

7th
FENS
FORUM OF
EUROPEAN
NEUROSCIENCE
July 3–7, 2010
RAI Convention Center | Amsterdam | The Netherlands

**DAY-BY-DAY
PROGRAMME**

Version 1 December 2009
Updated programme always available on
<http://forum.fens.org/2010>

Programme at a Glance

Saturday, July 3

Sunday, July 4

Monday, July 5

Tuesday, July 6

Wednesday, July 7

IMPORTANT DATES

- December 1, 2009
Early registration & abstract submission open
- February 1, 2010
Deadline for travel grant applications
- February 1, 2010
Early registration & abstract submission closed
- April 15, 2010
Deadline for submission of exhibition printing material
- May 15, 2010
Abstracts available on the Forum website
- June 15, 2010
Deadline for online registration

<p>Plenary Lectures 08:30–09:30</p> <p>Parallel Symposia 09:45–11:15</p> <p>Poster Sessions 09:45–13:15</p>	<p>Plenary Lecture Oscar Marin (Alicante, Spain) Cortical interneuron development in health and disease</p> <p>Parallel Symposia S01 Alzheimer's disease – Translation of molecular mechanisms into diagnostic and therapeutic approaches S02 Shaping functional architecture by oscillatory alpha activity S03 Endocannabinoids in the synapse: molecular diversity and division of labour S04 Neurobiology of motor learning S05 The making of neuronal circuits: mechanisms promoting and preventing synapse formation S06 Brain tumors: recent insights from stem cell research S07 The neurobiology of syntax S08 Mechanisms of memory storage in neocortex</p> <p>Morning Poster Presentations</p> <p>Special Lectures Foundation IPSEN Neuronal Plasticity Awarding Lectures (12:30–14:00) EBBS/Behavioural Brain Research Prize Lecture Gertrud Reemtsma Foundation – K.J. Zuelich Lecture</p> <p>Afternoon Poster Presentations</p> <p>Parallel Symposia S09 Tracking the fate of memories: networks of memory consolidation and reconsolidation in the brain S10 Interplay between Rab3 and SNAREs in neuronal vesicular trafficking S11 Targeting protein-protein interactions in neurological disorder therapy S12 Impairment and repair of motor networks after spinal cord injury S13 The microcircuitry of selective attention: physiology, pharmacology and modelling S14 Development of neural maps – From specification to function S15 Emerging mechanisms in neurodegenerative disorders – The role of spreading depression S16 The temporo-ammonic pathway: what does it do and why is it important?</p> <p>Plenary Lecture Michael Tomasello (Leipzig, Germany) The human adaptation for culture</p> <p>Special Events, Scientific Gatherings, Socials, etc.</p>	<p>Plenary Lecture Stanislas Dehaene (Paris, France) Understanding the consciousness code in the human brain</p> <p>Parallel Symposia S17 Molecular mechanisms controlling stem and progenitor cells in CNS development S18 New developments in brain protection and repair after cerebral ischemia? S19 The bad cop and the good cop: regulation of neuronal function by the immune system S20 Biomarkers in attention-deficit/hyperactivity disorder: inattentive and combined types S21 Large scale interactions in brain networks and new ways to study them S22 Visualizing hearing S23 Nogo receptor signaling and synaptic plasticity in health and disease S24 Cognition in a mini-brain: systems neuroscience in drosophila</p> <p>Morning Poster Presentations</p> <p>Special Lectures The Dargut and Milena Kemali Prize Lecture FENS Invited Lecture ERA-NET/NEURON Young Award Lecture</p> <p>Afternoon Poster Presentations</p> <p>Parallel Symposia S25 The stressed brain: what makes us vulnerable? S26 Cross-modal reorganization in deafness S27 Systems biology of the synapse: concepts to understand the complexity of brain synaptic signaling S28 Navigation and the head direction system: insights from animals, humans and computational models S29 State dependent cortical processing S30 Investigating glia function in vivo S31 Act and select: the role of the striatum in selection of behaviour S32 Morphogens in neural circuit formation</p> <p>Plenary Lecture Melitta Schachner (Hamburg, Germany) Recognition molecules in synaptic spasticity and regeneration</p> <p>Special Events, Scientific Gatherings, Socials, etc.</p>	<p>Plenary Lecture May-Britt Moser (Tromsø, Norway) The brain's mechanisms for mapping and remembering space</p> <p>Parallel Symposia S33 Fine-tuning the brain: microRNAs S34 Neurobiological factors determining high vulnerability to drug seeking and relapse S35 Rapid neuroendocrine response and synaptic plasticity S36 Prefrontal and parietal-premotor contributions to free choice selection S37 Sensorimotor integration in the whisker system S38 Nitric oxide in sleep and sleep disorders S39 Cell-specific regulation of visual cortical plasticity S40 Neuron-microglia interactions: a family matter from marriage to divorce</p> <p>Morning Poster Presentations</p> <p>Special Lectures Herlitz Foundation Lecture Boehinger-Inge Heilm FENS Research Award Max Cowan Lecture</p> <p>Afternoon Poster Presentations</p> <p>Parallel Symposia S41 In vitro study of human epileptogenic cells and networks S42 The choroid plexus: a gate for signalling into the brain S43 Molecular, cellular and network basis of thalamocortical dynamics S44 Striatal plasticity: from health to Parkinson's disease S45 The relation of ongoing brain activity, stimulus evoked responses and perceptual decisions S46 Stress and the amygdala: from animal models to clinical implications S47 Interneuron development and function S48 Presynaptic short-term plasticity: molecules, mechanisms, and functions</p> <p>Plenary Lecture Tobias Bonhoeffer (Martinsried, Germany) How activity changes synapses in the mammalian brain</p> <p>Special Events, Scientific Gatherings, Socials, etc.</p>	<p>Plenary Lecture Maria Spillantini (Cambridge, UK) What can protein aggregates tell us about neurodegenerative diseases?</p> <p>Parallel Symposia S49 Dynamic processes underlying synaptic plasticity S50 Dopaminergic modulation of human decision making S51 Recipe for solving the cerebellar mystery: 2 photons, 1 live mouse and a dash of Oregon Green BAPTA S52 Neuronal cell death in motor neuron diseases S53 How we come to experience that we own our body: from full-body illusions to cortical mapping S54 Neuroregulin signaling in neural development, function and disease S55 Temporal control of neuronal diversity S56 Deletion of memory</p> <p>Morning Poster Presentations</p> <p>Special Lecture (12:00–13:00) FENS EIN Awards</p> <p>Closing Plenary Lecture (13:15–14:15) Arturo Alvarez-Buylla (San Francisco, USA) Regional specification of postnatal neural stem cells</p>
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<p>Technical Workshops 12:30–15:30</p> <p>W01 Imaging dynamic changes at the synapse W02 Strategies for promoting peripheral nerve regeneration W03 Novel methods for assessing transmitter release and effects during behaviour W04 Neuroanatomical tracing and systems neuroscience: the state of the art W05 From neurons to networks – New approaches in electrophysiology W06 Structure, dynamics and function in large scale neuronal ensembles W07 Optogenetic manipulations of synaptic transmission, plasticity, vision and behaviours</p>	<p>EJN Symposium 15:45–17:15</p> <p>Opening Ceremony 17:30–18:00</p> <p>Opening Plenary Lecture 18:00–19:00</p> <p>Evening Programme 19:00–20:30</p>
<p>Technical Workshops 15:45–17:15</p> <p>W01 Imaging dynamic changes at the synapse W02 Strategies for promoting peripheral nerve regeneration W03 Novel methods for assessing transmitter release and effects during behaviour W04 Neuroanatomical tracing and systems neuroscience: the state of the art W05 From neurons to networks – New approaches in electrophysiology W06 Structure, dynamics and function in large scale neuronal ensembles W07 Optogenetic manipulations of synaptic transmission, plasticity, vision and behaviours</p>	<p>EJN Special Feature The ever-changing brain</p> <p>Opening Ceremony 17:30–18:00</p> <p>Opening Plenary Lecture 18:00–19:00</p> <p>Evening Programme 19:00–20:30</p>

