

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 2011

16 September 2011

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ETH Main Building

Rämistrasse 101

8092 Zürich

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Group Leader: RODNEY DOUGLAS

- 2 A parallel framework for modeling the growth and development of neural tissue:** A. Hauri, R.J. Douglas

Group Leader: SEBASTIAN JESSBERGER

- 3 Metabolic control of neural stem cell activity:** O. Bracko, S. Braun, M. Knobloch
- 4 Molecular mechanisms underlying adult neurogenesis:** O. Karalay, F. Kleine-Borgmann, D.L. Moore, K. Vadodaria

Group Leader: IRENE KNUESEL

- 5 Microvillar cells possess key properties to coordinate adult neurogenesis in the olfactory epithelium:** S. Pfister, J.-M. Fritschy, I. Knuesel, R. Elsaesser

Group Leader: MARTIN SCHWAB

- 6 Reorganisation of the motor cortex in the adult rat after unilateral stroke and intrathecal treatment with an anti-Nogo-A antibody:** N.T. Lindau, M.L. Starkey, C. Bleul, M. Gullo, B. Bänninger, B. Zörner, M.E. Schwab

- 7 Axonal plasticity in the intact and injured visual system of the adult mouse:** V.E. Pernet, A.M. Guzik-Kornacka, S.M. Joly, M.E. Schwab

Group Leader: LUKAS SOMMER

- 8 Addressing the role of β -catenin in neural development:** M. Gay, L. Hari, L. Sommer

Group Leader: ESTHER STOECKLI

- 9 Neurotrophic effects of bFGF-FGFRs signaling in the developing chick embryo: in vitro and in vivo analysis:** S. Farcito, E.T. Stoeckli

- 10 Role of nectin-like molecules/synCAMs in neural circuit formation:** J. Frei, C. Käufeler, E.T. Stoeckli

SYNAPTIC TRANSMISSION AND PLASTICITY

Group Leader: DIETMAR BENKE

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Group Leader: STEVEN BROWN

- 12 The role of NOPS proteins in regulating inhibitory synapse function:** D. Mircsof, S.A. Brown, S.K. Tyagarajan, J.-M. Fritschy

Group Leader: URS GERBER

- 13 Activity-dependent depression of GABAergic transmission mediated by postsynaptic GABA_B receptors at the Golgi cell–granule cell synapse in rat cerebellum:** F. Brandalise, L. Mapelli, U. Gerber, P. Rossi

Group Leader: KEVAN MARTIN

- 14 The diversity of thalamorecipient spine morphology in cat visual cortex and its implication for synaptic plasticity:** N. Maçarico Costa and K.A.C. Martin

Group Leader: SHIVA TYAGARAJAN

(ZNZ Associate, Institute of Pharmacology and Toxicology, UZH)

- 15 Role of gephyrin for maturation of newborn neurons in the adult olfactory bulb:** F. Deprez, M. Grabiec, V. Dubeau, S.K. Tyagarajan, J.-M. Fritschy

Group Leader: HANNS ULRICH ZEILHOFER

- 16 Presynaptic $\alpha 2$ -GABAA receptors in primary afferent depolarization and spinal pain control:** R. Witschi, P. Punnakkal, J. Paul, J.-S. Walczak, F. Cervero, J.-M. Fritschy, R. Kuner, R. Keist, U. Rudolph, H.U. Zeilhofer

MOLECULAR AND CELLULAR NEUROSCIENCE

Group Leader: STEVEN BROWN

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- 18 Molecular biomarkers for individual differences in human signaling cascades:** L. Cuninkova, E. Moriggi, G. Lundkvist, D. Skene, S.A. Brown

Group Leader: JEAN-MARC FRITSCHY

- 19 ERK1/2 facilitates GABAergic synaptic plasticity via gephyrin phosphorylation and proteolytic cleavage:** C. Ebeling, S.K. Tyagarajan, H. Gosh, G.E. Yévenes, H.U. Zeilhofer, B. Gerrits, J.-M. Fritschy

Group Leader: THORSTEN HORNEMANN

(ZNZ Associate, Institute of Clinical Chemistry, University Hospital Zurich)

- 20 Functional comparison of all yet known HSAN1 causing SPT mutations:** H. Bode, A. von Eckardstein, T. Hornemann

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Group Leader: ISABELLE MANSUY

- 22 Mapping the epigenome: analysis of the chromatin PTM-OME in mouse brain and sperm:** A.M. Brunner¹, P. Nanni², I.M. Mansuy¹

¹ Brain Research Institute, UZH/ETHZ² Functional Genomics Center Zurich, UZH/ETHZ

