



# ROME 2022

28•29•30 SEPTEMBER



**5<sup>th</sup>** BRAINSTORMING RESEARCH ASSEMBLY  
FOR YOUNG NEUROSCIENTISTS

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Nobel Laureate • Department of Molecular and Cellular Physiology, Howard Hughes Medical Institute, Stanford University School of Medicine, Stanford (USA)

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IRCCS San Martino Hospital, Genoa (Italy)

## INVITED SPEAKERS

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**Marco Cambiaghi**

Dep. Neurosciences, Biomedicine and Movement Sciences, University of Verona (Italy)

**Laura Cancedda**

Italian Institute of Technology - IIT, Genova (Italy)

**Rafael Fernández-Chacón**

Instituto de Biomedicina de Sevilla (IBiS) (Spain)

**Giacomo Koch**

Santa Lucia IRCCS / Università di Ferrara (Italy)

**Konstantinos Meletis**

Karolinska Institutet / Department of Neuroscience, Stockholm (Sweden)

**Rodrigo Quian Quiroga**

Centre for Systems Neuroscience, University of Leicester (UK)

**Maria Rescigno**

Humanitas University, Humanitas Research Hospital, Milan (Italy)

**Dirk Sieger**

Centre for Discovery Brain Sciences, University of Edinburgh (UK)

**Amanda Sierra Saavedra**

Achucarro Basque Center for Neuroscience Fundazioa, Leioa (Spain)

**Henrique Veiga-Fernandes**

Champalimaud Research Foundation, Lisbon (Portugal)

## BRAYNIACS

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<b>Marta Bottero</b>	IRCCS San Martino Hospital, Genoa (Italy)
<b>Luca Cuffaro</b>	UO Neurologia Ospedale Universitario San Paolo, Milan (Italy)
<b>Giulia D’Arrigo</b>	Neuroscience Institute - National Research Council of Italy, Milan (Italy)
<b>Samuele Negro</b>	University of Padova (Italy)
<b>Paola Pacifico</b>	Scuola Normale Superiore, Pisa (Italy)
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<b>Laura Porta</b>	SISSA, Trieste (Italy)
<b>Marco Rasile</b>	Humanitas University, Rozzano (Italy)
<b>Gabriele Sansevero</b>	Neuroscience Institute - National Research Council of Italy, Pisa (Italy); Fondazione Umberto Veronesi, Milan (Italy)
<b>Giacomo Sferruzza</b>	San Raffaele Scientific Institute, Milan (Italy)
<b>Elisabetta Stanzani</b>	Italian National Research Council, Milan (Italy); Humanitas Research Hospital, Rozzano (Italy)
<b>Maria Velasco</b>	Trinity College, Dublin (Ireland)

## YOUNG EPILEPSY SECTION-ITALY, YES-ITALY, ILAE

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<b>Simona Balestrini</b>	Department of Clinical and Experimental Epilepsy, UCL Queen Square Institute of Neurology, London (UK); Neuroscience Department, Children’s Hospital Meyer-University of Florence (Italy)
<b>Giulia Battaglia</b>	Neurologia universitaria, IRCCS Policlinico San Donato Milanese, Milano (Italy)
<b>Luca De Palma</b>	Rare and Complex Epilepsy Unit, Department of Neuroscience, Bambino Gesù Children’s Hospital IRCCS, Rome (Italy)
<b>Lorenzo Ferri</b>	Department of Biomedical and Neuromotor Sciences, University of Bologna (Italy)