Welcome Reception

Opening Plenary Lecture
Roger Y. Tsien (La Jolla, USA)
Probing neurons and brains with molecules and photons

Opening Ceremony

EJN Special Feature
The ever-changing brain

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Plenary Lecture
17:30–18:30

Opening Ceremony

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W01 - Imaging dynamic changes at the synapse

Chaired by J. Henley (Bristol, United Kingdom)

Henley J. (Bristol, United Kingdom)

Glutamate receptor trafficking to, from and at the synapse

Lagnado L. (Cambridge, United Kingdom)

Imaging clathrin dynamics at the synaptic terminal by TIRFM

Hoogenraad C. (Rotterdam, Netherlands)

Neuron specific Rab4 effector GRASP-1 coordinates AMPAR trafficking and endosomal maturation

Ashby M. (Bethesda, USA)

Mapping the synaptic basis of cortical circuit formation using single cell photostimulation

Emptage N. (Oxford, United Kingdom)

To be announced

Muller D. (Geneva, Switzerland)

Imaging synaptic network development

W02 - Strategies for promoting peripheral nerve regeneration

Chaired by S. Geuna (Orbassano, Torino, Italy), M.M. Sousa (Porto, Portugal)

Melcangi R.C. (Milano, Italy)

Neuroactive steroids in the peripheral nerve

Schumacher M. (Le Kremlin-Bicêtre, France)

Perspectives of TSPO ligands for promoting peripheral nerve regeneration

Sousa M.M. (Porto, Portugal)

Transthyretin: From neurotogenic activity in vitro, to enhancement of nerve regeneration in vivo

Zacchigna S. (Trieste, Italy)

Is VEGF a good candidate to promote peripheral axonogenesis by gene therapy?

Terenghi G. (Manchester, United Kingdom)

Cell transplantation therapy in the peripheral nerve

Raimondo S. (Orbassano, Torino, Italy)

Tissue engineering of peripheral nerves

W03 - Novel methods for assessing transmitter release and effects during behaviour

Chaired by M.G.P. Feenstra (Amsterdam, Netherlands)

Stuber G. (Emeryville, USA)

Optogenetic control of neurotransmission during goal-directed behaviors

Sarter M. (Ann Arbor, USA)

The use of choline- and glutamate-sensitive microelectrodes in research on the neuronal mechanisms underlying basic cognitive operations

Dash M. (Madison, USA)

Simultaneous fixed potential amperometry & EEG recordings enable rapid assessment of cortical glutamate concentration across the sleep/wake cycle

Serra P.A. (Sassari, Italy)

Second-by-second biotelemetric monitoring of brain neurochemistry in freely moving rats using microsensors and biosensors

Cheer J.F. (Baltimore, USA)

Endocannabinoid control of accumbal processing in goal-directed behavior using a combined electrophysiological and voltammetric approach

Valencia-Alfonso C.E. (Amsterdam, Netherlands)

Combined microdialysis and single-cell electrophysiology in free moving animals: Transmitter-selective dependence of neuronal correlates

Phillips P.E.M. (Seattle, USA)

Using chronic microsensors to track dopamine release over learning and changing cognitive states

W04 - Neuroanatomical tracing and systems neuroscience: the state of the art

Chaired by J. Lanciego (Pamplona, Spain), F.G. Wouterlood (Amsterdam, Netherlands)

Swanson L.W. (Los Angeles, USA)

Strategies for applying and interpreting a double coinjection circuit tracing methodology

Ugolini G. (Gif sur Yvette, France)

Advances in viral transneuronal tracing

Lanciego J. (Pamplona, Spain)

Tracing combined with molecular markers

Margrie T. (London, United Kingdom)

Expression of exogenous DNS delivered via whole-cell recordings in vivo

Hagmann P. (Lausanne, Switzerland)

DTI and other non-invasive imaging methods in primates and humans

Mailly P. (Paris, France)

Bringing results together in a digital standardized rat brain

W05 - From neurons to networks – new approaches in electrophysiology

Chaired by R. Polder (Tamm, Germany), A. Draguhn (Heidelberg, Germany)

Heine M. (Magdeburg, Germany)

Receptor mobility sensed by local glutamate application

Marinesco S. (Lyon, France)

Understanding the regulation of D-serine extracellular concentration in the brain using amperometric microbiosensors

Hanganu-Opatz I. (Hamburg, Germany)

Development of sensory and cognitive cortico-subcortical networks: lessons from in vivo electrophysiology

Klausberger T. (Oxford, United Kingdom)

In vivo spike timing, synaptic connectivity and molecular expression profiles of GABAergic interneurons in the cerebral cortex

Benda J. (München, Germany)

Closed loop recordings and stimulation in sensory electrophysiology

Menendez De La Prida L. (Madrid, Spain)

Advanced multi-channel recording techniques for understanding temporal lobe epilepsy

W06 - Structure, dynamics and function in large scale neuronal ensembles

Chaired by S. Marom (Haifa, Israel)

Egert U. (Freiburg, Germany)

Targeted interaction with oscillatory network dynamics

Plenz D. (Bethesda, USA)

The spatiotemporal organization of neuronal avalanches in the cortex

Rotter S. (Freiburg, Germany)

Activity dynamics of large neocortical networks

Marom S. (Haifa, Israel)

Dynamics and stimulus representation in large-scale networks

Stegenga J. (Twente, Netherlands)

Bursting and synaptic plasticity in neuronal networks

Chialvo D.R. (Chicago, USA)
Functional collectivity: How to deal with collective states

W07 - Optogenetic manipulations of synaptic transmission, plasticity, vision and behaviors
Chaired by A. Gottschalk (Frankfurt, Germany), T.G. Oertner (Basel, Switzerland)

Trauner D. (Munich, Germany)
Light-actuated ion channels and receptors for optical control of neurons and behavior

Hegemann P. (Berlin, Germany)
The widened Channelrhodopsin-toolbox for broad optogenetic application

Oertner T.G. (Basel, Switzerland)
Structure-function analysis of individual synapses

Roska B. (Basel, Switzerland)
Restoring visual function in retinal degeneration by circuit specific expression of Channelrhodopsin-2

Gottschalk A. (Frankfurt, Germany)
Optogenetic analysis of synaptic transmission and neural networks in *Caenorhabditis elegans*

Fiala A. (Goettingen, Germany)
Optogenetic analysis of nervous system function and behaviour in *Drosophila melanogaster*

SE01 - EJN Special Feature: The ever-changing brain

Chaired by J.M. Fritschy (Zurich, Switzerland), M. Sarter (Ann Arbor, USA)

Schuman E. (Frankfurt am Main, Germany)
The cell biology of synaptic plasticity

Surmeier J. (Chicago, USA)
Dichotomous control of striatal synaptic plasticity and Parkinson's disease

Bagni C. (Leuven, Belgium)
Molecular aspects of brain development: Insights from the Fragile X syndrome

Saturday July 3, 17:30 & 18:00
Opening & Opening lecture

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Opening ceremony

L01 - Roger Y. Tsien (La Jolla, USA)

Probing neurons and brains with molecules and photons
Support contributed by the Dutch Neurofederation

This lecture will deal about extending genetically encoded probes to longer wavelengths, electron microscopic resolution, or the assessment of new protein synthesis and turnover. Also, synthetic molecules may help clinicians visualize peripheral nerves during surgery and protease activities in brains that have undergone strokes.

