

## UNCONDITIONALLY SUPPORTED LECTURES

With the unconditional support of Alexion

**Neuromyelitis optica spectrum disorders: from pathophysiology to novel therapeutic strategies**

Ferdinando Nicoletti (Rome, Italy)

With the unconditional support of Chiesi

**Choroid Plexus: Knocking on Brain's Door**

Massimo Alessio (Milan, Italy)

## OTHER LECTURES

With the support of Roche

**Targeting Neuroinflammation by inhibition of the Monoacylglycerol Lipase**

Ludovic Collin (Basel, CH)

With the support of Biogen

**Applying advances in CNS genetics and stem cell biology to accelerate drug discovery and development**

Sally John (Cambridge, MA, USA)

With the support of Amicus Therapeutics

**Challenges in neuromuscular rare diseases: a drug discovery perspective**

Brian Fox (Philadelphia, PA, US)

## CME CREDITS

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: 9,1

ID event: 365943

Italian CME credits will be granted to those participants who attend at least 90% of scientific works, fill in the questionnaire assessment of perceived quality and duly fill in the evaluation questionnaires answering correctly 75% of the questions. At the end of the scientific work, an e-mail with the link to access the CME questionnaire will be sent.

This is a C.A.R.E. project



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## III EDITION

# MORE THAN NEURONS

Changing the paradigm for novel therapeutic avenues

DECEMBER 15<sup>th</sup>-17<sup>th</sup>, 2022

TORINO, ITALY

Nuvola Lavazza  
Via Ancona 11/A

## SCIENTIFIC ORGANIZERS

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# III EDITION MORE THAN NEURONS

Changing the paradigm for novel therapeutic avenues

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 neuron-centric to a glial-inclusive viewpoint in neuroscience and in neuropsychopharmacology. After the success of the first two meeting editions, 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.

## TOPICS

The meeting focuses on any aspect related to non-neuronal cell populations and their interaction with neurons and neural function (in healthy and pathological conditions), including: neural stem cells, astrocytes and microglia, OPC and oligodendrocytes, Schwann cells, enteric glia, glia-neuron crosstalk, neuro-glia-vascular interactions, blood brain barrier, choroid plexus and meninges.

Non-neuronal targets for current and future pharmacological interventions (small molecules, ATMP, nutraceuticals) will be discussed and proposed.

## SCIENTIFIC PROGRAM

### THURSDAY, DECEMBER 15<sup>th</sup>

- 11.00 Registration desk opening
- 13.00 Welcome & Introduction
- 13.30 LECTURE: **Neural stem cells: from biology to therapy in neurological disorders**  
Paola Panina (Milan, Italy)  
Introduced by Maria Angela Sortino
- 14.20 LECTURE: **Targeting brain metastasis through pro-tumoral astrocytes**  
Neibla Priego (Madrid, Spain)  
Introduced by Alexej Verkhratsky
- 15.10 📄 Poster session 1 (with light coffee break)
- SELECTED ORAL COMMUNICATIONS  
Chaired by Alexej Verkhratsky
- 17.10 **Cell arbors in the Nervous System: Glia steal the limelight**  
Giorgio Ascoli (Fairfax, VA, USA)
- 17.25 **iPSC-derived 3D Brain organoids cultured in a dynamic bioreactor suspension as an *in vitro* model for the study of microcephaly in Aicardi Goutières Syndrome**  
Rosalba Monica Ferraro (Brescia, Italy)
- 17.40 **The multiple levels of cerebellar astrocytes heterogeneity: from developmental trajectories, to spatial patterning and functional interactions with specific neuronal circuitries** - Valentina Cerrato (Turin, Italy)
- 17.55 **Stem-like features of human glioblastoma cells are dependent on the activation of the canonical Wnt/ $\beta$  catenin pathway mediated by an immature cellular prion protein isoform** - Irene Dellacasagrande (Genoa, Italy)
- 18.10 LECTURE: **Neuromyelitis optica spectrum disorders: from pathophysiology to novel therapeutic strategies** - Ferdinando Nicoletti (Rome, Italy)  
Introduced by Maria Vincenza Catania
- 19.00 Welcome Reception

### FRIDAY, DECEMBER 16<sup>th</sup>

- 08.30 LECTURE: **Targeting Neuroinflammation by inhibition of the Monoacylglycerol Lipase** - Ludovic Collin (Basel, CH)  
Introduced by Giambattista Bonanno
- 09.20 LECTURE: **Neuroinflammation in epilepsy: understanding the contribution of non-neuronal cells to develop targeted treatments** - Eleonora Aronica (Amsterdam, NL)  
Introduced by Annamaria Vezzani
- 10.10 ☕ Coffee break

- 10.40 LECTURE: **Applying advances in CNS genetics and stem cell biology to accelerate drug discovery and development** - Sally John (Cambridge, MA, USA)  
Introduced by Pier Luigi Canonico

