



Bridging Brains: from Molecules to Behavior

Annual Meeting for the China-Hungary Belt and Road Joint Laboratory on Brain Science

supported by a CAS-ANSO Conference Grant (CAS-ANSO-C2A-2024-04) and the Hungarian Neuroscience Society

Program

3 December, 2025

8.40-9.00 Welcome notes by Beáta Sperlág (KOKI) and Yongyong Shi (ION)

Session 1: Structural and molecular organisation of healthy and diseased brain circuits

- 9.00-9.30 **Wei Huang** (ION): *Human cortical progenitor-enriched FAM107A enhances self-renewal and extends neurogenesis by stabilizing nuclear microfilaments*
- 9.30-10.00 **Beáta Sperlág** (KOKI): *Inflammation and neuro-psychiatric disorders: cause or consequence?*
- 10.00-10.30 **Yi Zhou** (ION): *Cross-species analysis of adult hippocampal neurogenesis reveals human-specific features*
- 10.30-10.50 coffee break
- 10.50-11.20 **Zoltan Nusser** (KOKI): *Molecular mechanisms underlying distinct release probabilities and short-term plasticities*
- 11.20-11.50 **Chun Xu** (ION): *Neural circuits for memory precision*
- 11.50-12.10 flash talks for poster session I: Ágoston Horváth, István Fodor, Réka Kispál, Yuan Zhang
- 12.10-13.30 buffet lunch on site
- 13.30-15.00 poster session I

Session 2: Cognition, brain states and behavior

- 15.00-15.30 **Adil Khan** (King's College London): *Neural circuits in the ACC underlying flexible cognition*
- 15.30-16.00 **Viktor Varga** (KOKI): *Mapping the action of the hippocampo-septal feedback on the medial septal circuit*
- 16.00-16.30 **Ninglong Xu** (ION): *Circuit and dendritic computations for flexible decision-making*
- 16.30-17.00 coffee break
- 17.00-17.30 **Éva Mikics** (KOKI): *Brain network correlates of maladaptive stress coping*
- 17.30-18.00 **Ferenc Mátyás** (KOKI): *Thalamic principles define an unexpected complexity of information flow within the intra-amygdala circuit*
- 18.00-18.30 **Gábor Nyíri** (KOKI): *Brainstem Control of Fear and Memory*

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Session 3: Cellular and microcircuit function supporting behavior

- 9.00-9.30 **Balázs Rózsa** (KOKI): *Flexible brain-computer interface for fast 3D imaging and photostimulation of neuronal networks in large volumes with subcellular resolution and real-time motion correction in freely moving animals*
- 9.30-10.00 **László Acsády** (KOKI): *Axo-spinous communication between the cortex and thalamus*
- 10.00-10.30 **Andreas Lüthi** (FMI Basel): *A tale of two engrams*
- 10.30-10.50 coffee break
- 10.50-11.20 **Marlene Bartos** (Univ. Freiburg): *The dentate gyrus efficiently converges LEC and MEC inputs into multimodal, highly specific and reliable environmental representations*
- 11.20-11.50 **Johann Danzl** (IST Austria): *Reconstructing brain tissue at synaptic resolution with light microscopy*
- 11.50-12.10 flash talks for poster session II: Katalin Tóth/Réka Bod, Ling Li, Zsófia Reéb, Jiaqi Zuo
- 12.10-13.30 buffet lunch on site
- 13.30-15.00 poster session II

Session 4: Reproduction and brain disorders

- 15.00-15.30 **Michael Heneka** (LCSB Univ. Luxembourg): *Innate Immunity in Alzheimer's disease*
- 15.30-16.00 **Yuejun Chen** (ION): *Stem cell therapy for Parkinson's disease*
- 16.00-16.30 **Xue Li** (ION): *Ultraflexible Neural Interfaces for Translational Brain–Machine Interface Applications*
- 16.30-17.00 coffee break
- 17.00-17.30 **Paolo Giacobini** (INSERM Univ. Lille): *Unravelling the neuroendocrine mysteries of polycystic ovary syndrome*
- 17.30-18.00 **Zhen Liu** (ION): *Primate genetic engineering: from early embryos to the brain cells*
- 18.00-18.30 **Erik Hrabovszky** (KOKI): *IHC/LCM-Seq' reveals novel mechanisms underlying the sex steroid-induced luteinizing hormone surge*

