

**3/5**  
OCTOBER  
**2013**

**XV CONGRESS OF THE ITALIAN SOCIETY OF NEUROSCIENCE**

Dedicated to the memory of Rita Levi Montalcini

ROME • ANGELICUM CONGRESS CENTRE • LARGO ANGELICUM, 1



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Gemma Calamandrei  
Roberto Caminiti  
Luisa Minghetti  
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# XV Congress of the Italian Society of Neuroscience

## SINS

**Rome, 3-5 October 2013**

**With the patronage of**



**ROMA CAPITALE**

CNR - European Brain Research Institute -

Istituto Superiore di Sanità - Università di Tor Vergata - Università di Roma Sapienza

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**SEGRETERIA** c/o PLS Educational Spa: Via della Mattonaia, 17 - 50121 Firenze - Tel 055 24621 - Fax 055 2662270 - segreteria@sins.it - www.sins.it

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# Programme

## Thursday 3 October

- 14:00 - 14:05 Greetings from the Major of Rome Ignazio Marino
- 14:05 – 14:10 Introductory remarks
- 14:10 - 15:00 **Plenary Lecture**  
An Environment that cures  
*Lecturer: Lamberto Maffei (Emeritus Professor and President of the Accademia Nazionale dei Lincei)*
- 15:00 - 16:00 **Special event** of FENS Committee on Animals in Resarch (CARE): National and international initiatives on the new EU Directive on animal experimentation and the status of its implementation across Europe  
*Chairs: Gemma Calamandrei - Roberto Caminiti*  
*Speakers: Nicola Nosengo - Gemma Perretta*
- 16:00 - 16:30 Coffee break
- 16:30 - 18:10 Parallel Symposia**
- Symposium 01: Under 40 Symposium**  
**Advanced optical techniques for imaging and manipulating neuronal circuits**  
*Chairs: Mario Buffelli; Francesco S. Pavone*
- 16:30 - 16:55 Layer-specific excitatory circuits differentially control neocortical network dynamics  
Tommaso Fellin
- 16:55 - 17:20 The extracellular matrix restrain dendritic spine motility and functional plasticity in the adult visual cortex of the mouse  
Silvia Landi
- 17:20 - 17:45 Watching in vivo dendritic cells in action in the brain  
Claudia Laperchia
- 17:45 - 18:10 Whole brain optical imaging by light sheet microscopy  
Ludovico Silvestri



**Symposium 02:**

**Synaptic dysfunctions in the pathophysiology and treatment of psychiatric disorders: molecular rationales for clinical choices**

*Chair: Felice Iasevoli – Annabella Di Giorgio*

- 16:30 - 16:50 How neuroleptics modulate memory load capacity  
Elvira de Leonibus
- 16:50 - 17:10 Genetic variation and its effect on intermediate phenotypes of Schizophrenia  
Annabella di Giorgio
- 17:10 - 17:30 Epigenetic changes in prenatal stress mice: new molecular targets for the experimental treatment of psychosis  
Francesco Matrisciano
- 17:30 - 17:50 The impact of stress and glucocorticoids on glutamate synapses in cerebral cortex  
Laura Musazzi
- 17:50 - 18:10 Molecular profiling of psychopharmacotherapy: postsynaptic density rearrangements by antipsychotic treatments  
Carmine Tomasetti

**Symposium 03:**

**The Nerve growth factor (NGF) and emerging therapeutic perspectives**

*Chairs: Luigi Aloe; Paola Tirassa*

- 16:30 - 16:50 Neuroprotective role of NGF in children with severe head injury and hypoxic-ischemic brain lesions  
Antonio Chiaretti
- 16:50 - 17:10 Nerve growth factor: from neurotrophin to “socialtrophin”  
Enzo Emanuele
- 17.10 - 17:30 NGF Therapy of the Infarcted Heart  
Costanza Emanuelli
- 17:30 - 17:50 Clinical application of NGF eye drops in ocular diseases  
Alessandro Lambiase
- 17:50- 18:10 From eyes to brain: neuroprotective and reparative actions of NGF eye drops  
Paola Tirassa



- 18:10 - 19:30 **Workshop**  
Neuroscience as promoter of the future: ideas, knowledge transfer and social impact  
*Lecturer: Riccardo Pietrabissa (University of Brescia)*

