II EDITION

MORE THAN NEURONS:

toward a less neuronocentric view of brain disorders

Neurological and psychiatric disorders have long been perceived as the exclusive consequence of abnormalities in neurons.
Increasing knowledge on newly identified functions of non-neuronal cells together with findings of their abnormalities in a variety of brain pathological states and in ageing now suggest a shift from a neurono-centric to a glial-inclusive viewpoint in neuroscience and in neuropsychopharmacology.
After the success of the first meeting edition, we would like to continue the discussion of recent preclinical and clinical findings implicating the involvement of non-neuronal cells in initiation, progression or protection of several neuropathologies. Our perspective is that therapeutic strategies aimed at improving/correcting not only neuronal but also non-neuronal cell state and functional performance may open new venues for relevant and undertreated brain diseases.

CME accreditation (valid for Italian participants only) for:
PHYSICIAN - neurology, psychiatry, palliative care, pharmacology and clinical toxicology, geriatrics, neurosurgery, physical medicine and rehabilitation, diabetes and metabolic diseases
PHARMACIST
BIOLOGIST

CME credits: 12,6

Italian CME credits will be granted to those participants who fully attend all sessions and duly fill in the evaluation questionnaires answering correctly 75% of the questions. An attendance certificate will be handed on site at the end of the event, whereas the credit certificate will be mailed.

SCIENTIFIC PROVIDER AND CONGRESS ORGANIZER

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SOCIETÀ ITALIANA DI FARMACOLOGIA · SINS · SINPF · UPO UNIVERSITÀ DEL PIEMONTE ORIENTALE

II EDITION

MORE THAN NEURONS:

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www.morethanneurons.com

TORINO, ITALY
NOVEMBER 29TH - DECEMBER 1ST, 2018
Torino Incontra Centro Congressi, Via Nino Costa 8

SCIENTIFIC ORGANIZERS

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THURSDAY, NOVEMBER 29TH

10.00 Onsite registration and badge distribution

13.30 Welcome & Introduction

14.00 **LECTURE** - *Introduced by M.A. Sortino (Catania, Italy)*
"A role for leukocyte trafficking in Alzheimer's disease" - *Gabriela Constantin (Verona, Italy)*

1 **SESSION 1** *(14.45-19.00)*
Focus on neurodegeneration and neuroinflammation
Chaired by: C. Ghelardini (Firenze, Italy), B. Marchetti (Catania, Italy) A. Pittaluga (Genova, Italy)

14.45 Microglia-mediated synapse loss in the pathogenesis of neurodegeneration
Rosa Paolicelli (Zurich, Switzerland)

15.15 NR4As impairment in Multiple Sclerosis patients: moving from blood to central nervous system
Francesca Montarolo (Torino, Italy)

15.30 Microglia support neurons in the earliest phases of Aβ-induced toxicity - *Sara Merlo (Catania, Italy)*

15.45 Proteomics of tyrosine-nitrated proteins in T cells from Alzheimer's disease patients
Giulia Abate (Brescia, Italy)

16.00 Patient-specific iPSC-derived astrocytes contribute to non-cell autonomous neurodegeneration in Parkinson's disease - *Meritxell Pons-Espinal (Barcelona, Spain)*

16.15 Impact of the chemokine Ccl3 on astrocyte-derived exosomes in Parkinson's disease
Loredana Leggio (Catania, Italy)

16.30 COFFEE BREAK

17.00 Genetic deletion of Rhes increases the susceptibility to the neuroinflammatory effects of 3,4 methylenedioxymethamphetamine (MDMA) - *Micaela Morelli (Cagliari, Italy)*

17.30 Contrasting effect of the immune response in the central and peripheral nervous system on amyotrophic lateral sclerosis disease progression - *Caterina Bendotti (Milano, Italy)*

18.00 Ca^{2+}-activated K^+ channels modulate microglia affecting motor neuron survival in hSOD1G93A mice
Germana Cocozza (Rome, Italy)