Sunday July 4, 08:30
Plenary lecture

Sunday July 4, 09:45
Symposia

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L02 - Oscar Marin (Alicante, Spain)

Cortical interneuron development in health and disease

Gamma-aminobutyric acid-containing (GABAergic) interneurons play major roles in the function of the cerebral cortex. In addition, growing evidence suggest that disruption of interneuron function is common to several psychiatric disorders, such as schizophrenia. Given their extraordinary diversity, understanding cortical interneuron development seems crucial to shed light into their function in cortical processing, both in health and disease.

S01 - Alzheimer's disease – Translation of molecular mechanisms into diagnostic and therapeutic approaches

Chaired by C. Haass (Munich, Germany)

Haass C. (Munich, Germany)

Molecular mechanisms of Alzheimer's disease

Rajendran L. (Dresden, Germany)

Genome wide screens for Alzheimer modifying genes and generation of novel secretase inhibitors

Fox N. (London, United Kingdom)

Innovative imaging techniques for early diagnosis of Alzheimer's disease

Holtzman D. (Saint Louis, USA)

In vivo monitoring of Amyloid generation in animal models and human patients

S02 - Shaping functional architecture by oscillatory alpha activity

Chaired by O. Jensen (Nijmegen, Netherlands), B. Händel (Nijmegen, Netherlands)

Crunelli V. (Cardiff, United Kingdom)

Firing dynamics of thalamic and cortical neurons during the alpha rhythm

Jensen O. (Nijmegen, Netherlands)

Modulation in alpha activity can produce cognitive relevant evoked responses

Ritter P. (Berlin, Germany)

Spontaneous EEG alpha rhythm of the human brain is negatively correlated with the fMRI signal and accounts for variability in the evoked fMRI response

Thut G. (Glasgow, United Kingdom)

New insights into alpha activity from TMS-EEG studies

S03 - Endocannabinoids in the synapse: Molecular diversity and division of labor

Chaired by I. Katona (Budapest, Hungary)

Kano M. (Tokyo, Japan)

Production and degradation of endocannabinoids mediating retrograde suppression of synaptic transmission

Manzoni O. (Bordeaux, France)

Pathophysiology of neurolipid-mediated synaptic plasticity: food for thoughts

Zeilhofer H.U. (Zürich, Switzerland)

Endocannabinoid signaling in spinal dorsal horn circuits

Katona I. (Budapest, Hungary)

Compartmentalized distribution and functional segregation of distinct endocannabinoid signaling pathways in hippocampal synapses

S04 - Neurobiology of motor learning

Chaired by J.C. Rothwell (London, United Kingdom), J.B. Nielsen (Copenhagen, Denmark)

Redgrave P. (Sheffield, United Kingdom)

The role of phasic dopamine signals in motor learning

Wolpert D. (Cambridge, United Kingdom)

Noise and motor learning

Krakauer J. (New York, USA)

Acquisition and consolidation of motor tasks in health and disease

Timmann-Braun D. (Essen, Germany)

Motor learning in cerebellar disorder

S05 - The making of neuronal circuits: Mechanisms promoting and preventing synapse formation

Chaired by C. Lohmann (Amsterdam, Netherlands), K. Gottmann (Düsseldorf, Germany)

Grueber W.B. (New York, USA)

Molecular control of dendritic diversity and self-recognition in neuronal arbors

Lohmann C. (Amsterdam, Netherlands)

Calcium signaling and the selection of synaptic partners

Shen K. (Stanford, USA)

Molecular regulators of synapse formation in *C. elegans*

Gottmann K. (Düsseldorf, Germany)

N-cadherin's role in the formation, maturation and elimination of central mammalian synapses

S06 - Brain tumors: recent insights from stem cell research

Chaired by N.E. Savaskan (Zurich, Switzerland), M. Synowitz (Berlin, Germany)

Vescovi A.L. (Milano, Italy)

Regulatory mechanisms in brain cancer stem cells

Van Lohuizen M. (Amsterdam, Netherlands)

Role of Bmi1 in neural stem cells, glioma and medulloblastoma

Glass R. (Berlin, Germany)

Endogenous neural precursors suppress glioma stem cells by releasing BMP7

Seoane J. (Barcelona, Spain)

The role of TGF-beta in glioma genesis and progression

S07 - The neurobiology of syntax

Chaired by K.M. Petersson (Nijmegen, Netherlands)

Petersson K.M. (Nijmegen, Netherlands)

The neurobiology of syntax: recursion and dynamical systems

Fitch W.T. (Fife, United Kingdom)

Comparing human and animal pattern perception: formal language theory as an explicit framework

Dominey P.F. (Bron, France)

Neural network processing of nested structure in language and cognitive sequences

Friederici A.D. (Leipzig, Germany)

Processing hierarchical structures in the human brain

S08 - Mechanisms of memory storage in neocortex

Chaired by G.T. Finnerty (London, United Kingdom)

Frankland P.W. (Toronto, Canada)

The role of prefrontal cortex in consolidation of remote memory

Finnerty G.T. (London, United Kingdom)

Does axonal rewiring of somatosensory connections constitute a neocortical memory trace?

Hofer S. (London, United Kingdom)

Experience leaves a lasting structural trace in cortical circuits

Dudai Y. (Rehovot, Israel)

Maintenance of long-term associative taste memory in insular cortex

Fondation IPSEN awarding lectures

SL01 - To be announced

EBBS / Behavioural Brain Research Prize lecture

SL02 - John Aggleton (Cardiff, United Kingdom)

Bridging the gap between temporal lobe and diencephalic memory systems

While the importance of the hippocampus for our day-to-day memory remains undisputed, there is great uncertainty about how other brain regions work in concert with the hippocampus to support memory. The talk examines the direct and indirect links between the hippocampus and the medial diencephalon using a mixture of neuroanatomical, clinical, and behavioural evidence. Convergent, new evidence indicates that temporal lobe amnesia and diencephalic amnesia reflect dysfunctions in the same system, and that to understand the hippocampus it will be necessary to understand the roles of its connections with the anterior thalamic nuclei and retrosplenial cortex.

Gertrud Reemtsma Foundation – K.J. Zuelch lecture

SL03 - David N. Louis (Boston, USA)

Malignant gliomas: Small steps and giant leaps

SE02 - EC symposium: "FP7: EU-driven funding opportunities in brain research"

Chaired by P. Tosetti (Brussels, Belgium)

Marin O. (ERC Scientific Council)

Individual research grants

Berkouk K. (EC Officer, MC Individual Fellowship Unit)

Marie Curie Actions

Tosetti P. (EC Officer, area "Brain and related diseases")

Cooperative research grants

S09 - Tracking the fate of memories: Networks of memory consolidation and reconsolidation in the brain

Chaired by F.P. Battaglia (Amsterdam, Netherlands), S.I. Wiener (Paris, France)

Lee J.L.C. (Birmingham, United Kingdom)
Memory updating: the role of reconsolidation in the modification of consolidated memories

Battaglia F.P. (Amsterdam, Netherlands)
Dynamics of memory replay in prefrontal ensembles and its relationship with hippocampal and cortical oscillations

Zugaro M.B. (Paris, France)
Selective suppression of hippocampal ripples impairs spatial memory

Peigneux P. (Bruxelles, Belgium)
Sleep and the reorganization of the neural basis of long-term memories

S10 - Interplay between Rabs and SNAREs in neuronal vesicular trafficking

Chaired by T. Galli (Paris, France)

Galli T. (Paris, France)
A molecular link between TI-VAMP/VAMP7 and Rab21 in vesicular trafficking mediating neurite growth

Schiavo G. (London, United Kingdom)
Rab-dependent regulation of signalling endosome transport

