

ZNZ

Zentrum für Neurowissenschaften Zürich
Neuroscience Center Zurich



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8044 Zurich

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Group Leader: EDITH M. SCHNEIDER GASSER

- 1 Neuronal erythropoietin overexpression accelerates brain postnatal maturation in mice:** C. Köster-Hegmann, K. Khalid, P. Muttathukunnel, F. Sanchis Calleja, M. Gassmann and E.M. Schneider Gasser
- 2 Erythropoietin enhances postnatal maturation of the GABAergic system:** K. Khalid, J.-M. Fritschy and E.M. Schneider Gasser

Group Leader: ESTHER T. STOECKLI

- 3 Semaphorin6A is required as a receptor for the formation of neural circuits in the peripheral nervous system:** M. Schönenberg, V. Karas, and E.T. Stoeckli
- 4 The Amyloid Precursor Protein APP is required for neural circuit formation:** S. Pucino, L. Jabinet, and E.T. Stoeckli

MOLECULAR AND CELLULAR NEUROSCIENCE

Group Leader: RUXANDRA BACHMANN-GAGESCU

- 5 The role of the ciliopathy protein CC2D2A in ciliary trafficking:** I. Ojeda Naharros, S.C. Neuhaus, R. Bachmann-Gagescu

Group Leader: DIETMAR BENKE

- 6 Restoring cell surface expression of GABA (B) receptors: a potential strategy to limit neuronal death in cerebral ischemia:** K. Balakrishnan, D. Benke

Group Leader: JOHANNES BOHACEK

- 7 Noradrenaline mediates stress-induced molecular changes in the hippocampus of mice:** M. Privitera, J. Bohacek
- 8 Characterizing the transcriptional profile induced by acute and chronic stress exposure in the mouse hippocampus:** A. Floriou-Servou, J. Bohacek

Group Leader: STEVEN BROWN

- 9** **Circadian RNA Rhythms at the Synapse:** S. Bernardez, D. Mircsof, S. Tyagarajan, S. Brown

Group Leader: ISABEL BURGHARDT

- 10** **Extracellular signal-regulated kinase 1 (ERK1) mediates the autocrine positive feedback loop of TGF- β and furin in glioblastoma stem cells:** E. Ventura, M. Weller, I. Burghardt

Group Leader: EDNA GRÜNBLATT

- 11** **Molecular mechanisms of DAOA/G72 gene in human neuroblastoma cell lines:** V. Jagannath¹, S. Walitza^{1,2,3}, E. Grünblatt^{1,2,3}

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

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

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

Group Leader: ISABELLE MANSUY

- 12** **The contribution of circulating factors to non-genomic inheritance in mice:** G. van Steenwyk, L. von Ziegler, F. Manuella, N. Zamboni, I.M. Mansuy

Group Leader: MARTIN MÜLLER

- 13** **Interplay between homeostatic and non-homeostatic modulation of neurotransmitter release at the *Drosophila* neuromuscular junction:** J. Keim, S. Sydlik, M. Müller

- 14** **Systematic investigation of proteins with calcium binding domains in synaptic transmission and presynaptic calcium buffering:** V. Hoop and M. Müller

Group Leader: STEPHAN NEUHAUSS

- 15** **Tracing the Evolutionary History of the SLC1 Gene Family:** A. Lehnherr, L. Cadetti, M. Gesemann, S.C.F. Neuhauss

- 16** **Knockdown of the excitatory amino acid transporter 2a elicits increased neuronal activity and epileptic behavior in larval zebrafish:** A.L. Hotz, S. Niklaus, A. Lehnherr, S.C.F. Neuhauss

Group Leader: MARTIN E. SCHWAB

- 17** **Nogo-A as an Extracellular Vesicle-Associated Ligand:** M. Holm, D. van Rossum, M. Egger, O. Weinmann, I. Hermann and M.E. Schwab

Group Leader: LUKAS SOMMER

- 18 The Role of Metabolism in Neural Crest Stem Cells Maintenance and Lineage Differentiation:** E. Marzorati, S. Varum, N. Zeltner, L. Sommer