- 23 Small non-coding RNAs in the regulation of learning and memory:** B.T. Woldemichael¹, B. Saab¹, A. Marchais¹, C. Ciaudo², O. Voinnet², I.M. Mansuy¹

¹ Brain Research Institute, UZH/ETHZ² Institute of Agricultural Science, ETHZ

- 24 Towards understanding the synaptic role of microRNA in plasticity and memory:** B. Saab, B.T. Woldemichael, I.M. Mansuy

Group Leader: OLIVIER RAINETEAU

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- 26 Self-renewal and multipotential properties of GFAP-expressing cell populations in the adult spinal cord:** R. Fiorelli, O. Raineteau

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- 27 Experimental gene therapy to correct PTPS/BH₄-cofactor and brain neurotransmitter deficiency in *PTS-KI/KO* mice by targeting the liver:** G. Korner, D. Adamsen, H.M. Viecelli, B. Thöny

Group Leader: BERND WOLLSCHIED

- 28 The cell surface protein atlas:** D. Bausch-Fluck, A. Hofmann, T. Bock, A. Frei, F. Cerciello, H. Möst, A. Jacob, B. Wollscheid
- 29 A protein surfaceome map of glioblastoma brain cancer cells:** T. Bock, H. Möst, D. Bausch-Fluck, A. Frei, A. Schmidt, A. Hofmann, K. Frei, R. Aebersold, B. Wollscheid

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ENDOCRINE REGULATION**Group Leader: ULRIKE EHLERT**

- 31 Stronger salivary stress response during amniocentesis and corresponding increased conversion of cortisol to cortisone in the fetal system:** P. Ghaemmaghami, S.M. Dainese, R. La Marca, T. Radulovic, R. Zimmermann, U. Ehlert

Group Leader: MICHAEL WELLER

- 32 The integrin inhibitor cilengitide interferes with TGF- β signaling in malignant glioma cells:** M. Silginer, P. Roth, I. Tristschler, G. Tabatabai, M. Weller

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- 33 Sensory assessment in spinal cord injured patients:** J. Haefeli, J. Blum, A. Curt

Group Leader: STEVEN N. FRY

(ZNZ Associate, former Group Leader Institute of Neuroinformatics, UZH/ETHZ)

- 34 Self-induced feedback during tethered flight in *Drosophila melanogaster*:** H. Haberkern, J. Bartussek, V. Medici, S.N. Fry

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- 35 Experimental assessment of stapes surgery from measurement of round window motions:** J.H. Sim, M. Chatzimichalis, C. Rösli, A.M. Huber
- 36 Influence of tympanic membrane perforations on middle-ear mechanics and recovery by means of paper-patch:** C. Rösli, J.H. Sim, M. Chatzimichalis, A.M. Huber

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- 38 Functional characterization of primary and secondary mouse visual areas using 2-photon calcium imaging:** M.M. Roth, F. Helmchen, B.M. Kampa

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- 39 Estimating the Location of a Sound Source with a Spike-Timing Localization Algorithm:** H. Finger, T. Delbruck, S.-C. Liu

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- 40 Local excitatory circuits of macaque area 8A:** J.C. Anderson, N. Maçarico Costa, H. Kennedy, K.A.C. Martin
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- 43 Role of mGluR6 at the zebrafish ON-bipolar cell synapse:** M. Haug, M. Gesemann, S.C.F. Neuhaus

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- 47 Motor training of stroke rats with a robotic manipulandum: preliminary results:** B. Vigar¹, M. Schubring-Giese², O. Lamercy¹, P. Wespe¹, C. Osei-Atiemo², A. Luft², R. Gassert¹

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- 48 Characterizing motor learning in rat using a novel robot:** M. Schubring-Giese¹, B. Vigar², O. Lamercy², C. Osei-Atiemo¹, P. Wespe², R. Gassert², Andreas Luft¹

¹ Department of Neurology, University of Zurich

² Rehabilitation Engineering Lab, ETH Zurich

Group Leader: ANDREAS MEYER-HEIM

- 49 Impact of different walking speeds, levels of body-weight support and intensity instructions on leg muscle activity in children during Lokomat training:** K. Brüttsch, F. Renaud-dit-Louise, H. van Hedel

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*These co-first authors contributed equally

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- 52 What's your next move? Detecting movement intention for stroke rehabilitation:** R. Zimmermann, L. Marchal-Crespo, O. Lamercy, M.-C. Fluet, R. Riener, R. Gassert, M. Wolf

