

# NEUROSCIENCE WINTER CONFERENCE

16th International

Sölden Austria  
April 8 - April 12 2014

Hotel Das Central



## Final Scientific Program

**Time schedule of keynote lectures and symposia**

**List of poster presentations**

**List of participants**

### Program Committee:

**Tobias Bonhoeffer**

**Nils Brose**

**Alois Saria**

**Stephan Schwarzacher**

### Contributors:

- Austrian Neuroscience

Association

- Das Central

- Lundbeck Austria GmbH



- International Society for  
Neurochemistry



**Organizer:**  
**brainplatform.net e.U.**

### Conference Chair:

**Alois Saria, Austria**

### Exhibitors:

- Abcam plc

- Andor Technology Ltd.  
- Tocris Bioscience  
- Novus Biologicals

## Tuesday April 8

- 15:00 - 16:30 Registration**
- 16:30 - 17:00 Welcome Cocktail**
- 17:00 - 19:00 Symposium 1**
- Rapid cross-talk between synaptic receptors: A key path of synaptic plasticity**  
Chair: **Dmitri Rusakov (UK)**
- Dmitri Rusakov (UK)** A sub-millisecond mGluR-NMDAR dialog triggering LTP
- Julie Perroy (France)** Cross-talk between glutamate receptors
- Antoine Triller (France)** Control of synaptic strength by gyperin
- Tobias Böckers (Germany)** Autistic-like behaviours linked to the ProSAP/Shank function

## Wednesday April 9 Afternoon

- 13:20 - 15:20 Symposium 4**
- Glutamatergic transmission in schizophrenia**  
Chair: **Robert Schwarcz (USA)**
- Christine Konradi (USA)** Hippocampal interneurons and mitochondrial abnormalities in psychotic disorders
- Joseph Coyle (USA)** Serine racemase knockout mice: A mouse model of NMDA receptor hypofunction
- Robert Schwarcz (USA)** The role of endogenous kynurenic acid in hippocampal function and dysfunction
- W. Wolfgang Fleischhacker (Austria)** Glutamatergic agents in the management of the symptoms of schizophrenia

## Thursday April 10 Morning

- 08:15 - 09:00 Keynote Lecture 2**
- Zach Mainen (Portugal)** Neural circuits for spontaneous action timing in the frontal cortex
- 09:00 - 11:00 Symposium 6**
- Nanophysiology of presynaptic Ca<sup>2+</sup> signaling**  
Chair: **Tobias Moser (Germany)**
- Erwin Neher (Germany)** Ca<sup>2+</sup>-handling and superpriming at the Calyx of Held
- Jakob Neef (Germany)** Number, topography and coupling to release of Ca<sup>2+</sup> channels at hair cell active zones
- Tomoyuki Takahashi (Japan)** Perimeter Ca<sup>2+</sup> channel coupling to transmitter release at developing calyces of Held
- Annalisa Scimemi (USA)** Number and organization of Ca<sup>2+</sup> channels in the active zone of Schaffer collateral synapses
- Peter Jonas (Austria)** Loose coupling between Ca<sup>2+</sup> channels and release sensors enables presynaptic plasticity at a cortical glutamatergic synapse

## Wednesday April 9 Morning

- 08:15 – 09:00 Keynote Lecture 1**
- Herwig Baier (Germany)** Retinal ganglion cell diversity creates separate visual processing channels that are tailored to behavioral output
- 09:00 - 11:00 Symposium 2**
- Functions of lyso-phosphatidic acid (LPA) signaling pathways in the CNS**  
Chair: **Robert Nitsch (Germany)**
- Orly Reiner (Israel)** Novel activities of autotaxin (ATX) in neuronal progenitors of the cerebral cortex
- Johannes Vogt (Germany)** Control of early neuronal activity by synaptic phospholipids governs connectivity and memory
- Andrew J. Morris (USA)** Role of lysophosphatidic acid in traumatic brain injury
- Robert Nitsch (Germany)** Altered synaptic lipid signaling affects cortical information processing involved in psychiatric disorders