Group Leader: SHIVA TYAGARAJAN

- 19 Braking Communication: The Role of GABAergic transmission in stroke pathology:** S. Sampath^{1,3}, Z.S. Thirouin^{1,3}, M. Vaas^{2,3}, J. Klohs^{2,3}, S.K. Tyagarajan^{1,3}

¹ Institute of Pharmacology and Toxicology, University of Zurich, 8057 Zurich

² Institute for Biomedical Engineering, ETH and University of Zurich, Zurich

³ Center for Neuroscience (ZNZ), Winterthurerstr. 190, 8057 Zurich

- 20 Investigating the molecular basis for neuronal homeostasis from a GABAergic point of view using two-photon Ca²⁺ imaging:** Y-C. Tsai, J. Stobart, B. Weber, M. Barrett, K. Ferrari, S.K. Tyagarajan

Group Leader: BRUNO WEBER

- 21 *In vivo* evidence of glycogen as a source to supply neurons with lactate:** M. Zuend^{1,2}, A. Saab^{1,2}, M.T Wyss^{1,2}, G. Azarias^{1,2}, J. Hirrlinger^{3,4}, J. Duran^{5,6,7}, J.J Guinovart^{5,6,7}, B. Weber^{1,2}

¹ University of Zurich, Institute of Pharmacology and Toxicology, Zurich, Switzerland

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

³ Department of Neurogenetics, Max-Planck-Institute for Experimental Medicine, Göttingen, Germany

⁴ Carl-Ludwig-Institute for Physiology, Faculty of Medicine, University of Leipzig, Leipzig, Germany

⁵ Institute for Research in Biomedicine Barcelona, Barcelona, Spain

⁶ Centro de Investigación Biomédica en Red de Diabetes y Enfermedades Metabólicas Asociadas, Barcelona, Spain

⁷ Department of Biochemistry and Molecular Biology, University of Barcelona, Barcelona, Spain

NEUROIMMUNOLOGY

Group Leader: ANNIKA KELLER

- 22 The role of brain pericytes in the regulation of leukocyte trafficking and immune response under homeostatic and pathological conditions:** O. Török, B. Schreiner, A. Keller

Group Leader: HANS H. STASSEN

- 23 Inflammatory Processes and Schizophrenia: Two Independent Lines of Evidence from a Study of Twins Discordant and Concordant for Schizophrenic Disorders:** S. Braun, R. Bridler, N. Müller, M.J. Schwarz, E. Seifritz, M. Weisbrod, A. Zraggen, and H.H. Stassen

NEURAL BASIS OF BEHAVIOR

Group Leader: ASLI AYAZ

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25 Layer-specific somatosensory processing in head-restrained mice during exploratory locomotion: A. Ayaz, A. Stäuble, F. Helmchen

Group Leader: FRITJOF HELMCHEN

26 Frontal-posterior Interactions in Mouse Neocortex During a Texture Discrimination Task: A. Gilad, J. Chen, F. Helmchen

Group Leader: MELODY YING-YU HUANG

27 Reverse postoptokinetic nystagmus in zebrafish after a prolonged optokinetic stimulation: T.-F. Lin¹, A. Fathalla¹ and M.Y. Huang¹⁻³

¹ Department of Neurology, University Hospital Zurich, University of Zurich, Switzerland

² Zurich Center for Integrative Human Physiology (ZIHP), University of Zurich, Switzerland

³ Neuroscience Center Zurich (ZNZ), University of Zurich and ETH Zurich, Switzerland

SENSORY SYSTEMS

Group Leader: TOBI DELBRUCK

28 Visual two pathway tracking using probabilistic inference: H. Liu, M. Liu, and T. Delbruck

Group Leader: ROGER GASSERT

29 BOLD signal in sensorimotor regions reveals differential encoding of passive forefinger movement direction, velocity and displacement: J. Duenas, J. Sulzer, P. Stämpfli, M.-C. Hepp-Reymond, S. Kollias, E. Seifritz, R. Gassert

Group Leader: ANDREAS LUFT

30 Self-directed arm therapy at home after stroke with a sensor-based virtual reality training system: J. Held, F. Wittmann, O. Lambercy, M.L. Starkey, A. Curt, R. Höver, R. Gassert, A.R. Luft, R.R. Gonzenbach