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- 53 Moderate altitude changes sleep EEG:** K. Stadelmann, T.D. Latshang, C.M. Lo Cascio, N. Tesler, A.-C. Stoewhas, M. Kohler, K.E. Bloch, R. Huber, P. Achermann
- 54 Homeostatic sleep regulation in adolescents: Longitudinal perspectives:** L. Tarokh, M.A. Carskadon, T. Rusterholz, P. Achermann

Group Leader: STEVEN A. BROWN

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Group Leader: RETO HUBER

- 56 Manipulating the regulation of cortical excitability during sleep by electromagnetic fields:** C. Lustenberger, M. Murbach, R. Dürri, M. Schmid, N. Kuster, P. Achermann, R. Huber
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Group Leader: HANS-PETER LANDOLT

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- 60 Testing the causal roles of neural activity during sleep for developmental learning in a songbird:** J.A. Herbst, A. Vyssotski, R.H.R. Hahnloser

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- 61 Efficient strategic processing in working memory implemented by a fronto-temporal neural network, promotes episodic memory formation:** K. Wurmitzer, D.Y. von Allmen, E. Martin, P. Klaver
- 62 The lateral parietal cortex plays a pivotal role in episodic buffer: an fMRI study:** D.Y. von Allmen¹, K. Wurmitzer¹, E. Martin¹, P. Klaver²¹³

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- 63 Prolonged wakefulness increases mGluR5 density in the human brain: Association with impaired vigilance and performance:** K. Hefti¹, R. Wehrle¹, J. Sovago², V. Treyer³, V. Bachmann¹, T. Berthold³, A. Buck³, S.M. Ametamey⁴, H.-P. Landolt¹

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³Division of Nuclear Medicine, University Hospital Zurich

⁴Center for Radiopharmaceutical Sciences of ETH, PSI and USZ, Zurich

Group Leader: ISABELLE MANSUY

- 64 Analysis on the impact of early chronic stress on behavioral control in mice:** K. Gapp, S. Soldado Magraner, A. Corcoba, S. Mohanna, J. Bohacek, I.M. Mansuy

Group Leader: DAVID MARGOLIS

- 65 Chronic imaging of cortical sensory maps using a genetically encoded calcium indicator:** W. Liu ^{1*}, M. Minderer ¹, S. Kügler ², .F. Helmchen ¹, D. J. Margolis ^{1*}

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Group Leader: CHRISTOPHER PRYCE

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- 67 Probabilistic reversal learning in mice: establishing a task and assessing serotonin effects using genetic and pharmacological methods:** C. Ineichen, S. Spinelli, K-P. Lesch, E. Seifritz, C.R. Pryce

COGNITIVE NEUROSCIENCE AND NEUROPSYCHOLOGY**Group Leader: PETER ACHERMANN**

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Group Leader: DANIEL BRANDEIS

- 69 Decision making and reward learning in healthy adults: A simultaneous EEG- & fMRI-study:** T.U. Hauser¹, R. Iannaccone^{1,2}, R. Drechsler¹, D. Brandeis^{1,2,3}, S. Walitza¹², S. Brem¹

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³ Dept. of Child and Adolescent Psychiatry and Psychotherapy, Central Institute of Mental Health, Mannheim, Germany

- 70 Performance and conflict monitoring in young healthy adults: A simultaneous fMRI / EEG study:** R. Iannaccone^{1,2}, T.U. Hauser¹, D. Brandeis^{1,2,3}, R. Drechsler¹, S. Walitza^{1,2}, S. Brem¹

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Group Leader: HENNRIC JOKEIT

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Group Leader: DIETRICH LEHMANN

- 73 What happens in the brain during simple mental computation – an EEG sLORETA source localization study:** P. Milz, A. Theodoropoulou, P.L. Faber, F. Schlegel, R.D. Pascual-Marqui, K. Kochi, D. Lehmann

Group Leader: ERNST MARTIN-FIORI

- 74 Linking the major system markers for typical and atypical brain development: a multimodal imaging and spectroscopy study:** C. Ghisleni, S. Bollmann, R. O'Gorman, P. Klaver, D. Brandeis, E. Martin-Fiori, L. Michels

Group Leader: BORIS QUEDNOW

- 75 Blue-yellow colour vision impairment in occasional and dependent users:** L. Hulka, M. Wagner, K. Preller, D. Jenni, K. U. Kühn, W. Maier, B.B. Quednow

- 76 Mentalizing and empathy in cocaine users:** K. Preller, L. Hulka, D. Jenni, E. Seifritz, B.B. Quednow

Group Leader: CHRISTIAN RUFF

- 77 Perceptual learning and decision making in human medial frontal cortex:** M. Grueschow^{1,2,3,6}, T. Kahnt^{1,4,6}, O. Speck⁵, J.-D. Haynes^{1,2}, C. C. Ruff⁶