- 19:30 **Welcome Reception**

### Friday 4 October

#### 09:00 - 10:40 **Parallel Symposia**

##### **Symposium 04:**

##### **Beyond cell replacement: functional plasticity and homeostatic activities of adult stem and progenitor cells**

Chairs: Annalisa Buffo; Silvia De Marchis

- 09:00 - 09:25 Plasticity of the germinal niche: roles of nogo-a and nogo receptor 1 in the homeostatic regulation of adult neurogenesis  
Annalisa Buffo
- 09:25 - 09:50 Extrinsic mechanisms regulating adult hippocampal neural stem cell quiescence and fate decisions  
Claudio Giachino
- 09:50 - 10:15 From tissue homeostasis to repair: the role of neural stem cells in brain regeneration  
Gianvito Martino
- 10:15 - 10:40 Adult neurogenesis as a physiological mechanism to recognize mate pheromones in mice  
Paolo Peretto

##### **Symposium 05:**

##### **Early focal brain lesions and modelling of intervention**

Chair: Giovanni Cioni

- 09:00 - 09:25 Early intervention in infants with perinatal brain damage  
Giovanni Cioni
- 09:25 - 09:50 Plasticity of the corticospinal system in man after congenital middle cerebral artery infarction  
Janet Eyre
- 09:50 - 10:15 Experimental models and neuroprotection studies on neonatal hypoxic-ischemic brain injury  
Elisa Landucci



10:15 - 10:40 Rat modelling and intervention in early focal stroke  
Tommaso Pizzorusso

**Symposium 06: Under 40 Symposium**

**Early visual cortex activity and perception: investigating their relationship with ultra-high resolution FMRI**

*Chair: Paola Binda*

09:00 - 09:25 Decoding perceived spatial position from bold activity in early visual cortex:  
Paola Binda

09:25 - 09:50 High-resolution FMRI reveals the fine functional architectures of the visual cortex:  
representation of stimulus orientation in v1 and motion direction in mt in humans  
Mauro Costagli

09:50 - 10:15 Laminar profiles with gradient echo at 7t: feed-forward activity in primary visual  
cortex  
Alessio Fracasso

10:15 - 10:40 Retinotopic activity in v1 reflects the perceived not the retinal size of an afterimage:  
Irene Sperandio

10:40 - 11:00 **Coffee break**

11:00 - 12:00 **Plenary Lecture**

Novel Therapies for Diabetes and Obesity

*Lecturer: Matthias Tschöp (Helmholtz Zentrum München, Germany)*

12:00 - 14:00 **Lunch and Posters**

**14:00 - 15:40 Parallel Symposia**

**Symposium 07:**

**From immune to nervous system and back**

*Chair: Roberto Furlan*

14:00 - 14:25 Leukocyte trafficking in alzheimer's disease  
Gabriela Constantin

14:25 - 14:50 Astrocytes in neuroinflammation and neurodegeneration  
Cinthia Farina

14:50 - 15:15 Neuronal control of immunity  
Giuseppe Matarese

15:15 - 15:40 Inflammation in amyotrophic lateral sclerosis  
Angelo Quattrini



**Symposium 08:**

**Neuroscience of Diabetes**

*Chair: Alessandro Bartolomucci*

- 14:00 - 14:25 Brain imaging and metabolism in diabetes  
Patricia Iozzo
- 14:25 - 14:50 Epigenetic mechanisms linking diabetes and Alzheimer's dementia  
Giulio Maria Pasinetti
- 14:50 - 15:15 Neuroactive steroids and diabetic neuropathy  
Nico Mitro
- 15:15 - 15:45 Social stress, obesity and type 2 diabetes  
Alessandro Bartolomucci

**Symposium 09: Under 40 Symposium**

**New insights in the modulation of dopamine system**

*Chair: Damiana Leo*

- 14:00 - 14:25 Dopamine D3 receptor and beta-2 containing nicotinic acetylcholine receptor are critical in mediating nicotine effects on dopaminergic neurons morphology:  
Federica Bono
- 14:25 - 14:50 Direct reprogramming of fibroblasts into functional dopaminergic neurons  
Massimiliano Caiazzo
- 14:50 - 15:15 Role of trace amine-associated receptor 1 (taar1) in the modulation of dopaminergic system and cortico-striatal signaling  
Stefano Espinoza
- 15:15 - 15:45 Mesencephalic dopaminergic neurons express a repertoire of olfactory receptors and respond to odorant-like molecules  
Alice Grison
- 15:40 - 16:00 **Coffee break**
- 16:00 - 16:20 **Presentation of the 2014 FENS Meeting**  
*Speaker: Marina Bentivoglio*
- 16:30 - 17:30 **Plenary Lecture**  
Programming and reprogramming neuronal diversity in the cerebral cortex  
*Lecturer: Paola Arlotta (Harvard University, US)*