## Wednesday April 9 Evening

- 16:00 – 18:00 Symposium 5**
- Learning-related dynamics in neuronal circuits in vivo**  
Chairs: **Sonja Hofer (Switzerland)** and **Mark Hübener (Germany)**
- Adi Mizrahi (Israel)** Structural and functional plasticity of adult born neurons in the mouse olfactory bulb
- Florian Engert (USA)** Neural circuits underlying operant learning in larval zebrafish
- Tobias Rose (Germany)** Neurons in visual cortex retain a memory of their inputs after monocular deprivation
- Sonja Hofer (Switzerland)** Neural dynamics in visual cortex during learning
- 18:00 - 18:20 Coffee Break**
- 18:20 - 19:05 Special Guest Lecture**

- 11:00 - 11:20 Coffee Break**
- 11:20 - 13:20 Symposium 7**
- ISN Symposium: Mitochondrial dysfunction in Parkinson's disease: Failure of protein quality control**  
Chairs: **Jörg Schulz (Germany)** and **Philipp Kahle (Germany)**

- Richard J. Youle (USA)** Role of PINK1 and Parkin on mitochondrial QC *in vitro* and *in vivo*
- Philipp Kahle (Germany)** UBE2N, UBE2L3 and UBE2D2/3 ubiquitin-conjugating enzymes are essential for parkin-dependent mitophagy
- Konstanze Winklhofer (Germany)** Parkin maintains mitochondrial integrity via linear ubiquitination of NEMO
- Aaron Voigt (Germany)** TRAP1, a new player in Parkinson's disease

- 11:00 - 11:20 Coffee Break**
- 11:20 - 13:20 Symposium 3**

- Multivariate and genome-wide approaches in imaging genetics**  
Chair: **Gunter Schumann (UK)**
- Jianfeng Feng (UK)** Brain-wide association study of resting state activity identifies functional links associated with psychiatric disorders
- Jean-Luc Martinot (France)** Imaging brain microstructure in mood disorders
- Sylvane Desrivière (UK)** Transcriptional control of neural development: Impact on brain structure and cognition
- Gunter Schumann (UK)** Genome-wide methylation analysis of monozygotic twins identifies association of protein phosphatase, Mg<sup>2+</sup>/Mn<sup>2+</sup> dependent, 1G (*PPM1G*) hypermethylation with alcohol use disorder and measures of impulsiveness

- 19:05 – 20:30 Poster Session**

- 13:20 - 15:20 Symposium 8**
- NeuroBioengineering: New strategies targeting diverse neural cells for regenerative neurobiology**  
Chairs: **Philip Beart (Australia)** and **Eva Sykova (Czech Republic)**

- Eva Sykova (Czech Republic)** Stem cells and biomaterials for treatment of CNS diseases
- Sarka Kubinova (Czech Republic)** Advanced methods for nervous tissue engineering
- Sue Barnett (UK)** Can scaffold design affect CNS myelination?
- Philip Beart (Australia)** Therapeutic potential of bioengineering strategies targeting astrocytes

## Thursday April 10 Evening

**16:00 – 18:00 Symposium 9**

**Ca<sup>2+</sup> signaling and synaptic transmission**

Chairs: **Markus Missler (Germany)** and **Martin Heine (Germany)**

**Ralf Schneggenburger (Switzerland)** Mechanisms of ultrafast transmitter release at CNS synapses  
**Martin Heine (Germany)** Calcium channel mobility as a variable of synaptic transmission

**Gerald W. Zamponi (Canada)** Regulation of calcium channels by ubiquitination

**Markus Missler (Germany)** Calcium channels and neurotransmitter receptors as target molecules of α-neurexin-based complexes

