

ZNZ Zentrum für Neurowissenschaften Zürich
Neuroscience Center Zurich



**University of
Zurich** UZH

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

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UZH Central Campus

Händeliweg 2

8044 Zurich

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POSTER ABSTRACTS

DEVELOPMENT AND REGENERATION

Group Leader: SEBASTIAN JESSBERGER

- 1 Chronic in vivo imaging delineates the cellular principles of neurogenesis in the adult mouse hippocampus:** G-A. Pilz, S. Bottes, M. Betizeau, D.J. Jörg, S. Carta, B. D. Simons, F. Helmchen, S. Jessberger

Group Leader: EDITH M. SCHNEIDER GASSER

- 2 Erythropoietin-mediated neuroprotection in a mouse model of perinatal brain injury:** M. Wälti, K. Khalid, J-M. Fritschy and E.M. Schneider Gasser

Group Leader: ESTHER T. STOECKLI

- 3 Neurotrypsin is required for multiple steps during neural circuit formation:** M. Schaettin, E. Stoeckli

MOLECULAR AND CELLULAR NEUROSCIENCE

Group Leader: RUXANDRA BACHMANN-GAGESCU

- 4 Mutations in *armc9* cause ciliopathy phenotypes in zebrafish:** T. Rusterholz, J.C. Van De Weghe, D. Doherty, S.C.F. Neuhaus, R. Bachmann-Gagescu

Group Leader: JOHANNES BOHACEK

- 5 Distinct transcriptomic, proteomic and epigenetic stress-responses in dorsal and ventral hippocampus:** A. Floriou-Servou, L. von Ziegler, L. Stalder, J. Bohacek
- 6 Unsupported rearing as a measure of anxiety in the open field test: context is key:** O. Sturman, J. Bohacek

Group Leader: STEVEN BROWN

- 7 The synaptic transcriptome and proteome: controlled by clocks, driven by sleep:** S.B. Noya, D. Colameo, F. Brüning, D. Mircsof, J. Cox, S. Tyagarajan[§], C. Robles*, and S.A. Brown^{§*}

*§*these authors contributed equally, and jointly supervised this project

Group Leader: JEAN-MARC FRITSCHY

- 8 GABAergic Interneurons in the Striatum:** I-L. Boccalaro, J-M. Fritschy, L. Rubi

Group Leader: URS GERBER

- 9 Astrocytes orchestrate network-wide hippocampal synchrony and are critical for sharp wave activity:** S. Berry, S. Carta, F. Voigt, F. Helmchen, U. Gerber

Group Leader: EDNA GRÜNBLATT

- 10 Elucidation of D-amino acid oxidase activator (DAOA/G72) pathways in human cell lines:** V. Jagannath¹, E. Schmidtné Kormos¹, S. Walitza^{1,2,3}, E. Grünblatt^{1,2,3}

¹Department of Child and Adolescent Psychiatry and Psychotherapy, University of Zurich, Switzerland

²Neuroscience Center Zurich, University of Zurich and ETH Zurich, Switzerland

³Zurich Center for Integrative Human Physiology, University of Zurich, Switzerland

Group Leader: JOHANNES HÄBERLE

- 11 In vitro toxicity studies in a rat 3D brain cell model of argininosuccinate lyase deficiency:** C. Diez-Fernandez¹, M. Loup², G. Diserens³, J-M. Nuoffer^{4,5}, P. Vermathen³, O. Braissant², J. Häberle¹

¹University Children's Hospital and Children's Research Center, Zurich, Switzerland

²Inborn Errors of Metabolism, Biomedicine, Lausanne University Hospital, Lausanne, Switzerland

³Departments of Radiology and Clinical Research, University of Bern, Bern, Switzerland

⁴Department of Paediatrics, Inselspital, University Hospital Bern, Bern, Switzerland

⁵Institute of Clinical Chemistry, Inselspital, University Hospital Bern, Bern, Switzerland

Group Leader: MIRKO SANTELLO

- 12 Differential glutamate buffering between cortical regions impacts synaptic functions:** J. Romanos, M. Santello

