ZNZ SYMPOSIUM 2024

12 SEPTEMBER

PROGRAM AND POSTER ABSTRACTS

ETH MAIN BUILDING

RÄMISTRASSE 101, 8092 ZURICH

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 2024

12 September 2024

08.30 – 18.00

ETH Main Building
Rämistrasse 101
8092 Zurich

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PROGRAM

08:30 – 08:45 **Introduction**
Prof. Fritjof Helmchen**,** Director ZNZ

08:45 – 09:30 Volker Henn Lecture
Learning principles of neuroscience from the "vulgar" Hydra
Prof. Rafael Yuste, Columbia University

09:30 – 10:15 Coffee Break

10:15 – 11:45 Parallel Workshops

From neurons to networks: Advancing multimodal imaging for brain function studies
Lecture Hall F7, Organization: Prof. Patrick Freund and Prof. Daniel Razansky

Epileptic networks: From basic science to clinics
Lecture Hall F5, Organization: PD Dr. Lukas Imbach and PD Dr. Marian Galovic

Promising biomarkers for tinnitus and speech/voice in different medical fields
Lecture Hall F3, Organization: Prof. Tobias Kleinjung and Prof. Nathalie Giroud

11:45 – 14:15 **Poster Session** (E Main Hall), Lunch at 12:45 (Foyer EO Süd)

12:00 **General Assembly of ZNZ group leaders** (Lecture Hall F7)

14:15 – 14:30 **ZNZ Award for the Best PhD Thesis 2024**

Short Talks of New Members

14:30 – 14:50 **Induced PSCs and genome editing tools to understand human neuronopathic lysosomal storage disorders**
Prof. Isaac Canals, University Children's Hospital and UZH

14:50 – 15:10 **Selective recruitment of CA1 pyramidal cells during sharp-wave ripples**
Prof. Xiaomin Zhang, Brain Research Institute, UZH

15:10 – 15:30 **Coordination of cognitive processes by neural synchronisation**
Prof. Paul Sauseng, Department of Psychology, UZH

15:30 – 15:50 **The endocannabinoid system and addiction**
Dr. Sara Kroll, Psychiatric University Hospital Zurich and UZH

15:50 – 16:30 Coffee Break

16:30 – 17:15 Plenary Lecture
Genetics of Parkinson's disease: From basic mechanisms to novel treatments
Prof. Thomas Gasser, Universitätsklinikum Tübingen

17:15 – 18:00 Apéro

Parallel Workshops, 10:15 – 11:45

From neurons to networks: Advancing multimodal imaging for brain function studies (Lecture Hall F7)

Leading researchers will discuss the latest advancements in imaging technologies for studying brain function. This will include innovative techniques in optoacoustic imaging and their potential applications in neuroscience, whole-brain coding of emotion states in mice using functional ultrasound imaging, and the development of PET tracers for neuroimaging from rodents to humans. Additionally, advancements in functional magnetic resonance imaging of the spinal cord, the potential of high-resolution MRI for in vivo histology, and cutting-edge techniques for capturing neuromagnetic fields from the brain and spinal cord with optically pumped magnetometers will be explored.

Introduction and moderation
Prof. Patrick Freund, Spinal Cord Injury Center, Balgrist Univ. Hospital
Prof. Daniel Razansky, Institute for Biomedical Engineering, ETHZ/UZH

10:15 – 10:30 **Advancing multimodal optoacoustic imaging for brain function studies**
Dr. Zhenyue Chen, Institute of Biomedical Engineering, ETH/UZH

10:30 – 10:45 **Whole-brain coding of emotion states in mice using functional ultrasound imaging**
Dr. Bradley Edelman, Max-Planck Inst. of Psychiatry, Martinsried (DE)

10:45 – 11:00 **Development of PET tracers for neuroimaging: From rodents to humans**
Dr. Linjing Mu, Institute of Pharmaceutical Sciences, ETH

11:00 – 11:15 **Functional magnetic resonance imaging of the spinal cord**
Dr. Gergely David, Spinal Cord Injury Center, Balgrist Univ. Hospital & UZH

11:15 – 11:30 **Towards in vivo histology using 7T MRI**
Prof. Martina Callaghan, Department of Imaging Neuroscience, UCL

11:30 – 11:45 **Imaging neuromagnetic fields from the brain and spinal cord with OPMs**
Dr. Stephanie Mellor, Department of Imaging Neuroscience, UCL

Parallel Workshops, 10:15 – 11:45

Epileptic Networks: From Basic Science to Clinics

(Lecture Hall F5)

This workshop focuses on the complex topic of epileptic networks and lies at the interface between basic sciences and their clinical implications. Starting from an understanding of epilepsy as a network disorder involving cortical and subcortical structures, we will address different aspects of epileptic network dysfunction. We will discuss epileptic brain networks in animal models, optogenetics, neuromodulation in humans and implications for brain imaging.

