



School of Neuroscience: from cellular mechanisms to disease modeling

Lake Como School of Advanced Studies, May 9-13, 2022

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This Neuroscience school will involve internationally recognized neuroscientists as teachers and will give the selected students the opportunity to face with several different Neuroscience fields, ranging from innovative methodological approaches for the study of neuronal function, to animal models of brain diseases, including psychiatric, neurodegenerative and neurological disorders. During the school, the students will also have the opportunity to meet and discuss their PhD projects with the other participants, including teachers, thus developing their communication skills and critical view. Finally, one main aim of the school will be to stimulate the interaction and collaboration between students.



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Organizers

[School organizers](#)

Laura Musazzi, University of Milan-Bicocca, Italy
laura.musazzi@unimib.it

Rosa Maria Moresco, University of Milan-Bicocca, Italy
rosa.moresco@unimib.it

Iiris Hovatta, University of Helsinki, Finland
iiris.hovatta@helsinki.fi

Mai Marie Holm, Aarhus University, Denmark
mmh@biomed.au.dk

Emilia Madarasz, Semmelweis University, Budapest, Hungary
madarasz@koki.hu

[Local organizers](#)

Laura Musazzi, University of Milan-Bicocca, Italy
laura.musazzi@unimib.it

Rosa Maria Moresco, University of Milan-Bicocca, Italy
rosa.moresco@unimib.it

Paola Marmioli, University of Milan-Bicocca, Italy
paola.marmioli@unimib.it

Elisabetta Donzelli, University of Milan-Bicocca, Italy
elisabetta.donzelli@unimib.it



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Lecturers

Petri Ala-Laurila, University of Helsinki, Finland

Alessandra Bertoldo, University of Padova, Italy

Christian Bjerggaard Vægter, Aarhus University, Denmark

Eero Castrén, University of Helsinki, Finland

Guido Angelo Cavaletti, University of Milan-Bicocca, Italy

Anna Maria Colangelo, University of Milan-Bicocca, Italy

Giovanni De Girolamo, I.R.C.C.S. Fatebenefratelli, Brescia, Italy

Ádám Dénes, Institute of Experimental Medicine, Budapest, Hungary

Ekin Ücüncü, Aarhus University, Denmark

Carlo Ferrarese, University of Milan-Bicocca, Italy

Mai Marie Holm, Aarhus University, Denmark

Iiris Hovatta, University of Helsinki, Finland

Helena Kilpinen, University of Helsinki, Finland

Lajos R Kozák, Semmelweis University, Budapest, Hungary

Gianvito Martino, San Raffaele University, Italy

Laura Musazzi, University of Milan-Bicocca, Italy

Olli Pietiläinen, University of Helsinki, Finland

János Réthelyi, Semmelweis University, Budapest, Hungary

Marina Romero-Ramos, Aarhus University, Denmark

Thomas Vorup-Jensen, Aarhus University, Denmark

Dóra Zelena, Institute of Experimental Medicine, Budapest, Hungary

Silvia Kirsten Nicolis, University of Milan-Bicocca, Italy



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Program

Monday 9th May

14:00 – 15:00 Welcome and introduction to the school
 15:00– 16:00 Special Lecture: New frontiers of mental health research: will real time assessments improve our knowledge? (Giovanni De Girolamo, I.R.C.C.S. Fatebenefratelli, Brescia, Italy)
 16:00 – 17:00 Training session 1: 3R and development of animal and ex-vivo cellular models for brain diseases (Silvia Kirsten Nicolis, University of Milan-Bicocca, Italy)
 17:00 – 18:00 Training session 2: How to apply for research fellowships and to write research proposals

