

22nd January
2025

8th Hungarian Neuroscience Meeting for
Undergraduate Students, Graduate Students
and Young Postdocs

8th HuNDoc Meeting Debrecen 2025



hundoc2025.mitt.hu



University of Debrecen, Learning Center
(Debrecen, Egyetem tér 1., 4032)

INVITATION

We, the organizing committee, gladly announce the **8th Hungarian Neuroscience Doctoral Conference (HuNDoC 2025)**, hosted by the University of Debrecen, Hungary, in one of Europe's fastest developing cities. Respecting conventions, the meeting will take place one day prior to the annual conference of the Hungarian Neuroscience Society (MITT 2025) serving as its satellite event, on January 22nd, 2025.

We warmly welcome undergraduates, PhD students and Junior Postdoctoral colleagues to share their promising research, or even just a simple but leading idea at this vibrant forum. It will be a fun day filled with inspiring talks, inviting company and later in the day an exciting workshop as well. By recognizing the difficulties of self-management in academic life we hope to establish a new custom for HuNDoC by inviting the leading expert of this field as the plenary lecturer. Professor Robert Harris is an experienced researcher of immunotherapy in neurological diseases at the Karolinska Institute, Sweden, and the Academic Vice-President of Doctoral Education as well.

Every applicant is kindly requested to submit an abstract at the time of registration, of which sixteen oral presenters will be selected by the organizing committee for long (10 min) or short (3 min) talks. Nevertheless, everyone deserves spotlight, for that the 'A4 Mini Poster' session will provide a great platform to connect young fellows of similar fields.

During the afternoon, we are preparing a new kind of program for you. We organize a hackathon, where divided into teams, you can work on a practical solution to a specific problem and come up with new ideas together.

This day will provide You with more than just science! A social event in the city-wise known Klinika Egyetemi Klub will offer us a friendly atmosphere to further discuss conclusions of the day and perhaps to also meet new friends.

For any further questions, please do not hesitate to contact us at hundoc2025@gmail.com.

We are excited to have you on board for HuNDoC 2025!

With kind regards from
The organizing committee

GENERAL INFORMATION

Date: 22 January 2025

Venue: Learning Center, Debrecen, Egyetem tér 1., 4032

Organizers:

- László Ducza, Department of Anatomy, Histology and Embryology, Faculty of Medicine, University of Debrecen
- Botond Gaál, Department of Anatomy, Histology and Embryology, Faculty of Medicine, University of Debrecen
- Lídia Gömöri, Department of Anatomy, Histology and Embryology, Faculty of Medicine, University of Debrecen
- Péter Szücs, Department of Anatomy, Histology and Embryology, Faculty of Medicine, University of Debrecen

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Vivien Szendi

Functional characterisation of the lateral septal calbindin neurons

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The ventral subdivision of the lateral septum (LSv) is a forebrain region linked to maternal care, where a high density of calbindin-containing (Cb+) neurons is present, yet the properties, connections and functions of these cells remain unknown. In the present study, patch-clamp electrophysiological recordings were made of calbindin-containing neurons and we revealed that these neurons exhibit regular firing patterns and possess a notably high membrane resistance. To establish the projections of Cb+ LSv neurons, we applied viral-based, cell-type-specific anterograde tracing, and revealed an extensive projection to the medial preoptic area (MPOA), a central region of maternal behaviour regulation. To confirm whether pup-related information is transmitted from the LSv Cb+ neurons, the pup-induced activation of these neurons was described using the c-Fos technique. To elucidate the pathway through which maternal signals reach the Cb+ LSv neurons, a retrograde tracer was injected into the LSv revealing input from the posterior intralaminar thalamus, which expresses the maternally activated parathyroid hormone 2 (PTH2) neuropeptide. Using double labelling, we identified PTH2 receptors on Cb+ LSv neurons, likely activated by PTH2 released from nearby PTH2 terminals, which we also identified around the Cb+ neurons in the LSv. Using electron microscopy, we confirmed a synaptic connection between PTH2+ fibres and maternally activated inhibitory neurons in the LSv. Finally, functional studies using Cb-Cre mice revealed that the inhibition of LSv Cb+ neurons reduced pup-licking behaviour without affecting other maternal behaviours. In conclusion, our findings collectively suggest that activation of inhibitory Cb+ neurons in the LSv is essential for pup-licking behaviour, likely mediated through their projections to MPOA neurons.

Support: DKOP-23, Gedeon Richter Excellence PhD Grant, NKFIH OTKA K134221 and MTA NAP2022-I-3/2022 (NAP 3).