Introduction and moderation
Pd Dr. Lukas Imbach, Swiss Epilepsy Center
PD Dr. Marian Galovic, Dep. of Neurology, USZ

10:15 – 10:35 **Personalized virtual brain models in epilepsy**
PD Dr. Lukas Imbach, Swiss Epilepsy Center

10:35 – 10:55 **Modulation of epileptic brain networks in rodents by optogenetics**
Prof. Denis Burdakov, Neurobehavioural Dynamics Lab, ETHZ

10:55 – 11:15 **Long-term network effects of epilepsy in neuroimaging**
PD Dr. Marian Galovic, Dept. of Neurology, USZ

11:15 – 11:25 **Modulation of epileptic brain networks in humans by DBS**
Giovanna Aiello, D-HEST, ETHZ

11:25 – 11:35 **Modulation of epileptic brain networks in humans by anti-seizure medications**
Robert Terziev, Dept. of Neurology, USZ

Parallel Workshops, 10:15 – 11:45

Promising biomarkers for tinnitus and speech/voice in different medical fields

(Lecture Hall F3)

The workshop will consist of two parts of about 45 minutes each. The first part will focus on hearing-related pathology, in particular tinnitus, and the second part will address speech and language disorders/changes in psychiatry.

Part 1: Tinnitus is an alteration of the auditory system in which neuroplastic changes in auditory and non-auditory areas of the brain lead to the perception of sounds that do not correspond to a real sound source. There is no objective evidence for this condition, nor is there a curative therapy. Objective parameters that could characterize the auditory symptom would be a great help in developing better treatment methods.
This workshop will present two promising methods that are currently in the focus of international research: Genetics (C. Cederroth, 10 min.) and electro-physiology (P. Neff, 10 min.) Subsequently, the potential of these techniques and further options will be discussed in a roundtable (25 min.).

Participants:
Prof. Dr. Christopher R. Cederroth, University Hospital of Tübingen (DE)
PD Dr. Patrick Neff, Dept. of Otorhinolaryngology, Head and Neck Surgery, USZ
Prof. Dr. Martin Meyer, Dept. of Comparative Language Science, UZH
Prof. Dr. Tobias Kleinjung, Dept. of Otorhinolaryngology, Head and Neck Surgery, USZ

Part 2: Speech and voice parameters are increasingly used as biomarkers in a variety of medical contexts with promising results even outside the traditional field of speech and language pathology. An example from psychiatry highlights that lower speech rate and less pitch variability has been shown to be frequent in major depression (Koops et al., 2023) and variability in fundamental frequency and shimmer are related to neurocognitive decline in older adults suggesting relevance in neurology (Santos Revilla et al., in prep). However, there is no consensus across fields and medical disciplines as well as no guidelines on how to record, store, transcribe and analyze speech data, especially in low-resource language varieties such as Swiss German.
The podium discussion (30 min.) will bring together researchers from neuropsychiatry, speech signal processing, aging neuroscience, and speech and language pathology. They will introduce their research areas (each 3 min.) and then discuss the pros and cons of speech and voice as biomarkers in their respective fields including options on how to overcome current challenges.

Participants:
Prof. Volker Dellwo, Dept. of Computational Linguistics, UZH
PD Dr. Meike Brockmann-Bauser, Dept. of Otorhinolaryngology, Head and Neck Surgery, USZ
Roya Hüppi, PhD student TRUSTING Project, Psychiatric University Hospital
Prof. Nathalie Giroud, Dept. of Computational Linguistics, UZH
Prof. Sebastian Olbrich, Psychiatric University Hospital

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Group Leader: LUKAS SOMMER

1 **Investigating differentiation mechanisms of neural crest stem cells with ribosome profiling:** J.L. Bangerter, I. Ferapontova, J. Lehmann, R. Calçada, D. Ferretti, L. Sommer

Group Leader: KATHARINA GAPP

2 **Patrilineal transfer of glucocorticoid receptors to the early embryo:** M. Kretschmer, V. Fischer, S. Frei, I. Ivanova, M. Gazorpak, P.-L. Germain, K. Gapp

Group Leader: THEOFANIS KARAYANNIS & ANDRAS JAKAB

3 **Unraveling the Cajal-Retzius distribution in the postnatal cortex: A joint mesoscale and macroscale approach:** M. Karatsoli, S. Kollmorgen, O. Hanley, A. Damilou, A. Cavaccini, N. Vladimirov, H. Yoshikara, D. Razansky, A. Jakab, T. Karayannis

Group Leader: CHRISTOPHER PRYCE

4 **Development of multi-sensory learning and orbital cortex in mice: Studying critical periods and the importance of social interaction:** S. Wicki, A. Canziani, A. Argunsah, T. Karayannis, G. Poggi, C. Pryce

Group Leader: RUTH O'GORMAN TUURA

5 **White matter brain temperatures are associated with neurodevelopmental outcome following neonatal encephalopathy (NE):** L. Malina, B. Brotschi, C. Hagmann, R. Kottke, B. Latal, R. Tuura

Group Leader: GIANCARLO NATALUCCI

6 **Neural synchrony, mother-infant relationship and child development - ad interim results:** D. Suppiger, S. Guglielmini, T. Reinelt, M. Wolf, G. Natalucci

Group Leader: ANDREAS HIERLEMANN (ZNZ ASSOCIATE)

7 **Multimodal screening to explore neuronal dysfunction in Rett syndrome:** M. Pascual-Garcia, C. Nunes, P. Hornauer, M. Francisco, A. Chernov, E. Harde, A. Hierlemann, M. Schröter

Group Leader: GERHARD SCHRATT

8 **miRNA-mediated inhibition of an actomyosin network in hippocampal pyramidal neurons restricts sociability in adult male mice:** B.R. Levone, R. Narayanan, J. Winterer, P. Nanda, A. Müller, T. Lobriglio, R. Fiore, P.-L. Germain, M. Mihailovich, G. Testa, G. Schratt