**18:00 – 18:20 Coffee Break**

**18:20 – 20:20 Symposium 10**

**Coupling exocytotic neurotransmitter release to endocytic membrane retrieval**

Chair: **Volker Haucke (Germany)**

**Stephan J. Sigrist (Germany)** Shedding light on active zone structure and function

**Jürgen Klingauf (Germany)** Coupling of exo- and compensatory endocytosis

**Ling-Gang Wu (USA)** Post-fusion structural changes and their roles in exocytosis and endocytosis

**Volker Haucke (Germany)** Mechanisms of pre-synaptic membrane retrieval and synaptic vesicle reformation

## Friday April 11 Morning

**08:15 – 09:00 Keynote Lecture 3**

**Christopher Harvey (USA)** Neuronal circuit dynamics during navigation-based decision tasks

**09:00 – 11:00 Symposium 11**

**From circuits to behavior: Sensorimotor interactions in neural processing**

Chair: **Georg Keller (Switzerland)**

**Bence Ölveczky (USA)** Motor cortex independent skill execution

**Adam Kampff (Portugal)** Moving with cortex: New techniques for studying behaviours that require motor cortex

**Dinu Albeanu (USA)** Understanding the roles of cortico-bulbar feedback in encoding odor identity

**11:00 - 11:20 Coffee Break**

**11:20 - 13:20 Symposium 12**

**Multiple Sclerosis: New vistas**

Chair: **Frauke Zipp (Germany)**

**Ralf Gold (Germany)** New therapies

**Bernhard Hemmer (Germany)** New antigens

**Heinz Wiendl (Germany)** New cellular pathways

**Frauke Zipp (Germany)** Novel mechanisms and targets in Multiple Sclerosis

## Saturday April 12 Morning

**08:15 – 09:00 Keynote Lecture 5**

**Ole Kiehn (Sweden)** Neural circuits for controlling rhythmic movements

**09:00 – 09:30 Coffee Break**

**09:30 – 11:30 Symposium 14**

**Tracing neural processing hierarchies in auditory function, from synapse to perception**

Chairs: **Jan Schnupp (UK)** and **Yale Cohen (USA)**

**Benedikt Grothe (Germany)** GABAergic mechanisms underpin sub-millisecond precision in mammalian binaural hearing

**Kasia Biesczad (USA)** A mnemonic function of primary auditory cortical remodeling to predict the significance of sound

**Jan Schnupp (UK)** How the brain creates and encodes pitch and timbre percepts for complex sounds

**Micah Murray (Switzerland)** The speed of sound in the human brain

**11:30 End of meeting and departure**

## Friday April 11 Evening

**16:00 - 16:45 Keynote Lecture 4**

**Bill Hansson (Germany)** Coding good and bad odors in the *Drosophila* olfactory system

**16:45 – 17:05 Coffee Break**

**17:05 - 19:05 Symposium 13**

**Cellular trafficking in the brain**

Chair: **Matthijs Verhage (The Netherlands)**

**Angus Silver (UK)** Vesicle mobility and supply at a central excitatory synapse

**Matthias Kneussel (Germany)** Transport and trafficking of neuronal proteins underlying synaptic plasticity

**Frederic Saudou (France)** Huntington: Linking energy supply to axonal transport and neurotrophin signaling

**Matthijs Verhage (The Netherlands)** Trafficking and fusion of dense core vesicles in mammalian CNS neurons

**19:30 Gala Dinner** (free for Das Central hotel residents, others book at registration desk for 50,- € until Thursday evening)

**Wednesday****April 9****19:05 - 20:30****Poster Session**

**1. Mitochondrial contributions to neuronal autophagy: Links to energetics and mitophagy?**  
 Shin YS, Britto JM, Ryall JG, Higgins GC, Devenish RJ, Nagley P and Beart PM

**2. Response to trauma and abuse presenting with overactivity, impulsivity and distractibility that is not secondary to severe ADHD symptoms but the fight and flight response, implications for treatments**  
Klaus Martin Beckmann

**3. Visual speech gestures modulate efferent auditory system**  
 Aravind Namasivayam, Dinaay Sharma, Wing Yiu Stephanie Wong, Dimitra Chaldi, Pascal van Lieshout

**4. Left-right asymmetry is required for the habenulae to respond to both visual and olfactory stimuli**  
Elena Dreosti, Nuria Vendrell Llopis, Matthias Carl, Emre Yaksi and Stephen W. Wilson

**5. Can GAP-43 be an early marker of neuronal stress? In vivo imaging and immunofluorescence study of GAP-43 after ischemic brain lesion**  
S. Gajovic, I. Bohacek, D. Gorup, T. Milicevic, J. Kriz

