



20th OCTOBER
21st 2021
22nd PISA·ITALY



4th BRAINSTORMING RESEARCH ASSEMBLY
FOR YOUNG NEUROSCIENTISTS

OFFICINE GARIBALDI

Via Vincenzo Gioberti 39, Pisa, Italy

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Francesco di Lorenzo	Santa Lucia Foundation Scientific Institute, Rome (Italy)
Valentina Petrosino	IRCCS San Martino Hospital, Genoa (Italy)

MENTORS

Nicoletta Berardi	Neuroscience Institute, National Research Council (CNR) & NEUROFARBA, University of Florence, Florence (Italy)
Maria Concetta Morrone	Department of Translational Research On New Technologies in Medicine and Surgery, University of Pisa, Pisa (Italy); IRCCS Stella Maris, Viale del Tirreno, 331, Pisa (Italy)
Luca Ramenghi	IRCCS «Giannina Gaslini» Institute Genoa (Italy)
Antonio Uccelli	IRCCS San Martino Hospital, Genoa (Italy)

INVITED SPEAKERS

Konstantinos Ampatzis	Department of Neuroscience, Karolinska Institutet (Sweden)
Laura Ferraiuolo	Department of Neuroscience, The University of Sheffield (UK)
Viola Galligioni	Trinity College, Dublin (Ireland)
Adrian Liston	VIB Center for Brain and Disease Research, Leuven (Belgium); Laboratory of Lymphocyte Signalling and Development, The Babraham Institute, Cambridge (UK)
Michelle Monje-Deisseroth	Stanford University, Stanford (USA)
Thomas C. Südhof	Nobel Laureate • Department of Molecular and Cellular Physiology, Howard Hughes Medical Institute, Stanford University School of Medicine, Stanford (USA)

BRAYNIACS

Stefano Amoretti	University of Pisa (Italy)
Ganna Balagura	University of Genoa (Italy) - IRCCS G. Gaslini Institute, Genoa (Italy)
Giulia D'Arrigo	SISSA, Trieste (Italy); Neuroscience Institute - National Research Council of Italy, Milan (Italy)
Mattia Di Paolo	University of l'Aquila (Italy)
Placido Illiano	University of Miami (USA)
Samuele Negro	University of Padova (Italy)
Simona Paglia	University of Bologna (Italy)
Marco Rasile	Humanitas University, Rozzano (Italy)
Simona Schiavi	University of Verona (Italy)
Elisabetta Stanzani	Italian National Research Council, Milan (Italy); Humanitas Res. Hospital, Rozzano (Italy)
Matteo Tamborini	Humanitas Research. Hospital, Rozzano (Italy)
Maria Velasco	Trinity College, Dublin (Ireland)

LOCAL ORGANIZING COMMITTEE

Eleonora Vannini	Neuroscience Institute - National Research Council of Italy, Pisa (Italy)
Gabriele Sansevero	Neuroscience Institute - National Research Council of Italy, Pisa (Italy); Fondazione Umberto Veronesi, Milan (Italy)
Paola Pacifico	Scuola Normale Superiore, Pisa (Italy)
Stefano Amoretti	University of Pisa (Italy)

ORGANIZING SECRETARIAT

Symposia Organizzazione Congressi Srl

Piazza Campetto 2/8 - 16123 Genova, Italy

tel. (+39) 010 25 51 46 • fax (+39) 0102770565 • www.symposiacongressi.com

Contact person **Alessandra Crippa** a.crippa@symposiacongressi.com, brayn@symposiacongressi.com

Abstract submission opens **June 15th**. Deadline **September 17th**

REGISTRATION FEES • BraYn Member € 50,00 – BraYn Non Member € 73,20

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BRAYN SCIENTIFIC SESSIONS

NEUROIMAGING

Neuroimaging consists in using various techniques to image the structure, function, or physiology of the nervous system. It is subdivided into two main approaches: Structural imaging, which deals with the structure of the nervous system and the diagnosis of a large-scale intracranial disease (like tumors, multiple sclerosis lesions, stroke) and injuries (like traumatic brain injury); Functional imaging, which is used to diagnose metabolic diseases (like Alzheimer) and for neurological and cognitive psychology research as well as building brain-computer interfaces. The most commonly used techniques for neuroimaging are Computed tomography (CT), Diffuse optical imaging (DOI), Event-related optical signal (EROS), Magnetic resonance imaging (MRI), arterial spin labeling (ASL), Magnetoencephalography (MEG), electroencephalography (EEG), Positron emission tomography (PET), Single-photon emission computed tomography (SPECT) and cranial or functional ultrasound imaging. In this session, we will discuss the use of the mentioned techniques, both alone and in combination, to help in understanding and/or detecting various aspects of neurological diseases.

NEUROINFLAMMATION

Neuroinflammation describes the inflammatory response initiated in the central nervous system (CNS) by resident cells or triggered by infiltrating immune cells. Furthermore, in neurodegenerative disease it is evident that neuroinflammation is a key player in central nervous system dysfunction. The neuroinflammation session is mainly devoted to basic and clinical research in multiple sclerosis (MS), Neuromyelitis Optica Spectrum Disorder (NMOSD) and other inflammatory disorders of the CNS which have a significant impact on the lives of young adults. Even though the scientific discoveries of recent decades have improved the therapeutic approach of those disease, there are still open questions. The aim of the present session will be to explore the pathogenic mechanisms, the role of immune system in the autoimmune response, the roles of genetics and environment in the development of neuroinflammatory disease and examine options within the patient-centered approach. This and other aspects will be debated in the present session.