Bruns D. (Homburg, Germany)
Multiple actions of v-SNARE proteins in Ca²⁺-triggered exocytosis

Hilfiker S. (Granada, Spain)
Higher-order SNARE complex interactions in vitro and in vivo

S11 - Targeting protein-protein interactions in neurological disorder therapy

Chaired by P. Marin (Montpellier, France), J. Bockaert (Montpellier, France)

Salter M.W. (Toronto, Canada)
Protein-protein interactions in the NMDA receptor complex as targets for therapeutic intervention

Marin P. (Montpellier, France)
Targeting serotonin 2A receptor/PDZ protein interactions in neuropathic pain

Diluca M. (Milan, Italy)
Addressing protein - protein interaction in Alzheimer's disease

Borsello T. (Milan, Italy)
Cell Permeable JNK inhibitory-peptide as a novel strategy against neurodegeneration

S12 - Impairment and repair of motor networks after spinal cord injury

Chaired by T.G. Deliagina (Stockholm, Sweden)

Hultborn H. (Copenhagen, Denmark)
Motoneurons after spinal cord injury

Vinay L. (Marseille, France)
Plastic changes at cellular and network levels caused by spinal cord injury

Edgerton R. (Los Angeles, USA)
Acutely and chronically reformulated spinal networks for locomotion

Deliagina T.G. (Stockholm, Sweden)
Impairment and repair of postural networks after spinal cord injury

S13 - The microcircuitry of selective attention: Physiology, pharmacology and modelling

Chaired by L. Chelazzi (Verona, Italy)

Womelsdorf T. (London, Canada)
Neuronal gamma-band synchronization and visual selective attention

Reynolds J. (La Jolla, USA)
Mapping the microcircuitry of attention

Schroeder C. (Orangeburg, USA)
Low frequency neuronal oscillations as instruments of attentional selection

Thiele A. (Newcastle upon Tyne, United Kingdom)
Neuropharmacology of attention in visual cortex

S14 - Development of neural maps - from specification to function

Chaired by W.A. Harris (Cambridge, United Kingdom)

Landgraf M. (Cambridge, United Kingdom)
Development and connectivity of a dendritic myotopic map in the Drosophila motor system

Hummel T. (Münster, Germany)
Sensory map formation in the Drosophila brain

Mombaerts P. (Frankfurt, Germany)
Olfaction targeted

Engert F. (Cambridge, USA)
Development and function of neural maps in the visual system of larval zebrafish

S15 - Emerging mechanisms in neurodegenerative disorders - The role of spreading depression (SD)

Chaired by M. Lauritzen (Copenhagen, Denmark), F. Bari (Szeged, Hungary)

Herreras O. (Madrid, Spain)
Mechanisms of sustained depolarization during spreading depression: from membrane channels to macroscopic fields

Farkas E. (Szeged, Hungary)
Aging and chronic cerebral hypoperfusion alter the pattern of CSD in the rat

Dreier J. (Berlin, Germany)
Cortical spreading ischaemia in patients after subarachnoid haemorrhage

Obrenovitch T.P. (Bradford, United Kingdom)
Multimodal imaging of cortical spreading depression in experimental neurology

S16 - The temporo-ammonic pathway: What does it do and why is it important?

Chaired by S. Thompson (Baltimore, USA)

Spruston N. (Evanstown, USA)
Synergistic actions of metabotropic glutamate and acetylcholine receptors modulate responses of CA1 neurons to temporo-ammonic pathway activation

Ito H. (Trondheim, Norway)
Differential regulation of proximal and distal temporo-ammonic CA1 synapses by neuromodulators and experience

Thompson S. (Baltimore, USA)

Selective potentiation of temporo-ammonic synapses in area CA1 by serotonin and its dysregulation in depression

Colgin L. (Trondheim, Norway)

Frequency of gamma oscillations routes information flow between temporo-ammonic and Schaffer collateral inputs in area CA1

L03 - Michael Tomasello (Leipzig, Germany)

The human adaptation for culture

Human beings are biologically adapted for cultural life in ways that other primates are not. Humans have unique motivations and cognitive skills for understanding other persons as cooperative agents with whom one can share emotions, experience, and collaborative actions (shared intentionality). The motivations and skills involved emerge in human ontogeny at around one year of age, as infants begin to participate with other persons in various kinds of collaborative and joint attentional activities (cultural practices), including linguistic communication. Chimpanzees understand important aspects of intentional action - specifically that others pursue goals and perceive things relevant to those goals - especially in competitive situations. But our nearest primate relatives do not seem to have the motivations and cognitive skills necessary to engage in activities involving collaboration, shared intentionality, and, in general, things cultural.

SE03 - ECNP symposium: "Is depression a neurodegenerative disorder?"

Chaired by D. Nutt (London, United Kingdom), H.U. Wittchen (Dresden, Germany)

Wittchen H.U. (Dresden, Germany)

Depression over the life span: a major societal burden and research challenge

Deakin W. (Manchester, United Kingdom)

Clinical phenotype/genotypes of depression

Fossati P. (Paris, France)

Neuroimaging and neuropsychological evidence of cognitive deficits in depression

Castren E. (Helsinki, Finland)

Neuronal plasticity, epigenetics, neurotrophic factors and depression

General discussion

SE04 - EDAB/Neuroethics Society/International Neuroethics Network symposium: "Global challenges in neuroethics"

Chaired by C. Blakemore (Oxford, United Kingdom)

Illes J. (Vancouver, Canada)

Too busy for neuroethics?

Sahakian B. (Cambridge, United Kingdom)

Cognitive enhancement drugs for young and old brains

Magistretti P. (Lausanne, Switzerland)

Neurotechnology inside and outside the laboratory

Snell E. (London, United Kingdom)

Neuroethics in the media

SE05 - NENS symposium

Chaired by D. Manahan-Vaughan (Bochum, Germany)

Manahan-Vaughan D. (Bochum, Germany)

The Network of European Neuroscience Schools: developments and benefits

Raulo E. (Helsinki, Finland)

ERA-Net Neuron: linking European national research funding programmes and funding activities in the field of disease-related neurosciences

Granderath S. (Bonn, Germany)

DFG-funded International Graduate Schools: strategies and implementation

Monday July 5, 08:30
Plenary lecture

Monday July 5, 09:45
Symposia

11

L04 - Stanislas Dehaene (Gif Sur Yvette, France)

Understanding the consciousness code in the human brain

Identifying the brain mechanisms of conscious-level processing is a major challenge for cognitive neuroscience. Time-reversed neuroimaging methods such as EEG, MEG, and intracranial recordings, during conscious perceptual processing, has revealed a global-workspace mode of cortico-thalamic operation, with characteristic electrophysiological signatures that can be of help to detect conscious states in patients with impaired communication.

S17 - Molecular mechanisms controlling stem and progenitor cells in CNS development

Chaired by S. Atanasoski (Basel, Switzerland)

Huttner W.B. (Dresden, Germany)

The cell biology of neural stem and progenitor cells

Broccoli V. (Milan, Italy)

Dual role of Intermediate (basal) progenitor cells in promoting cerebral cortex expansion during vertebrate evolution and embryogenesis

Birchmeier C. (Berlin-Buch, Germany)

Neuronal specification in the dorsal spinal cord and hindbrain

Briscoe J. (London, United Kingdom)

Graded Sonic Hedgehog signaling and the control of neuronal cell type identity

S18 - New developments in brain protection and repair after cerebral ischemia?

Chaired by D. Vivien (Caen, France)

Dirnagl U. (Berlin, Germany)

Brain protection after stroke beyond the brain: "Immune system and heart"

Planas A.M. (Barcelona, Spain)

Activation of innate immune response after stroke

Lindvall O. (Lund, Sweden)

Stem cell therapy after stroke – how can we make it possible?

