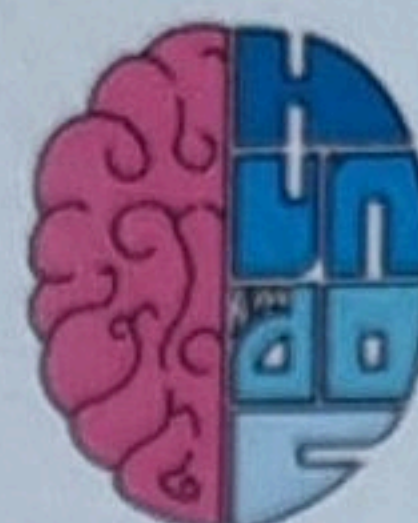




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HuNDoC
5th Hungarian Neuroscience Meeting
for Undergraduate Students, Graduate
Students and Young Postdocs

CERTIFICATE

This is to certify that

Vivien Szendi

has given an **oral presentation** on the
**5th Hungarian Neuroscience Meeting for
Undergraduate Students, Graduate
Students and Young Postdocs**

on the 26th of January, 2022
Budapest, Hungary

Melinda
Vitéz-Cservenák

Ákos
Babiczky

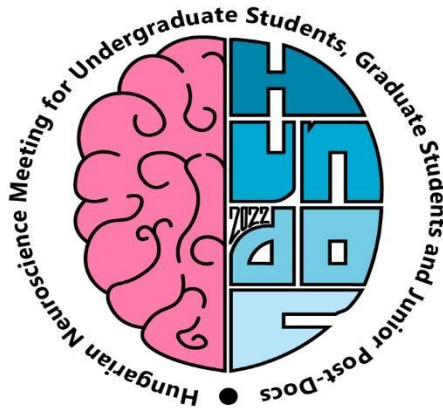
Attila
Ignácz

Dávid
Keller

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26

5th Hungarian Neuroscience Doctoral Conference for Undergraduate Students, Graduate Students and Junior Postdocs 26 January 2022, Budapest

GENERAL INFORMATION

ORGANIZING COMMITTEE

Ákos Babiczky, Research Centre for Natural Sciences/BME Doctoral School of Psychology

Attila Ignácz, Eötvös Loránd University

Dávid Keller, Semmelweis University

Melinda Vitéz-Cservenák, Eötvös Loránd University

ACKNOWLEDGEMENT

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**5th Hungarian Neuroscience Doctoral Conference for Undergraduate Students,
Graduate Students and Junior Postdocs
26 January 2022, Budapest**

DETAILED PROGRAM

09:00 – 09:45 – Registration (North Entrance)

09:45 – 10:00 – Welcome speech (Eötvös Hall)

10:00 – 10:45 – Invited speaker (Eötvös Hall)

Dr. Nóra Bunford (Institute of Cognitive Neuroscience and Psychology, Research Centre for Natural Sciences)

Heterogeneity in adolescent attention-deficit/hyperactivity disorder (ADHD): In search for bio-behavioral risk and protective factors

10:45 – 11:00 – Coffee break

11:00 – 12:30 – Student symposia I. - Learning and connectivity (Eötvös Hall)

11:00 – Bence Fogel: Contribution of synaptic and intrinsic currents to in vivo-like neuronal activity

11:15 – Camila Miranda: Morphological and neurochemical characterization of glycinergic neurons in laminae I to IV of the mouse spinal dorsal horn

11:30 – Vivien Szendi: Lateral septum affects maternal adaptation via a parathyroid hormone 2 neuropeptide-containing pathway arising from the thalamus

11:45 – Anna Virág Bakacsi: The cellular and synaptic connectivity of the colliculo-thalamic network

12:00 – Krisztián Zichó: Brainstem can recall fear memory via hippocampal somatostatin interneurons

12:15 – Kata Szamosfalvi: Functional imaging of hippocampal CA1 pyramidal neurons during virtual navigation in mice

12:30 – 13:00 – Lunch break

13:00 – 14:00 – Poster session (Gömb Aula)^{2*}

14:00 – 15:30 – Student symposia II. - Diseased brain (Eötvös Hall)

14:00 – Barbara Asbóth: Progenitor cells in the adult human retina

14:15 – Evelin Patkó: The protective effects of PACAP1-38 on the retinal vasculature and hypoxic molecules in rat glaucoma model

