DETAILED SCIENTIFIC PROGRAM

Wednesday, 1 Feb 2023

09:15 – 09:30 Opening ceremony (Isabella Sarto-Jackson and Zoltán Nusser)

09:30 – 10:30 **Plenary lecture I.**
Marlene Bartos (Albert Ludwigs Universität Freiburg Institute for Physiology, Department of Physiology, Freiburg, Germany)
DENTATE GYRUS CIRCUITS FOR ENCODING, RETRIEVAL AND DISCRIMINATION OF EPISODIC MEMORIES

10:30 – 11:10 Coffee break

11:10 – 12:55 **Symposium I.**
NEURAL CONTROL OF SOCIAL BEHAVIOR
Chair: Arpad Dobolyi (Department of Physiology and Neurobiology, Eötvös Loránd University, Budapest, Hungary)

Shlomo Wagner (Department of Neurobiology, Faculty of Natural Sciences, University of Haifa, Haifa,Israel)
NEURAL CORRELATES OF SOCIAL DECISION MAKING IN MICE

Árpád Dobolyi (Department of Physiology and Neurobiology, Eötvös Loránd University, Budapest, Hungary)
THE CONTROL OF SOCIAL BEHAVIOURS BY THALAMO-PREOPTIC PROJECTIONS

Françoise Muscatelli (Laboratory of Perinatal Imprintings and Neurodevelopmental Disorders, Institut de Neurobiologie de la Méditerranée (INMED)-INSERM, Marseille, France)
EARLY LIFE OXYTOCIN IMPRINTING SHAPES THE NORMAL AND PATHOLOGICAL SOCIAL BRAIN

Attila Tóth (Department of Physiology and Neurobiology, Eötvös Loránd University, Budapest, Hungary)
SLEEPING MOTHERS – SLEEP AND WAKEFULNESS DURING THE REPRODUCTIVE CYCLE IN FEMALE RATS

Petra Varró (Department of Physiology and Neurobiology, Eötvös Loránd University, Budapest, Hungary)
FUNCTIONAL ALTERATIONS OF CORTICAL NETWORKS IN A RAT MODEL OF AUTISM

12:55 – 13:55 Lunch

13:55 – 15:40 **Symposium II.**
NEUROMODULATION OF NEURONAL NETWORKS IN COGNITION AND BEHAVIOR
Chairs: Balázs Hangya (Institute of Experimental Medicine, Budapest, Hungary) & Sarah Melzer (Medical University Vienna, Center for Brain Research, Vienna, Austria)

Armin Lak (Oxford University, Department of Physiology, Anatomy and Genetics, Oxford, UK)
DOPAMINERGIC CIRCUITS FOR PERCEPTUAL DECISIONS

Isabel Beets (KU Leuven, Animal Physiology and Neurobiology, Leuven, Belgium)
DECODING THE NEUROPEPTIDERGIC CONNECTOME AND MODULATION OF LEARNING IN C. ELEGANS

Sarah Melzer (Medical University Vienna, Center for Brain Research, Vienna, Austria)
NEUROPEPTIDERGIC MODULATION OF CORTICAL CIRCUITS FOR FEAR MEMORY

Tommaso Patriarchi (University of Zürich, Institute of Pharmacology and Toxicology, Zürich, Switzerland)
A NEXT-GENERATION OPTICAL TOOLKIT TO STUDY NEUROMODULATORY FUNCTIONS AND SIGNALING

15:40 – 18:00 **Posters and Coffee**
(in which coffee will be available between 15:40 – 16:40)

18:00 – 19:00 **Buzsáki lecture**
Adam Kepecs (Washington University School of Medicine, Department of Neuroscience, Washington, USA)
MISTUNED BRAIN CIRCUITS AND BROKEN MENTAL ALGORITHMS: A CROSS-SPECIES APPROACH TO PSYCHIATRY

Thursday, 2 Feb 2023

09:30 – 10:30 **Plenary lecture III.**
Christian Keysers (Netherlands Institute for Neuroscience (KNAW) and University of Amsterdam, Netherlands)
A CROSS-SPECIES APPROACH TO THE NEURAL BASIS OF EMPATHY AND PROSOCIALITY

10:30 – 11:10 Coffee break

11:10 – 12:55 **Symposium III.**
COMPUTATIONAL PRINCIPLES OF NEURAL CIRCUITS
Chairs: Wiktor Młynarski (Institute of Science and Technology Austria, Klosterneuburg, Austria) & Balázs Ujfalussy (Department of Biological Computation, Institute of Experimental Medicine, Budapest, Hungary)