Vivien D. (Caen, France)

Immunotherapy for stroke

S19 - The bad cop and the good cop: Regulation of neuronal function by the immune system

Chaired by S.A. Wolf (Zürich, Germany)

Becher B. (Zürich, Switzerland)

Cytokines: potential pathogenic substances from within

Wolf S.A. (Zürich, Germany)

The prenatal immunological environment modulates hippocampal neuronal stem cell fitness

Nitsch R. (Berlin, Germany)

Axon regeneration in the CNS: Help from the immune system

Schwartz M. (Rehovot, Israel)

Innate and adaptive immunity control adult neurogenesis in health and disease

S20 - Biomarkers in attention-deficit/hyperactivity disorder: inattentive and combined types

Chaired by R.D. Oades (Essen, Germany)

Sagvolden T. (Oslo, Norway)

Comparative behaviour and genetics in the animal model and in ADHD: neuromodulation in subgroups

Oades R.D. (Essen, Germany)

The genetics of serotonin in impulsivity and ADHD: Do glial and cytokine functions contribute?

Groom M. (Nottingham, United Kingdom)

Detection and characterisation of ADHD using electrophysiology and clinical measures

Durston S. (Utrecht, Netherlands)

Imaging genetics in ADHD: towards biological specificity with the diagnosis

S21 - Large scale interactions in brain networks and new ways to study them

Chaired by P. Fries (Nijmegen, Netherlands)

Corbetta M. (Saint Louis, USA)

Brain-wide networks studied with fMRI and MEG

Fries P. (Nijmegen, Netherlands)

Brain-wide interaction through brain-wide synchronization

Vanduffel W. (Leuven, Belgium)

Stimulating brain-wide networks in monkeys

Driver J. (London, United Kingdom)

Stimulating brain-wide networks in humans

S22 - Visualizing hearing

Chaired by J.G.G. Borst (Rotterdam, Netherlands)

Moser T. (Göttingen, Germany)

Imaging the function of individual hair cell active zones

Borst J.G.G. (Rotterdam, Netherlands)

Formation of the calyx of Held synapse

Grothe B. (Planegg-Martinsried, Germany)

Optical pharmacology of sound localization

Mizrahi A. (Jerusalem, Israel)

In vivo two photon imaging of the mouse auditory cortex

S23 - Nogo receptor signaling and synaptic plasticity in health and disease

Chaired by L. Olson (Stockholm, Sweden), C. Shatz (Stanford, USA)

Shatz C. (Stanford, USA)

Partners in plasticity: PirB and NgR

Strittmatter S. (New Haven, USA)

Nogo Receptor in CNS Plasticity in Health and Disease

Giger R. (Ann Arbor, USA)

Molecular convergence of the mechanisms that regulate neuronal growth and synaptic plasticity

Olson L. (Stockholm, Sweden)

NgR regulation and the formation of lasting memories

S24 - Cognition in a mini-brain: Systems neuroscience in drosophila

Chaired by G. Miesenböck (Oxford, United Kingdom)

Strauss R. (Mainz, Germany)

Memories all over - oriented locomotion and climbing in fruitflies

Borst A. (München, Germany)

A view from the cockpit of the fly

Waddell S. (Worcester, USA)

Pursuing a multi-level understanding of memory and motivation

Miesenböck G. (Oxford, United Kingdom)

Signals and noise in olfactory circuits

Dargut and Milena Kemali Foundation lecture

SL04 - Jonas Frisé (Stockholm, Sweden)

New neurons in old brains

The brain has traditionally been viewed as a static organ, with little possibility for renewal. However, research the last years has demonstrated that new neurons derived from endogenous stem or progenitor cells are continuously added to discrete regions of the adult brain. The realization of the potential to generate new neurons has raised hope for new regenerative treatment paradigms for neurological and psychiatric diseases.

FENS invited lecture

SL05 - Tadashi Isa (Okazaki, Japan)

Extrageniculate visual system in the control of visually guided saccades

The extrastriate visual pathway, mediated via the midbrain superior colliculus, is supposed to process salient visual stimuli to evoke saccades. I will first talk on how the salient stimuli are detected by the collicular local circuits based on our studies using slice preparations. Then I will discuss on the capacity of the extrageniculate pathway, referring to our behavioral and electrophysiological observations in monkeys with lesion to the primary visual cortex, an animal model of "blindsight".

ERA-NET NEURON Young Award lecture

SL06 - To be announced

S25 - The stressed brain: What makes us vulnerable?

Chaired by D.J.F.F. De Quervain (Zürich, Switzerland)

Fernandez G. (Nijmegen, Netherlands)
Equipped to survive: How stress affects human brain function

De Quervain D.J.F.F. (Zürich, Switzerland)
When memories become maladaptive: Genetic and hormonal risk factors

Yehuda R. (New York, USA)
Transgenerational transmission of stress vulnerability

Seckl J.R. (Edinburgh, United Kingdom)
Developmental programming of stress vulnerability

S26 - Cross-modal reorganization in deafness

Chaired by A. Kral (Hamburg, Germany)

Kral A. (Hamburg, Germany)
Development and cross-modal plasticity in the deaf primary auditory cortex

Lomber S.G. (London, Canada)
Contributions of auditory cortex to the superior visual abilities of congenitally deaf cats

Sharma A. (Boulder, USA)
Cortical re-organization and multimodal processing in children with cochlear implants

Barone P. (Toulouse, France)
Brain imaging and recovery of speech comprehension in cochlear implanted deaf subjects

S27 - Systems biology of the synapse: Concepts to understand the complexity of brain synaptic signaling

Chaired by E.D. Gundelfinger (Magdeburg, Germany)

Grant S.G.N. (Hinxton, United Kingdom)
Synapse complexity

Smit A.B. (Amsterdam, Netherlands)
Dissecting the synapse in animal models of disease

Jordan B.A. (Bronx, USA)
Exploring synapse-to-nucleus signaling using proteomics

Weismantel R. (Magdeburg, Germany)
Mathematics for experimental life sciences

S28 - Navigation and the head direction system: Insights from animals, humans and computational models

Chaired by T. Wolbers (Edinburgh, United Kingdom)

Taube J.S. (Hanover, USA)
Recent reflections on head direction cells

Vann S. (Cardiff, United Kingdom)
Behavioural effects of lesions within the head-direction system

Kubie J.L. (Brooklyn, USA)
Heading vectors, the hippocampus and navigation

Wolbers T. (Edinburgh, United Kingdom)
Head direction computations in the human brain

S29 - State dependent cortical processing

Chaired by S. Crochet (Lyon, France), J. Poulet (Berlin-Buch, Germany)

Poulet J. (Berlin-Buch, Germany)
State dependent regulation of cortical membrane potential synchrony during behaviour

Destexhe A. (Gif sur Yvette, France)
State-dependent computations in neocortical neurons and networks

Harris K.D. (Newark, USA)
State dependence of neuronal assembly activity across cortical layers

Massimini M. (Milan, Italy)
Information integration in human thalamocortical circuits during different states of consciousness

S30 - Investigating glia function in vivo

Chaired by T. Fellin (Genova, Italy)

Ratto G.M. (Pisa, Italy)
Imaging the interplay between neurons and astrocytes in vivo models of epileptic seizures

Kirchhoff F. (Goettingen, Germany)
Impact of glial glutamate receptors to brain function in situ and in vivo

Fellin T. (Genova, Italy)
Glia modulation of network activity in vivo

Haydon P. (Boston, USA)
Astrocytic modulation of sleep homeostasis and cognitive consequences of sleep loss

S31 - Act and select: The role of the striatum in selection of behaviour

Chaired by J.P. Bolam (Oxford, United Kingdom)