**6. Tissue oxygen measurement for patients with brain injury**  
R. Gal, M. Slezak, M. Smrkova, A. Mrlian, M. Colonova

**7. Distribution and roles of the Onecut transcription factors in spinal dorsal interneurons**  
K.U. Kabayiza, G. Masgutova, V. Rucchin and F. Clotman

**8. Activation of cannabinoid receptor 1 induces ramification in primary microglia cells through activation of the signaling cascade PKCe-Src/Fyn-Raf-ERK1/2**  
Aikaterini A. Kalargyrou and Dimitra Mangoura

**9. LH stimulation could potentiate the effect of ineffective dose of morphine and induce morphine sensitization**  
 Sara Karimi, Abbas Haghparast, Mahtash Baniardalan, Sara Sadeghi, Alireza Omranifard

**10. Contrast normalization in cat primary visual cortex**  
Andreas Keller, Nuno Maçarico da Costa, Kevan A. C. Martin

**11. Cav1.4 IT mouse as model for vision impairment in human congenital stationary night blindness type 2**  
 Dagmar Knoflach, Verena Burtscher, Gerald J. Obermair, Martin Glösmann, Mathias Seeliger, Amy Lee, Klaus Schicker and Alexandra Koschak

**12. Network dynamics in resting state EEG of youths with Autism Spectrum Disorder**  
 Bates, E., Seitzman, B., Coppers, K., and Malaia, E.

**13. Cortical plasticity following perceptual learning**  
Ido Maor and Adi Mizrahi

**14. Effects of loud noise exposure on sound processing in the mouse primary auditory cortex**  
Ondřej Novák, Ondřej Zelenka, Tomáš Hromádka, and Josef Syka

**15. Study of proteins associated with epileptic seizures in primary hippocampal cultures under basal and stimulated conditions**  
Austin O'Reilly

**16. Role of Kv channels in activity-dependent biphasic changes of Schaffer collateral fiber volleys**  
Benjamin Owen

**17. Modulating synaptic function through neurexophilin/alpha-neurexin complex formation**  
Astrid Rohlmann

**18. Activation of GABA A receptors of medial prefrontal cortex produces anxiolytic-like response**  
Jalal Solati, Ramin Hajikhani, Gunther H. Moll, Oliver Kratz, Yulia Golub

**19. Prion protein facilitates synaptic vesicle release by enhancing release probability**  
 Susan W. Robinson, Marie L. Nugent, David Dinsdale and Joern R. Steinert

**20. Disruption of the circadian system in patients with neuropsychiatric disorders**  
Sumová A., Nováková M., Sládek M., Nevšímalová S., Praško J.

**21. Lateralization of language function in epilepsy patients: An event-related potential (ERP) study of a word/pseudoword task**

Karin Trimmel, Ekaterina Patarai, Gerald Lindinger, Marlene Weberberger, Judith Ifkovits, Eduard Auff, and Michael Trimmel

**22. Neuronal expression of complex gangliosides is necessary for the maintenance of axon and axo-glial junction integrity**  
 R. McGonigal, D. Yao, J.A. Barrie, H.J. Willison

**23. Ca<sup>2+</sup>-binding Calmyrin 2 functions in endocytosis in hippocampal neurons**  
 Potrzebowska K, Błazejczyk M., Jaworski J., Kuźnicki J., Hoogenraad C.C., Wojda U