Group Leader: ANDRAS JAKAB

9 **Longitudinal analysis of spina bifida brain growth related to two-year outcome data:** K. Payette, R. Kottke, P. Grehten, L. Mazzone, B. Padden, B. Latal, U. Moehrlen, A. Jakab

Group Leader: MANUEL SCHRÖTER

10 **Homophilic wiring principles underpin neuronal network topology in vitro:** D. Akarca, A. Dunn, P. Hornauer, S. Ronchi, M. Fiscella, C. Wang, M. Terrigno, R. Jagasia, P. Vértes, S. Mierau, O. Paulsen, S. Eglen, A. Hierlemann, D. Astle, M. Schröter

MOLECULAR AND CELLULAR NEUROSCIENCE

Group Leader: IRMGARD AMREIN

11 Traces of phylogeny and ecology in hippocampal neuron numbers: J. Maliković, D.P. Wolfer, J. Lopez Cantalapiedra, L. Vinciguerra, K. Schönbächler, A.L. Fonseca Destro, L. Las, M. Jörimann, S. Gareth Hörpel, J. Rodgers, L. Slomianka, I. Amrein

Group Leader: THEOFANIS KARAYANNIS

12 Seasonal shifts: GABAA receptor-mediated adaptations in response to summer and winter daylight conditions within the Suprachiasmatic Nucleus (SCN): M. Gjikolaj, Y.C Tsai, M. Sato, B. Collins, S.K. Tyagarajan, T. Karayannis

Group Leader: MARIE LABOUESSE

13 Nucleus accumbens shell subcircuits regulating reward and aversion behavior: .A.M. Marinescu, E. Kamal, P. Leary , N. Savic , M.A. Labouesse

SYNAPTIC TRANSMISSION / PLASTICITY

Group Leader: GERHARD SCHRATT

14 **A functional screen uncovers circular RNAs regulating excitatory synaptogenesis in hippocampal neurons:** D. Kelly, S. Bicker, J. Winterer, P. Nanda, P-L. Germain, C. Dieterich, G. Schratt

Group Leader: DIETMAR BENKE

15 **ERK1/2-dependent phosphorylation of GABAB1(S867/T872), controlled by CaMKIIβ, is required for GABAB receptor degradation under physiological and pathological conditions:** M.A. Bhat, T. Grampp, D. Benke

Group Leader: MARTIN MÜLLER

16 **Presynaptic quantal size enhancement counteracts post-tetanic release depression:** N. Bollmohr, A. Nair, L. Schökle, J. Keim, J.M. Mateos, M. Müller

17 **KCNQ2 channelopathy: probing variant-specific effects on channel function and neuronal excitability:** A. Kapnulina, G. Siegel, L. Heinrich, A. Frei, K. Schmidt, A. Rauch, M. Müller

18 **Prolonged activity perturbation induces compensatory presynaptic and postsynaptic adaptations in a human neuronal in vitro model:** M. Brasili, E. Stoeckli, M. Müller

Group Leader: CSABA FÖLDY

19 **Activation of feedforward wiring in adult hippocampal neurons by the basic-helix-loop-helix transcription factor Ascl4:** W. Luo, M. Egger, N. Cruz-Ochoa, A. Tse, G. Maloveczky, B. Tamás, D. Lukacsovich, C. Seng, I. Amrein, T. Lukacsovich, D. Wolfer, C. Földy

20 **Brain Circuit Rewiring and its consequences in learning and memory:** N. Cruz-Ochoa, W. Luo, C. Seng, B. Tamas, R. Kaur, A. Tse, I. Amrein, D.P. Wolfer, C. Földy

GLIA / METABOLISM

Group Leader: TINA NOTTER

21 **The role of astrocytes in the functional maturation of the medial prefrontal cortex:** J. Furrer, S. Schalbetter, S. Fischer, V. Beilmann, U. Meyer, B. Weber, T. Notter

22 **Overactivation of astrocytes leads to dysregulation of prefrontal neuronal activity and impaired cognitive functions via kynurenic acid:** V. Beilmann, J. Furrer, SM. Schalbetter, C. Glück, U. Weber-Stadlbauer, M. Wyss, A. Saab, B. Weber, U. Meyer, T. Notter

Group Leader: AIMAN SAAB

23 **Fueling the white matter: distinct metabolism in oligodendrocytes, astrocytes, and axons:** Z. Faik, H. Zanker, L. Ravotto, B. Weber, A. Saab

Group Leader: TATJANA KLEELE

24 **Homeostasis of mitochondrial populations in human neurons:** M. Soutschek, K. Wentinck, L. Schwertner, T. Kleele

Group Leader: AIMAN SAAB

25 **Quenching mitochondrial ROS in oligodendrocytes protects axonal function in aging and neuroinflammatory disease:** U. Dalvi, J. Villar-vesga, F. Seitz, H. Zanker, L. Ravotto, Z. Looser, R. Fairless, S. Williams, J. Bolanos, S. Mundt, B. Weber, A. Saab

26 **Exploring axonal energy metabolism in vivo using two-photon sensor imaging:** H.S. Zanker, Z. Faik, C. Glück, L. Ravotto, B. Weber, A.S. Saab

Group Leader: MARINA HERWERTH

27 **Neuronal response to in vivo Immune-mediated astrocyte ablation in adult brain:** N.B. Schmid, M.T. Wyss, Y. Perstat, L. Ravotto, A.S. Saab, B. Weber, M. Herwerth