Group Leader: KONRAD P. WEBER

- 31 Disease-specific sparing of the anterior semicircular canals in bilateral vestibulopathy:** A.A. Tarnutzer¹, C.J. Bockisch^{1,2,3}, E. Buffone¹, S. Weiler⁴, L.M. Bachmann⁵ and K.P. Weber^{1,2}

¹ Department of Neurology, University Hospital Zurich and University of Zurich, Frauenklinikstr. 26, 8091 Zurich, Switzerland

² Department of Ophthalmology, University Hospital Zurich and University of Zurich, Frauenklinikstr. 26, 8091 Zurich, Switzerland

³ Department of Otorhinolaryngology, University Hospital Zurich and University of Zurich, Frauenklinikstr. 26, 8091 Zurich, Switzerland

⁴ Department of Clinical Pharmacology and Toxicology, University Hospital Zurich, Zurich, Switzerland

⁵ Medignition Inc, Research Consultants, Verena-Conzett-Strasse 9, 8004 Zurich, Switzerland

Group Leader: HANNS ULRICH ZEILHOFER

- 32 Polysomal Profiling of Dorsal Horn Interneuron Populations Using the bacTRAP Method:** R. Das Gupta, L. Scheurer, H. Wildner, H.U. Zeilhofer

- 33 Characterization of spinal GRP-expressing neurons:** G. Albisetti

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Group Leader: ANDREAS LUFT

- 34 Protein synthesis inhibition in the peri-infarct cortex slows motor recovery in rats:** M. Schubring-Giese, S. Leemburg, A. Luft, J. Hosp

Group Leader: MARTIN E. SCHWAB

- 35 Sprouting and 'Side-Switch' of contralateral corticospinal fibers in the spinal cord after a large unilateral cortical stroke in mice:** J. Kaiser, N. Jordi, A.-S. Wahl and M.E. Schwab

SLEEP AND SLEEP DISORDERS

Group Leader: STEVEN A. BROWN

- 36 Sleep-wake-dependent neuronal activity reorganizes nuclear paraspeckles:** A. Spinnler, K. Seignette, D. Colameo, J.-M. Fritschy, S.K. Tyagarajan, S.A. Brown

Group Leader: RETO HUBER

- 37 Exploring markers for slow oscillation up and down states derived from scalp EEG data:** G. Petit¹, S. Fattinger¹, C. Volk¹, F. Bislimi¹, J. Herbst¹, R. Hahnloser², C. Baumann³, R. Huber¹

¹ University Children's Hospital Zurich, Child Development Center and Pediatric Sleep Disorders Center, Switzerland

² ETH Zurich and University of Zurich, the Institute of Neuroinformatics, Switzerland

³ University Hospital Zurich, Department of Neurology, Switzerland

Group Leader: HANS-PETER LANDOLT

- 38 Metabotropic Glutamate Receptors of Subtype 5 (mGluR5) and the Regulation of Sleep Homeostasis:** A. Sousek^{1,2}, S. Moghadam², C. Schneider², P. Franken², H-P. Landolt^{1,3}, and M. Tafti²

¹ Institute of Pharmacology and Toxicology, University of Zürich, Zürich, Switzerland

² Center for Integrative Genomics, University of Lausanne, Lausanne, Switzerland

³ Zürich Center for interdisciplinary Sleep Research, University of Zürich, Zürich, Switzerland

COGNITIVE NEUROSCIENCE

Group Leader: DOMINIK R. BACH

- 39 Mesio-temporal theta oscillations in a human anxiety task:** A. Tzovara^{1,2,3}, T. Fedele⁴, T. Grunwald⁵, P. Hilfiker⁵, N. Krayenbühl⁴, J. Sarnthein^{2,4}, D.R. Bach^{1,2,3}

¹ Dept. of Psychiatry, Psychotherapy and Psychosomatics, University of Zurich, Switzerland

² Neuroscience Centre Zurich, University of Zurich, Switzerland

³ Wellcome Trust Centre for Neuroimaging, University College London, United Kingdom