Group Leader: SHIVA TYAGARAJAN

- 13 GABAergic postsynaptic compartment regulates neuronal activity in principal cells in mouse barrel cortex:** Y-C. Tsai, J. Stobart, K.D. Ferrari, M. Barrett, B. Weber, S.K. Tyagarajan
- 14 The RNA binding protein stau1 alters GABAergic synapse structure and regulates synaptic mRNA and proteins:** B.F.N. Campbell, S. Bernàrdez Noya, K.W. Li, G. Bosshard, M.A. Kiebler, S. Tyagarajan

NEURAL BASIS OF BEHAVIOR**Group Leader: MARGARETE ARRAS**

- 15 Evaluating Tramadol and Buprenorphine applied via the drinking water as pain medication in a mouse osteotomy model:** M. Durst¹, P. Jirkof², M. Arras², K. Schmidt-Bleek³, F. Buttgerit¹, A. Lang¹

¹Department of Rheumatology and Clinical Immunology, Charité-Universitätsmedizin Berlin, Germany

²Division of Surgical Research, University Zurich, Switzerland

³Julius Wolff Institute and Center for Musculoskeletal Surgery, Charité-Universitätsmedizin Berlin, Germany

Group Leader: ASLI AYAZ

- 16 Activation of VIP-expressing interneurons in primary somatosensory cortex in head-restrained mice during locomotion and whisking:** A. Stäubli, A. Ayaz, F. Helmchen

Group Leader: STEVEN BROWN

- 17 Clock circuits regulate daily sleep-wake cycles:** B. Collins, S. Pierre, S. Brown

Group Leader: RICHARD HAHNLOSER

- 18 Tutor preference in juvenile zebra finches:** D. Rodrigues, J. Lee, J. Rychen, R. Hahnloser

Group Leader: FRITJOF HELMCHEN

- 19 Converging neural dynamics during working memory in tactile and auditory discrimination tasks:** Y. Gallero-Salas, A. Gilad, B. Laurenczy, F. Helmchen

Group Leader: MELODY YING-YU HUANG

- 20 Negative optokinetic afternystagmus in larval zebrafish demonstrates a set-point adaptation:** T.-F. Lin, F. Romano, A.M. Fathalla, D. Pul, D. Straumann, M.Y. Huang

Group Leader: HANS-PETER LANDOLT

- 21 Magnetic Resonance Spectroscopy highlights a role for basal ganglia glutamatergic signaling in sleep-wake regulation:** S. Weigend, S.C. Holst, R.L. O’Gorman Tuura, V. Treyer, A. Buck, H.-P. Landolt

Group Leader: DARIA PELEG-RAIBSTEIN

- 22 Transgenerational transmission of hedonic behaviors and metabolic phenotypes induced by perinatal maternal overnutrition:** G. Sarker¹, R. Berrens², J. von Arx¹, P. Pelczar³, W. Reik², C. Wolfrum¹, D. Peleg-Raibstein¹

¹Laboratory of Translational Nutrition Biology, Department of Health Science and Technology, ETH Zurich, Schwerzenbach 8603, Switzerland.

²The Babraham Institute, Babraham, Cambridge CB223AT, United Kingdom.

³Center for Transgenic Models, University of Basel, Basel, Switzerland.

Group Leader: NICOLE WENDEROTH

- 23 Prior information modulates “mirror activity” in primary motor cortex of observers even in the absence of kinematic cues:** A.L. Cretu, M. Germann, K. Ruddy, N. Wenderoth

Group Leader: DAVID WOLFER

- 24 A continuous fully automated progressive ratio task for the IntelliCage:** Fritz AK, Wolfer DP

SENSORY SYSTEMS**Group Leader: ASLI AYAZ**

- 25 Context-dependent cortical integration of visual and somatosensory stimuli in behaving mice:** M. Buchholz, Y. Sych, F. Helmchen, A. Ayaz

Group Leader: GIOVANNI BERTOLINI

- 26 The role of visual inputs on vestibular Cross-coupling stimulus:** F. Romano, D. Straumann, G. Bertolini