**17:40 - 19:20 Parallel Symposia**

**Symposium 10:**

**An emotional perspective on the endocannabinoid system: from health to disease**

*Chairs: Viviana Trezza; Patrizia Campolongo*

- 17:40 - 18:05 Vulnerability factors in cannabinoid addiction  
Liana Fattore
- 18:05 - 18:30 The endocannabinoid system and its role in anxiety disorders: lessons from animal studies  
Vincenzo Micale
- 18:30 - 18:55 Endocannabinoid modulation of emotional memory: a new therapeutic frontier for PTSD patients?  
Gustav Schelling
- 18:55 - 19:20 Chronic pubertal cannabinoid exposure as a valid animal model for aspects of schizophrenia  
Miriam Schneider

**Symposium 11:**

**Dynamics of neural population bursts**

*Chair: Maurizio Mattia*

- 17:40 - 18:05 Spontaneous vs evoked population bursts: history dependence, differential role of neuronal adaptation and synaptic short-term depression and finite-size effects  
Paolo Del Giudice
- 18:05 - 18:30 Ultra-fast neuronal ensemble reaction times in cortical neurons under recreated synaptic background activity  
Michele Giugliano
- 18:30 - 18:55 Synchrony in neural populations: two perspectives  
Shimon Marom
- 18:55 - 19:20 Enhanced network dynamics in 3d hippocampal cultures coupled to micro-electrode arrays  
Sergio Martinoia

**Symposium 12: Under 40 Symposium**

**Unraveling striatal neural circuits: from cell-type specificity to neurological disorders**

*Chair: Giuseppe Gangarossa*



- 17:40 - 18:05 Derangement of ras-grf1 and erk dependent cortico-striatal plasticity in l-dopa induced dyskinesia  
Milica Cerovic
- 18:05 - 18:30 Does striatal cell-type specificity matter? Old question, new evidence and future horizons  
Giuseppe Gangarossa
- 18:30 - 18:55 Striatal synaptic plasticity: from physiology to basal ganglia disorders  
Veronica Ghiglieri
- 18:55 - 19:20 Cholinergic interneurons control the striatal circuit: from physiology to the pathology  
Giuseppe Sciamanna
- 19:30 - 20:00 **Sins General assembly**

### Saturday 5 October

#### 09:00 - 10:40 **Parallel Symposia**

##### **Symposium 13:**

##### **Dysregulated food intake and eating disorders: social, neuroendocrine and neuromodulatory factors**

*Chairs: Driss Boussaoud; Liana Fattore*

- 09:00 - 09:20 The eating disorders and alexithymia  
Ghizlane Benjelloun
- 09:20 - 09:40 Regulation of the brainstem satiety center signals  
Emmanuel Moyse
- 09:40 - 10:00 Neuroendocrine regulation of food intake during stress-induced anorexia  
Mohamed Najimi
- 10:00 - 10:20 Hippocampal neurogenesis and the endogenous cannabinoid system: effects of drugs that reduce appetite in obese animals  
Fernando Rodriguez De Fonseca
- 10:20 - 10:40 Involvement of the endocannabinoid system in binge eating disorder: preclinical evidence  
Maria Scherma



**Symposium 14:**

**Environment, epigenetics and neurodegeneration**

*Chairs: Andrea Fusco; Rita Businaro*

- 09:00 - 09:25 Application of artificial intelligence to understand gene-environment interactions relevant for DNA methylation in alzheimer's disease  
Fabio Coppedè
- 09:25 - 09:50 Epigenetic mechanisms in alzheimer's disease: involvement of the endocannabinoid system signaling  
Claudio D'Addario
- 09:50 - 10:15 Environmental factors and alzheimer's disease  
Gianluigi Forloni
- 10:15 - 10:40 Epigenetic mediators of environmental stimuli in aging and neurodegeneration  
Andrea Fusco