Wiktor Młynarski (Institute of Science and Technology Austria, Klosterneuburg, Austria)
SHARED COMPUTATIONAL PRINCIPLES OF SENSORY ADAPTATION AND ATTENTIONAL MODULATION

Gergő Orbán (Computational Systems Neuroscience Lab, Wigner Research Centre, Budapest, Hungary)
GEOMETRY OF TASK-REPRESENTATION IN THE VISUAL CORTEX

Jean-Pascal Pfister (Institute of Neuroinformatics, ETH, Zurich, Switzerland,Department of Physiology, University of Bern, Bern, Switzerland)
NONLINEAR FILTERING AS A UNIFYING PRINCIPLE FOR SYNAPTIC PLASTICITY

Heloisa Chiossi (Institute of Science and Technology Austria, Klosterneuburg, Austria)
HIERARCHICAL VARIABLE REPRESENTATION IN THE HIPPOCAMPUS SUPPORTS COMPLEX TASK LEARNING

Guillaume Hennequin (Neural Dynamics and Control Group, Computational and Biological Learning Lab, Department of Engineering, University of Cambridge, Cambridge, UK)
NEURAL NETWORKS THAT LEARN TO PLAN EXPLAIN HUMAN BEHAVIOR AND HIPPOCAMPAL REPLAY

12:55 – 13:55 Lunch

13:55 – 15:40 **Symposium IV.**
TIMING IS NOT EVERYTHING: MEDIAL SEPTUM FUNCTIONS BEYOND THETA GENERATION
Chairs: Viktor Varga (Subcortical Modulation Research Group, Institute of Experimental Medicine, Budapest, Hungary) & Sanja Mikulovic, (Cognition and Emotion Research Group, Leibniz Institute for Neurobiology, Magdeburg, Germany)

Sanja Mikulovic (Cognition and Emotion Research Group, Leibniz Institute for Neurobiology, Magdeburg, Germany)
WHAT DOES MEDIAL SEPTUM AND THE SONG „I LIKE TO MOVE IT" HAVE IN COMMON?

Peter Petersen (University of Copenhagen, Copenhagen, Denmark)
HOW THE BRAIN NAVIGATES IN SPACE AND TIME: ROLES AND MECHANISMS OF THE THETA RHYTHM

Balázs Hangya (Lendulet Laboratory of Systems Neuroscience, Institute of Experimental Medicine, Budapest, Hungary)
THE MEDIAL SEPTUM MODULATES HIPPOCAMPAL OSCILLATIONS BEYOND THE THETA RHYTHM

Antal Berényi (Lendulet Oscillatory Neuronal Networks Research Group, Department of Physiology, University of Szeged, Szeged, Hungary)
NOVEL THERAPEUTIC TARGETS FOR ELECTRICAL STIMULATION IN EPILEPSY – THE MEDIAL SEPTUM AND BEYOND

15:40 – 18:00 Posters and Coffee
(in which coffee will be available between 15:40 – 16:40)

18:00 – 18:30 **Plenary lecture IV. / Otto Loewi Award Lecture**
Noelia Urban (IMBA - Institute of Molecular Biotechnology of the Austrian Academy of Sciences)
LOCAL AND SYSTEMIC REGULATION OF ADULT NEUROGENESIS

18:30 – 19:00 Pioneer in Austrian Neuroscience Award 2023
Alois Saria (Medical University Innsbruck)

20:00 – 24:00 Gala dinner, Budapest Mariott Hotel

Friday, 3 Feb 2023

09:30 – 10:30 **Plenary Lecture V.**

Asya Rolls (Rappaport Institute for Medical Research Technion, Israel Institute of Technology, Haifa, Israel)
IMMUNOCEPTION: NEURONAL REPRESENTATION AND REGULATION OF IMMUNITY

10:30 – 11:10 Coffee break

11:10 – 12:55 **Symposium V.**

ORAL PRESENTATIONS SELECTED FROM ABSTRACTS

Chair: Sébastien Couillard-Despres (Paracelsus Medical University, Institute Experimental Neuroregeneration, Salzburg, Austria)

Ágnes Szabó (Pázmány Péter Catholic University, Budapest, Hungary)
TRANSPARENT, THIOL-ENE/ACRYLATE-BASED ELECTRODE ARRAY FOR LONGTERM MULTIMODAL NEUROIMAGING (Poster ID 159)