⁴ Neurosurgery Department, University Hospital Zurich, Zurich, Switzerland

⁵ Swiss Epilepsy Centre, Zurich, Switzerland

Group Leader: SILVIA BREM

- 40 Development of speech sound and letter processing in children at risk for developmental dyslexia:** I.I. Karipidis, G. Pleisch, M. Röthlisberger, P. Stämpfli, C. Hofstetter, S. Brem

- 41 Word reading in novice readers: a simultaneous EEG/fMRI study:** G. Pleisch, I.I. Karipidis, A. Brem, M. Röthlisberger, C. Hofstetter, S. Brem

Group Leader: ROGER GASSERT

- 42 Applicability of visual analogue scales versus grip force measures for quantifying incentive motivation in humans:** G. Johannes, K. Lutz, W. Langhans, R. Gassert, M. Siegrist

Group Leader: SPYROS KOLLIAS

- 43 Informing participants about the study purpose affects resting state fMRI connectivity:** C. Schroeder^{1¶}, S.E. Leh^{1¶}, C. Hock¹, A. Gietl¹, L. Michels^{2**}, S. Kollias^{2**}

¹ Division of Psychiatry Research, University of Zurich, Zurich, Zurich, Switzerland

² Clinic of Neuroradiology, University Hospital Zurich, Zurich, Zurich, Switzerland

¶ These authors contributed equally to this work

** shared-senior authorship

Group Leader: KARIN KUCIAN

- 44 Do adolescents with developmental dyscalculia have a generalised magnitude deficit? Processing of discrete and continuous magnitudes:** U. McCaskey^{a,b}, M. von Aster^{a,b,c,d}, R. O'Gorman Tuura^{a,b,e}, K. Kucian^{a,b,d}

^a Center for MR-Research, University Children's Hospital, Zurich, Switzerland

^b Children's Research Center, University Children's Hospital, Zurich, Switzerland

^c Clinic for Child and Adolescent Psychiatry, German Red Cross Hospitals, Berlin, Germany

^d Neuroscience Center Zurich, University of Zurich and ETH Zurich, Switzerland

^e Zurich Center for Integrative Human Physiology, University of Zurich, Switzerland

- 45 Development of a possible general magnitude system for number and space:** K. Kucian^{a,b,e}, U. McCaskey^{a,b}, M. von Aster^{a,b,d,e}, R. O'Gorman Tuura^{a,b,c}

^a Center for MR-Research, University Children's Hospital, Zurich, Switzerland

^b Children's Research Center, University Children's Hospital, Zurich, Switzerland

^c Zurich Center for Integrative Human Physiology, University of Zurich, Zurich, Switzerland

^d Clinic for Child and Adolescent Psychiatry, German Red Cross Hospitals, Berlin, Germany

^e Neuroscience Center Zurich, University of Zurich and ETH Zurich, Zurich, Switzerland

Group Leader: BECHARA SAAB

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- 47 Body, Mind and Voice Sound Characteristics - a Complex Interplay:** C. Papagno, C. Annovazzi, E. Barragán, S. Braun, R. Bridler, J.P. Delfino, A. Pisoni, E. Seifritz, and H.H. Stassen

Group Leader: DAVID P. WOLFER

- 48 Are male mice better test subjects for behavioral phenotyping?:** A.K. Fritz^{1,2}, D.P. Wolfer^{1,2}

¹ Institute of Anatomy, University of Zurich, Switzerland

² Institute for Human Movement Sciences and Sport, ETH Zurich, Switzerland

DISORDERS OF THE NERVOUS SYSTEM

Group Leader: ADRIANO AGUZZI

- 49 Elucidate the role of chaperones in prion biosynthesis and replication by siRNA mediated high throughput screening:** V. Eckhardt, B. Li, E. Schaper, C. Tournaire, B. Fauvet, P. Gloubinoff, A. Aguzzi

Group Leader: GIOVANNI G. CAMICI

- 50 Ischemia / Reperfusion brain injury in a hTNF α transgenic mouse model of Rheumatoid Arthritis:** N. Bonetti¹, M. Crucet¹, C. Diaz-Cañestro¹, M. Merlini¹, T.F. Lüscher^{1,3}, J.H. Beer^{1,2}, G.G. Camici¹