14:30 – Diána Pejtsik: Neurobiological correlates of trait anxiety

14:45 – Péter Sere: Cortical and subcortical neural dynamics during absence epilepsy

15:00 – Panna Hegedüs: Immunohistochemical characterization of the human and mouse septal area

15:15 – Tibor Nánási: Deep plasma proteomics reveal age-related molecular pathways modulated by GRF6019 treatment in Alzheimer's disease patients

^{2*} For poster groups, see page 17

**5th Hungarian Neuroscience Doctoral Conference for Undergraduate Students,
Graduate Students and Junior Postdocs
26 January 2022, Budapest**

DETAILED PROGRAM

15:30 – 15:50 – Coffee break

15:50 – 17:00 – Thematic workshops

Career Forum (Eötvös Hall)

Dr. Éva Mikics (Institute of Experimental Medicine)

Dr. László Grand (ApperCell Biotech Kft. CEO)

Dr. Ferenc Mátyás (Institute of Experimental Medicine, University of Veterinary Medicine,
Research Centre for Natural Sciences)

How to apply for grants? (1.58)^{3}**

Nóra Jeney (MSCA NCP, NKFIH)

Dr. Viktor Varga (Institute of Experimental Medicine)

Presentation skills (1.60)^{4}**

László Róbert Zsiros (freelance science communicator)

17:00 – 17:15 – Closing remarks (Eötvös Hall)

^{3**} Preregistered participants only!

⁴

5th Hungarian Neuroscience Doctoral Conference for Undergraduate Students, Graduate Students and Junior Postdocs 26 January 2022, Budapest

LATERAL SEPTUM AFFECTS MATERNAL ADAPTATION VIA A PARATHYROID HORMONE 2 NEUROPEPTIDE-CONTAINING PATHWAY ARISING FROM THE THALAMUS

Vivien Szendi¹, Gina Puska^{1,2}, Melinda Cservenák¹, Diána Dimén^{1,3}, Árpád Dobolyi^{1,4}

- 1 Eötvös Loránd Research Network and Eötvös Loránd University, MTA-ELTE Laboratory of Molecular and Systems Neurobiology, Budapest, Hungary
- 2 University of Veterinary Medicine, Department of Ecology, Budapest, Hungary
- 3 Indiana University, Graduate School of the Department of Psychological and Brain Sciences, Bloomington, United States
- 4 Eötvös Loránd University, Department of Physiology and Neurobiology, Budapest, Hungary

Parental care is a special form of social behaviour, which increases the survival of the offspring. Our research group previously described that neurons in the posterior intralaminar thalamic nucleus (PIL) express an excitatory neuropeptide, parathyroid hormone 2 (PTH2), whose expression is induced in mothers. Here, we demonstrate that PIL neurons expressing PTH2 send projection to the lateral septum (LS). Furthermore, we confirmed that lateral septal neurons show significantly elevated number of c-Fos-activated neurons in mother rats following pup exposure compared to control mothers without pup interaction. Nerve terminals of LS-projecting PTH2+ fibres arising from the PIL show the same distributional pattern within the LS as pup-activated c-Fos+ neurons. Therefore, we made further examinations and found that PTH2+ terminals closely appose c-Fos-activated septal neurons. Furthermore, PIL neurons projecting to the LS show c-Fos-activation in mother rats following interaction with the pups. Beside the LS, PTH2-expressing neurons of the PIL also send dense projection to the medial preoptic area (MPOA), therefore, we further examined this neuronal pathway. We determined that projections to LS and MPOA origin from the calbindin-positive neuron population of the PIL. By injecting different retrograde tracers into the LS and MPOA of the same rats, we demonstrated that PIL neurons projecting to the LS send axon collaterals to the MPOA, too. We conclude that calbindin-positive PIL neurons project both to the lateral septal neurons and MPOA neurons. We investigated the septal projections where the terminals contain PTH2 neuropeptide, and innervate lateral septal neurons. Since pup exposure activates neurons in all 3 brain regions, our data suggest that PIL neurons convey the stimulatory signal of pups to both the lateral septum and the MPOA thereby contributing to their role in the maternal adaptation.

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