28 **Investigation of microglia response to immune-mediated astrocyte loss:** A. Lasne, N.B. Schmid, Y. Perstat, M.T. Wyss, B. Weber, M. Herwerth

Group Leader: BRUNO WEBER

29 **Intravital imaging of cortical and hippocampal microvascular remodeling:** J. Condrau, C. Glück, M.T. Wyss, T. Esipova, H. Zanker, L. Ravotto, L. Hösli, M. Herwerth, A. Saab, S. Vinogradov, M. El Amki, B. Weber

30 **Investigation of the cell-specific role of the lactate transporter MCT2 for the maintenance of morphological and neuroenergetic properties of brain cells:** A. von Faber-Castell, M. El Amki, J. Droux, A. Saab, M.T. Wyss, B. Weber

31 **Investigating the effects of irradiation on glioblastoma energy metabolism:** P. Imseng, M. Kreuzer, T. Look, T. Weiss, M.T. Wyss, M. Pruschy, B. Weber

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Group Leader: RUXANDRA BACHMANN-GAGESCU

32 **Cortical morphometric correlates of chronic stress and cognition in congenital heart disease:** A. Toyofuku, M. Ehrler, N. Naef, A. Schmid, O. Kretschmar, B. Latal, R. Tuura

Group Leader: BRUNO WEBER

33 **The effect of acute restraint stress on prefrontal astrocytes, prefrontal neuronal activity and cognitive functions:** R. Blaser, J. Furrer, T. Notter

Group Leader: ISABELLE MANSUY

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Group Leader: KATHARINA GAPP

35 **Marrying PROTAC to CRISPR –TRAFTACs to elucidate and combat the transcriptional basis of neuroendocrine cellular stress:** R. Scheuplein, S. Frei, V. Fischer, M. Kretschmer, P.-L. Germain, K. Gapp

36 **Paternal acute and chronic stress affects offspring baseline behavior:** V. Fischer, S. Frei, M. Kretschmer, P. Kohling, I. Ivanova, K. Gapp

Group Leader: BIRGIT KLEIM

37 **Resilience in the face of stress: Investigating the pupillometry correlates of emotional conflict and arousal in a preregistered prospective cohort study:** E. McPherson, L.E. Meine, M. Grueschow, F. Cathomas, C.C. Ruff, B. Kleim

38 **Ecological momentary assessment of intrusive memory triggers and reactions in posttraumatic stress disorder:** L. Dietiker, A. Zacher, Z. Roman, B.B. Quednow, B. Kleim

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Group Leader: THORSTEN HORNEMANN

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Group Leader: ISAAC CANALS

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Group Leader: DANIELA NOAIN

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Group Leader: JUAN GEREZ (ZNZ Associate)

44 A novel mouse model of Parkinson's disease progression by ectopic expression of neuronal cell-to-cell transmitted alpha-Synuclein: N.C. Prymaczok, P.N. De Francesco, M. Perello, R. Riek, J.A. Gerez

Group Leader: DAVID WOLFER

45 Error-free translation as a novel therapeutic approach against age-related neurodegenerative diseases: D. Scherbakov, R. Akbergenov, E. Böttger, D. Wolfer

Group Leader: RUIQING NI

46 Hippocampal mGluR5 levels are comparable in Alzheimer's and control brains, and divergently influenced by amyloid-beta and tau: J. Wang, S. Savoldelli, Y. Kong, C. A. Maschio, U. Konietzko, J. Klohs, D. Razansky, A. Rominger, L. Mu, R. Schibli, C. Hock, R. M. Nitsch, R. Ni

Group Leader: ROGER GASSERT

47 Neural activity underlying pathological gait patterns in Parkinson's disease: a case study: L. Salzmann, Z. Mei, D.K. Ravi, W.R. Taylor, O. Lambercy, R. Gassert

Group Leader: RUIQING NI

48 Increased hippocampal P2X7 receptor expression in human Alzheimer patients and its association with Amyloid-beta and tau: C. Maschio, J. Wang, U. Maheshwari, A. Keller, A. Rominger, U. Konietzko, A. Norberg, C. Hock, R.M. Nitsch, R. Ni

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Group Leader: CHRISTIAN TACKENBERG

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50 **Development of iPSC-derived neural progenitor cells with enhanced migration to stroke tissue and inducible ablation systems:** B. Achón Buil, R.Z. Weber, N.H. Rentsch, C. Helfenstein, R. Rust, C. Tackenberg

Group Leader: ANNA-SOPHIA WAHL

51 **In vivo widefield calcium imaging of cortical activity during reach-to-grasp movements in a mouse stroke model:** M. Panzeri, F. Helmchen, A-S. Wahl

Group Leader: SUSANNE WEGENER

52 **Cardiovascular exercise enhances functional recovery after stroke, along with restoration of perfusion and plasticity:** N. Binder, J. Deseö, R. Weber, J. Droux, K. Zolotko, H. Yoshihara, A. Luft, B. Weber, D. Razansky, M. El Amki, S. Wegener

Group Leader: MOHAMAD EL AMKI

53 **Neutrophils as key players in microvascular injury and failure in stroke:** J. Droux, J. Husson, C. Glück, A. Del Campo Fonseca, C. Sparano, B. Palmier, S. Tugues Solsona, I. Margaill, M.T. Wyss, M. Greter, D. Ahmed, M. Casanova Acebes, A. Hidalgo, B. Weber, S. Wegener, M. El Amki