¹ Center for Molecular Cardiology, University of Zurich, Schlieren

² Internal Medicine, Kantonsspital Baden, Baden,

³ Department of Cardiology and Cardiovascular Research, University Heart Center, University of Zurich, Zurich, Switzerland

- 51 Sirtuin 5 mediates brain injury in a mouse model of cerebral ischemia-reperfusion:** C. Diaz-Cañestro¹, M. Merlini¹, N.R. Bonetti¹, M.F. Reiner^{1,2}, A. Akhmedov¹, S. Keller¹, M.X. Miranda¹, S. Briand¹, G.A. Kullak-Ublick³, T.F. Lüscher^{1,4}, G.G. Camici¹

¹ Center for Molecular Cardiology, Schlieren Campus, University of Zurich, Schlieren, Switzerland

² Department of Internal Medicine, Cantonal Hospital of Baden, Baden, Switzerland

³ Department of Clinical Pharmacology and Toxicology, University Hospital Zurich, Zurich, Switzerland

⁴ Department of Cardiology, University Heart Center, University Hospital Zurich, Zurich, Switzerland

⁵ Zurich Neuroscience Center, Zurich, Switzerland

Group Leader: MARIA TERESA FERRETTI

- 52 The influence of Alzheimer's Disease-like amyloid pathology on brain immune surveillance:** C. Gericke, C. Späni, N. Schweizer, M. Merlini, T. Suter, L. Kulic, R. M. Nitsch, M.T. Ferretti

Group Leader: PATRICK FREUND

- 53 Spared tissue bridges: A potential biomarker for outcome prediction after acute traumatic cervical spinal cord injury?:** E. Huber¹, P. Lachappelle¹, R. Suter², A. Curt¹, P. Freund^{1,2,3,4}

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

² Wellcome Trust Centre for Neuroimaging, UCL Institute of Neurology, University College London, London, United Kingdom

³ Department of Brain Repair and Rehabilitation, UCL Institute of Neurology, University College London, London, United Kingdom

⁴ Department of Neurophysics, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

- 54 Assessing neurodegeneration across the spinal axis using high-resolution MRI:** G. David, E. Huber, A. Curt, N. Weiskopf, S. Mohammadi

Group Leader: EDNA GRÜNBLATT

- 55 Evaluation of the oxidative stress and the ubiquitination pathways in substantia nigra of Parkinson's disease patients:** E. Grünblatt, J. Ruder, P. Riederer, M.B.H. Youdim, S.A. Mandel

Group Leader: CHRISTOPH HOCK

- 56 Microstructural integrity of hippocampal subregions is impaired after mild traumatic brain injury:** S.E. Leh¹, C. Schroeder¹, J.-K. Chen², M.-T.M. Park³, M.M. Chakravarty³, B. Cheung⁴, M. Petrides², S. Huntgeburth², R. Gosselin², C. Hock¹, A. Ptito⁵

¹ Institute for Regenerative Medicine, University of Zurich

² Cognitive Neuroscience Unit, Montreal Neurological Institute

³ Cerebral Imaging Centre, Douglas Mental Health University Institute, McGill University, Montréal, Canada

⁴ Defence Research and Development Canada

⁵ Department of Neurology and Neurosurgery, Division of Neurology, Faculty of Medicine, McGill University

Group Leader: MELODY YING-YU HUANG

- 57 An in-depth study of the influence of gabapentin and memantine on the infantile nystagmus syndrome in zebrafish:** S. Yu Bögli¹, M. Afthinos¹, G. Bertolini¹ and M.Y. Huang¹⁻³

¹ Department of Neurology, University Hospital Zurich, University of Zurich, Switzerland

² Zurich Center for Integrative Human Physiology (ZIHP), University of Zurich, Switzerland

³ Neuroscience Center Zurich (ZNZ), University of Zurich and ETH Zurich, Switzerland

Group Leader: HENNRIC JOKEIT

- 58 Disruption of functional connectivity within the face processing network in temporal lobe epilepsy:** B.K. Steiger, E. Spirig, A.M. Müller, G. Toller, H. Jokeit

Group Leader: MIRA KATAN

- 59 Serum amyloid A – a novel predictor of stroke associated infections:** J. Schneider¹, V. Lapierre-Fetaud², F. Fluri³, A. Luft¹, J.-C. Sanchez², M. Katan¹