Silberberg G. (Stockholm, Sweden)
Dynamic interaction within the striatal microcircuit

Magill P.J. (Oxford, United Kingdom)
Synchronised oscillations in the striatopallidal network

Bergman H. (Jerusalem, Israel)
Correlation studies of the reinforcement learning network of the striatum

Hellgren-Kotaleski J. (Stockholm, Sweden)
The Function of the striatal microcircuit - a modelling study

S32 - Morphogens in neural circuit formation

Chaired by P. Bovolenta (Madrid, Spain)

Stoeckli E. (Zurich, Switzerland)
Shh plays a dual role in postcommissural axon guidance

Bovolenta P. (Madrid, Spain)
Shh signaling in vertebrate visual circuit formation

Patricia S. (London, United Kingdom)
Wnt signaling in dendrite morphogenesis and synapse formation

Ng J. (London, United Kingdom)
TGF-beta signals in Drosophila brain wiring

Monday July 5, 17:30
Plenary lecture

Monday July 5, 18:45
Special event

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L05 - Melitta Schachner (Hamburg, Germany)

Recognition molecules in synaptic plasticity and regeneration

Neural cell adhesion molecules were discovered as important determinants in ontogenetic development. Initially unexpected, yet particularly exciting are their functions in the adult nervous system when they recapitulate, at least to some extent, their developmental features in synaptic plasticity, in regeneration after trauma and in prevention of neurodegenerative diseases: that is when the nervous system remains or is required to be "on the move".

SE06 - COST ACTION symposium: "Histaminergic system and pain - therapeutic opportunities for H3 and H4 receptor antagonists"

Chaired by P. Chazot (Durham, United Kingdom), M. Smit (Amsterdam, Netherlands)

Passani B. (Florence, Italy)

Histaminergic system and the CNS

Hough L. (Albany, USA)

Pain relieving drugs and the brain histaminergic system - multiple

Medhurst A. (GlaxoSmithKline, United Kingdom)

H3 receptors and pain - a conflicting story

Ebenshade T. (Abbott Laboratories, USA)

H4 antagonists for the treatment of inflammatory and neuropathic pain

Tuesday July 6, 08:30
Plenary lecture

Tuesday July 6, 09:45
Symposia

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L06 - May-Britt Moser (Trondheim, Norway)

The brain's mechanisms for mapping and remembering space

Cognition is thought to reflect computations in widespread and entangled neural circuits but the nature of these computations is poorly understood. In this lecture I will show how a representation of an animal's current and past location is created in grid cells and other dedicated cell types in networks of the entorhinal cortex and the hippocampus, many synapses away from the sensory cortices.

S33 - Fine-tuning the brain: MicroRNAs

Chaired by E. Vreugdenhil (Leiden, Netherlands), G. Schratt (Heidelberg, Germany)

Holt C. (Oxford, United Kingdom)
microRNAs and axon guidance in the developing visual system

Schratt G. (Heidelberg, Germany)
microRNA Function in Dendritic and Synaptic Plasticity

Vreugdenhil E. (Leiden, Netherlands)
Neuron-Specific microRNAs Regulate Glucocorticoid Responsiveness in the Brain

De Strooper B. (Leuven, Belgium)
Deregulation of the microRNA Network in Alzheimer and Parkinson Disease

S34 - Neurobiological factors determining high vulnerability to drug seeking and relapse

Chaired by T.J. De Vries (Amsterdam, Netherlands)

Piazza P.V. (Bordeaux, France)
Gene profiling in individuals exposed to drugs for a long period of time

Shaham Y. (Baltimore, USA)
Incubation of cocaine craving: behavioral and neuronal mechanisms

Spanagel R. (Mannheim, Germany)
Role of NMDA and AMPA receptors within the dopaminergic system in cocaine reinforcement

Spijker S. (Amsterdam, Netherlands)
Acute synaptic plasticity in mPFC upon heroin cue exposure

S35 - Rapid neuroendocrine response and synaptic plasticity

Chaired by S.L. Lightman (Bristol, United Kingdom)

Davis J. (Manchester, United Kingdom)
Oscillatory regulation of endocrine gene expression

Lightman S.L. (Bristol, United Kingdom)
Ultradian pattern dependent regulation of hippocampal glucocorticoid responses

Krugers H.J. (Amsterdam, Netherlands)
Glucocorticoid regulation of synaptic efficacy and plasticity

Cho K. (Bristol, United Kingdom)
The role of glucocorticoid receptors in AMPA and NMDA receptors trafficking in the brain

S36 - Prefrontal and parietal-premotor contributions to free choice selection

Chaired by B.M. De Jong (Groningen, Netherlands)

Cisek P. (Montreal, Canada)
Decision making at early stages of action preparation

De Jong B.M. (Groningen, Netherlands)
Free selection of self-referenced and target-based movement

Koechlin E. (Paris, France)
Roles of the rostral prefrontal cortex in decision making

Nachev P. (London, United Kingdom)
Free will and the delusion of alien action control

S37 - Sensorimotor integration in the whisker system

Chaired by P. Krieger (Stockholm, Sweden), A. Groh (Munich, Germany)

Kleinfeld D. (La Jolla, USA)

Encoding the location of objects with a scanning sensorimotor system

Ahissar E. (Rehovot, Israel)

Tactile perception as a motor-sensory convergence process

Schwarz C. (Tübingen, Germany)

Active perception in the rat's whisker system

Fairhall A.L. (Seattle, USA)

Adaptive coding in somatosensory cortex

S38 - Nitric oxide in sleep and sleep disorders

Chaired by T. Porkka-Heiskanen (Helsinki, Finland)

Garthwaite J. (London, United Kingdom)

Nitric-oxide mediated neurotransmission in brain

Porkka-Heiskanen T. (Helsinki, Finland)

Sleep homeostasis: A (non-pathological) role of iNOS induced NO in brain

Kilduff T. (Menlo Park, USA)

Sleep active nitrinergic neurons in cortex

Veasey S.C. (Philadelphia, USA)

Role of nitric oxide in obstructive sleep apnea

S39 - Cell-specific regulation of visual cortical plasticity

Chaired by T. Pizzorusso (Pisa, Italy), A. Maffei (Stony Brook, USA)

Hensch T.K. (Cambridge, USA)

GABA circuit control of visual cortical plasticity

Pizzorusso T. (Pisa, Italy)

Extracellular environment and visual cortical plasticity

Verhaagen J. (Amsterdam, Netherlands)

A role for class III semaphorins in the function of perineuronal nets?

Maffei A. (Stony Brook, USA)

Experience-dependent plasticity of inhibitory synapses

S40 - Neuron-microglia interactions: A family matter from marriage to divorce

Chaired by M. Bentivoglio (Verona, Italy)

Cullheim S. (Stockholm, Sweden)

Immune molecules in neurons and glia – implications for synaptic plasticity after nerve lesion

Nabekura J. (Okazaki, Japan)

Microglia directly monitor the functional state of synapses and determine the fate of damaged axon terminals: In vivo observations

Nataf S. (Lyon, France)

The functions of macrophages in the grip of neurons

Neumann H. (Bonn, Germany)

Role of microglial triggering receptor expressed in myeloid cells-2 (TREM-2) in homeostatic debris clearance without inflammation in the CNS

Hertie Foundation lecture

SL07 - Linda B. Buck (Seattle, USA)

Mechanisms of odor and pheromone sensing in mammals

Humans and other mammals can discriminate a vast array of chemicals in the external world. While most are sensed as odors, others act as pheromones and induce hormonal changes or instinctive behaviors. The identification of receptors for odorants and pheromones has provided molecular tools with which to explore how these chemicals are first detected and then translated by the brain into diverse perceptions and behaviours.