Group Leader: SUSANNE WEGENER

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Group Leader: OLIVIER LAMBERCY

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Group Leader: SUSANNE WEGENER

56 An explainable convolutional neural network to better understand predicted functional outcomes after acute ischemic stroke: H. Baazaoui, J. Brändli, L. Herzog, M. Hänsel, B. Sick, S. Wegener

57 Quantification of the impact of leptomeningeal collaterals during stroke – a computational framework incorporating in vivo data: C. Lambride, R. Epp, C. Glück, N. F. Binder, M. El Amki, B. Weber, S. Wegener, F. Schmid

EPILEPSY

Group Leader: GEORGIA RAMANTANI

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59 **Scalp high-frequency oscillation spatial distribution is stable over consecutive nights, while rates mirror antiseizure medication changes:** P. Karatza, D. Cserpan, K. Moser , S.P. Lo Biundo, G. Indiveri, J. Sarnthein, G. Ramantani

60 **Interictal EEG spikes increase perfusion in low-grade epilepsy-associated tumors: a pediatric arterial spin labelling study:** A.G. Gennari, G. Bicciato, S.P. Lo Biundo, R. Kottke, D. Cserpan, R. Tuura O'Gorman, G. Ramantani

61 **Evaluating the activation of the brain-specific immune hub in pediatric drug resistant epilepsy: a case-control study:** A.G. Gennari, T. Sartoretti, R. Tuura O'Gorman, M.W. Huellner, G. Ramantani, M. Messerli

Group Leader: JOHANNES SARNTHEIN

62 **Event-based seizure detection in iEEG using neuromorphic processing:** F. Davidhi, F. Costa, D. Ledergerber, L. Stieglitz, G. Indiveri, L. Imbach, J. Sarnthein

Group Leader: GIACOMO INDIVERI

63 **Bio-inspired spiking neural networks for long-term EEG monitoring and detection of epileptic seizures deployed on low-power neuromorphic processors:** O. Gallou, S. Ghosh, J. Bartels, J. Sarnthein, G. Indiveri

Group Leader: LUKAS IMBACH

64 **Alpha oscillations: A potential EEG biomarker of dissociative seizures:** T. Dubcek, M. Künzler, M. Schmutz, I. Mothersill, L. Imbach, D. Ledergerber

Group Leader: JOHANNES SARNTHEIN

65 Replay of letter strings by single neurons in medial temporal lobe and auditory cortex EEG during verbal working memory maintenance: F. Costa, W. Maathuis, V. Dimakopoulos, D. Ledergerber, J. Sarnthein

Group Leader: LUKAS IMBACH

66 Stimulation-induced EEG network dynamics in photosensitive epilepsy depend on photosensitivity type and stimulation frequency: L. Timar, S. Deplazes, J. Bothmann, D. Ledergerber, T. Dubcek, L. Imbach

MOTOR SYSTEM

Group Leader: LINARD FILLI

67 **Mapping reticulospinal control of single joint movements: A comprehensive analysis of StartReact effects in upper and lower extremity muscles:** A.M. Eilfort, N.S. Holliger, L.C. Neumann, L. Filli

68 **EMG-EMG coherence: A novel biomarker for reticulospinal motor drive?:** N.S. Holliger, F. Zipser-Mohammadzada, D.F. Carpanese, M. Schubert, L. Filli

69 **Cortical involvement in the initiation of voluntary, but not involuntary movements of StartReact: EEG-based evidence supporting subcortical mechanisms underlying the StartReact phenomenon:** L.C. Neumann, N. Mahnoor, M. Rüfli, M.D. Liechti, L. Filli

Group Leader: DOMINIK STRAUMANN / ROBERT RIENER

70 **The role of vestibular signals in arm movement control: Exploring the existence of a vestibulo-brachial reflex:** G.R. Di Ruggiero, C. Beppi, C.J. Bockisch, M. Penner, R. Riener, D. Straumann

Group Leader: DOMINIK STRAUMANN

71 **Identifying the pathophysiology of postural control upon optokinetic stimuli:** S. Meyer, N. Feddermann, D. Straumann, D. Agostino, M. Scandella

Group Leader: NICOLE WENDEROTH

72 **Reward-induced changes in motor slowing can be indexed by pupil dynamics:** J. Imhof, C. Heimhofer, M. Bächinger, R. Ramsey, N. Wenderoth

Group Leader: MANUEL SCHRÖTER

73 **Large-scale electrophysiological characterisation of striatal brain organoids derived from dystonia patients:** L. Sadiraj, M. Magni, A. Marishi, E. Frattini, A. Hierlemann, A. Di Fonzo, M. Schröter

SPINAL CORD INJURY

Group Leader: SANNE KIKKERT

74 Top-down processing activates deprived sensory nuclei following tetraplegia: P. Howell, F. Rabe, S. Schading-Sassenhausen, S. Meissner, P. Freund, N. Wenderoth, S. Kikkert

Group Leader: MICHELE HUBLI

75 Disrupted interaction between the nociceptive and cardiovascular system in individuals with neuropathic pain after spinal cord injury: J.K. Metzger, T.E. Nightingale, M. Hubli

Group Leader: CATHERINE JUTZELER

76 Data-driven characterization of lower-limb kinematics during breaststroke swimming in patients with spinal cord injury: M. Giagiozis, S. Imhof, S. Achermann, C. Jutzeler, L. Demkó, B. Zörner

