

**ZNZ**

Zentrum für Neurowissenschaften Zürich  
Neuroscience Center Zurich



**University of  
Zurich** UZH

**ETH**

Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich

# **ZNZ SYMPOSIUM 2016**

**15 September 2016**

**08.30 – 18.30**

**UZH Central Campus**

**Häldeliweg 2**

**8044 Zurich**

## PROGRAM

Thursday, 15 September 2016  
UZH Central Campus, Lecture Hall HAH E3, Haldeliweg 2, Zurich

- 8:30 – 8:45      **Introduction**
- 8:45 – 9:30      Volker-Henn Lecture  
**The first steps in vision: cell types, circuits and repair**  
Prof. Botond Roska, Friedrich Miescher Institute, Basel
- 9:30 – 10:00     Coffee Break
- 10:00 – 11:30    Parallel Workshops:
- Neural stem cells and neurogenesis** (Lecture Hall E3)  
                  Organization: Prof. Sebastian Jessberger
- Invasive treatment of pharmacotherapy-refractory epilepsy** (Lecture Hall F1)  
                  Organization: Prof. Christian Baumann
- Interdisciplinarity in neuroscience** (Lecture Hall E11)  
                  Organization: Dr. Marion Betizeau and Dr. Gregor Pilz
- 11:30 – 14:00    **Poster Session**, Lunch (Foyer)
- 11:30             **General Assembly of ZNZ Group Leaders** (Lecture Hall E3)
- Short Talks, Part I:
- 14:00 – 14:20    **Cortical dysfunctions in pathological pain**  
                  Dr. Mirko Santello, Institute of Pharmacology and Toxicology, UZH
- 14:20 – 14:40    **Brain circuit formation in health and disease**  
                  Prof. Theofanis Karayannis, Brain Research Institute, UZH
- 14:40 – 15:00    **Single-cell approaches in brain circuit analysis**  
                  Prof. Csaba Földy, Brain Research Institute, UZH
- 15:00 – 15:20    **Prognostic and etiologic blood biomarkers in acute ischemic stroke patients**  
                  PD Dr. Mira Katan Kahles, Department of Neurology, USZ
- 15:20 – 16:00    Coffee Break

## Short Talks, Part II:

- 16:00 – 16:20    **Neural systems for processing human voices and affective vocalizations**  
Prof. Sascha Frühholz, Department of Psychology, UZH
- 16:20 – 16:40    **Modulating human brain function with neurofeedback**  
Prof. Frank Scharnowski, Psychiatric University Hospital Zurich
- 16:40 – 16:55    **ZNZ Award for the Best PhD Thesis 2016**
- Short Break
- 17:00 – 17:45    Betty and David Koetser Award Lecture:  
**A circuit model for addiction opening doors for novel therapeutic approaches**  
Prof. Christian Lüscher, University of Geneva
- 17:50 – 18:30    Apéro

**Parallel Workshops, 10:00 – 11:30****Neural stem cells and neurogenesis (Lecture Hall E3)**

Adding new neurons throughout life is required for brain functions associated with learning and cognition. Further, the regenerative potential of adult neural stem cells and their capacity to generate neurons may be harnessed for endogenous repair. The three lectures will present novel findings regulating the distinct developmental steps from quiescent neural stem cells to fully integrating neurons and will discuss how these data may be used for translational approaches to repair or rejuvenate the injured brain.

- 10:00 – 10:05     **Introduction**  
Prof. Sebastian Jessberger, Brain Research Institute, UZH
- 10:05 – 10:30     **Metabolic control of adult neural stem cells**  
Dr. Marlen Knobloch, Brain Research Institute, UZH
- 10:30 – 10:55     **Functional separation of RhoGEF9 isoforms during adult neurogenesis for Cdc42 regulation**  
Dr. Shiva Tyagarajan, Institute of Pharmacology and Toxicology, UZH
- 10:55 – 11:20     **Role of mitochondria in the regulation of adult neurogenesis**  
Prof. Chichung Lie, Institute of Biochemistry, FAU Erlangen
- 11:20 – 11:30     **Conclusions**

**Parallel Workshops, 10:00 – 11:30****Invasive treatment of pharmacotherapy-refractory epilepsy**  
(Lecture Hall F1)

Epilepsy belongs to the most prevalent neurological diseases and many affected patients suffer from pharmacotherapy-refractory seizures. Treatment escalation for these patients is available in highly specialized centers which offer invasive epilepsy treatment, i.e. surgical therapy. This workshop will share insights into the current state of the art of both curative and palliative epilepsy treatments, and into the distinct role of electrophysiology in these therapies.

- 10:00 – 10:05    **Introduction**  
Prof. Christian Baumann, Department of Neurology, USZ
- 10:05 – 10:25    **Curative epilepsy treatment: current options**  
PD Dr. Niklaus Krayenbühl, Department of Neurosurgery, USZ
- 10:25 – 10:45    **Palliative epilepsy treatment: deep brain stimulation**  
Dr. Lukas Imbach, Department of Neurology, USZ
- 10:45 – 11:05    **The role of electrophysiology in invasive epilepsy treatment**  
PD Dr. Johannes Sarnthein, Department of Neurosurgery, USZ
- 11:05 – 11:30    **Panel discussion**

**Parallel Workshops, 10:00 – 11:30****Interdisciplinarity in neuroscience** (Lecture Hall E11)

Using a biochemical substrate of cells subjected to the laws of physics, the brain performs information processing that enables us to interact with our environment, and adapt our behavior to the world. Understanding the brain requires multiple disciplines to study and integrate a wide range of scales, ranging from behavior, circuit networks, neuron physiology, down to molecules.

The interplay of different approaches, including state of the art biological and technological tools (advanced imaging, genetic tools, mathematical modeling and computer simulations), is bringing valuable insight into how the brain functions and computes. In this workshop different examples of interdisciplinary studies will be presented to illustrate and introduce an interactive discussion about the advantages and challenges of these combined approaches.

- 10:00 – 10:15     **Explaining cortical development as autonomous self-construction**  
Gabriela Michel (PhD Student, Institute of Neuroinformatics, UZH & ETH)
- 10:15 – 10:30     **Utilizing chronic 2-photon microscopy to image adult hippocampal neurogenesis in vivo**  
Sara Bottes (PhD student, Brain Research Institute, UZH)
- 10:30 – 10:45     **Mathematical modeling, decision-making, psychiatric disorders:  
A neuro-computational account of “theory of mind” and its clinical utility for psychiatry**  
Dr. Andreea Diaconescu (Postdoc, Translational Neuromodeling Unit, UZH & ETH)
- 10:45 – 11:00     **Subjecting algorithms to biological constraints**  
Daniel Neil (PhD student, Institute of Neuroinformatics, UZH & ETH)
- 11:00 – 11:30     **Panel discussion on advantages and challenges of interdisciplinary approaches in neuroscience**  
Moderation: Marion Betizeau  
Participants: Michel, Bottes, Diaconescu and Neil