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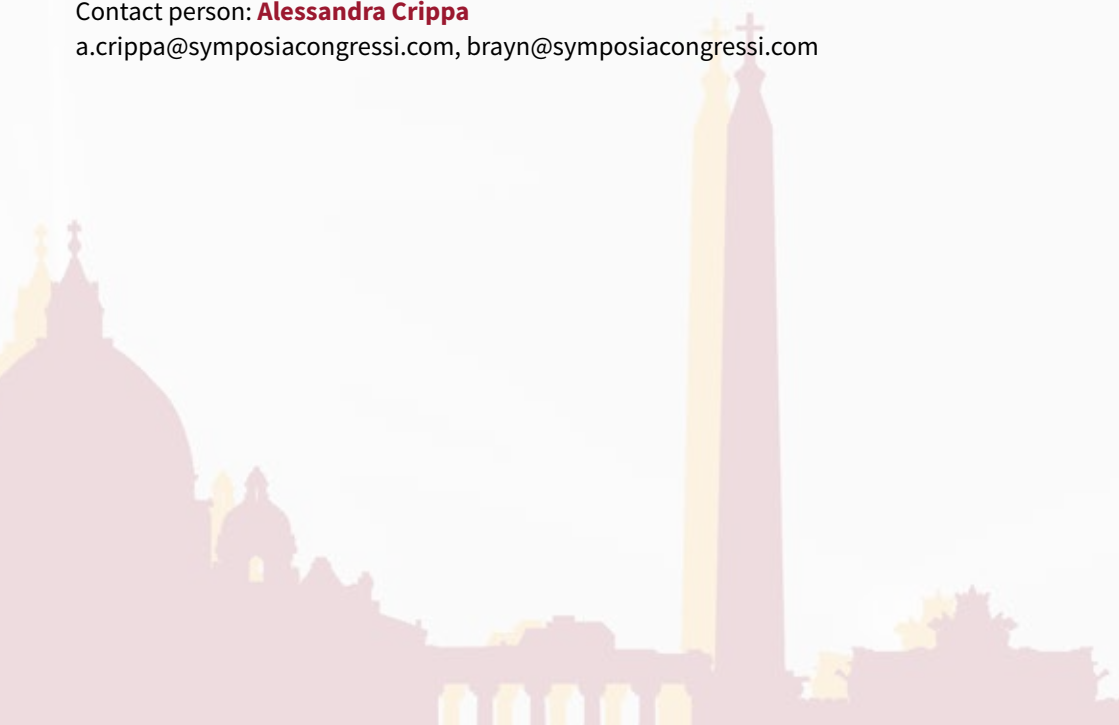
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# 28 SEPTEMBER • Day 1

10:00 Registration

11:00 Opening Ceremony | **Giovanni Ferrara**

## BRAYN STARTING GRANT SESSION

Chairpersons: C. Calì, V. Chiurchiù, N. Iraci, M. Catalano, P. Infante

11:30 **Loredana Leggio** (Starting Grant 2021 Winner)  
*Identification of bioactive molecules responsible for the neuroprotection of astrocyte-derived EVs.*

11:45 **Eveljn Scarian** (Starting Grant 2021 Winner)  
*Brain organoids RNA-seq analysis for the study of sALS pathogenesis.*

12:00 Lecture | **Marco Cambiaghi**  
*Non-invasive brain stimulation: an old tool into the hands of modern translational research.* (Chairwoman: M. Medelin)

12:30 Lunch box with Poster session 1

## PARALLEL SESSION (13:00-13:30)

• For scheduled groups only (max 20 persons) •

### Alexion Practical Workshop

**Francesco Saccà** • *Can we prevent damage for relapsing NMOSD patients?*

## SESSION 1 • EPILEPSY, BRAIN DEVELOPMENT & NEUROGENETICS ORAL COMMUNICATIONS

(curated by Young Epilepsy Section-Italy, YES-Italy, ILAE)

Chairpersons: G. Balagura, S. Balestrini, M. Rasile, A. Rutsch

14:15 Lecture | **Rafael Fernández-Chacón**  
*Homeostatic reprogramming of GABAergic neurons upon presynaptic dysfunction.*  
(Chairwoman: G. Balagura)

14:45 **Luca Fusar Bassini** • *A genome-wide atlas of poison exons for antisense oligonucleotide therapeutics in the Central Nervous System.*

