Brayn conference

CATANIA 2026

30 SEPTEMBER • 2 OCTOBER

PRELIMINARY SCIENTIFIC PROGRAM



9th BRAINSTORMING RESEARCH ASSEMBLY FOR YOUNG NEUROSCIENTISTS

MONASTERO DEI BENEDETTINI • PIAZZA DANTE, 32 • CATANIA

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Simona Schiavi	University of Genoa (Italy)
Elisabetta Stanzani	Italian National Research Council, Milan (Italy); Humanitas Research Hospital, Rozzano (Italy)

MENTORS

Martin Chalfie	Department of Biological Sciences, Columbia University, New York (USA)
Monica M.G. Diluca	Univerisity of Milan (Italy)
Michela Fagiolini	CNR Istituto di Neuroscienze (Italy); Boston Children's Hospital Harvard Medical School (USA)
Michela Matteoli	Humanitas University, Rozzano (Italy)
Edvard Ingjald Moser	Kavli Institute for Systems Neuroscience, Norwegian University of Science and Technology (Norway)
Thomas C. Südhof	Nobel Laureate • Department of Molecular and Cellular Physiology, Howard Hughes Medical Institute, Stanford University School of Medicine (USA)
Antonio Uccelli	IRCCS San Martino Hospital, Genoa (Italy)

INVITED SPEAKERS

Takao Hensch
Soyon Hong
Gaetano Gargiulo
Emanuela Pasciuto
Luca Peruzzotti
Morgane Thion

BRAYNIACS

Ingrid Battistella	Department of Cellular, Computational & Integrative Biology, Università degli studi di Trento (Italy)
Elisabetta Battocchio	Neuroscience Institute - National Research Council of Italy, Milan (Italy)
Alessandro Bombaci	IRCSS Policlinico San Donato, San Donato Milanese (Italy); Vita-Salute San Raffaele University, Milan (Italy)
Antonella Borreca	Humanitas Research Hospital, Rozzano (Milan, Italy)
Marta Bottero	Department of Molecular Medicine, «Sapienza» University of Rome (Italy)
Elena Cerutti	IRCCS San Martino Hospital, Genoa (Italy)
Ludovica Iovino	Neuroscience Institute, National Research Council, Pisa (Italy)

Umberto Manera	"Rita Levi Montalcini" Department of Neuroscience, University of Turin (Italy)
Noemi Marino	Istituto Romagnolo per lo Studio dei Tumori (IRST) and University of Bologna (Italy)
Valentina Pieri	Humanitas Research Hospital, Rozzano (Milan, Italy)
Gabriele Sansevero	Neuroscience Institute - National Research Council of Italy, Pisa (Italy)
Erica Tagliatti	IRCCS Humanitas Research Hospital, Rozzano (Italy); University College London, London (UK)

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Pablo Blanco	CNIO, Madrid (Spain)
Rina Demjaha	Medical University of Graz (Austria)
Marta Ibáñez Navarro	CNIO, Madrid (Spain)
Antonio Masone	Taub Institute - Columbia University (USA)
Elisabetta Mori	Scuola Normale Superiore, Pisa (Italy)
Paola Pacifico	Feinberg School of Medicine, Northwestern University, Chicago (USA)
Leire Pedrosa Eguílaz	Hospital Clínic de Barcelona (Spain)
Valentino Ribecco	
Aleksandra Rutkowska	Medical University of Gdańsk (Poland)
Maria Velasco	CNIO, Madrid (Spain)

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Paola Infante	«Sapienza» University of Rome (Italy)
Nunzio Iraci	Dept. BIOMETEC, University of Catania (Italy)

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Serena Munaò	University of Messina (Italy)
Desirèe Bonfiglio	University of Messina (Italy)
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Loredana Leggio	University of Catania (Italy)
Marco Falcone	University of Catania (Italy)
Maria Cullurà	University of Catania (Italy)
Giuseppe Giglia	Department of Biomedicine, Neuroscience and Advanced Diagnostics (Bi.N.D.), University of Palermo (Italy)
Giuditta Gambino	University of Palermo (Italy)
Fabrizio Di Giovanni	University of Palermo (Italy)

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BRAYN SCIENTIFIC SESSIONS

NEUROIMAGING & CLINICAL NEUROLOGY is a comprehensive scientific session exploring the intersection of advanced neuroimaging techniques and clinical neurology applications. This session delves into the utilization of various neuroimaging methodologies to probe the structure, function, and physiology of the nervous system, alongside the translational aspects of clinical neurology. The session covers two primary neuroimaging approaches: structural imaging, which aids in the diagnosis of large-scale intracranial diseases and injuries, and functional imaging, crucial for diagnosing metabolic diseases like Alzheimer's and facilitating neurological and cognitive psychology research. Techniques such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Electroencephalography (EEG), and Positron Emission Tomography (PET) will be discussed in the context of their applications alone or in combination to investigate neurological diseases. Moreover, the session emphasizes the integration of neuroscience data and basic research with clinical neurology to enhance understanding and treatment of nervous system disorders.