Boehringer Ingelheim FENS Research Award

SL08 - To be announced

EDAB - Max Cowan lecture

SL09 - Colin Blakemore (Oxford, United Kingdom)

Death and transfiguration in the development and function of the brain

Max Cowan's discovery of neuronal death and selective elimination of connections during the development of the nervous system was counter-intuitive but seminal in its influence. "Regressive" events, regulated by complex interactions within the developing brain, are now seen to be crucial for the creation of exquisite organization on the basis of sparse genetic instruction. The concepts of adaptability and plasticity now dominate our view of the brain – not only during its development but also as part of its mature function and its response to damage and disease.

SE07 - New European Directive on animal research: Impact on European neuroscience

Chaired by R. Lemon (London, United Kingdom)

Festing S. (London, United Kingdom)

Background to the EU Directive and its current status

Treue S. (Göttingen, Germany)

Impact of the new Directive on NHP research in Europe

Goldberg M. (Baltimore, USA)

US perspective: Society for Neuroscience and the use of animals in neuroscience research

Caminiti R. (Rome, Italy)

FENS perspective on the EU Directive

Questions to the panel and general discussion

S41 - In vitro study of human epileptogenic cells and networks

Chaired by F. Bartolomei (Marseille, France), P. Kahane (Grenoble, France)

Avoli M. (Roma, Italy)

Initiation of epileptiform discharges in human dysplastic tissues: neuronal signaling

Khazipov R. (Marseille, France)

Epileptiform activities generated in juvenile malformed epileptic tissue

Lerner-Natoli M. (Montpellier, France)

Neurogenesis and angiogenesis in human epileptic tissue: which consequences on excitability?

Huberfeld G. (Paris, France)

Cellular and network properties of the genesis of ictal discharges in human epileptic tissue

S42 - The choroid plexus: A gate for signalling into the brain

Chaired by J.A. Palha (Braga, Portugal), I. Torres Aleman (Madrid, Spain)

Johansson P.A. (Neuherberg/München, Germany)

How does the choroid plexus may influence brain neurogenesis?

Engelhardt B. (Bern, Switzerland)

The choroid plexus - the secret entry site of autoaggressive T cells into the CNS?

Carro E.M. (Madrid, Spain)

Choroid plexus receptors and transporters-targets for amyloid beta peptide clearance in Alzheimer's disease

Marques F. (Braga, Portugal)

The choroid plexus as a conveyor of immune signals into the brain

S43 - Molecular, cellular and network basis of thalamocortical dynamics

Chaired by N. Leresche (Paris, France)

Jabaudon D. (Geneva, Switzerland)

Molecular controls over somatosensory cortex patterning during development

Isaac J. (Bethesda, USA)

Thalamocortical synaptic plasticity and the development of layer 4 barrel cortex circuits

Bokor H. (Budapest, Hungary)

Nucleus specific control of relay cell activity in the somatosensory thalamus

Bal T. (Gif-sur-Yvette, France)

Replaying thalamocortical interactions via artificial conductance injections in biological neurons

S44 - Striatal plasticity: From health to Parkinson's disease

Chaired by E.C. Hirsch (Paris, France), P. Calabresi (Perugia, Italy)

Fejtova A. (Magdeburg, Germany)

Molecular and cellular mechanisms underlying synaptic plasticity in the striatum

Gardoni F. (Milano, Italy)

Structural modification of glutamatergic synapse in the striatum after dopamine denervation

Iortega-Perez I. (Paris, France)

Characterization of the morphological changes underlying

altered corticostriatal plasticity in experimental animal models and in PD patients

Cenci-Nilsson A. (Lund, Sweden)

Restorative approaches for synaptic alterations in PD animal models

S45 - The relation of ongoing brain activity, stimulus evoked responses and perceptual decisions

Chaired by A. Kleinschmidt (Gif/Yvette, France)

Arieli A. (Rehovot, Israel)

From perception to action: the role of ongoing and evoked activity

Palva J.M. (Helsinki, Finland)

Neural oscillations, slow fluctuations, and human perceptual performance

Kleinschmidt A. (Gif/Yvette, France)

The impact of spontaneous human brain activity on perceptual detection and decisions

Deco G. (Barcelona, Spain)

A neurocomputational framework for understanding the dynamics and consequences of ongoing activity

S46 - Stress and the amygdala: From animal models to clinical implications

Chaired by S. Chattarji (Bangalore, India)

Rooszendaal B. (Groningen, Netherlands)

Title of presentation: Adrenal stress hormones, amygdala activation, and memory for emotionally arousing experiences

Chattarji S. (Bangalore, India)

The impact of stress on neurons in the amygdala: implications for anxiety disorders

Lowry C.A. (Boulder, USA)

Neural systems regulating anxious states

McEwen B.S. (New York, USA)

Stress induced structural remodeling in the limbic brain

S47 - Interneuron development and function

Chaired by S. Butt (London, United Kingdom)

Goulding M. (La Jolla, USA)

Using developmental genetics to probe motor circuits in the spinal cord

McLean D. (Evanston, USA)

Switching gears: new perspectives on motor control from the zebrafish

Kessarlis N. (London, United Kingdom)

Neuroepithelial patterning regulates cortical interneuron identity

Butt S. (London, United Kingdom)

Finding the source of inhibition in the cerebral cortex

S48 - Presynaptic short-term plasticity: Molecules, mechanisms and functions

Chaired by N. Brose (Goettingen, Germany)

Brose N. (Goettingen, Germany)

Control of presynaptic short term plasticity by synaptic vesicle priming proteins

Rosenmund C. (Houston, USA)

The role of SNARE regulatory proteins in short-term plasticity

Tuesday July 6, 17:30

Plenary lecture

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Castillo P. (New York, USA)

Activity-dependent switch from short-term to long-term plasticity in the hippocampus

Jahn R. (Goettingen, Germany)

Molecular determinants of SNARE function

L07 - Tobias Bonhoeffer (Munich, Germany)

How activity changes synapses in the mammalian brain

Support contributed by the Kavli Foundation

One of the most fundamental properties of the brain is its ability to adapt rapidly to environmental changes. This is mainly achieved by changes in synaptic connectivity. Research in recent years has provided important new insights into the rules and mechanisms underlying synaptic plasticity. At the same time, novel imaging techniques have made it possible to investigate morphological as well as functional plasticity at the level of individual neurons in the intact brain. The lecture will discuss how these approaches are beginning to close the gap between traditional cellular and systems studies, and how they will enable us to obtain a much more complete understanding of the phenomenon of synaptic plasticity and its role for cortical function.

Tuesday July 6, 18:45

Special event

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SE08 - FENS/IBRO Alumni symposium: "Encoding dynamic information in neuronal circuits"

Chaired by S. Sara (Paris, France), M. Stewart (Milton Keynes, United Kingdom)

Lorincz M. (Cardiff, United Kingdom)

Temporal framing of thalamic relay-mode firing by phase inhibition during the alpha rhythm

Letzkus J. (Weinstadt, Germany)

In vivo 2-photon calcium imaging of fear memory traces in auditory cortex

Wyart C. (Berkeley, USA)

Optogenetic dissection of the role of spinal neurons in locomotion

Massobrio P. (Genoa, Italy)

Long term network plasticity requires synaptic remodelling in cortical assemblies

Wednesday July 7, 08:30
Plenary lecture

Wednesday July 7, 09:45
Symposia

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L08 - Maria Spillantini (Cambridge, United Kingdom)

What can protein aggregates tell us about neurodegenerative diseases?

Several neurodegenerative diseases of the brain are characterized by the presence of intracellular protein aggregates. These aggregates can contain alpha-synuclein as in Parkinson's diseases Lewy bodies or the microtubule associated protein tau as the neurofibrillary tangles in Alzheimer's diseases and other tauopathies.