15:00 **Antonella Lauri** • *Mutations in the new disease-causing gene ARF3 have disruptive consequences on Golgi integrity and brain development.*

15:15 **Gianmarco Pallavicini** • *Patients derived organoids show differences in DNA damage accumulations in neural progenitors leading microcephaly syndrome.*

15:30 **Maryam Khashtkhodaei Ardakani** • *Rescuing neural cell survival and maturation in a primary autosomal recessive microcephaly-17 (MCPH17) mouse model: effects of the postnatal N-acetyl cysteine treatment.*

## SESSION 2 • NEUROINFLAMMATION ORAL COMMUNICATIONS

Chairpersons: S. Angiari, I. Prada, A. Musella, M. Tiberi

- 16:00** Lecture | **Henrique Veiga-Fernandes**  
*Neuroimmune interactions in health and disease.* (Chairman: S. Angiari)
- 16:30** **Mikolaj Opielka** • *The pH-sensing receptor TDAG8 modulates inflammatory signalling and maturation of oligodendrocytes.*
- 16:45** **Francesca Fagiani** • *Modelling chronic neuroinflammation in Multiple Sclerosis using patient-derived 3D BrainSpheres and single-cell transcriptomics.*
- 17:00** **BraYn Educational Symposium • Beckman Coulter ▶ Valerio Chirchiù**  
*Another break in the brain wall: from tissue dissociation to identification and immunophenotyping of resident and infiltrated immune cells.*  
(Chairmen: V.A. Baldassarro, M. Rasile)
- 17:15** **Francesca Montarolo, Federica Azzolini** • *The role of MICROGLIA in MS: from micro to macro different point of view.*
- 17:40** Coffee Station
- 18:00** **Matteo Bizzotto** • *Interplay between microglial receptor TREM2 and maternal immune challenges in schizophrenia onset.*
- 18:15** **Jessica Garau** • *DNA methylation profiling of patients with Aicardi-Goutières Syndrome carrying the identical p.A177T RNASEH2B mutation but showing heterogeneous phenotypes.*
- 18:30** **Marta Bottero** • *Anti-NG2 autoantibodies as prognostic biomarker in persons with multiple sclerosis.*
- 18:45** Closing remarks

## 29 SEPTEMBER • Day 2

### SESSION 3 • NEUROPHYSIOLOGY & NEURAL PLASTICITY ORAL COMMUNICATIONS

Chairwomen: E. Boda, R.C. Paolicelli, G. Calabrese, M. Di Domenico

- 9:00** Lecture | **Laura Cancedda**  
*Treating neurodevelopmental disorders: the road is long and winding, but we need to try.* (Chairwoman: I. Prada)
- 9:30** **Ori Roethler** • *Cooperation between two experience-regulated enhancers maintains visual processing by controlling E/I ratio in VIP interneurons.*
- 9:45** **Valeria de Rosa** • *D-Aspartate treatment attenuates myelin damage and stimulates myelin repair.*

**10:00 BraYn Educational Symposium • BGI ▶ Xin Yi**  
*Sequencing strategy in neuroscience : From RNAseq to Spatial Transcriptomics.*  
(Chairpersons: S. Amoretti, P. Pacifico, L. Porta)

**10:15 BraYn Educational Symposium • Femtonics ▶ Balázs Rózsa**  
*High-Speed 3D Acousto-Optical Network and Dendritic Imaging in Behaving Mice Revealed that Brain Activity is Organized Locally in Spatio-Temporal Clusters of Neuronal Functional Assemblies.*(Chairpersons: S. Amoretti, P. Pacifico, L. Porta)

10:30 Coffee Break

**11:00 Claudia Cristiano • Effect of maternal butyrate supplement on autistic-like behavior and synaptic plasticity deficits in mice offspring.**