## List of Participants

Last name	Name	Country	Last name	Name	Country	Last name	Name	Country
Albeanu	Dinu	USA	Kahle	Philipp	Germany	Reiner	Orly	Israel
Arapidis	Konstantinos	Greece	Kalargyrou	Aikaterini	Greece	Riedl	Christiane	Austria
Bähr	Mathias	Germany	Kampff	Adam	Portugal	Riegler	Clemens	USA
Baier	Herwig	Germany	Karimi	Sara	Iran	Rohlmann	Astrid	Germany
Bakalkin	Georgy	Sweden	Keller	Georg	Switzerland	Rose	Tobias	Germany
Barnett	Sue	UK	Keller	Andreas	Switzerland	Rusakov	Dmitri	UK
Beart	Philip	Australia	Kiehn	Ole	Sweden	Russig	Holger	Germany
Beckmann	Klaus Martin	Australia	Klingauf	Jürgen	Germany	Saria	Alois	Austria
Betz	Heinrich	Germany	Kneussel	Matthias	Germany	Saudou	Frederic	France
Bieszczad	Kasia	US	Konradi	Christine	USA	Schneggenburger	Ralf	Switzerland
Böckers	Tobias	Germany	Koschak	Alexandra	Austria	Schnupp	Jan	UK
Bonhoeffer	Tobias	Germany	Kristensen	Anders	Denmark	Schulz	Jörg	Germany
Borrie	Sarah	Austria	Kubinova	Sarka	Czech Republic	Schumann	Gunter	UK
Branco	Tiago	UK	Kummer	Kai	Austria	Schwaller	Beat	Switzerland
Brose	Nils	Germany	Langeslag	Michiel	Austria	Schwarz	Robert	USA
Chaldi	Dimitra	Greece	Lederer	Peter	Germany	Schwarzacher	Stephan	Germany
Chourmouziadis	Alexandros	Greece	Mainen	Zach	Portugal	Schwille	Petra	Germany
Coyle	Joseph	USA	Malaia	Evie	USA	Scimemi	Annalisa	USA
Deres	Symeon	Greece	Manavis	Ilias	Greece	Sigrist	Stephan J.	Germany
Desrivières	Sylvane	UK	Maor	Ido	Israel	Silver	Angus	UK
Dimitrakoudi	Evangelia	Greece	Martinot	Jean-Luc	France	Solati	Jalal	Germany
Dreosti	Elena	UK	Missler	Markus	Germany	Steinert	Joern	UK
Elfving	Betina	Denmark	Mizrahi	Adi	Israel	Sumova	Alena	Czech Republic
Engert	Florian	USA	Morris	Andrew	USA	Sykova	Eva	Czech Republic
Feng	Jianfeng	UK	Moser	Tobias	Germany	Takahashi	Tomoyuki	Japan
Fleischhacker	W. Wolfgang	Austria	Mrsic-Flogel	Thomas	Switzerland	Triller	Antoine	France
Gajovic	Srecko	Croatia	Müller	Heidi	Denmark	Trimmel	Karin	Austria
Gal	Roman	Czech Republic	Murray	Micah	Switzerland	Trimmel	Michael	Austria
Gerothanasis	Dimitrios	Greece	Neef	Jakob	Germany	Tsagkalidis	Ioannis	Greece
Gkevrekis	Georgios	Greece	Neher	Erwin	Germany	Verhage	Matthijs	The Netherlands
Gogalis	Evangelos	Greece	Nitsch	Robert	Germany	Vogt	Johannes	Germany
Gold	Ralf	Germany	Novak	Ondrej	Czech Republic	Voigt	Aaron	Germany
Grothe	Benedikt	Germany	O'Reilly	Austin	USA	Weth	Daniela	Austria
Hansson	Bill	Germany	Ölveczky	Bence	USA	Wiendl	Heinz	Germany
Harvey	Christopher	USA	Owen	Benjamin	USA	Willison	Hugh	UK
Haucke	Volker	Germany	Pagitsas	Ioannis	Greece	Winklhofer	Konstanze	Germany
Heine	Martin	Germany	Papageorgio	Georgios	Greece	Wintersteller	Elisabeth	Austria
Hemmer	Bernhard	Germany	Patraskakis	Symeon	Greece	Wojda	Urszula	Poland
Hofer	Sonja	Switzerland	Pavlidis	Ioannis	Greece	Wu	Ling-Gang	USA
Hovis	Kenneth	USA	Peles	Elior	Israel	Youle	Richard	USA
Hübener	Mark	Germany	Perroy	Julie	France	Zamponi	Gerald	Canada
Jonas	Peter	Austria	Piachas	Athanasiос	Greece	Zelenka	Ondrej	Czech Republic
Kabayiza	Karolina	Belgium	Properzi	Francesca	Italy	Zipp	Frauke	Germany
Kafantari	Anna	Greece	Ralph	Martin	Canada			

# **17th International Neuroscience Winter Conference**

**April 7 - 11, 2015**

**Das Central, Sölden, Austria**

**[www.winterneuroscience.org/2015](http://www.winterneuroscience.org/2015)**