Group Leader: MARYAM SEIF

77 Investigating cervical cord perfusion impairment in traumatic SCI: A. Lebret, S. Frese, S. Lévy, A. Curt, V. Callot, P. Freund, M. Seif

Group Leader: PATRICK FREUND

78 Exploring the prospects of tract-specific three-dimensional intramedullary damage assessment in traumatic spinal cord injury: L. Farner, T.M. Emmenegger, S. Schading-Sassenhausen, J. Berroth, M. Seif, A. Curt, P. Freund

Group Leader: MICHELE HUBLI

79 Clinical application of the N13 somatosensory evoked potential in complex regional pain syndrome: F. Allmendinger, M. Schubert, C. Leone, F. Brunner, M. Hubli

NEUROREHABILITATION

Group Leader: ALEXANDER HUBER

80 **Evaluation of wideband tympanometry absorbance changes in cochlear implant recipients: Mechanical insights and influencing parameters:** R. Bertschinger, C. von Mitzlaff, M. Geys, A. Kunut, I. Dobrev, D. Veraguth, C. Röösli, A. Dalbert, A. Huber

Group Leader: EMILY CROSS

81 **Virtual Reality Simulation of Prosthesis Embodiment: A Multimodal Investigation Examining Gaze Behavior and Sense of Agency:** D. Crevillen, B. Lenggenhager, C. Gentile, L. Zapparoli, R. Meattini, E.S. Cross, G. Saetta

Group Leader: ELISA DONATI

82 **Leveraging motor unit spatial activation patterns for channel selection in finger force regression:** F. Baracat, M. Zanghieri, L. Benini, D. Farina, G. Indiveri, S. Benatti, E. Donati

Group Leader: OLIVIER LAMBERCY

83 **Timing of auricular vagus nerve stimulation influences motor adaptation in healthy participants:** M. Quast, L. Petrella, G. Shaw, F. Christen, M. Spriano, O. Lambercy, P. Viskaitis, D. Donegan

84 **Neurophysiological dynamics of transcutaneous auricular vagus nerve stimulation and movement:** C. Perrin, T. Weilenmann, O. Lambercy, D. Donegan, P. Viskaitis

85 **RehabCoach: A platform to support unsupervised rehabilitation:** A. Retevoi, G. Devittori, T. Kowatsch, O. Lambercy

86 **Developing personalized real-time biofeedback for gait rehabilitation: A co-design process:** A. C. Naef, L. Nastasi, R. Jelitto, M. Lestoille, A. Luft, R. Gassert, C. Awai, O. Lambercy

Group Leader: ROGER GASSERT

87 Effects of walking speed and real-time visual biofeedback on cognitive load during gait training: M. Berthet, A. C. Naef, C. Easthope Awai, O. Lambercy, R. Gassert

88 Towards personalized real-time biofeedback for gait rehabilitation: Influence of visual and vibrotactile feedback on gait asymmetry in healthy participants: A. C. Naef, M. Lestoille, Z. Jungi, F. Grenet, C. Awai, O. Lambercy, R. Gassert

MR IMAGING OF HUMAN BRAIN NETWORKS

Group Leader: SILVIA BREM

89 **How children and adults differ in functional connectivity during audiovisual processing in a movie paradigm:** C. Providoli, R. Wombacher, S.V. Di Pietro, N. Raduner, N. Ehrhardt, S. Weidle Scatolin, I.I. Karipidis, A. Haugg, C. Ruff, M. Von Rhein, N.M. Raschle, S. Brem

90 **Regulating brain activity in the Visual Word Form Area with real-time fMRI neurofeedback:** A. Haugg, N. Frei, M. Menghini, F. Stutz, S. Steinegger, M. Röthlisberger, G.S.P. Pamplona, S. Brem

91 **Exploring the visual word form area and fusiform face area during reading acquisition:** A. Nohl, C. Providoli, N. Raduner, N. Frei, S. Di Pietro, C. Lutz, I. Karipidis, S. Brem

Group Leader: ILIANA KARIPIDIS

92 **Reward and loss processing in cis- and transgender early adolescents:** P. Gerwig, D.S. Hong, I.I. Karipidis

Group Leader: PETRA SCHWEINHARDT

93 **Connectivity chronicles: Age-related functional connectivity alterations in chronic low back pain:** M. Hau, L. Sirucek, C. Beckman, P. Schweinhardt

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Group Leader: GERHARD SCHRATT

94 Potential role for MicroRNA regulation in the tuning of engram recruitment during fear memory consolidation: P. Nanda, P.-L. Germain, G. Schratt

Group Leader: HANNS ULRICH ZEILHOFER

95 Expression of an immunoglobulin constant domain genes in neurons of the mouse central nervous system: F. Pietrafesa, L. Scheurer, I. Amrein, D.P. Wolfer, S.G. Matos, H.U. Zeilhofer, H. Wildner

Group Leader: DAVID WOLFER

96 Sex differences in spatial learning of C57BL/6J mice in the IntelliCage: The impact of appetitive and aversive stimuli: L. Roos, S. Matos, I. Amrein, D.P. Wolfer