Ábel Petik (Research Centre for Natural Sciences, Budapest, Hungary)
RAPID RETINOTOPY MAPPING USING FUNCTIONAL ULTRASOUND IMAGING OF DEEP VISUAL CORTEX IN CATS (Poster ID 178)

Marie-Theres Hochwartner (Paracelsus Medical University, Institute Experimental Neuroregeneration, Salzburg, Austria)
SCULPTING ADULTHOOD IN THE BRAIN NETWORKS: A NOVEL MAP OF DORMANT PRECURSOR MATURATION IN CORTICAL AND SUBCORTICAL AREAS (Poster ID 266)

Cihan Önal (Institute of Science and Technology Austria, Klosterneuburg, Austria)
FUNCTIONAL HEMISPHERIC ASYMMETRY OF MEDIAL HABENULA IS ASSOCIATED WITH FEAR EXPRESSION VIA MODULATION OF GABAB RECEPTOR SIGNALING IN MICE (Poster ID 306)

Csaba Cserép (Institute of Experimental Medicine, Budapest, Hungary)
MICROGLIA MONITOR, PROTECT AND NURTURE NEURONS VIA SOMATIC PURINERGIC JUNCTIONS (Poster ID 208)

Dávid Csabai (University of Pécs, Szentágothai János Research Centre, Pécs, Hungary)
ULTRASTRUCTURAL ANALYSIS OF SYNAPSES IN THE HIPPOCAMPUS OF PATIENTS SUFFERING FROM MAJOR DEPRESSIVE DISORDER (Poster ID 334)

Viktória Kormos (University of Pécs, Department of Pharmacology and Pharmacotherapy, Pécs, Hungary)
FUNCTIONALLY ACTIVE TRANSIENT RECEPTOR POTENTIAL ANKYRIN 1 ION CHANNEL IS DOWNREGULATED IN THE CENTRALLY PROJECTING EDINGERWESTPHAL NUCLEUS UPON ACUTE ALCOHOL EXPOSURE (Poster ID 158)

Christopher Currin (Institute of Science and Technology Austria, Klosterneuburg, Austria)
HUMAN CORTICAL CULTURES AND ARTIFICIAL MODELS: UNDERSTANDING INDIVIDUALS WITH EPILEPSY (Poster ID 172)

12:55 – 13:55 Lunch

13:55 – 15:40 **Symposium VI.**
NEURAL CIRCUITS SUPPORTING NETWORK OPERATIONS
Chairs: Bálint Lasztóczi (Division of Cognitive Neurobiology, Center for Brain Research, Medical University of Vienna, Vienna, Austria) & Judit Makara (Laboratory of Neuronal Signaling, Institute of Experimental Medicine, ELRN, Budapest, Hungary)

Judit Makara (Laboratory of Neuronal Signaling, Institute of Experimental Medicine, ELRN, Budapest, Hungary)
DENDRITIC CA^{2+} SPIKES SUPPORT DIVERSE COMPUTATIONS BY HIPPOCAMPAL PYRAMIDAL CELLS

Márton Rózsa (MTA-SZTE Research Group for Cortical Microcircuits, Department of Physiology, Anatomy, and Neuroscience, University of Szeged, Szeged, Hungary)
TEMPORAL DISPARITY OF ACTION POTENTIALS TRIGGERED IN AXON INITIAL SEGMENTS AND DISTAL AXONS IN THE NEOCORTEX

Jake Watson (Institute of Science and Technology Austria, Klosterneuburg, Austria)
CELL-SPECIFIC WIRING ROUTES INFORMATION FLOW THROUGH HIPPOCAMPAL CA3

Bálint Lasztóczi (Division of Cognitive Neurobiology, Center for Brain Research, Medical University of Vienna, Vienna, Austria)
PATHWAY SPECIFIC REGULATION OF INFORMATION TRANSFER BY HIPPOCAMPAL NEUROGLIAFORM CELLS

15:40 – 18:00 **Posters and Coffee**
(in which coffee will be available between 15:40 – 16:40)

18:00 – 19:00 **Plenary lecture VI.**
Christine Heim (Charité – Universitätsmedizin Berlin, Institut für Medizinische Psychologie, Berlin, Germany)
NEUROBIOLOGICAL CONSEQUENCES OF EARLY-LIFE STRESS: FROM MECHANISMS TO NOVEL APPROACHES FOR THE DEVELOPMENTAL PROGRAMMING OF LIFELONG HEALTH

19:00 – Closing remarks, announcement of poster prize winners