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
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 Research (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 prospectives
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 Emanueli

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 repertory 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)
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 Fusò; 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 Forlioni

10:15 - 10:40  
Epigenetic mediators of environmental stimuli in aging and neurodegeneration  
Andrea Fusò

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-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 in 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 gabaA 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  
Krister 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
Congress Venue

Angelicum Congress Centre
Università San Tommaso d’Aquino
Largo Angelicum 1
Rome

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