¹ Department of Neurology, University Hospital Zürich, Zürich, Switzerland

² Human Protein Science Department; Centre Medical Universitaire, Geneva, Switzerland

³ Department of Internal Medicine and Research, University Hospital Wuerzburg, Germany

Group Leader: UWE KONIETZKO

- 60 Role of the Fe65 protein family in AICD mediated nuclear signalling:** S. Probst, M.T. Gersbacher, F. Riese, S. Grinschgl, S. Thöni, R.M. Nitsch, U. Konietzko

Group Leader: KLARA LANDAU

61 Reliability of Cyclotorsion Measurements Using Scanning Laser Ophthalmoscopy Imaging in Healthy Subjects – The pre-CySLO study: F. Lengwiler, D. Rappoport, K. Landau, G.L. Traber

Group Leader: CHRISTOPHER PRYCE

62 Gene x environment evidence for amygdala oligodendrocyte mediation of stress-induced emotional pathologies: F. Cathomas, V. Hoop, L. Goetze, B. Wicki, M. Buerge, G. Bergamini, H. Sigrist, E. Seifritz, J. Grandjean, M. Rudin, S. Goebbels, K.-A. Nave, S. Ghandour, T. Hildebrandt, G. Leparc, E. Stupka, B. Hengerer, C. Pryce

63 Mouse chronic social stress leads to inflammation, dopamine de-regulation and disrupted reward processing: G. Bergamini, J. Mechtersheimer, D. Azzinnari, H. Sigrist, M. Buerge, E. Seifritz, B. Hengerer, B. Ferger, T. Suter, C. Pryce

Group Leader: BORIS B. QUEDNOW

64 Neuroanatomical changes associated with chronic cocaine consumption: a longitudinal MRI-Analysis: S. Hirsiger, M. Herdener, K.H. Preller, E. Engeli, M. Kirschner, M. Vonmoos, E. Seifritz, J. Hänggi, B.B. Quednow

65 Residual memory impairment in pure long-term MDMA users after controlling for polydrug use: M.D. Wunderli, M. Vonmoos, M. Baumgartner, M. Fürst, K. Schädelin, E. Seifritz, B.B. Quednow

Group Leader: ANITA RAUCH

66 Genetic Studies of Microcephaly: P. Boonsawat¹, R. Asadollahi¹, P. Joset¹, B. Oneda¹, L. Gogoll¹, S. Azzarello-Burri¹, M. Papik¹, M. Zweier¹, D. Niedrist¹, H. Sticht², K. Steindl¹ and A. Rauch¹

¹ Institute of Medical Genetics, University of Zürich, Zürich, Switzerland

² Division of Bioinformatics, Institute of Biochemistry, Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Erlangen, Germany

Group Leader: PATRICK ROTH

67 The NKG2D system mediates anti-tumor effects of chemotherapy and radiotherapy against glioblastoma: T. Weiss¹, H. Schneider¹, M. Silginer¹, A. Steinle², M. Pruschy³, M. Weller¹, P. Roth¹

¹ Department of Neurology and Brain Tumor Center, University Hospital Zurich and University of Zurich, Switzerland

² Institute for Molecular Medicine, University of Frankfurt, Germany

³ Department of Radiation Oncology, University Hospital Zurich and University of Zurich, Switzerland

- 68** **Constitutive IFN signaling affects the immunogenicity of glioma cells:**
M. Silginer, S. Nagy, M. Weller, P. Roth

Group Leader: MIRKO SANTELLO

- 69** **Astrocytic glutamate and K⁺ uptake in the anterior cingulate cortex in familial hemiplegic migraine type 2 mouse model:** J. Romanos, M. Santello

Group Leader: PAUL G. UNSCHULD

- 70** **Brain iron load affects functional connectivity in cognitively healthy super-agers independently from beta-Amyloid:** J. Van Bergen, X. Li, F.C. Quevenco, S. Leh, A.F. Gietl, V. Treyer, R. Meyer, F. Buck, R.M. Nitsch, P.C.M. Van Zijl, C. Hock, P.G. Unschuld