Group Leader: ALEX HUBER

- 27 Comparison of Intracochlear Sound Pressure in Human and Sheep:** F. Pfiffner¹, L. Prochazka¹, D. Péus¹, A. Dalbert¹, J. Guignard², J. Walraevens², J.H. Sim¹, I. Dobrev¹, C. Rösli¹, A. Huber¹

¹University of Zurich, University Hospital Zurich, Department of Otorhinolaryngology, Head and Neck Surgery Frauenklinikstrasse 24, 8091 Zurich, Switzerland

²Cochlear Technology Centre Belgium, Belgium and Cochlear AG Switzerland

- 28 Influence of prosthesis positioning after ossiculoplasty:** J.H. Sim, M. Alshamani, I. Dobrev, M. Chatzimichalis, M. Schär, C. Rösli, A.M. Huber

Group Leader: WOLFGER VON DER BEHRENS

- 29 Neuronal signals of sensory deviance in rat medial prefrontal cortex:** A. Gurkina, W. von der Behrens

Group Leader: KONRAD P. WEBER**30 Association of posterior semicircular canal hypofunction on video-head-impulse testing with other vestibulo-cochlear deficits:**A.A. Tarnutzer¹, C.J. Bockisch^{1,2,3}, E. Buffone¹, K.P. Weber^{1,2}¹Department of Neurology, University Hospital Zurich and University of Zurich, Switzerland²Department of Ophthalmology, University Hospital Zurich and University of Zurich, Switzerland³Department of Otorhinolaryngology, University Hospital Zurich and University of Zurich, Switzerland**MOTOR SYSTEMS****Group Leader: HUBERTUS VAN HEDEL****31 The role of the practice order: a systematic review about contextual interference in children: J.V. Graser^{1,2,3}, C.H. Bastiaenen³, H.J. van Hedel^{1,2}**¹Paediatric Rehab Research Group, Rehabilitation Centre for Children and Adolescents, University Children's Hospital Zurich, Affoltern am Albis, Switzerland²Children's Research Centre CRC, University Children's Hospital Zurich, Switzerland³Research Line Functioning and Rehabilitation CAPHRI, Department of Epidemiology, Maastricht University, Maastricht, the Netherlands**Group Leader: NICOLE WENDEROTH****32 Neural coupling of cooperative hand movements: Influence of different movement parameters: F.A. Thomas, V. Dietz, M. Schrafl-Altermatt****SLEEP AND SLEEP DISORDERS****Group Leader: SALOME KURTH****33 Puzzling over your baby's sleep – associations between maternal cognitions and infant's sleep: S.F. Schoch, S. Boschert-Hennrich, O.G. Jenni, R. Huber and S. Kurth**

Group Leader: ERICH SEIFRITZ

- 34 Effects of gamma-hydroxybutyrate on sleep electrophysiology: A Current Source Density Study:** D. Dornbierer^{1,2,3}, D.M. Baur¹, B.B. Quednow³, T. Krämer², E. Seifritz^{3,4}, O.G. Bosch³, H.P. Landolt^{1,4}

¹Institute of Pharmacology and Toxicology, University of Zürich

²Department of Forensic Pharmacology and Toxicology, Zurich Institute of Forensic Medicine, University of Zurich

³Department of Psychiatry, Psychotherapy and Psychosomatics, Psychiatric Hospital, University of Zürich

⁴Zürich Center for interdisciplinary Sleep Research (ZiS), University of Zürich

COGNITIVE NEUROSCIENCE**Group Leader: DOMINIK R. BACH**

- 35 Neural computations underlying human Pavlovian threat learning:** K.E. Ojala, A.Tzovara, D.R. Bach

Group Leader: SILVIA BREM

- 36 Early prediction of reading fluency. A training and multimodal neuroimaging approach:** I.I. Karipidis, G. Pleisch, D. Brandeis, A. Roth, M. Röthlisberger, M. Schneebeli, S. Walitza, S. Brem

