

NOBEL EDITION

20th OCTOBER
21st 2021
22nd PISA·ITALY



**4th BRAINSTORMING RESEARCH ASSEMBLY
FOR YOUNG NEUROSCIENTISTS**

**PALAZZO DEI CONGRESSI
Via Matteotti 1, Pisa, Italy**

www.brainconference.com

SCIENTIFIC COMMITTEE

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Ilaria Prada	Italian National Research Council, Milan (Italy)
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MENTORS

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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)
Adrian Liston	VIB Center for Brain and Disease Research, Leuven (Belgium); Laboratory of Lymphocyte Signalling and Development, The Babraham Institute, Cambridge (UK)
Thomas C. Südhof	Department of Molecular and Cellular Physiology, Howard Hughes Medical Institute, Stanford University School of Medicine, Stanford (USA)

SCIENTIFIC SECRETARIAT

Jose Lifante Cañavate	Universidad Autónoma de Madrid (UAM), Madrid (Spain)
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Margherita Romeo	Institute of Clinical Chemistry and Laboratory Diagnostic Medical Faculty, Heinrich Heine University and the IUF- Leibniz Research Institute for Environmental Medicine, Düsseldorf (Germany)
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Maria Velasco	Trinity College, Dublin (Ireland)

LOCAL ORGANIZING COMMITTEE

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



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 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). MS has a significant impact on the lives of young adults. Even though the scientific discoveries of recent decades have improved the therapeutic approach, 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 MS 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, glioblastoma and medulloblastoma. These topics will be discussed in depth during the session.

PAEDIATRIC NEUROSCIENCE & PERINATAL NEUROLOGY

Perinatal neurology is a branch of medicine dealing with neurological, neuroinflammatory and neurodegenerative disorders of newborns. Here, we will discuss on the more recent advances in the field.

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) and Tauopathies. 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 (1 h)

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**

SESSION 2 • NEUROINFLAMMATION, selected ORAL COMMUNICATIONS

15:00 Lecture | **Adrian Liston**

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 (2h)

20:00 Closing Remarks

OCTOBER 21st

SESSION 3 • NEUROPHYSIOLOGY & NEURAL PLASTICITY, selected ORAL COMMUNICATIONS

9:00 Lecture | Invited speaker

9:30

9:45

Accepted oral presentation (3)

10:00

10:15 **BraYn Educational Symposium 4**

10:35 Coffee Break mini 2

11:00 **BraYn Educational Symposium 5**

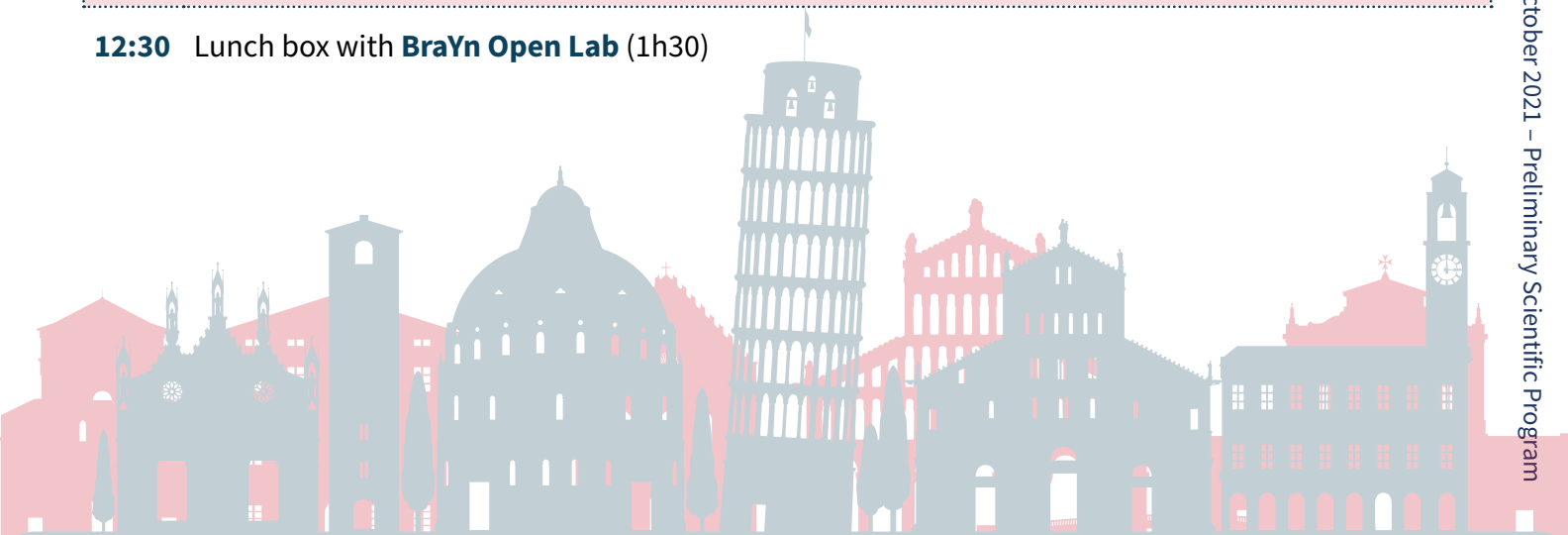
11:20

11:35

Accepted oral presentation (3)

11:50

12:30 Lunch box with **BraYn Open Lab** (1h30)



SESSION 4 • NEURO-ONCOLOGY, selected ORAL COMMUNICATIONS

14:00 Lecture | Invited speaker

14:30

Accepted oral presentation (2)

14:45

15:00 BraYn Educational Symposium 6

15:20

Accepted oral presentation (2)

15:35

15:45 Coffee Break 3 with Poster Session 2 + “Lost in the protocol” session (2h)

SESSION 5 • PAEDIATRIC NEUROSCIENCE & PERINATAL NEUROLOGY, selected ORAL COMMUNICATIONS

17:45 Lecture | Invited speaker

18:15

18:30

Accepted oral presentation (4)

18:45

20:30 BraYn Social Dinner



OCTOBER 22nd

SESSION 6 • NEURODEGENERATION, selected ORAL COMMUNICATIONS

9:00 Lecture | **Laura Ferraiuolo**

9:30

9:45

Accepted oral presentation (3)

10:00

10:30 BraYn Educational Symposium 7

10:50 Coffee Break mini 4 with Poster session 3 (1h)

11:50 BraYn Educational Symposium 8

12:10

12:25

Accepted oral presentation (3)

12:40

13:00 Lecture | **Thomas C. Südhof**

13:30 Closing Remarks • BraYn Awards (Best Oral and Poster Presentation and BraYn Starting Grant)



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