- 71** **Persistency of dynamic brain connectivity relates to memory decline and local iron in cognitively normal elderly subjects:** F.C. Quevenco¹, M.G. Preti⁶, J. van Bergen^{1,5}, Jun Xua⁵, M. Wyss³, X. Li⁵, S.J. Schreiner¹, S.C. Steininger¹, R. Meyer¹, S. Leh^{1,2}, A. Gietl^{1,2}, A. Buck⁴, R.M. Nitsch¹, K.P. Pruessman³, P.C.M. van Zijl⁵, C. Hock^{1,2}, D. van de Ville⁶, P.G. Unschuld^{1,2}

¹ Institute for Regenerative Medicine (IREM), University of Zurich, Zurich, Switzerland

² Hospital for Psychogeriatric Medicine, University of Zurich, Zurich, Switzerland

³ Institute for Biomedical Engineering, University of Zurich and ETH Zurich, Zurich, Switzerland

⁴ Division of Nuclear Medicine, University of Zurich, Zurich, Switzerland

⁵ Department of Radiology, Johns Hopkins School of Medicine and F.M. Kirby Center for Functional Brain Imaging at Kennedy Krieger Institute, Baltimore, MD, USA

⁶ Medical Image Processing Lab, Université de Genève and École polytechnique fédérale de Lausanne, Switzerland

Group Leader: SUSANNE WEGENER

- 72** **Neuroprotective effects of desogestrel and drospirenone in experimental stroke:** M. El Amki, R. Steffen, D. Pfyffer, G. Merki, S. Wegener

- 73** **Motor Rehabilitation Therapy after Stroke Improves performance in a different motor task: first translational evidence:** M. El Amki, P. Baumgartner, P. Bracko, A.R. Luft, S. Wegener

COMPUTATION AND MODELING

Group Leader: DOMINIK BACH

- 74 Modelling fear conditioned bradycardia and respiratory amplitude in humans:** G. Castegnetti, A. Tzovara, M. Staib, P.C. Paulus, N. Hofer and D.R. Bach

Group Leader: GIACOMO INDIVERI

- 75 Spiking electronic circuits and systems for modeling neural plasticity and for implementing neural computation:** D. Sumislavska, J. Binas, M. Nair, Q. Ning, G. Indiveri
- 76 Inference and Constraint-Satisfaction Problem solving using spiking neural network chips:** L. Mueller, H. Mostafa, J. Binas, M. Pfeiffer, G. Indiveri

Group Leader: VARTAN KURTCUOGLU

- 77 Fast cortical paravascular solute transport does not require bulk flow:** M. Asgari, D. de Zélicourt, V. Kurtcuoglu

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- 78 Recurrent Networks with Time-Gated Oscillations for Spiking Sensors and Faster Learning:** D. Neil, M. Pfeiffer, S.-C. Liu
- 79 Recurrent Neural Networks With Limited Numerical Precision:** J. Ott, Z. Lin*, Y. Zhang*, S.-C. Liu, and Y. Bengio*
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- 80 Deep Spiking Neural Networks: Fast and Accurate Classifiers for Visual Detection:** B. Rückauer, I.A. Lungu, M. Pfeiffer

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- 81 Unweighted particle filtering: biological relevance and computational challenges:** S.C. Surace, A. Kutschireiter, H. Sprekeler, J.-P. Pfister
- 82 Spike-timing and Property Dependent Plasticity:** P. Dziennik, J.-P. Pfister

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- 83 Neuromorphic implementation of a neuronal architecture for serial order:** R. Kreiser, D. Sumislawska, G. Indiveri, Y. Sandamirskaya

- 84** **Neurally-inspired robotic controllers implemented on neuromorphic hardware:** M. Milde, D. Sumislawska, L. Salt, M. Frising, A. Kodzhabashev, Y. Sandamirskaya

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- 85** **Development of a PET Radioligand for Imaging the GluN2B Subunit-Containing NMDA Receptors:** A. Haider¹, T. Betzel¹, L. Mu², A. Müller Herde¹, C. Keller¹, M. Szermerski³, D. Schepmann³, R. Schibli¹, B. Wünsch³, S.D. Krämer¹, S.M. Ametamey¹