- 37 Emerging visual specialization after letter speech sound training in prereading children:** G. Pleisch, I.I. Karipidis, C. Brauchli, M. Röthlisberger, C. Hofstetter, P. Stämpfli, S. Brem

Group Leader: KARIN KUCIAN

- 38 Mathematical anxiety and altered brain structures in children with and without developmental dyscalculia:** K. Kucian, U. McCaskey, R. O’Gorman Tuura, M. von Aster

Group Leader: BORIS B. QUEDNOW

- 39 Serotonergic effects on impulsive decision-making under uncertainty:** D.M. Cole, L. Rigoux, A.O. Diaconescu, C. Mathys, Z. Nagy, D. Müller, B.B. Quednow, K.E. Stephan

Group Leader: JOHANNES SARNTHEIN

- 40 Verbal working memory elicits synchronization between cortex and hippocampus:** E. Boran, T. Fedele, T. Grunwald, P. Hilfiker, L. Stieglitz, J. Sarnthein
- 41 Ongoing neuronal activity as marker of human amygdala function:** T. Fedele, B. Steiger, A. Tzovara, P. Hilfiker, T. Grunwald, D.R. Bach, L. Stieglitz, H. Jokeit, J. Sarnthein

Group Leader: FRANK SCHARNOWSKI

- 42 Pre-training localizer activity predicts real-time fMRI neurofeedback learning success:** A. Haugg^{1,2,3}, R. Sladky^{1,2,3}, Y. Koush⁴, M. Kirschner⁵, H. Scheerer¹, M. Herdener⁵, N. Weiskopf^{6,7}, A. Brühl¹, F. Scharnowski^{1,2,3}

¹Department of Psychiatry, Psychotherapy and Psychosomatics, Psychiatric University Hospital, Zurich, Switzerland

²Neuroscience Center Zurich, University of Zurich and Swiss Federal Institute of Technology, Zurich, Switzerland

³Zurich Center for Integrative Human Physiology, University of Zurich, Zurich, Switzerland

⁴Department of Radiology and Biomedical Imaging, Yale Univ., New Haven, United States

⁵Center for Addictive Disorders, Psychiatric Hospital of the Univ. of Zurich, Zurich, Switzerland

⁶Department of Neurophysics, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

⁷Wellcome Trust Centre for Neuroimaging, Institute of Neurology, University College London, London, United Kingdom

- 43 Brain networks underlying successful emotion regulation with real-time fMRI neurofeedback:** R. Sladky, H. Scheerer, A. Scheiblich, J. Kohlberg, E. Seifritz, U. Herwig, F. Scharnowski, A. Brühl

Group Leader: FRANZ X. VOLLENWEIDER

- 44 Psilocybin induces aberrant prediction error processing for tactile mismatch responses:** P. Dürler, K.H. Preller, R. Krähenmann, M. Scheidegger, P. Stämpfli, S. Brem, E. Seifritz, F.X. Vollenweider

DISORDERS OF THE NERVOUS SYSTEM

Group Leader: GIOVANNI BERTOLINI

- 45 Uncovering the link between gaze evoked and rebound nystagmus:**
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Group Leader: DANIEL BRANDEIS

- 46 Subtyping Aggression in Children and Adolescents with Conduct Disorder and Oppositional Defiant Disorder: A Psychophysiological Approach:** S. Mohl¹, J. Werhahn^{1,2}, P. Aggensteiner⁴, D. Brandeis^{1,2,3,4}, S. Walitza¹

¹Department of Child and Adolescent Psychiatry, University of Zurich, Zurich

²Neuroscience Center Zurich, University of Zurich and ETH Zurich (ZNZ), Zurich

³Zurich Center for Integrative Human Physiology (ZHIP), University of Zurich, Zurich

⁴Central Institute of Mental Health, Medical Faculty Mannheim/Heidelberg Univ., Mannheim

Group Leader: ARMIN CURT

- 47 Characterizing gait deficits of patients with chronic incomplete spinal cord injury:** C. Meyer¹, C.S. Easthope¹, T. Killeen¹, L. Filli², A. Curt¹, B. Zörner¹, M. Bolliger¹