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⁵ Department of Biomedical Magnetic Resonance, Institute for Experimental Physics, Magdeburg, Germany

⁶ Laboratory for the Study of Social and Neural Systems (SNS-Lab), University of Zurich

- 78 The causal role of LPFC for social norm compliance:** G. Ugazio¹, A. Schlaepfer¹, E. Fehr¹, Ch. Ruff¹

¹ Laboratory for Social and Neural Systems Research (SNS-Lab), University of Zurich

Group Leader: FRANZ VOLLENWEIDER

- 79 The 5-HT_{2a/1a} agonist psilocybin induces a positive emotional bias in facial recognition, goal-directed behavior, and mood state:** M. Komater, A. Schmidt, R. Bachmann, E. Studerus, F.X. Vollenweider

- 80 Mismatch negativity encoding of prediction errors predicts ketamine-induced cognitive impairments:** A. Schmidt, M. Komater, R. Bachmann, P. Csomor, K.E. Stephan, E. Seifritz, F.X. Vollenweider

Group Leader: ERICH SEIFRITZ

- 81 Long-term effects of a single intravenous ketamine infusion on emotional processing and brain metabolism: A randomized, double blind, placebo controlled, crossover fMRI/MRS study:** M. Lehmann, M. Scheidegger, A. Henning, H. Boeker, P. Boesiger, E. Seifritz, S. Grimm

Group Leader: David P. Wolfer

- 82 Differential behavioral effects of CNS specific versus constitutive overexpression of erythropoietin:** M. Alvarez-Sánchez^{1,2}; E. Vannoni³; V. Díaz^{1,2}; M. Gassmann^{1,2}; D.P. Wolfer^{2,3,4}

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AGING AND DISORDERS OF THE NERVOUS SYSTEM

Group Leader: BURKHARD BECHER

- 83 A new mouse model to investigate in vivo dynamics of oligodendrocyte damage:** G. Locatelli, A. Baggiolini, T. Buch, B. Becher

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- 84 Limited gait-modulatory abilities in SCI patients:** L. Awai, A. Curt

Group Leader: CHRISTOPH HOCK

- 85 Intra-individual variability as an early marker for prodromal Alzheimer's disease:** M.L. Lüthi, A.M. Kälin, A.F. Gietl, L. Jäncke, R.M. Nitsch, C. Hock

- 86 The neuropsychological stability of the four mild cognitive impairment subtypes:** A.M. Kälin, M.L. Lüthi, A.F. Gietl, L. Jäncke, R.M. Nitsch, C. Hock

Group Leader: IRENE KNUESEL

- 87 Immunomodulation of Reelin processing - relevance for Alzheimer's disease:** D. Krstic, I. Knuesel

- 88 A tangled web – understanding the interactions between the immune system and players in Alzheimer disease pathology:** A. Madhusudan, D. Krstic, C. Imhof, P. Vogel, J. Doehner, I. Knuesel

Group Leader: UWE KONIETZKO

- 89 Analysis of A β -mediated disruption of synaptic plasticity in transgenic arcA β mice:** A. Trutzel, M. Knobloch, R.M. Nitsch, U. Konietzko

Group Leader: MICHAEL LINNEBANK

- 90 The effect of homocysteine metabolism on learning and memory in a transgenic mouse model of Alzheimer's disease:** M. Farkas, S. Kesitalo, D.E.C. Smith, N. Bain, R.M. Kok, R. Barto, L. Kulic, H.J. Blom, M. Linnebank

Group Leader: ROGER M. NITSCH

- 91 Deciphering disease underlying mechanisms in amyotrophic lateral sclerosis (ALS):** F. Wirth, T. Welt, J. McAfoose, C. Spaeni, A. Jeske, L. Kulic, R.M. Nitsch

Group Leader: LAWRENCE RAJENDRAN

- 92 Cellular mechanisms underlying the release of α -Synuclein:** G. Thakur, L. Rajendran

Group Leader: MICHAEL WELLER

- 93 Dendritic cell based immunotherapy on mouse glioma models:** M. Ahmad^{1,2}, N. Mankova², K. Hasenbach¹, M. Kaiser², G. Tabatabai¹, M. Weller¹, K. Frei²

Departments of ¹ Neurology and ² Neurosurgery, University Hospital Zurich

Group Leader: ANDREAS LUFT

- 94 Predictors of outcomes after ischemic stroke: The „Zurich Observational Registry for Rehabilitation Outcomes (ZORRO)“:** C. Globas, B. Hertler, J. Schneider, J. Cerny, K. Mengel, A. Luft