NEUROINFLAMMATION is a scientific session focused on exploring the mechanisms the inflammatory response initiated in the central nervous system (CNS) by resident cells or triggered by infiltrating immune cells, which causes the neuronal dysfunctions observed in inflammatory and neurodegenerative disease of the CNS. The NI session mainly focuses on basic and clinical research in multiple sclerosis (MS), Neuromyelitis Optica Spectrum Disorder (NMOSD), Myasthenia gravis (MG) and other inflammatory diseases of the CNS that have a significant impact on the lives of young adults. Although the scientific discoveries of recent decades have improved the therapeutic approaches used for the treatment of such pathologies, many questions still remain unanswered. The NI session aims to discuss the basic pathogenic mechanisms governing CNS inflammation, the role of immune system in CNS autoimmunity, and the importance of genetic and environmental factors in the development of neuroinflammatory diseases, with a patient-centered focus.

NEURODEGENERATION is a scientific session focused on key aspects of a large number of diseases characterized by progressive damage of the nervous system that leads to irreversible neuronal death. The ND session will update on the more recent advances in the field. Specifically, the session will mainly focus on Parkinson's disease (PD), a slowly progressive syndrome that begins insidiously, gradually worsens in severity, and usually affects one side of the body before spreading to involve the other side, and Alzheimer's disease (AD), the most common type of dementia and an irreversible, neurodegenerative and progressive central nervous system disorder that slowly destroys memory and thinking skills, and, eventually, other mental abilities. Other neurodegenerative diseases, such as tauopathies, narcolepsy, depression and psychiatric disorders, will be also discussed in this session.

NEURO-ONCOLOGY is a scientific session focused on tumors of the central nervous system, addressing the biological mechanisms that drive their initiation, progression, and therapeutic resistance. Positioned at the interface between neurobiology and oncology, this session explores how brain tumors interact with and remodel the neural microenvironment to sustain growth, invasion, and survival. Particular attention will be given to neuron–tumor communication, circuit and synaptic alterations, and the contribution of glial and immune components within the brain tumor niche. The session will also include brain metastases and the mechanisms that regulate adaptation and growth within the central nervous system. By integrating mechanistic insights from neuroscience with translational neuro-oncology, this session aims to highlight brain-specific vulnerabilities and support the development of innovative therapeutic strategies for tumors of the nervous system.

NEUROPHYSIOLOGY & NEURAL PLASTICITY session will cover the molecular mechanisms underlying the function of the nervous system and the capacity of the nervous system to modify itself, functionally and structurally, in response to experience and injury. All levels of function and plasticity changes will be discussed, from receptors and cellular physiology to systems and behaviour. This session will delve into approaches such as molecular and cellular

neurobiology, functional neuroanatomy, neurochemistry, neuropharmacology, electrophysiology, and behavioural analysis, in both in-vivo, ex-vivo and in-vitro models in invertebrate or vertebrate species, including humans.

NEURODEVELOPMENT session will cover the mechanisms and the genetics underlying human and animal brain development in health and disease. This session will focus on neurodevelopmental disorders, including autism spectrum disorder, intellectual disability, and epilepsy. The session will also discuss about the contribution of both genetic and environmental factors, as well as the role of neuronal and non-neuronal cells in the etiopathology of these disorders. This session will delve into the genetics and the molecular and cellular neurobiology underlying brain development. In this session we will also discuss on the implementation of novel therapeutic strategies to tackle neurodevelopmental disorders.

COGNITIVE NEUROSCIENCE AND NEUROTECHNOLOGIES session will explore how emerging and established neurotechnologies are transforming the investigation of human cognition. Advances in tools such as non-invasive brain stimulation, electroencephalography (EEG), neuroimaging, and multimodal approaches are enabling researchers to move beyond descriptive accounts of brain function and toward a mechanistic and causal understanding of cognitive processes. This session will focus on core domains of cognitive neuroscience, including attention, memory, executive functions, perception, and decision-making, highlighting how neurotechnological approaches can be used to probe and modulate brain activity at different spatial and temporal scales. Particular emphasis will be placed on the integration of experimental paradigms with advanced methodologies to investigate brain dynamics, network-level interactions, and mechanisms of neural plasticity. The session will also address translational and applied perspectives, discussing how neurotechnologies can contribute to the understanding and modulation of cognitive dysfunctions in neurological and psychiatric conditions. By bridging basic research, methodological innovation, and clinical applications, this session aims to provide a comprehensive overview of current advances and future directions in cognitive neuroscience. This session is co-organized and endorsed by the Italian Society of Psychophysiology and Cognitive Neurosciences – Società Italiana di Psicofisiologia e Neuroscienze Cognitive.

