



UNIVERSITAT DE
BARCELONA

International Multi-Brain Barcelona Congress

Healthy, Pathological and Artificial Brain

Barcelona, 9-10 November 2022

Paranimf Facultat de Medicina
Institute of Neurosciences (UBneuro)
Universitat de Barcelona (UB)



**International
Multi-Brain**
Barcelona Congress
Healthy | Pathological | Artificial

Oficina principal a
Campus Mundet, Edifici de Ponent
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neurociencies.ub.edu



Institut de Neurociències
UNIVERSITAT DE BARCELONA



**EXCELENCIA
MARIA
DE MAEZTU**

08:30 - 09:15

Registration

09:15 - 09:45

Institutional welcome

Joan Guàrdia Olmos, Rector, UB
Antoni Trilla, Dean, Faculty of Medicine and Health Science, UB
Júlia Miralles de Imperial, Municipal policies of Science and Universities, Ajuntament de Barcelona
Joan Gómez Pallarés, Research General Director, Generalitat de Catalunya
Jordi Alberch, Director, Institute of Neurosciences, UB

09:45 - 10:45

Opening plenary session

Chair: David Bartrés, Brain health and neuromodulation group, UBneuro, UB, Spain
Michael Valenzuela, Centre for Healthy Brain Ageing, University of New South Wales, Australia, "Translation of neuroscience beyond academia"

10:45 - 11:15

Coffee-break

NEURODEVELOPMENT AND NEW TECHNOLOGIES SYMPOSIUM

Chair: Silvia Ginés, Mechanistic and therapeutic approaches in neurodegenerative disorders group, UBneuro, UB, Spain

11:15 - 11:55

Invited speaker: Míriam Pérez Cruz, BCNatal | Fetal Medicine Research Center; Institut de Recerca Sant Joan de Déu; RICORS group. Barcelona, Spain, "Neurosonography and brain electrophysiology in fetal neurodevelopment"

11:55 - 12:15

Sandra Acosta, Neurodevelopmental disorders group, UBneuro, UB, Spain, "Brain organoid models of neurodevelopmental disorders powered up by deep learning"

12:15 - 12:35

Josep Maria Canals, Stem cells and neurodevelopment group, UBneuro, UB, Spain, "In silico and in vitro modeling of human neurodegeneration"

Flash talks

12:35 - 12:45

Yasmina Manso, Developmental neurobiology and regeneration group, UBneuro, UB, Spain, "Spatial and cell-specific contribution of Reelin expressed by Cajal-Retzius cells or GABAergic interneurons to cortical lamination"

12:45 - 12:55

Natàlia Gorina-Careta, Brainlab group, UBneuro, UB, Sant Joan de Déu Research Institute, Spain, "Effects of a bilingual fetal acoustic environment on the neural sound encoding of newborns"

12:55 - 13:05

Anna-Christina Häb, Neural stem cells and brain damage group, UBneuro, UB, Spain, "Human iPSC-derived neurons allow dynamic monitorization of complex network activity for machine learning"



13:05 - 15:00 **Lunch / Poster session**

AGING IN HEALTHY AND PATHOLOGICAL BRAIN SYMPOSIUM

Chair: Mercè Pallàs, Neuropharmacology in ageing and Alzheimer's disease group, UBneuro, UB, Spain

15:00 - 15:40 *Invited speaker.* Nicolai Franzmeier, Institute for Stroke and Dementia Research, Ludwig Maximilian of Munich University Hospital, Germany, "Using multimodal neuroimaging to understand Alzheimer's disease progression"

15:40 - 16:00 Lluís Fuentemilla, Brain plasticity and connectivity: language, memory and reward group, UBneuro, UB, Spain, "Rapid memory formation, consolidation, and transformation"

16:00 - 16:20 Raquel Sánchez-Valle, Clinical research in Alzheimer's disease and other cognitive disorders group, UBneuro, UB, Spain, "Catching a glimpse of Alzheimer's disease brains"

16:20 - 16:40 Jesús Rodrigo, CEFAA-Confederación Española de Alzheimer, Spain, "Pathological brain. Is only about aging?"