**Symposium 15:**

**Glial modulation of neurotransmitter signaling**

*Chairs: Fiorenzo Conti; Michela Matteoli*

- 09:00 - 09:25 Reciprocal interaction between gabaergic interneurons and astrocytes: implications for epileptiform activities  
Gabriele Losi
- 09:25 - 09:50 Neurotransmitter signalling in oligodendrocytes  
Carlos Matute
- 09:50 - 10:15 A reappraisal of glutamate and gaba transporters localization in astrocytes  
Marcello Melone
- 10:15 - 10:40 Pathogenic role of microglia-derived microvesicles in neuroinflammation and neurodegeneration  
Claudia Verderio

**Symposium 16: Under 40 Symposium**

**New insight into cerebellar synaptic and network functions**

*Chair: Jonathan Mapelli; Egidio D'Angelo*

- 09:00 - 09:25 Non invasive modulation of human cerebello-thalamo-cortical circuits  
Giacomo Koch
- 09:25 - 09:50 Long-term plasticity and theta-band resonance modulate high-frequency signal coding at the cerebellum input stage  
Jonathan Mapelli



- 09:50 - 10:15 The cerebellum and visual perceptual learning  
Elisa Santandrea
- 10:15 - 10:40 Ensemble neuronal responses in a large-scale realistic model of the cerebellar cortex  
Sergio Solinas
- 10:40 - 11:00 **Coffee break**
- 11:00 - 12:00 **Plenary Lecture**  
Knocking down the barriers between natural and artificial: networks of neurons and nano Materials  
*Lecturer: Laura Ballerini (University of Trieste, Italy)*
- 12:00 - 14:00 **Lunch and Posters**
- 14:00 - 15:40 **Parallel Symposia**
- Symposium 17:**  
**Biomolecular markers and genetic risk factors for Parkinson's disease: from basic science to clinical research**  
*Chairs: Fabio Blandini; Carlo Ferrarese*
- 14:00 - 14:25 Molecular and biochemical defects in peripheral cells of patients with parkinson's disease  
Fabio Blandini
- 14:25 - 14:50 Biochemical peripheral markers of parkinson's disease: the role of proteomics  
Mauro Fasano
- 14:50 - 15:15 The role of genetic variants as risk factors for sporadic parkinson's disease  
Stefano Goldwurm
- 15:15 - 15:40 Study of alpha-synuclein and its catabolic pathways in lymphomonocytes of patients with Parkinson's disease  
Gessica Sala
- Symposium 18: Under 40 Symposium**  
**Different approaches to a common problem: the neuroinflammation**  
*Chairs: Benedetta Foglio; Mariaserena Boraso*
- 14:00 - 14:25 Histone deacetylase inhibitors: anti- or pro-inflammatory drugs?  
Mariaserena Boraso
- 14:25 - 14:50 Peroxisome proliferator-activated receptor-g agonists protect oligodendrocytes from tnf-alpha-induced damage  
Chiara De Nuccio



14:50 - 15:15 Neuroprotection by association of palmitoylethanolamide with luteolin in trauma: the control of neuroinflammation  
Emanuela Esposito

15:15 - 15:40 Protective effects of neuroactive steroids in an animal model of multiple sclerosis:  
Silvia Giatti

**Symposium 19:**

**Preclinical studies to set the ground for early detection and treatment of Autism Spectrum Disorders**

*Chair: Maria Luisa Scattoni*

14:00 - 14:25 Dysregulation of group-i metabotropic glutamate subtype 5 (mglu5) receptors in a mouse model of fragile x syndrome  
Simona D'Antoni

14:25 - 14:50 Gabaergic dysfunction in asd mouse models: the case of engrailed-2 mutant mice:  
Giovanni Provenzano

14:50 - 15:15 Preclinical research in rett syndrome: new therapeutic tools downstream of mecp2  
Laura Ricceri

15:15 - 15:40 Non invasive tools for early detection of autism spectrum disorders  
Maria Luisa Scattoni

**Symposium 20:**

**The identification of novel molecular determinants for neuropathic pain onset and chronicization opens new treatment approaches**