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

²Department of Nuclear Medicine, University Hospital Zurich, CH-8091 Zurich, Switzerland

³Institute for Pharmaceutical and Medicinal Chemistry, University of Munster, D-48149 Münster, Germany

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- 86** **Automated dense collection of ultrathin sections directly onto silicon wafers:** T. Templier, R.H.R. Hahnloser

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- 87** **Optical monitoring of behavior-related calcium dynamics in 12 brain regions using a novel multi-fiber array:** Y. Sych and F. Helmchen

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- 88** **Shape-based assessment of intracranial aneurysm disease status:** N. Juchler, S. Schilling, V. Kurtcuoglu, S. Hirsch

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- 89** **Low-noise amplifier improves automated fast ripple detection in the intraoperative ECoG:** T. Fedele, G. Ramantani, S. Burnos, G. Curio, T. Grunwald, N. Krayenbühl, J. Sarnthein

- 90** **Automated detection of high frequency oscillations predicts seizure freedom in individual patients:** S. Burnos, T. Fedele, P. Hilfiker, T. Grunwald, N. Krayenbühl, J. Sarnthein

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- 91** **Diversity and plasticity of the synaptic proteotype:** M. van Oostrum, B. Wollscheid

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92 Trigeminal brainstem coupled neurochemical alterations of dental pain revealed by MR spectroscopy: N.M.P. de Matos, A. Hock, E. Seifritz, D. Ettl, M. Brügger

93 Cold Air Heats the Brain: fMRI of Dentine Hypersensitivity: B. Brönnimann¹, M-Y. HOU¹, C.R. Parkinson³, M. Brügger^{1,4}, D.A. Ettl¹, M.L. Meier^{1,2}

¹Center of Dental Medicine University Zurich

²Balgrist University Hospital Zurich

³GlaxoSmithKline, Weybridge

⁴Institut for Biomedical Engineering, ETH Zurich and University of Zurich

Group Leader: URS MEYER

94 Genome-wide Methylation Changes Following Early and Late Prenatal Immune Activation: Focus on the Prefrontal Cortex: J. Richetto, R. Massart, M. Szyf, M.A. Riva, U. Meyer

95 Transgenerational Transmission and Modification of Pathological Traits Induced by Prenatal Immune Activation: U. Weber-Stadlbauer, J. Richetto, M.A. Labouesse, J. Bohacek, I.M. Mansuy, U. Meyer

96 Translational evaluation of translocator protein (TSPO) as a marker of neuroinflammation in schizophrenia: T. Notter, J. M. Coughlin, T. Gschwind, U. Weber-Stadlbauer, Y. Wang, M. Kassiou, A.C. Vernon, D. Benke, M.G. Pomper, A. Sawa, U. Meyer

Group Leader: SALOME KURTH

97 Maturational changes in the overnight dynamics of slow oscillations in the sleep electro-encephalogram (EEG): S.F. Schoch¹⁻³, B. Riedner⁴, D.C. Dean^{5,6}, J. O'Muircheartaigh^{5,7}, S.C. Deoni^{5,8}, R. Huber^{3,9}, M. K. LeBourgeois^{*10}, S. Kurth^{*1-3,10}

1) Pulmonary Clinic, University Hospital Zurich, Zurich, CH

2) University of Zurich, CRPP Sleep and Health, Zurich, CH

3) Child Development Center, University Children's Hospital Zurich, Zurich, CH

4) Center for Sleep Medicine and Sleep Research, University of Wisconsin-Madison, Madison, WI, USA

5) Advanced Baby Imaging Laboratory, School of Engineering, Brown University, Providence, RI, USA

6) Waisman Laboratory for Brain Imaging and Behavior, University of Wisconsin, Madison, Wisconsin, USA

7) Department of Neuroimaging, King's College London, Institute of Psychiatry, London, UK

8) Children's Hospital, Colorado, University of Colorado, School of Medicine, Aurora, CO, USA

9) Dep. of Child and Adolescent Psychiatry and Psychotherapy, Psychiatric Hospital Zurich, Zurich, CH

10) Sleep and Development Laboratory, Department of Integrative Physiology, University of Colorado Boulder, Boulder, CO, USA

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

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