Flash talks

16:40 - 16:50 Kilian Abellaneda, Brain health and neuromodulation group, UBneuro, UB, Spain, "Purpose in life: a psychological factor promoting cognitive resilience and neuroprotection"

16:50 - 17:00 Julia Solana, Mechanistic and therapeutic approaches in neurodegenerative disorders group, UBneuro, UB, Spain, "Neuron-derived EVs modulate synaptic plasticity"

17:00 - 17:10 Álvaro González, Addiction and dual disorders group, UBneuro, UB, Spain, "Cognitive performance in patients with dual disorders: the influence of the type of severe mental illness"

17:10 - 19:00 **Cocktail reception**



THURSDAY, 10 NOVEMBER 2022



08:30 - 09:00 **Registration**

NEUROTECHNOLOGIES AND BRAIN DISORDERS SYMPOSIUM

Chair: David Bartrés, Brain health and neuromodulation group, UBneuro, UB, Spain

09:00 - 09:40 *Invited speaker.* Christoph Guger, Neurotechnology and real-time brain computer interfaces, g.tec, Austria, "Current and future applications of brain-computer interfaces"

09:40 - 10:00 Eduard Vieta, Bipolar disorders group, UBneuro, UB, Spain, "Digital innovation in mental health"

10:00 - 10:20 Mel Slater, Virtual reality group, UBneuro, UB, Spain, "Vicarious Agency in Virtual Reality"

Plenary session on Neurotechnologies

Chair: Petia Radeva, Artificial intelligence group, UBneuro, UB, Spain

10:20 - 11:00 *Invited speaker.* Xavier Boix, Brain and cognitive science department and Sinha Lab for developmental research, MIT, USA, "The neuroscience of learning machines"

11:00 - 11:30 **Coffee-break**

Neurotechnologies TED Talks

Chair: Petia Radeva, Artificial intelligence group, UBneuro, UB, Spain

11:30 - 12:00 *Invited speaker.* Diana Mihalache, Trust and safety group, Google, USA, "Human Reviewer Experience: Wellness in the Context of Content Moderation "

12:00 - 12:15 Luis Montesano, Bit Brain, Spain, "Bringing neurotech home for neuro-rehabilitation"

12:15 - 12:30 Ignasi Capellà, Broomx, Spain, "Immersive technologies: an effective tool for neurorehabilitation?"

12:30 - 12:45 Carolina Aguilar, INBRAIN Neuroelectronics, Spain-Switzerland, "Neurotechnology... What's next?"

12:45 - 13:00 Ana Maiques, Neuroelectronics, Spain, "Will a digital copy of your brain help personalize therapies in patients suffering from brain disease? The future is here: Neurotwin"

13:00 - 13:15 Andreu Oliver, Tobii, UK, "The transition from research to day-to-day practice and how companies can help with the process"

13:15 - 13:45 **Discussion:** How technology can improve our knowledge of the brain



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THURSDAY, 10 NOVEMBER 2022

13:45 - 15:45

Lunch / Poster session

Flash talks

15:45 - 15:55

Mariarca Ascione, Virtual reality group, UBneuro, UB, Spain,
"A single session of an attentional bias modification task based
on virtual reality and eye-tracking to reduce attentional bias and
body dissatisfaction in anorexia nervosa"

15:55 - 16:05

Franck-Alexandre Meschberger-Annweiler, Virtual reality group,
UBneuro, UB, Spain, "Attentional bias modification, through Virtual
Reality-based body exposure, to enhance efficacy of treatment of
anorexia nervosa"

16:05 - 16:15

José Valenzuela, Brainlab group, UBneuro, UB, Spain,
"A Convolutional Neural Network approach for auditory stimuli
classification from the frequency following response"

16:15 - 17:00

Closure plenary session

*Chair: Jordi Alberch, Neuronal network dysfunction
in neurological and psychiatric disorders group, UBneuro, UB, Spain*

*Invited speaker. Rafael Yuste, Neurotechnology Center, Columbia
University, USA, "Neurotechnology: An upcoming revolution
in science, medicine and society"*

17:00 - 17:20

Flash talk and poster Awards

17:20 - 17:30

Closing event:

Future directions of scientific work and conclusions

Silvia Ginés, Congress Chair
Jordi Alberch, UBneuro Director



Institutional support

Ayuda María de Maeztu Unit of Excellence (Institute of Neurosciences, University of Barcelona) MDM-2017-0729 financiada por MCIN/AEI/10.13039/501100011033.



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