Posters

3 December, 2025

Poster N		Name	Title
1	flash talk	Ágoston Csaba Horváth	Multidisciplinary approaches in neurotechnology from microdevice design to in vivo validation
2		Aletta Magyar	REM sleep regulation by a paraventricular thalamic circuit
3		Alexandra Julia Hencz	Testing a valproic acid-induced ASD model in zebrafish larvae
4		Annamária Benke	Age - and Disease Dependent Cortical - and Subcortical Neuromodulator Dynamics During a Probabilistic Learning Paradigm
5		Árpád Dobolyi	Social Touch Suppresses Aggression via Thalamic Mechanisms
6		Domonkos Horváth	Stable Multimodal Access to Neuronal Activity in Large Animal Brains Using Functional Ultrasound Imaging
7		Dorottya Várkonyi	Investigating Thermoregulatory Impairments in Alzheimer's Disease: The Effects of Senktide and Rolipram in Male 3xTg-AD Mice
8		Erika Eliza Kvak	Investigation of behavioural changes after acute dehydroepiandrosterone treatment for the therapy of Alzheimer's disease in mice
9		Gabriella Laura Tóth	Neuro-Immune Crosstalk in Regeneration: Coelomocytes as Dynamic Regulators of Neurochemical Homeostasis During Annelid Segment Regeneration
10	flash talk	István Fodor	Evolution of Inhibitory Neurotransmission: GABAergic Signaling in a Numerically Simpler Nervous System
11		János Brunner	Optical recordings of unitary synaptic connections reveal high and random local connectivity between CA3 pyramidal cells
12		Kata Kóta	Layer-specific cortical control of the paraventricular thalamic nucleus
13		Withdrawn	
14		Petra Kornidesz	An Automated Jump Stand Framework for High-Throughput Behavioral Training and Visual Acuity Assessment in Cats
15		Lingling Ge	Amyloidogenesis in choroid plexus drives congenital and hydrocephalus
16		Malek Aouadi	Firing rate suppression of the medial septum during spatial working memory maintenance without navigation
17		Martin Blazsek	Characteristics of place field formation in the hippocampal CA1 and CA3 regions
18		Márton Rózsa	Local circuit plasticity during learning in the motor cortex of mice
19		Qingge Wu	A thalamo-hippocampal circuit regulating memory precision during contextual threat learning
20	flash talk	Réka Kispál	Investigating the role of major cholinergic cell populations during Pavlovian conditioning
21		Snezana Raus Balind	Local and global dendritic spikes distinctly shape activity of hippocampal CA3 pyramidal cells in behaving mice
22		Rebeka Stelcz	Changes in Neuronal Network and Glial Activation in Human Organotypic Brain Slice Cultures
23		Vanda Tukacs	Neuronal phenotype defined by transcriptome-wide bursting kinetics in pyramidal and fast-spiking cells
24		Yahya Sulok	Investigating neuromodulator release during implicit learning in a stochastic alternating serial reaction time task in mice
25	flash talk	Yuan Zhang, Yachuang Hu	Dendritic computation for rule-based flexible categorization
26		Zuhao Cui	Investigation of the Effects of Antidepressant Compounds from Traditional Chinese Medicine on brain endothelial cells, and their permeability across the Blood-Brain
27		Amirmahdi Mojtahedzadeh	Investigation of the role of gap junctions in the generation of synchronous physiological and epileptiform activity in human neocortical tissue, in vitro

Poster schedule

4 December, 2025

Poster N		Name	Title
1		Andrea Slézia	Combined Deep-Tissue Imaging and Electrophysiology for the Treatment of Glioblastoma and Tumor-Related Epilepsy
2		Bernadett Makkai	Comparative study of cognitive functions and depressive symptoms in individuals with acromegaly, prolactinoma, and healthy controls
3		Brigitta Tóth	From Perinatal Risk to Neural Networks: Neonatal EEG as a Window into Development
4		Dominik Mátyás	RIPSYR, a short peptide inhibitor derived from TARPγ2, enhances the early-phase of long-term potentiation and impairs spatial memory retention in male rats
5		Ferenc Budán	The power of zebrafish: cost-effective, quick, and reliable model for anti-neurodegenerative and anti-epileptic drug discovery
6		Hanga Dormán	Age - and Disease Dependent Cortical - and Subcortical Neuromodulator Dynamics During a Probabilistic Learning Paradigm
7		Hui Shi	The neural circuits of meta-reinforcement learning
8	flash talk	Jiaqi Zuo	The formation and retrieval of an abstract cognitive map in hippocampal CA1
9		Judith Baka	Cell types of the medulla based on single cell morphology and transcriptomics
10	flash talk	Katalin Zs. Tóth*, Réka Bod*	Cortical cytoarchitecture predicts local synchrony in vitro but not in vivo human recordings
11	flash talk	Ling Li	Identification and application of cell type-specific enhancers for the macaque monkey brain
12		Maissa Ben Mahmoud	Automated and highly reproducible generation of neural spheroids
13		Máté Tóth	Prefrontal somatostatin interneurons regulate network activity driving depression-like behavior
14		Dorka Nagy	Quantitative assessment of AAV-mediated transduction efficiency in large brains
15		Noémi Kis	Morpho-functional heterogeneity of CA3 pyramidal neurons across species and development
16		Orsolya Karácsony	Principal component analysis in understanding the difference between normal and pathological variations of physical activity versus time in chronic fatigue syndrome
17		Petra Réka Molnár	Enhancing AAV Neutralization Assay Sensitivity for Patient Eligibility Assessment Using the coreTIA Platform
18		Júlia Puskás	Exploring excitability changes in ex vivo and in vitro prefrontal cortical networks in a rodent model of autism
19		Shunhang Tang	Dynamic ensemble balance in direct- and indirect-pathway striatal projection neurons underlying decision-related action selection
20		Stefánia Krisztina Pap	Peripherally induced acute neuroinflammation leads to electrophysiological and proteomic changes in the visual system of rats
21		Victoria Lyakhova	The involvement of cholinergic lateral septum neurons in processing aversive stimuli
22		Xinyue Zhang	Generation of high-purity midbrain dopaminergic progenitors with defined lineage fate for efficient therapy of Parkinson's disease
23		Xue Li, Cen Kong	Large-scale single-neuron recording using the uFINE array in human cortex
24		Yi-Shih Lee	Semaglutide's Effect on Learning and Reward-directed Behavior in Mice
25	flash talk	Zsófía Reéb	Critical role of basal amygdala output to dorsomedial striatum in Pavlovian fear learning
26		Zsolt Pirger	Cellular and molecular footprint of aging in a defined neuronal network encoding associative memory
27		Péter Vizi	Connectivity between the medial prefrontal cortex, the subiculum and the anterior paraventricular nucleus