¹Spinal Cord Injury Centre, University Hospital Balgrist, Zurich

²Department of Neurology, University Hospital Zurich

- 48 Quantitative MRI detects lesion level dependent neurodegeneration in tetraplegic compared to paraplegic SCI patients:** M. Azzarito*, P. Grabher*, M. Seif, P. Freund

*shared first authorship

Group Leader: MARIA TERESA FERRETTI

- 49 Beta-Amyloid pathology impairs brain immune surveillance in transgenic mice:** C. Gericke, C. Späni, N. Schweizer, M. Merlini, T. Suter, L. Kulic, R. M. Nitsch, M.T. Ferretti

Group Leader: PATRICK FREUND

- 50 Neurodegeneration above the level of injury predicts tract-specific impairment after spinal cord injury:** E. Huber^{*1}, G. David^{*1}, A. Thompson², N. Weiskopf^{3,4}, S. Mohammadi^{4,5}, P. Freund^{1,2,3,4}

*shared first authorship

¹Spinal Cord Injury Center Balgrist, University Hospital Zurich, Zurich, Switzerland

²Department of Brain Repair and Rehabilitation, UCL Institute of Neurology, University College London, London, United Kingdom

³Department of Neurophysics, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

⁴Wellcome Trust Centre for Neuroimaging, UCL Institute of Neurology, University College London, London, United Kingdom

⁵Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, German

- 51 Electrophysiological and predictive properties of dorsal and ventral midsagittal tissue bridges in sub-acute tetraplegic patients:** K. Vallotton, E. Huber, M. Hupp, A. Curt, P. Freund

Group Leader: TODD A. HARE

- 52 Enhanced topological integration supports near-normal language function after early left focal brain injury:** A. Raja Beharelle, S.S. Asaridou, D. Siu, A.S. Dick, S.C. Levine, A. Solodkin, A.R. McIntosh, S.L. Small

Group Leader: THORSTEN HORNEMANN

- 53 The involvement of 1-deoxySphingolipids in cell migration and wound healing:** G. Karsai, T. Hornemann

Group Leader: MELODY YING-YU HUANG

- 54 From zebrafish to human: Establishing chlorzoxazone as a novel infantile nystagmus syndrome treatment:** S.Y. Bögli, C.J. Bockisch, M.Y. Huang

Group Leader: SEBASTIAN JESSBERGER

- 55 Neural stem cell associated defects in lipid metabolism and human cognitive impairment:** M. Bowers, T. Liang, W. Kovacs, C. Rohrl, S. Zocher, D. Gonzalez, K. Cramb, J. Winterer, C. Földy, C.F. Semenkovich, G. Kempermann, S. Jessberger

Group Leader: JAN KLOHS

- 56 Effect of coagulation factor XII deficiency on amyloid-related hippocampal memory impairment in the arcA β mouse model of Alzheimer's disease:** M. Rouault, R. Ni, L. Kulic, J. Klohs

Group Leader: LUKA KULIC

- 57 Role of the C-terminally truncated amyloid β -species A β (1-34) as a clearance marker in early Alzheimer's Disease: A post-mortem study:** T. Kirabali, F. Liebsch, C. Hock, R.M. Nitsch, G. Multhaup, L. Kulic

Group Leader: BORIS B. QUEDNOW

- 58 Reduced cocaine use is associated with improved psychiatric symptoms within an one-year interval:** B. Kluwe-Schiavon, M. Vonmoos, L.M. Hulka, K.H. Preller, M.R. Baumgartner, E. Seifritz, B.B. Quednow

Group Leader: ANITA RAUCH

- 59 Confirmation of mutations in PROSC as a novel cause of vitamin B6-dependent epilepsy:** A. Begemann, B. Plecko, M. Zweier, D. Mathis, B. Schmitt, P. Striano, M. Baethmann, M.S. Vari, F. Beccaria, F. Zara, L.M. Crowther, P. Joset, H. Sticht, S.M. Papuc, A. Rauch