18.15 Cross-talk between microglia and oligodendroglial progenitors in cerebral ischemia: implications for brain repair - *Marta Fumagalli (Milano and Urbino, Italy)*

18.30 Striatal astrocytes: functional evidence of A2A-D2 heterodimerization and modulation of glutamate release - *Chiara Cervetto (Genova, Italy)*

18.45 General discussion

19.00 **LECTURE** - *Introduced by C. Riccardi (Perugia, Italy)*
"Astrocytes in Neuroinflammatory Disorders" - *Cinthia Farina (Milano, Italy)*
This lecture has been made possible through an unrestricted grant from NOVARTIS

19.45 *WELCOME RECEPTION*

FRIDAY, NOVEMBER 30TH

2 **SESSION 2** *(09.00-11.55)*
MTN in neurodevelopmental and neuropsychiatric disorders
Chaired by: A. Buffo (Torino, Italy), M. Memo (Brescia, Italy)

09.00 The microglial innate immune receptor TREM2 is required for synapse elimination and normal brain connectivity - *Raffaella Morini (Milano, Italy)*

09.30 Perinatal oxytocin rescues developmental trajectories in a mouse model of 22q11.2 microdeletion modulating the blood-cerebrospinal fluid-barrier permeability - *Francesco Papaleo (Genova, Italy)*

10.00 Control of neuronal protein expression and functions by astroglial calcineurin
Dmitry Lim (Novara, Italy)

10.30 COFFEE BREAK

10.55 Cannabinoid treatment modulates neuroinflammation and behavioral abnormalities in a rat model of autism-like behaviour - *Erica Zamberletti (Busto Arsizio, Italy)*

11.10 Are oligodendrocyte progenitors all born equal? A lesson from a microcephaly model
Enrica Boda (Torino, Italy)

11.25 Stimulation of adenosine A2A receptor restores cell functions and differentiation in a pharmacological model of Niemann-Pick type C oligodendrocytes - *Chiara De Nuccio (Rome, Italy)*

11.40 Autoimmune synaptopathies: roles of antibodies targeting neurotransmitter receptors and complement - *Guendalina Olivero (Genova, Italy)*

11.55 **LECTURE** - *Introduced by D. Lim (Novara, Italy)*
"Principles of astrogliapathology" - *Alexej Verkhratsky (Manchester, UK)*

12.40 LUNCH

13.40 *POSTER SESSION*

15.30 **LECTURE** - *Introduced by P.L. Canonico (Novara, Italy)*
"Cognitive dysfunction in diabetes: what are the targets for intervention?"
Geert Jan Biessels (Utrecht, Netherlands)

3 **SESSION 3** *(16.15-19.00)*
MTN in metabolic disorders, pain, injury and neuroplasticity
Chaired by: M. Collino (Torino, Italy), C. Patrone (Stockholm, Sweden)

16.15 Spinal microglia drives morphine hyperalgesia by disinhibiting nociceptive pathways
Francesco Maria Ferrini (Torino, Italy)

16.40 VEGF-A as a pain mediator: new evidence from stem cell secretome
Lorenzo Di Cesare Mannelli (Firenze, Italy)

17.05 Dimethyl fumarate reduces tactile allodynia in a gender dependent manner in two different models of peripheral neuropathic pain - *Livio Luongo (Napoli, Italy)*

17.20 COFFEE BREAK

17.45 Type 2 diabetes impairs odour detection, olfactory memory and olfactory neuroplasticity; effects partly reversed by DPP-4 inhibition - *Grazyna Lietzau (Stockholm, Sweden)*

18.00 Elucidating the regulation of astrocyte metabolism in physioxia and inflammation
Katia Monsorno (Lübeck, Germany and Trento, Italy)

18.15 Neurogenic activation and lineage progression of striatal astrocytes following excitotoxic lesion
Giulia Nato (Torino, Italy)