18:15 Welcome cocktail

Tuesday 10th May

Scientific Session 1 – Brain under Stress

9:30 – 10:15 Stress at excitatory synapses: time-dependent changes in synaptic function and brain architecture (Laura Musazzi, University of Milan-Bicocca, Italy)
 10:15 – 11:00 Stress, GABA and depression: effects on the hippocampus (Mai Marie Holm, Aarhus University, Denmark)
 11:00 – 11:30 coffee break
 11:30 – 12:15 Myelin plasticity in stress and anxiety (Iiris Hovatta, University of Helsinki, Finland)
 12:15 – 13:00 Posttraumatic stress as a metabolic disorder (Dóra Zelena, Institute of Experimental Medicine, Budapest, Hungary)

12:30 – 14:00 Lunch and Break

Scientific Session 2 – Neuropsychiatric research

14:00 – 14:45 Neurotrophins, neuronal plasticity and the antidepressant effect (Eero Castrén, University of Helsinki, Finland)
 14:45 – 15:30 Genomics of schizophrenia through the lens of stem cell derived neuronal models (Olli Pietiläinen, University of Helsinki, Finland)
 15:30 – 16:00 coffee break

Scientific Session 3 – Basic Neuroscience 1

16:00 – 16:45 Protein aggregate clearance by neural phagocytes (Thomas Vorup-Jensen, Aarhus University, Denmark)

Student Talks: Session 1

16:45 – 17:45 15 min talk/student
 17:45 – 18:00 General Discussion

Wednesday 11th May

Scientific Session 4 – Neurodegenerative Disorders

9:30 – 10:15 Neurodegeneration and inflammation (Carlo Ferrarese, University of Milan-Bicocca, Italy)
 10:15 – 11:00 Peripheral and central immune response in Parkinson's disease (Marina Romero-Ramos, Aarhus University, Denmark)
 11:00 – 11:30 coffee break

Scientific Session 5 – Nerve Injury

11:30 – 12:15 Peripheral nerve injury (Guido Angelo Cavaletti, University of Milan-Bicocca, Italy)
 12:15 – 13:00 Neuron-glia interactions in peripheral nerve injury – implication for neuropathic pain and nerve repair (Christian Bjerggaard Vægter, Aarhus University, Denmark)

12:30 – 14:00 Lunch and Break

Scientific Session 6 – Basic Neuroscience 2

14:00 – 14:45 Neuroscience system biology and brain metabolism (Anna Maria Colangelo, University of Milan-Bicocca, Italy)

Student Talks: Session 2

14:45 – 15:30 6 min talk/student

15:30 – 16:00 coffee break

Student Talks: Session 3

16:00 – 17:30 15 min talk/student
 17:30 – 18:00 General Discussion

Thursday 12th May

Scientific Session 7 – Innovative Methodological Approaches

9:30 – 10:15 Describing fMRI-derived functional brain activations in the framework of intrinsic connectivity networks (Lajos R Kozák, Semmelweis University, Budapest, Hungary)
 10:15 – 11:00 Functional Connectomic using PET (Alessandra Bertoldo, University of Padova, Italy)
 11:00 – 11:30 coffee break
 11:30 – 12:15 From photons to behavior: Resolving the neural code (Petri Ala-Laurila, University of Helsinki, Finland)

Scientific Session 8 – Microglia

12:15 – 13:00 Microglial modulation of neuronal and vascular responses in health and disease (Ádám Dénes, Institute of Experimental Medicine, Budapest, Hungary)

Free afternoon

Friday 13th May

Scientific Session 9 – Stem cell models

9:00 – 9:45 Stem cell models of neurodevelopment: from molecular signatures to cellular function (Helena Kilpinen, University of Helsinki, Finland)
 9:45 – 10:30 Understanding neurological disorders with human induced pluripotent stem cells (Ekin Ücücü, Aarhus University, Denmark)
 10:30 – 11:15 Human iPSCs in psychiatric disorders (János Réthelyi, Semmelweis University, Budapest, Hungary)
 11:15 – 12:15 Special Lecture (Gianvito Martino, San Raffaele University, Italy)
 12:15 – 12:45 General Discussion and Concluding Remarks