Group Leader: PETER RUPPRECHT

97 A virtual auditory environment to study neuronal plasticity in the hippocampus.: S. Ghosh, F. Helmchen, P. Rupprecht

Group Leader: BENJAMIN GREWE

98 Behavioral and neural correlates of non-navigation categorization in Hippocampus CA1: L. Sainz Villalba

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99 Impact of aging on theta-phase gamma-amplitude coupling during learning: a multivariate analysis: D. Strzelczyk, N. Langer

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100 Alpha traveling waves during working memory: disentangling bottom-up gating and top-down gain control: Y. Zeng, P. Sauseng, A. Alamia

101 Prospective action planning benefits working memory performance: L. Behnke, P. Sauseng, E.V.C. Friedrich

Group Leader: SILVIA BREM

102 Reading-level dependent modulation of neuronal tuning for print after artificial letter training: T. Aras, C. Lutz, V. Fehr, S. Coraj, M. Röthlisberger, I. Karipidis, S. Brem

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103 Co-designing neuromorphic systems and computational models for Calcium-based learning: Maryada, C. De Luca, C. Wen, A. Rubino, M. Payvand, G. Indiveri

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104 Learning to control motorcycle robots: X. Deng, T. Delbruck

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105 Single-unit responses to dynamic salient visual stimuli in the human medial temporal lobe: A. Kiseleva, E. van Gelder, H. Jokeit, J. Sarnthein, T. Dubcek, L. Imbach, D. Ledergerber

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107 Astrocytic contributions to ADHD pathophysiology investigating dysfunction and its impact on neurodevelopment: L. Dury, C.M. Yde Ohki, N. Walter, S. Walitza, E. Grünblatt

Group Leader: BASIL PREISIG

108 Exploring the influence of alpha tACS on auditory spatial attention in older individuals with hearing loss: S. Ismail, N. Fartdinova, F. Stockar and B. Preisig

109 Alpha power lateralization and its role in auditory attention: insights from an EEG neurofeedback study: F. Stockar, N. Fartdinova. T. Ros, B. Preisig

110 Alpha oscillations implement distractor suppression independently of target selection in individuals with hearing loss and normal hearing: N. Fartdinova, M. Alavash, T. Popov, M. Wöstmann, J. Obleser, B. Preisig

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111 Dynamic alpha power modulations and slow negative potentials track spatio-temporal attention: C. Peylo, C. Romberg-Taylor, L. Behnke, P. Sauseng

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Group Leader: CHRISTOPHER PRYCE

112 Preclinical validation of the efficacy of TRPC4/5 inhibition for reduction of excessive aversion processing: Neurobehavioral evidence: P.M. Robert, G. Poggi, A. Senn, S. Schmid, S. Simard, N. Mechawar, S. Just, C.R. Pryce

Group Leader: MARIE LABOUESSE

113 Linking dopamine dysregulation during adolescence and vulnerability to schizophrenia in a mouse model: K. Otomo, J.F. Poulin, M. Labouesse

Group Leader: DIETMAR BENKE

114 Restoring GABAB receptor expression in the VTA of methamphetamine addicted mice inhibits locomotor sensitization and drug seeking behavior: M. Hleihil, D. Benke

Group Leader: JULIUS POPP (ZNZ ASSOCIATE)

115 Plasma neurofilament light, glial fibrillary acid protein, and phosphorylated tau 181 as biomarkers for neuropsychiatric symptoms and related clinical disease progression: M. Rabl, L. Zullo, P. Lewczuk, J. Kornhuber, T.K. Karikari, K. Blennow, H. Zetterberg, F. Bavato, B.B. Quednow, E. Seifritz, A. von Gunten, C. Clark, J. Popp

Group Leader: JEAN-PHILIPPE KRIEGER

116 A vagal influence on schizophrenia? A matched nationwide retrospective cohort of vagotomized individuals: C.F. Richter, K. Skibicka, U. Meyer, S. Rohrmann, J-P. Krieger

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117 Genetic determinants of antidepressant and antipsychotic drug response: a molecular-genetic study of 902 patients over 6 weeks: H.H. Stassen, S. Bachmann, R. Bridler, K. Cattapan, A.M. Hartmann, D. Rujescu, E. Seifritz, M. Weisbrod, C. Scharfetter

Group Leader: BORIS B. QUEDNOW

118 Neuroimmune mechanisms of cognitive impariments in cocaine use disorder: J. Ewert, L.A. Nesteren, Z. Lin, W. Huang, P. Stämpfli, L. Michels, B.B. Quednow, F. Cathomas

119 From intrusive memory to craving in cocaine use disorder – An ecological momentary assessment study: A. Zacher, L. Dietiker, Z. Roman, B. Kleim, B. B. Quednow

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Group Leader: ANDRAS JAKAB / THEOFANIS KARAYANNIS

120 3D mesoscale atlas of intrathalamic inhibitory interneurons in the human brain: M. Antonios, N. Vladimirov, M. Karatsoli, H. Yoshihara, D. Razansky, F. Helmchen, T. Karayannis, A. Jakab

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121 Closing the loop in ultrasound-mediated focal drug delivery therapy: J. Hanna, M. S. Özdas, Y. Li, E. Cifuentes, G. Aydemir, M. Aghilibehnam, C. Anderau, W. von der Behrens, M.F. Yanik

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122 Functional MRI in the lumbosacral spinal cord during electrical stimulation of the tibial nerve: C.W. Kündig, S. Büeler, P. Freund, G. David