18.30 Environmental stimuli shape microglial plasticity in glioma - *Stefano Garofalo (Rome, Italy)*

18.45 ELOVL5 plays an essential role in myelin formation - *Ilaria Balbo (Torino, Italy)*

SATURDAY, DECEMBER 1ST

08.45 **LECTURE** - *Introduced by N. Brunello (Modena, Italy)*
"Non neuronal cells in epilepsy: pathophysiological role and new therapeutic opportunities"
Annamaria Vezzani (Milano, Italy)

4 **SESSION 4** *(09.30-12.25)*
Novel approaches in research and therapy for neurological disorders
Chaired by: C. Bendotti (Milano, Italy), M. Morelli (Cagliari, Italy), A. Vezzani (Milano, Italy)

09.30 Application of pharmacological chaperones for the treatment of CNS disorders: lessons learned from rare diseases - *Ken Valenzano (Cranbury, NJ, USA)*

10.00 Development of SOD1 ASO for treatment of SOD1 ALS and testing additional tools for future ALS trials - *Toby Ferguson (Cambridge, MA, USA)*

10.30 Bidirectional modulation of traumatic memory by hippocampal astrocytes manipulation
Inbal Goshen (Jerusalem, Israel)

11.00 COFFEE BREAK

11.25 Genome-wide analyses of regulatory regions and transcripts in hiPSC-derived neural stem cells to define their safety and efficacy in cell therapy approaches for neurological disorders
Vasco Meneghini (Paris, France)

11.40 The effect of the DPP-4 inhibitor linagliptin to improve functional outcome after stroke is mediated by the CXCR4/SDF-1α pathway - *Fausto Chiazza (Torino, Italy and Stockholm, Sweden)*

11.55 The GPR17 receptor as a new potential pharmacological target to restore oligodendroglial dysfunction in amyotrophic lateral sclerosis - *Elisabetta Bonfanti (Milano, Italy)*

12.10 Effects of miRNAs shuttled by exosomes derived from IFN-γ-primed mesenchymal stem cells on primary astrocyte coltures from adult SOD1G93A mouse model of amyotrophic lateral sclerosis
Francesca Provenzano (Genova, Italy)

12.25 In vivo modulation of miR-125a-3p expression affects remyelination in the lysolecithin-induced demyelination - *Davide Marangon (Milano, Italy)*

12.40 Electro-convulsive shock enhances microglial motility in mouse hippocampus
Alberto Sepulveda-Rodriguez (Washington DC, USA)

12.55 LUNCH

14.00 **LECTURE** - *Introduced by G. Bonanno (Genova, Italy)*
"Multimodal microglia modulation of neuronal function through extracellular vesicles"
Claudia Verderio (Milano, Italy)
This lecture has been made possible through an unrestricted grant from Roche

5 **SESSION 5** *(14.45-16.30)*
Neural stem cells, neuro-glia interactions, blood-brain barrier
Chaired by: S. De Marchis (Torino, Italy), M. Grilli (Novara, Italy)

14.45 Age-dependent niche signals from the choroid plexus regulate adult neural stem cells
Violeta Silva Vargas (Basel, Switzerland)

15.15 Neuron-astroglia cell fate decision in the adult mouse hippocampal neurogenic niche is cell-intrinsically controlled by COUP-TFI in vivo - *Sara Bonzano (Torino, Italy)*

15.30 In vitro modeling unravels neural progenitor/astrocyte dysfunctional homeostasis and crosstalk in Down Syndrome - *Maria Elisa Salvalai (Novara, Italy)*

15.45 Pharmacological induction of oxidative metabolism in neural stem cells enhances neuronal maturation - *Francesco Bifari (Milano, Italy)*

16.00 Beta amyloid modifies PBMCs migration through the blood-brain-barrier
Simona Spampinato (Catania, Italy)

Announcement of best poster award

16.30 Conclusions

SCIENTIFIC PROGRAM