SELECTED ORAL COMMUNICATIONS  
Chaired by Dmitry Lim

- 11.30 **Transcriptomic and epigenetic landscape of human iPSCs-derived neural progenitors and oligodendrocytes from monozygotic twins discordant for Multiple Sclerosis** - Valentina Murta (Milan, Italy)
- 11.45 **Uncovering new targets and therapies for amyotrophic lateral sclerosis (ALS) using artificial intelligence (AI) approaches** - Monika Myszczyńska (Sheffield, UK)
- 12.00 **LRRK-2 inhibition by PF06447475 modulates neuronal damage and immunity after spinal cord trauma** - Irene Paterniti (Messina, Italy)
- 12.15 **Calcineurin regulates neuro-immune network in inflammatory bowel diseases**  
Giorgia Colombo (Novara, Italy)
- 12.30 🍴 Lunch
- 14.00 LECTURE: **Adult neurogenesis and neurodegenerative diseases**  
Maria Victoria Llorens-Martin (Madrid, Spain)  
Introduced by Mariagrazia Grilli
- 14.50 LECTURE: **Challenges in neuromuscular rare diseases: a drug discovery perspective**  
Brian Fox (Philadelphia, PA, US)  
Introduced by Filippo Caraci
- 15.40 LECTURE: **Of life and death of motor neurons** - Alessandro Vercelli (Turin, Italy)  
Introduced by Monica Di Luca
- 16.30 📄 Poster session 2 (with light coffee break)
- SELECTED ORAL COMMUNICATIONS  
Chaired by Anna Maria Pittaluga
- 18.00 **Protein O-GlcNAc: a nutrient-dependent PTMs linking metabolic defects with the development of Alzheimer signatures** - Fabio Di Domenico (Rome, Italy)
- 18.15 **Molecular and cellular mechanisms underlying the relationship between metabolic alterations and cognitive decline** - Maria Luisa Malosio (Milan, Italy)
- 18.30 **Role of TNFR2 in regulating the pro-remyelinating properties of microglia in a murine model of stroke** - Francesca Carolina Mannella (Milan, Italy)
- 18.45 **Aberrant crosstalk between insulin signaling and mTOR in young Down syndrome individuals revealed by neuronal-derived extracellular vesicles**  
Eugenio Barone (Rome, Italy)
- 19.00 LECTURE: **Microglia modulate neuronal and vascular responses via compartment-specific mechanisms** - Adam Denes (Budapest, Hungary)  
Introduced by Rosa Chiara Paolicelli
- 19.50 Wrap up and day 2 Conclusions

### SATURDAY, DECEMBER 17<sup>th</sup>

- 08.30 LECTURE: **Choroid Plexus: Knocking on Brain's Door** - Massimo Alessio (Milan, Italy)  
Introduced by Michela Matteoli
- SELECTED ORAL COMMUNICATIONS  
Chaired by Luigia Trabace & Marco Milanese
- 09.20 **Microglial diversity along the hippocampal longitudinal axis impacts synaptic plasticity in adult male mice under homeostatic conditions**  
Eleonora De Felice (Rome, Italy)
- 09.35 **Sex-dependent hyperactive behaviour and altered microglial phenotype in NURR1 deficient mice** - Francesca Montarolo (Turin, Italy)
- 09.50 **NLRP3 inflammasome deactivation in microglia: Leishmania infantum parasites as a novel potential route against neuroinflammation in Alzheimer's disease**  
Estefania Calvo Alvarez (Milan, Italy)
- 10.05 **Dissection of mechanisms underlying the pathogenesis of Duchenne Muscular Dystrophy** - Elena Cannone (Brescia, Italy)
- 10.20 **Targeting the neuroendocrine modulation in Duchenne muscular dystrophy: effect of growth hormone secretagogues in the mdx mouse model**  
Brigida Boccanegra (Bari, Italy)
- 10.35 **Differential responses to redox stress in brain cortex and spinal cord astrocytes from the SOD1G93A mouse model of amyotrophic lateral sclerosis**  
Carola Torazza (Genoa, Italy)
- 10.50 **TRAP-mediated transcriptome profiling identifies molecular determinants of neuro-vascular crosstalk in amyotrophic lateral sclerosis**  
Ilaria Brambilla (Milan, Italy)
- 11.05 **Dextran sodium sulphate-induced dysbiosis triggers cognitive, anxiety and depressive-like behavioural alterations in mice** - Maria Bove (Foggia, Italy)
- 11.20 ☕ Coffee break
- 11.40 LECTURE: **Effects of SARS-CoV-2 on brain endothelial cells - the role of NEMO**  
Jan Wenzel (Lübeck, Germany)  
Introduced by Massimo Collino
- 12.30 Wrap up and Conclusions