123 Resting-state functional connectivity within the lumbar spinal cord: X. Su, C. W. Kündig, P. Freund, G. David

Group Leader: MELIKA PAYVAND

124 Efficient hardware-aware computation using temporal dynamics: F. Moro, T. Torchet, J. Weber, L. Kreiner, M. Payvand

Group Leader: SHIH-CHII LIU

125 A microwatt voice interface with cochlea-inspired audio sensor and brain-inspired neural network accelerator: S. Zhou, Z. Li, K. Kim, L. Cheng, S-C. Liu

Group Leader: BENJAMIN INEICHEN (ZNZ ASSOCIATE)

126 ANIMONE: An in vivo data warehouse for neuroscience - biocuration of animal research to inform optimization of drug development: S.E. Doneva, M. Rosso, B.V. Ineichen

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127 Advancing neurological assessment: The importance of social cognition screening: M. Eicher, R. Johannessen, L. Ramseier, T. Hibbert, A. Hansen, M. Regli, M. Ruepp, L. Imbach, H. Jokeit

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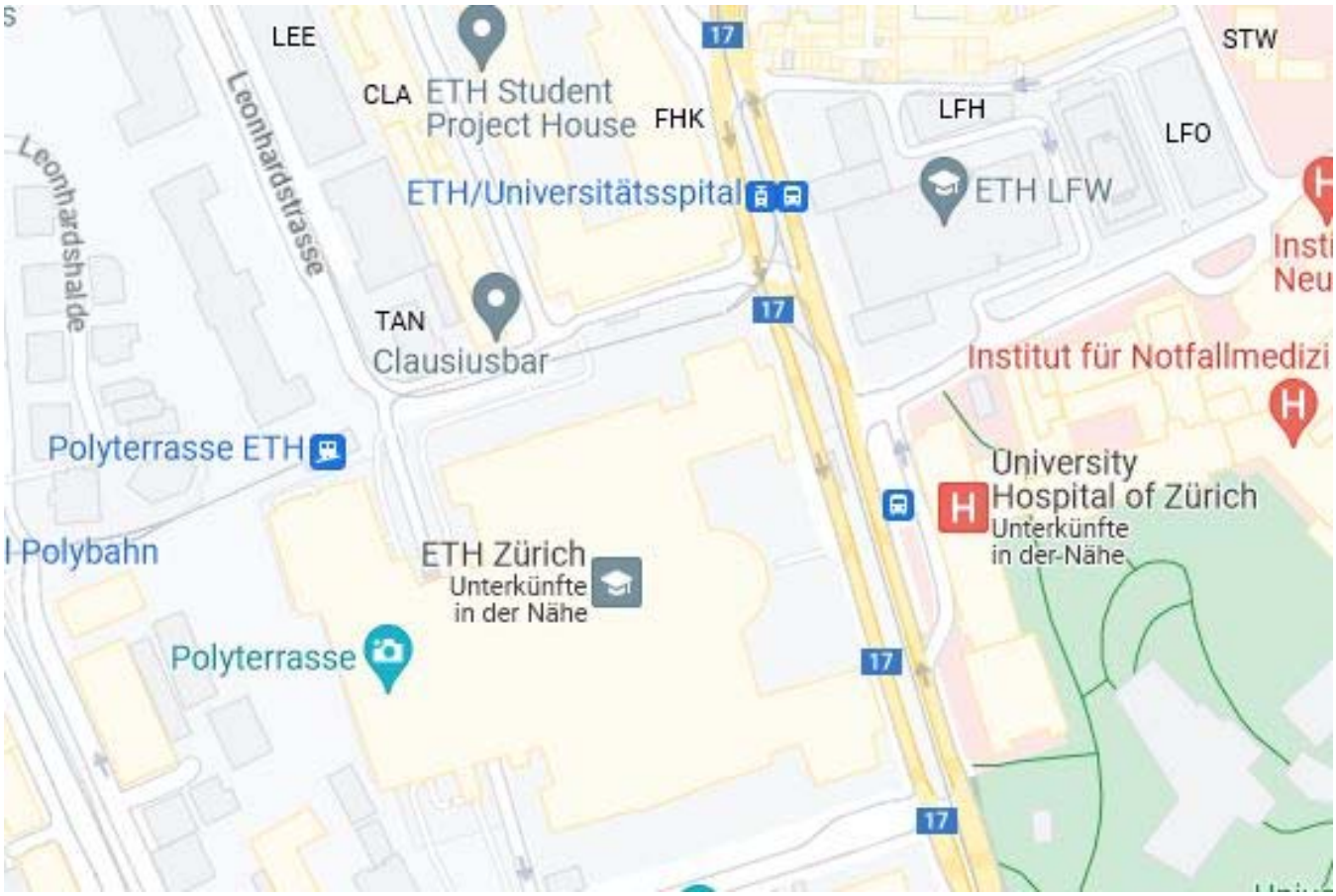
Group Leader: DAVID PENTON RIBAS (ZNZ ASSOCIATE)

128 Towards High-Throughput and High-Content Techniques: Electrophysiological Characterization of iPSC-derived Neurons: D. Colameo, D. Penton Ribas

ZNZ GROUP LEADERS (in alphabetic order and with poster numbers)



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Cover photo: Colorful Zebrafish (Danio rerio) larvae (5 days post fertilization). At this stage these little critters (7mm in length) already display a wide arrays of behaviors indicative of a premature central nervous system.
(Stephan Neuhauss, Department of Molecular Life Sciences, UZH)