The relevance of protein aggregates for neurodegeneration has been determined by the identification of genetic mutations in genes encoding for the aggregated proteins. However, the specific role of the aggregates and the structure of the toxic species is still debated. Transgenic animal models can help us to understand the pathological mechanism and provide important tools for identifying and testing new therapies.

S49 - Dynamic processes underlying synaptic plasticity

Chaired by M. Kneussel (Hamburg, Germany), D. Choquet (Bordeaux, France)

Choquet D. (Bordeaux, France)

Activity-dependent AMPA receptor surface membrane trafficking

Kneussel M. (Hamburg, Germany)

Intracellular cytoskeleton transport of synaptic proteins

Nägerl V. (Bordeaux, France)

Dynamic processes underlying synaptic connectivity

Sabatini B.L. (Boston, USA)

Signaling mechanisms underlying synaptic plasticity

S50 - Dopaminergic modulation of human decision making

Chaired by R. Cools (Nijmegen, Netherlands), M. Ullsperger (Cologne, Germany)

Frank M. (Providence, USA)

Neurocomputational, pharmacological and genetic evidence for a role of dopamine in reinforcement-based learning

Pessiglione M. (Paris, France)

How experience improves our choices. Evidence from neuroimaging and neuropsychology

Heekeren H. (Berlin, Germany)

Genetic variation in dopaminergic modulation influences adaptive decision making and associated neural activity

Cools R. (Nijmegen, Netherlands)

Role of dopamine in human vigor, valuation or learning? Evidence from pharmacological PET and fMRI

S51 - Recipe for solving the cerebellar mystery: 2 photons, 1 live mouse and a dash of Oregon Green BAPTA

Chaired by A. Konnerth (Munich, Germany), Y. Yarom (Jerusalem, Israel)

Wang S.S.H.H. (New Jersey, USA)

Encoding of sensations and movement in the cerebellum: an optical view

Häusser M. (London, United Kingdom)

Imaging dendritic integration in cerebellar Purkinje cells in vivo

Konnerth A. (Munich, Germany)

Ataxia and olivo-cerebellar circuit disruption by Purkinje-cell specific ablation of BK channels

Yarom Y. (Jerusalem, Israel)

Calcium transients associated with harmaline-induced activity in the cerebellum

S52 - Neuronal cell death in motor neuron diseases

Chaired by A. Poletti (Milano, Italy), C. Miller (London, United Kingdom)

Pasinelli P. (Philadelphia, USA)

Molecular mechanisms of motor neuron degeneration and death in ALS: lessons from mutant SOD

Miller C. (London, United Kingdom)

Defective protein and organelle trafficking in motor

neuron disease

Poletti A. (Milano, Italy)

Motor neuron alteration in Spinal and Bulbar Muscular Atrophy: the neurotoxicity of the elongated polyglutamine tract of the androgen receptor

Battaglia G. (Milano, Italy)

The role of a shorter variant of the Survival motor neuron protein (a-SMN) on axonal functions in Spinal Muscular Atrophy

S53 - How we come to experience that we own our body: from full-body illusions to cortical mapping

Chaired by H.H. Ehrsson (Stockholm, Sweden)

Ehrsson H.H. (Stockholm, Sweden)

Brain mechanisms of body ownership

Blanke O. (Lausanne, Switzerland)

Spatial aspects of bodily self-consciousness: Cognitive Neurology and Neuroscience

Haggard P. (London, United Kingdom)

The role of body representations in somatosensory processing

Amedi A. (Jerusalem, Israel)

Topographical mapping of the human body and the "mind body scheme" reveals multiple novel homunculi

S54 - Neuregulin signaling in neural development, function and disease

Chaired by A. Buonanno (Bethesda, USA), J. Neddens (Bethesda, USA)

Anton E.S. (Chapel Hill, USA)

Role of Neuregulin- ErbB interactions in cerebral cortical development

Role L.W. (Stony Brook, USA)

Neuregulin signaling in circuit physiology and behavior

Buonanno A. (Bethesda, USA)

Regulation of synaptic plasticity and neuronal network activity by the NRG-ErbB4 signaling pathway: Possible relevance for psychiatric disorders

Law A.J. (Oxford, United Kingdom)

Neuregulin signaling in neural development, brain function and schizophrenia. From ligands to receptor

S55 - Temporal control of neuronal diversity

Chaired by V. Tarabykin (Goettingen, Germany), P. Vanderhaeghen (Brussels, Belgium)

Gould A.P. (London, United Kingdom)

A timing mechanism coupling cell fate and proliferation in the Drosophila CNS

Cayouette M. (Montreal, Canada)

Regulating the order of cell birth in the developing mouse retina: importance of cell-intrinsic mechanisms

Vanderhaeghen P. (Brussels, Belgium)

Intrinsic mechanisms of specification of cortical neurons from pluripotent stem cells

Tarabykin V. (Goettingen, Germany)

Postmitotic feedback and control of cell fate specification in the neocortex

S56 - Deletion of memory

Chaired by T. Hucho (Berlin, Germany)

Nader K. (Montreal, Canada)

Memory Loss during reconsolidation - from whole brain to molecular mechanisms

Sacktor T. (Brooklyn, USA)

Pharmacological memory deletion in the CNS through inhibition of the memory maintenance molecule PKMzeta

Tsien J.Z. (Augusta, USA)

Genetic/pharmacological deletion in the CNS through activation of the protein kinase CaMKII

Hucho T. (Berlin, Germany)

Stimulus context deletes pain sensitization in the peripheral sensory neuron

Wednesday July 7, 12:00
Special lectures & events

Wednesday July 7, 13:05
Closing lecture

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FENS EJM Award 2010

SL10.1 - Wolfram Schultz (Cambridge, United Kingdom)

Subjective reward and risk coding

The lecture will describe how neural signals in human and primate brains code reward and risk signals in a subjective rather than objective manner. I will present data on temporal discounting, risk coding and the influence of risk on neural value signals. These results suggest good correlations between neuronal and behavioural processes and are compatible with the general notion that neural processing adapts to available environmental resources.

FENS EJM Young Investigator Award 2010

SL10.2 - Pierre Paoletti (Paris, France)

Control of NMDA receptor activity: from molecular mechanisms to synaptic modulation

NMDA receptors are glutamate-gated ion channels that play key roles in numerous physiological and pathological processes of the CNS including synaptic plasticity, excitotoxicity, pain and schizophrenia. During the last decade, molecular studies on recombinant receptors have led to significant advances in our understanding of the molecular mechanisms that govern subunit-specific NMDA receptor activation and modulation. These results provide unique opportunities to develop new tools to manipulate specific NMDA receptor functions in their native synaptic environment.

SE09 - Breaking news in neuroscience

To be announced at meeting

L09 - Arturo Alvarez-Buylla (San Francisco, USA)

Regional specification of postnatal neural stem cells

The largest germinal region in the adult mammalian brain occurs in the subventricular zone (SVZ) in the walls of the lateral ventricles. Recent work from the laboratory has shown that neural stem cells retain an epithelial apical-basal organization and are surrounded by ependymal cells in striking pinwheel architecture. Other recent work from our laboratory has demonstrated that the stem cells of the SVZ are not homogeneous. Instead, stem cells located in different subregions of the SVZ generate distinct types of neuronal progeny that migrate to the olfactory bulb. In vitro studies suggest that the adult SVZ is a mosaic of multipotent progenitors capable of generating both neurons and glial cells. However, neurons generated at specific locations appear to be prespecified. I will discuss these findings and more recent work on the signals that may be associated with the proliferation and specification of SVZ subregions.