**11:15 Fanny S. Martineau • Microglia contribution to neuronal network remodeling after paralysis onset.**

**11:30 Lecture | Maria Rescigno**  
*The microbiota in gut-brain vascular axis.* (Chairman: V. Chiurchiù)

12:00 Lunch box with Poster session 2

**PARALLEL SESSION (12:30-13:00)**  
**• For scheduled groups only (max 20 persons) •**

**Alexion Practical Workshop**  
**Fiammetta Vanoli • Can we regain control of daily life for gMG patients?**

**SESSION 4 • NEURO-ONCOLOGY**  
**ORAL COMMUNICATIONS**

Chairpersons: G. D'Alessandro, E. Vannini, G. Pallavicini, M. Conenna

**14:00 Lecture | Dirk Sieger**  
*Understanding the role of microglia during brain tumour initiation.*  
(Chairwomen: G. D'Alessandro, E. Vannini)

**14:30 Antonino Cucinotta • Blocking the Hedgehog-dependent tumor growth by a new selective Endoplasmic Reticulum Aminopeptidase 1 inhibitor.**

**14:45 Maria Velasco-Estevez • Mechanoreception in glioma: an insight into the role of Piezo1 in GBM progression and cancer stem cells.**

**15:00 BraYn Educational Symposium • Euroclone ▶ Diego Muzzini**  
*Deciphering the Complex Biology of Brain Tumors with Single Cell and Spatial Technologies.* (Chairpersons: G. D'Arrigo, G. Pallavicini)

**15:15 Alessandro Mormino • Histone-deacetylase 8 drives the immune response and the growth of glioma.**

**15:30 Francesca Viale • Design of implantable hydrogel for glioblastoma treatment.**

15:45 Coffee Break



## SESSION 5 • NEUROIMAGING ORAL COMMUNICATIONS

Chairpersons: F. Di Lorenzo, S. Schiavi, S. Ruinet

- 16:30** Lecture | **Rodrigo Quian Quiroga**  
*What makes us human?* (Chairman: G. Ferrara)
- 17:00** **Pietro Bontempi** • *Investigating the feasibility of assessing magnetization transfer properties of distinct white-matter connections.*
- 17:15** **BraYn Educational Symposium • Fujifilm Visualsonics ▶ Philippe Trochet**  
*Multimodal and Multiscale In-Vivo Imaging of Cerebral Hemodynamic.*  
(Chairmen: P. Lippiello, G. Sansevero)
- 17:30** **BraYn Educational Symposium • Siemens Healthineers ▶ Gian Franco Piredda, Domenico Zacà**  
*Probing myelin content of the human brain with MR relaxometry.*  
(Chairmen: P. Lippiello, G. Sansevero)
- 17:45** **Francesco Tazza** • *Differentiating MS lesions with or without paramagnetic rim with advanced MRI.*
- 18:00** **Andrea Termine** • *Development of a Frontotemporal dementia computer-aided diagnostic tool using a Dense Convolutional Neural Network on 3D brain scans and explainable artificial intelligence methods.*
- 18:15** Closing remarks

## 30 SEPTEMBER • Day 3

### SESSION 6 • NEURODEGENERATION ORAL COMMUNICATIONS

Chairpersons: G. Nardo, B. Bettegazzi, M. Medelin, C. Natale

- 9:00** Lecture | **Amanda Sierra**  
*Not just corpse removal: how microglial phagocytosis maintains brain tissue homeostasis.* (Chairwoman: R.C. Paolicelli)
- 9:30** **Elisa Pagliari** • *Optimization of AAV9 gene therapy for Spinal Muscular Atrophy with Respiratory Distress type 1 using in vivo disease model.*
- 9:45** **Elena Abati** • *Combined RNA interference and gene replacement therapy targeting MFN2 for the treatment of Charcot-Marie-Tooth type 2A.*
- 10:00** **Delia Gagliardi** • *Exploiting three-dimensional in vitro models to identify early neuronal vulnerability and test therapeutic strategies in amyotrophic lateral sclerosis.*
- 10:15** **BraYn Educational Symposium • Miltenyi Biotec ▶ Beatrice Formicola**  
*Beyond the boundaries of Neuroscience with 3D microscopy: Application and methods with the Light-Sheet Ultramicroscope Blaze.* (Chairmen: L. Cuffaro, S. Negro)
- 10:30** Coffee Break