Group Leader: THOMAS KESSLER

(ZNZ Associate, Neuro-Urology, Spinal Cord Injury Center & Research, UZH)

- 95 Cortical response after electrical stimulation of the bladder – a primary feasibility study:** F. Gregorini, J. Wöllner, M. Schubert, A. Curt, T.M. Kessler, U. Mehnert

- 96 Tibial, pudendal and sacral evoked potentials after electrical and contact heat stimulation:** F. Gregorini, J. Wöllner, M. Schubert, A. Curt, T.M. Kessler, U. Mehnert

COMPUTATION AND MODELING

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- 98 Developmental motives in cerebral cortex development:** S. Pfister, C. Dehay, H. Kennedy, R. Douglas

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- 99 Spike-based sound recognition using neuromorphic VLSI hardware:** M. Abdollahi, F. Stefanini, S.-C. Liu, G. Indiveri
- 100 Real-time cortical models for auditory feature selectivity and spatio- and spectro temporal pattern recognition:** S. Sheik, E. Neftci, F. Stefanini, E. Chicca, K. Dhoble, N. Kasabov, G. Indiveri

Group Leader: SHIH-CHII LIU

- 101 A two-dimensional configurable active silicon dendritic neuron array:** Y. Wang, S.-C. Liu

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- 102 Model-based inference on subject-specific mechanisms of (mal)adaptive behaviour:** S. Iglesias, C. Mathys, K.H. Brodersen, L. Kasper, M. Piccirelli, K.E. Stephan
- 103 Bayesian hierarchical models for multivariate analyses in fMRI:** E. I. Lomakina, K.H. Brodersen, C. Mathys, J. Daunizeau, J.M. Buhmann, K.E. Stephan

Group Leader: DOMINIK STRAUMANN

- 104 Nystagmus generated by positive visual feedback system in healthy humans:** C.-C. Chen, C.J Bockisch, C. Grimm, S.C.F. Neuhauss, D. Straumann, Y.-Y.M. Huang.

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- 105 Synthesis, radiolabeling and *in vitro* and *in vivo* evaluation of novel fluorinated ABP688 derivative for PET imaging of metabotropic glutamate receptor subtype 5 (mGluR5):** S. Milicevic Sephton, P. Dennler, S. D. Krämer, R. Schibli, S.M. Ametamey

Group Leader: KYNAN ENG

- 106 Virtual reality rehabilitation training system for motor dysfunction and neuropathic pain after spinal cord injury:** M. Villiger, J. Spillman, B. Meilick, D. Bohli, D. Kiper, P. Pyk, N. Estevez, S. Kollias, A. Curt, M.-C. Hepp-Reymond, S. Hotz-Boendermaker, K. Eng

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- 107 Neuroimaging of therapy induced recovery in chronic stroke:** N. Estévez, V. Klamroth-Marganska, M. Villiger, L. Michels, M.-C. Hepp-Reymond, R. Riener, S. Kollias

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- 108 Targeted transgene integration in mouse embryos using “open source” zinc finger nucleases:** M. Hermann, J.K. Joung, M.L. Maeder, B. Becher, K. Bürki, A. Aguzzi, T. Buch, P. Pelczar

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109 MARCOS – a novel device to investigate brain activity during lower limb motor tasks: L. Jaeger, C. Hollnagel, L. Marchal-Crespo, M. Brügger,
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110 Neurorehabilitation of the arm (RANA) – Clinical evaluation of robotic assessments: S. Schölch¹, V. Klamroth-Marganska¹, U. Keller¹, A. Duschau-Wicke³, G. Colombo³, D. Maier⁴, A. Curt², R. Riener¹

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111 Multi-parametric assessment of Alzheimer's disease pathophysiology in mice using magnetic resonance imaging: J. Klohs & J. Grandjean, M. Dominiotto, I. Wojtyna Politana, R. M. Nitsch, .i. Knüsel, M. Rudin

112 Functional magnetic resonance imaging of nociception in mouse brain and spinal cord: A. Schröter, J. Grandjean, A. Seuwen, M. Rudin

113 High resolution spectroscopic imaging in the mouse brain: A. Seuwen, S. Bürgi, A. Schröter, M. Rudin

114 Qualification of magnetic resonance spectroscopy (MRS) as translational biomarker in drug discovery: C.F. Waschkies, S. Schöppenthau, A. Bruns, T. Bielser, M. von Kienlin, M. Rudin, B. Künnecke

Group Leader: MARTIN SCHWAB

115 Targeted BBB opening in mice using low intensity focused ultrasound: Z. Kovacs, E. Martin-Fiori, M. Bernasconi, B. Werner

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