Group Leader: PATRICK ROTH

- 60 TGF- $\beta_{1/2}$ inhibition in glioblastoma using novel antisense oligonucleotides:** A. Papachristodoulou, M. Weller, K. Hasenbach, M. Janicot, P. Roth

Group Leader: HANS H. STASSEN

- 61 Assessing Affective Disorders through Speech Analysis: A Self-Assessment "Voice App" for Laptops, Tablets, and Smartphones:** S. Braun, C. Mohr, C. Papagno and H.H. Stassen
- 62 Inflammatory Processes and Schizophrenia: Evidence from a Twin Study:** H.H. Stassen, S. Braun, R. Bridler, E. Seifritz, and M. Weisbrod

Group Leader: ESTHER STOECKLI**63 Loss of C5orf42 mimics Joubert syndrome pathology in the chick:**J.E. Strauss¹, R. Asadollahi², A. Rauch² and E.T. Stoeckli¹¹University of Zurich²Institute for Medical Genetics**Group Leader: PAUL GERSON UNSCHULD****64 Beta-amyloid moderates GABA- and Glutamate-related functional connectivity:**

F.C. Quevenco, S.J. Schreiner, M.G. Preti, J. van Bergen, T. Kirchner, M. Wyss, S.C. Steininger, A. Gietl, S.E. Leh, A. Buck, K.P. Pruessmann, C. Hock, R.M. Nitsch, A. Henning, D. van de Ville, P.G. Unschuld

65 Iron accumulation co-localized with β -Amyloid plaques in human brains negatively effects cognitive performance:

J.M.G. van Bergen, X. Li, F.C. Quevenco, A.F. Gietl, V. Treyer, S.E. Leh, R. Meyer, A. Buck, P.A. Kaufmann, R.M. Nitsch, P.C.M. van Zijl, C. Hock, P.G. Unschuld

Group Leader: SUSANNE WEGENER**66 Motor rehabilitation enhances hippocampal circuit reorganization after stroke:**

M. El Amki*, P. Baumgartner*, O. Bracko, A.R. Luft, S. Wegener

*contributed equally

Group Leader: MEHMET FATIH YANIK**67 Automated deep-phenotyping of the zebrafish brain:**

A. Allalou, Y. Wu, M. Ghannad-Rezaie, P.M. Eimon, M.F. Yanik

68 Engineering brain connectivity patterns by neuromodulator polytherapy and high-speed imaging:

M. Ghannad-Rezaie, P.M. Eimon, Y. Wu, and M.F. Yanik

COMPUTATION AND MODELING**Group Leader: DOMINIK R. BACH**

- 69 Rational design of associative learning experiments: a computational case study of doxycycline effects on human threat learning:** F. Melinscak, A.Tzovara, D.R. Bach

Group Leader: TOBI DELBRUCK

- 70 Nullhop: Flexibly efficient FPGA CNN accelerator driven by DAVIS neuromorphic vision sensor:** A. Aimar, H. Mostafa, E. Calabrese, A. Rios-Navarro, R. Tapiador-Morales, I.-A. Lungu, M.B. Milde, F. Corradi, A. Linares-Barranco, S.-C. Liu, T.Delbruck

Group Leader: GIACOMO INDIVERI

- 71 Learning and state-dependent processing with Winner-Take-All Networks on Neuromorphic Hardware:** D. Liang, R. Kreiser, G. Indiveri
- 72 Emulating adaptation and learning features of biological neural systems using analog electronic circuits:** N. Qiao, M. Nair, G. Indiveri

Group Leader: EMANUELA KELLER

- 73 ICU-Cockpit: IT platform for multimodal patient monitoring and therapy support in intensive care and emergency medicine:** E. Keller, D.J. Mack, M. Delai, C. Strässle, R. Byland, C. Muroi
- 74 StableState: A simple visualization for inter-correlations in Neurocritical Care:** D.J. Mack, C. Muroi, C. Strässle and E. Keller

Group Leader: SHIH-CHII LIU

- 75 Conversion of deep analog networks to efficient event-driven networks for image classification:** B. Rueckauer and S.-C. Liu