*Chairs: Paola Sacerdote; Flaminia Pavone*

14:00 - 14:25 Palmitoylethanolamide reduces formalin-induced neuropathic-like behaviour through spinal glial /microglial phenotypical changes in mice  
Francesca Guida

14:25 - 14:50 A new player in neuropathic pain: the bv8/prokineticin system  
Roberta Lattanzi

14:50 - 15:15 Autophagy in the peripheral nervous system: a modulatory role in the onset and chronicization of neuropathic pain  
Sara Marinelli

15:15 - 15:40 Stem cell treatment relieves experimental neuropathic pain restoring the pro anti-inflammatory cytokine balance  
Paola Sacerdote



15:40 - 16:10 Coffee break

16:10 - 17:10 **Plenary Lecture**

Reward, risk and economic decision

Lecturer: *Wolfram Schultz (Cambridge, UK)*

17:20 - 19:00 **Parallel Symposia**

**Symposium 21: Under 40 Symposium**

**Amyotrophic lateral sclerosis, a multifactorial neurodegenerative disease**

*Chairs: Marco Milanese; Marco Peviani*

17:20 - 17:45 Rna metabolism in amyotrophic lateral sclerosis

Claudia Colombrita

17:45 - 18:10 Alteration of protein folding and degradation in als: protective role of the small heat shock protein B8

Valeria Crippa

18:10 - 18:35 Glutamate-mediated excitotoxicity and amyotrophic lateral sclerosis: the role of group I metabotropic glutamate receptors

Marco Milanese

18:35 - 19:00 Whole genome transcriptome analysis identifies indices of fast and slow disease progression in two mouse models of amyotrophic lateral sclerosis:

Giovanni Nardo

**Symposium 22:**

**Microglia, Astrocytes and Oligodendrocytes: potential therapeutic targets for stroke**

*Chairs: Alexej Verkhratsky; Giacinto Bagetta*

17:20 - 17:45 Dissection of the dual role of inflammatory mediators in ischemic stroke for validating novel neurotherapeutics

Giacinto Bagetta

17:45 - 18:10 Emerging role of the sodium calcium exchanger in microglia and oligodendrocytes

Francesca Boscia

18:10 - 18:35 Microglia polarization in brain ischemia

Maria-grazia De Simoni

18:35 - 19:00 Physiological role for microglia: shaping neural networks

Alexei Verkhratsky



**Symposium 23:**

**Molecular and cellular determinants of GABAergic signaling at inhibitory synapses**

*Chair: Andrea Barberis*

- 17:20 - 17:45 Long-term potentiation of perisomatic inhibition alters the computation of temporally coded information of neocortical pyramidal neurons  
Alberto Bacci
- 17:45 - 18:10 Connecting agonist binding to gating of gabaa receptors  
Jerzy Mozrzymas
- 18:10 - 18:35 Molecular mechanisms of postsynaptic potentiation of gabaergic synapses: a single particle approach  
Enrica Maria Petrini
- 18:35 - 19:00 Functional role of proline-directed phosphorylation on gaba-a mediated synaptic transmission in the hippocampus  
Paola Zacchi

**Symposium 24:**

**Orexin/hypocretin signalling in feeding and sleep: synaptic plasticity and vulnerability**

*Chair: Luigia Cristino; Vincenzo di Marzo*

- 17:20 - 17:45 Are orexinergic neurons vulnerable to neuroinflammatory and aging-related neurodegenerative diseases?  
Giuseppe Bertini
- 17:45 - 18:10 Obesity-driven synaptic remodeling affects endocannabinoid control of orexinergic neurons  
Luigia Cristino
- 18:10 - 18:35 Orexin and influenza  
Kristen Kristensson
- 18:35 - 19:00 Leptin-controlled orexin/endocannabinoid interactions in the mouse periaqueductal grey: role in the regulation of the descending antinociceptive pathway  
Livio Luongo
- 19:10 - 19:30 Concluding remarks**

19:30 Social event

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Angelicum Congress Centre  
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Largo Angelicum 1  
Rome

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N. provider (accreditamento provvisorio) 3516

### Organizing Secretariat

PLS Educational SpA  
Via Pammatone 7/40 16121 Genova  
Tel +39 010 5740358  
Fax +39 010 5701127

[info@congressosins.com](mailto:info@congressosins.com)  
[www.congressosins.com](http://www.congressosins.com)