Germany)
- 5:35 pm B 10-06 cAMP microdomain signaling at RyR2 in cardiomyocytes using subcellular targeted optogenetics  
**Berivan Mansuroglu** (Bonn, Germany)
- 5:36 pm B 10-07 Programming of human induced pluripotent stem cells to cardiac pacemaker-like cells and characterization of action potentials  
**Jonathan Kindermann** (Greifswald, Germany)
- 5:37 pm B 10-08 Cardiopulmonary effects of prolonged normobaric hypoxia and norepinephrine in rats  
**Charly Bambor** (Leipzig, Germany)
- 5:38 pm B 10-09 Cold storage of hearts for 24 hours preserves cardiomyocyte structure and function: an approach to reduce costs and the number of experimental animals  
**Benedikt Pfeilschifter** (Erlangen, Germany)



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- 5:39 pm B 10-10 Characterization of a recently identified myosin, Myo18Ay, in the A-band of cardiac sarcomeres  
**Markus Horsthemke** (Potsdam, Germany)
- 5:40 pm B 10-11 Electrophysiological characterization of heart function in the incubated chicken egg  
**Judith Rees** (Berlin, Germany)

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## TL | Teaching Lecture: Respiratory Physiology in the times of COVID

**Chairs:** Jörg Geiger (Berlin)

**Presentations:**

9:00 am TL01 Respiratory Physiology in the times of COVID  
**Wolfgang Kübler** (Berlin, Germany)

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Saturday, 23 September 2023, 9:50 a.m. - 11:35 a.m.

## OS 10 | Cell Biology & Signal Transduction

**Chairs:** Ralf Mrowka (Jena, Germany); Joachim Fandrey (Essen)

### Presentations:

- 9:50 am OS 10-01 Ventricular and slow skeletal  $\beta$ -myosin molecules exhibit dissimilar chemomechanical properties due to deceleration by myosin essential light chain 1sa  
**Tim Scholz** (Hannover, Germany)
- 10:05 am OS 10-02 Liver X Receptors Alpha and Beta Modulate Skeletal Muscle Adaptations in Sedentary and Loading Conditions: Insights from Mice Studies  
**Frank Suhr** (Kulmbach, Germany)
- 10:20 am OS 10-03 Proteo-genomic identification of functional endothelial microproteins encoded by non-canonical small open reading frames.  
**Mauro Siragusa** (Frankfurt am Main, Germany)
- 10:35 am OS 10-04 Unc13A dynamically stabilizes vesicle priming at synaptic release sites for short-term facilitation and homeostatic potentiation  
**Alexander M. Walter** (Copenhagen, Denmark)
- 10:50 am OS 10-05 S-acylation of Stromal Interaction Molecule 1 (STIM1) enhances store-operated  $\text{Ca}^{2+}$  entry (SOCE)  
**Raphaël Néré** (Geneva, Switzerland)
- 11:05 am OS 10-06 Ferroptosis resistance is associated with abated iron transport and increased tumorigenic hypoxia-inducible factor signalling in *VHL*-deficient renal cancer cells.  
**Wing-Kee Lee** (Bielefeld, Germany)
- 11:20 am OS 10-07 Extracellular acidosis induces G0/G1 cell cycle arrest in tumor cells via  $\text{Ca}^{2+}$  signaling  
**Anne Riemann** (Halle, Germany)

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## S 11 | Protection of the cardiovascular system

**Chairs:** Petra Kleinbongard (Essen, Germany); Helmut Lieder (Essen, Germany)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 9:50 am  | S 11-01 | NADPH oxidase is protective in carotid artery stenosis<br><b>Anja Hofmann</b> (Dresden, Germany)   |
| 10:10 am | S 11-02 | Acetylcholine as mediator of myocardial ischemia/reperfusion-induced changes in sarcomere function<br><b>Martina Krüger</b> (Düsseldorf, Germany)                          |
| 10:30 am | S 11-03 | The role of RBCeNOS in myocardial ischemia/reperfusion injury<br><b>Miriam M. Cortese-Krott</b> (Düsseldorf, Germany)  |
| 10:50 am | S 11-04 | Inhibition of prolyl-4-hydroxylase domain enzymes during reperfusion in myocardial infarction – a therapeutic option?<br><b>Dörthe M. Katschinski</b> (Göttingen, Germany) |
| 11:10 am | S 11-05 | A new approach to targeting PI3-Kinase for cardioprotection<br><b>Sean Davidson</b> (London, UK)   |