Day 1 • SEPTEMBER 30th

9:30 Registration

10:15 Opening Ceremony

BRAYN STARTING GRANT SESSION

Chairpersons: C. Calì, V. Chiurchiù, P. Infante

10:45 Starting Grant 2025 Winner | **Francesca Dragoni**

11:00 Lectio Magistralis | **Takao Hensch**

12:00 Lunch Box

SESSION 1 • NEURODEVELOPMENT ORAL COMMUNICATIONS

Chairpersons: E. Tagliatti, G. Borgonovo

13:00 Lecture | **Morgane Thion**

13:30 *Oral presentation*

13:45 *Oral presentation*

14:00 *Oral presentation*

14:15 SpeedTalk

14:20 SpeedTalk

14:25 SpeedTalk

14:30 SpeedTalk

SESSION 2 • NEUROINFLAMMATION
ORAL COMMUNICATIONS

Chairpersons: M. Bottero, A. Baldassarro, M. Rasile

14:35	Lecture | **Emanuela Pasciuto**
15:05	*Oral presentation*
15:20	*Oral presentation*
15:35	BraYn Educational Symposium
15:50	*Oral presentation*
16:05	*Oral presentation*
16:20	SpeedTalk
16:25	SpeedTalk
16:30	Coffee Break

SESSION 3 • COGNITIVE NEUROSCIENCE
ORAL COMMUNICATIONS

Chairpersons: G. Giglia

17:00	Lecture |
17:20	*Oral presentation*
17:35	*Oral presentation*
17:50	SpeedTalk
17:55	SpeedTalk

18:30 Happy Hour with Poster Session 1

20:00 Closing remarks

Day 2 • OCTOBER 1st

SESSION 4 • NEURODEGENERATION
ORAL COMMUNICATIONS

Chairpersons: S. Bonomi, E. Battocchio

9:00	Lecture | **Soyon Hong**
9:30	*Oral presentation*
9:45	*Oral presentation*
10:00	*Oral presentation*
10:15	*Oral presentation*
10:30	*Oral presentation*
10:45	*Oral presentation*
11:00	*Oral presentation*
11:15	BraYn Educational Symposium
11:30	SpeedTalk
11:35	SpeedTalk
11:40	SpeedTalk
11:45	SpeedTalk
11:50	SpeedTalk
12:20	Lunch Box with Poster Session 2

SESSION 5 • NEURO-ONCOLOGY
ORAL COMMUNICATIONS

Chairpersons: E. Stanzani, E. Vannini

14:30	Lecture | **Gaetano Gargiulo**
15:00	*Oral presentation*
15:15	*Oral presentation*
15:30	BraYn Educational Symposium
15:45	*Oral presentation*
16:00	*Oral presentation*
16:15	BraYn Educational Symposium
16:30	SpeedTalk
16:35	SpeedTalk
16:40	SpeedTalk
16:45	SpeedTalk
16:50	SpeedTalk
16:55	Closing remarks

Day 3 • OCTOBER 2nd

SESSION 6 • NEUROPHYSIOLOGY & NEURALPLASTICITY
ORAL COMMUNICATIONS

Chairpersons: G. Calabrese, P. Lippiello

9:30	*Oral presentation*
9:45	*Oral presentation*
10:00	*Oral presentation*
10:15	*Oral presentation*
10:30	Lecture | **Luca Peruzzotti**
11:00	BraYn Educational Symposium
11:15	Coffee Break
11:45	SpeedTalk
11:50	SpeedTalk
11:55	SpeedTalk
12:00	SpeedTalk
12:05	SpeedTalk

SESSION 7 • NEUROIMAGING & CLINICAL NEUROLOGY
ORAL COMMUNICATIONS

Chairpersons: U. Manera, A. Bombaci

12:10	SpeedTalk
12:15	SpeedTalk
12:20	SpeedTalk
12:25	SpeedTalk
12:30	Poster Session 3 with Lunch Box
14:30	Lecture
15:00	BraYn Educational Symposium
15:15	*Oral presentation*
15:30	*Oral presentation*
15:45	*Oral presentation*
16:00	Closing remarks & BraYn Awards (Chairpersons: G. Ferrara, M. Romeo, E. Boda, C. Calì, V. Chiurchiù)

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