NEUROPHYSIOLOGY & NEURAL PLASTICITY

The physiology dealing with the functions of the central nervous system and the naturally occurring adapting to anatomical and environmental changes in central nervous system will be addressed in the new scientific session of BraYn 2020. Follow the session to be updated on new research activities in the field.



NEURO-ONCOLOGY

Neuro-oncology is an emerging field of investigation that studies nervous system tumors. As many of them can cause severe nervous system damage, neuro-oncology represents a trending research area in neuroscience, which may identify the molecular mechanisms involved in tumor pathogenesis. This would ultimately lead to the development of novel therapeutic approaches for the treatment of life-threatening diseases such as glioma, medulloblastoma. These topics will be discussed in depth during the session.

PAEDIATRIC NEUROSCIENCE & EPILEPSY

Paediatric neuroscience is a branch studying neurodevelopment and its disorders. The session will focus on biological mechanisms underlying developmental and epileptic encephalopathies, including genetic disorders and their management and treatment implications.

NEURODEGENERATION

Neurodegeneration is a key aspect of a large number of diseases characterized by progressive damage of the nervous system, which leads to irreversible neuronal death such as, but not limited to, Parkinson's disease (PD) and Alzheimer's disease (AD), tauopathies, narcolepsy, depression and psychiatric disorders. PD is 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. Rest tremor is often the first symptom recognized by the patient. But the illness sometimes begins with bradykinesia, and in some patients, tremor may never develop. AD is the most common type of dementia and it is an irreversible, neurodegenerative and progressive central nervous system disorder that slowly destroys memory and thinking skills, and, eventually, other mental abilities. During the BraYn conference we will be updated on the more recent advances in the field.



OCTOBER 20th

11:00 Registration

12:00 Opening Ceremony

SESSION 1 • NEUROIMAGING, selected ORAL COMMUNICATIONS

12:15

12:30

Accepted oral presentation (3)

12:45

13:00 **BraYn Educational Symposium 1**

13:15 Lunch box

14:15 **Lucia Lisa Petrilli** (Ospedale Pediatrico Bambino Gesù – IRCCS, Roma | Starting Grant 2020 Winner)
Dissecting pediatric high grade-glioma through single-cell mass cytometry: from tissue to cell and back.

14:30 Lecture | **Konstantinos Ampatzis**, *Locomotion dependent neuron-glia interactions control neurogenesis and regeneration in the adult spinal cord.*

SESSION 2 • NEUROINFLAMMATION, selected ORAL COMMUNICATIONS

15:00 Lecture | **Adrian Liston**, *Synthetic expansion of brain regulatory T cells to prevent neuroinflammation.*

15:30

15:45

Accepted oral presentation (3)

16:00

16:15 **BraYn Educational Symposium 2**

16:35 **BraYn Educational Symposium 3**

16:50 Coffee Break mini 1

17:30

Accepted oral presentation (2)

17:45

18:00 **BraYn Educational Workshop 1**

18:15 Poster session 1 + “Lost in the protocol” session

20:00 Closing Remarks

OCTOBER 21st

SESSION 3 • NEURODEGENERATION, selected ORAL COMMUNICATIONS

9:00 Lecture | **Laura Ferraiuolo**, *Pathways of astrocyte toxicity in ALS and precision medicine approaches.*

9:30

9:45 *Accepted oral presentation (3)*

10:00

10:15 BraYn Educational Symposium 4

10:35 Coffee Break mini 2

11:00

11:15 *Accepted oral presentation (3)*

11:30

11:45 Lecture | **Viola Galligioni**, *In vivo research, what to factor in when planning experiments.*

12:15 Lunch box

SESSION 4 • NEURO-ONCOLOGY, selected ORAL COMMUNICATIONS

13:10 BraYn Educational Symposium 5

13:30

Accepted oral presentation (2)

13:45

14:00 Lecture | **Michelle Monje-Deisseroth** (live streaming), *Neuron-glia interactions in health and disease: from cognition to cancer.*

14:30

Accepted oral presentation (2)

14:45

15:00 Coffee Break 3 with Poster Session 2

SESSION 5 • PAEDIATRIC NEUROSCIENCE & EPILEPSY
(curated by Young Epilepsy Section- Italy, YES-Italy, ILAE)
selected ORAL COMMUNICATIONS

16:40 Lecture | Invited speaker

17:00

17:15

Accepted oral presentation (4)

17:30

17:45

18:00 Lecture | **Thomas C. Südhof** (Nobel Laureate), *The molecular logic of synapse formation.*

19:00 Q&A

20:30 BraYn Social Dinner

OCTOBER 22nd

SESSION 6 • NEUROPHYSIOLOGY & NEURAL PLASTICITY, selected ORAL COMMUNICATIONS

9:00 Lecture | **Michela Matteoli**

9:30

9:45

Accepted oral presentation (3)

10:00

10:30 BraYn Educational Symposium 6

10:50 Coffee Break mini 4 with poster session 3

11:50 BraYn Educational Symposium 7

12:10

12:25

Accepted oral presentation (3)

12:40

13:00 Closing Remarks • BraYn Awards (Best Oral and Poster Presentation and BraYn Starting Grant)

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