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## S 12 | Teaching Physiology in the future – Challenges and opportunities of the next Approbationsordnung in Germany

**PLEASE NOTE: PRESENTATIONS AND DISCUSSION IN GERMAN**

**Chairs:** Ulrich Decking (Düsseldorf, Germany); Rudolf Schubert (Augsburg, Germany)

### Presentations:

- |          |         |   |
|----------|---------|---|
| 9:50 am  | S 12-01 | Main topics and challenges of the present proposal (Referentenentwurf) for a new Approbationsordnung<br><b>Ulrich K. Decking</b> (Düsseldorf, Germany)                          |
| 10:05 am | S 12-02 | Combining basic education in physiology with clinical perspectives and a science track within the first two years of medical school<br><b>Anja Meissner</b> (Augsburg, Germany) |
| 10:30 am | S 12-03 | Assessment of knowledge and understanding in physiology within an integrated and interdisciplinary curriculum<br><b>Stefan Gründer</b> (Aachen, Germany)                        |
| 11:00 am | S 12-04 | Beyond the basics: Deepening of education in physiology and pathophysiology in the later years of a medical curriculum<br><b>Alexander P. Schwoerer</b> (Hamburg, Germany)      |
| 11:25 am | S 12-05 | Round table discussion  |

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## S 13 | Axons as computational devices in single neurons and networks

**Chairs:** **Martin Both** (Heidelberg, Germany); **Maren Engelhardt** (Linz, Austria)

### Presentations:

- |          |         |   |
|----------|---------|---|
| 9:50 am  | S 13-01 | Fast hippocampal oscillations tuned by parvalbumin basket cell myelination<br><b>Maarten H.P. Kole</b> (Amsterdam, Netherlands)             |
| 10:15 am | S 13-02 | Activity-dependent axon initial segment plasticity in interneurons<br><b>Elisa Galliano</b> (Cambridge, UK)                                 |
| 10:40 am | S 13-03 | A neural circuit evolution hypothesis for axon initial segment structure and function<br><b>Fred Wolf</b> (Göttingen, Germany)              |
| 11:05 am | S 13-04 | Dendritic axon origin enables information gating by perisomatic inhibition in pyramidal neurons<br><b>Martin Both</b> (Heidelberg, Germany) |
| 11:30 am | S 13-05 | Development and plasticity of AcD neurons in the mouse whisker/barrel system<br><b>Maren Engelhardt</b> (Linz, Austria)                     |

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## S 14 | Ion channels in immune cell function

**Chairs:** Ivan Bogeski (Goettingen, Germany); Marcus Schewe (Kiel, Germany)

### Presentations:

- |          |         |  |
|----------|---------|--|
| 9:50 am  | S 14-01 | Regulation and function of store-operated and mechanosensitive Ca <sup>2+</sup> channels in innate immune cells<br><b>Nicolas Demaurex</b> (Geneva, Switzerland)       |
| 10:10 am | S 14-02 | <i>Channeling Immunity: TRPM7 as regulator of immune homeostasis</i><br><b>Susanna Zierler</b> (Linz, Austria)   |
| 10:30 am | S 14-03 | NAADP signaling and calcium microdomains<br><b>Andreas H. Guse</b> (Hamburg, Germany)  |
| 10:50 am | S 14-04 | Calcium signaling and cytotoxicity in CTLs during aging<br><b>Annette Lis</b> (Homburg, Germany)   |
| 11:10 am | S 14-05 | The voltage-gated potassium channel K <sub>v</sub> 1.3 regulates neutrophil functions during acute inflammation<br><b>Roland Immler</b> (Planegg-Martinsried, Germany) |
| 11:30 am | S 14-06 | Kv1.3 potassium channel of myeloid cells controls tumor growth <i>in vivo</i><br><b>Tatiana Varanita</b> (Padova, Italy)   |

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Saturday, 23 September 2023, 12:20 p.m. - 12:35 p.m.

## **PP | Poster Prize Ceremony**

**Chairs:**

**Presentations:**



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## PL 04 | Vascular aging and dementia: from molecular changes to physiological alterations

**Chairs:** Jörg Geiger (Berlin)

**Presentations:**

12:35 pm PL 04 Vascular aging and dementia: from molecular changes to physiological alterations  
**M. Luisa Iruela-Arispe** (Chicago, USA)

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Saturday, 23 September 2023, 1:20 p.m. - 2:00 p.m.

## **CC | Closing Ceremony**

**Chairs:**

**Presentations:**