Group Leader: YULIA SANDAMIRSKAYA

- 76 Obstacle avoidance and target acquisition in a neuromorphic robotic system:** A. Dietmüller, H. Blum, M. Milde, Y. Sandamirskaya

- 77 The sense of space: spatial representations in biological and artificial spiking neural networks:** G. English, R. Kreiser, E. Barrero, A. Renner, Y. Sandamirskaya

Group Leader: KLAAS ENNO STEPHAN

- 78 Individual outcome predictions in psychiatric and neurological disorders using computational models of (patho)physiology:** C. Do, E. Aponte, N. Araya, I. Berwian, M. Bischof, H. Brunner, D. Cole, A. Diaconescu, S. Frässle, S. Grässli, H. Haker, J. Heinzle, Q. Huys, S. Iglesias, L. Kasper, Z. Manjaly, S. Paliwal, G. Paolini, F. Petzschner, D. Renz, A. Rüesch, M. Schneebeli, I. Schnürer, D. Schöbi, J. Siemerikus, G. Stefanics, S. Tomiello, Y. Yao, L. Weber, K. Wellstein, K.E. Stephan
- 79 Advances in dynamic causal modeling:** D. Schöbi, J. Heinzle, E.A. Aponte, S. Frässle, S. Ihle, Y. Yao, S.S. Raman, K.E. Stephan

Group Leader: WOLFGER VON DER BEHRENS

- 80 Neuromorphic implementation of cortical representation of low-probability stimuli:** N. Vanattou-Saïfoudine, W. von der Behrens, G. Indiveri

BIOMEDICAL TECHNOLOGY AND IMAGING

Group Leader: SIMON AMETAMEY

- 81 Radiosynthesis and Biological Evaluation of a Novel Pyrazole-Based CB2 Radioligand designated [11C]RO6753361:** A. Haider¹, A. Müller Herde¹, U. Grether², L. Gobbi², R. Schibli¹, L. Mu³, S.M. Ametamey¹

¹Institute of Pharmaceutical Sciences, Department of Chemistry and Applied Biosciences, ETH Zurich, CH-8093 Zurich, Switzerland

²Roche Pharmaceutical Research and Early Development, Roche Innovation Center Basel, F. Hoffmann-La Roche Ltd., 4070 Basel, Switzerland

³Department of Nuclear Medicine, University Hospital Zurich, CH-8091 Zurich, Switzerland

Group Leader: FRITJOF HELMCHEN

- 82 The Zurich mesoSPIM – a versatile lightsheet microscope for imaging in cleared tissue:** F.F. Voigt, D. Kirschenbaum, A. Aguzzi, F. Helmchen

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- 83 Genetic deletion of the coagulation factor XII mitigates cerebral microbleed load but not hemodynamic dysfunction in the arcA β mouse model of cerebral amyloidosis:** R. Ni, D.R. Kindler, M. Rouault, G.D. Ielacqua, M. Rudin, J. Klohs

Group Leader: BERND RINN (ZNZ Associate, Scientific IT Services, ETH Zurich)

- 84 An open-source framework for scalable analysis of brain imaging data:** H. Lütcke, R. Roškar, R. Murri, A. Gilad, F. Helmchen, T. Wüst & B. Rinn

Group Leader: HUBERTUS VAN HEDEL

- 85 The impact of different signal analyzing methods on results of functional near-infrared spectroscopy (fNIRS) neuroimaging measurements – A systematic investigation:** R. Labruyère, M.D. Pfeifer, F. Scholkmann

Group Leader: NICOLE WENDEROTH

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- 87 Variations of prefrontal cortex oxygenation – A long-term (15 days) single subject study using non-invasive cerebral oximetry based on near-infrared spectroscopy:** F. Scholkmann, S. Kleiser, M. Wolf

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

Ametamey S., Institute of Pharmaceutical Sciences, ETHZ	81
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Bach D., University Hospital for Psychiatry Zurich	35,69
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Fritschy J.-M., Institute of Pharmacology and Toxicology, UZH	8
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