- 11:00** **Giulia Lunghi** • *New insights into the effects of SARS-COV-2 infection on nervous system: alteration of dopamine metabolism in iPSCs-derived dopaminergic neurons.*
- 11:15** **Francesca Natale** • *Aberrant Protein Palmitoylation: a novel therapeutic target in Alzheimer's disease.*
- 11:30** **Alessandro Matera** • *Role of SHIP1 as a modulator of microglial function.*
- 11:45** **BraYn Educational Symposium** • **PerkinElmer** ► **Francesca Malerba**  
*Looking for a needle in a haystack: how to detect a biological drug against its natural background. The case of painless NGF.* (Chairmen: P. Lippiello, G. Sansevero)

12:00 Lunch box with Poster Session 3

### SESSION 7 • CLINICAL NEUROSCIENCE ORAL COMMUNICATIONS

Chairmen: M. Tartaglia, L. Cuffaro, G. Abbadessa

- 14:00** Lecture | **Giacomo Koch**  
*Non-Invasive brain stimulation in neurodegenerative diseases: clinical implications.*  
(Chairman: F. Di Lorenzo)

#### NEUROIMMUNOLOGY (MULTIPLE SCLEROSIS)

- 14:30** **Margherita Maria Ravanelli** • *A humanized model of blood brain barrier to investigate immune cells infiltration in Multiple Sclerosis: toward a personalized medicine approach.*
- 14:40** **Francesca De Vito** • *The emerging role of microRNAs in experimental and clinical multiple sclerosis: implications for inflammation-driven synaptic dysfunctions and disease course.*
- 14:50** **Gianmarco Bellucci** • *Deciphering Multiple Sclerosis endophenotypes through Mendelian disorders: a network-based approach.*

#### NEURODEGENERATION (MOVEMENT DISORDERS, MND)

- 15:00** **Cecilia Mei** • *New insight for Riboflavin Transporter Deficiency (RTD) Syndrome: gene therapy as a new therapeutic strategy for RTD patients.*
- 15:10** **Petra Šoštarić** • *Central Effects of Botulinum Toxin Type A in Motor Nervous System of the Rat.*

#### NEURO-ONCOLOGY

- 15:20** **Marta Ibáñez Navarro** • *Driving CARs on a highway to cure pediatric CNS malignant tumors.*
- 15:30** **Eugenia Guida** • *Cytotoxic activity of small molecule inhibitors on patient-derived glioblastoma cells.*

#### INHERITED LEUKOENCEPHALOPATHIES

- 15:40** **Ingrid Battistella** • *Human iPSC-based cellular systems to model Autosomal dominant leukodystrophy.*

**SESSION 8 • Curated by Karolinska Institutet**  
**ORAL COMMUNICATIONS**

Chairmen: K. Ampatzis, G. Ferrara

- 16:00** Lecture | **Konstantinos Meletis**  
*Organization and function of circuits that control motivated behaviors.*  
(Chairman: G. Ferrara)
- 16:30** **Emanuela Santini** • *Dysregulated brain protein synthesis in autism spectrum disorders.*
- 16:45** **Daniel De Castro Medeiros** • *Studying sleep-related disturbances in a mouse model of Parkinson's disease.*
- 17:00** **Irene Pallucchi** • *Transformation of an early-established motor circuit during maturation in zebrafish.*
- 17:15** Questions & Answers
- 17:30** Closing remarks • BraYn Awards (Best Oral and Poster Presentation and BraYn Starting Grant)





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