

# Barnabás Kocsis

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Workplace: Roska Tamás Doctoral School, Pázmány Péter Catholic University; and Research Center for Natural Sciences, Eötvös Loránd Research Network

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## Education

2020- **Roska Tamás Doctoral School of Sciences and Technology, Pázmány Péter Catholic University, PhD**

Research title: Normal and abnormal synchronization mechanisms in the brain

Supervisor: Dr. Ulbert István

2017-2019 **Pázmány Péter Catholic University, MSc, Info-bionics**

Thesis title: Network mechanisms of medial septal theta generation

Supervisor: Dr. Hangya Balázs

2013-2017 **Pázmány Péter Catholic University, BSc, Molecular bionics**

Thesis title: The neural mechanisms of network synchrony

Supervisor: Dr. Hangya Balázs

## Language

2013      english: TIT-TELC-C

## Scientific interest – Research experience

System neuroscience – Cognitive functions – Neurotransmitters – Electrophysiology – Optogenetical studies - Modeling

**Principal Investigator:** Dr. Ulbert István

**Research goals:** To decipher the network mechanisms of rhythm genesis in the medial septal circuit by analysing multiple simultaneously recorded medial

septal neurons from an anesthetized rodent model of hippocampal theta oscillation including both rats and mice.

**Research topic:** Medial septum theta generation

## Professional activities

- 2017      **Hungarian Academy of Sciences Institute of Experimental Medicine – KOKI Days, Balatonfüred**  
**Poster (first author):** Mechanisms of septohippocampal synchronization within the medial septal circuit
- 2017      **FENS Regional Meeting, Pécs**  
**Poster (first author):** Mechanisms of septohippocampal synchronization within the medial septal circuit
- 2018      **FENS, Berlin**  
**Poster (first author):** Mechanisms of septohippocampal synchronization within the medial septal circuit
- 2018      **SFN, San Diego**  
**Poster (first author):** Medial septal pacemaker neurons synchronize in phase not in frequency during hippocampal theta generation
- 2018      **KOKI days, Várgesztes**  
**Talk:** Investigating the role of septal network interactions in theta generation
- 2019      **MITT, Debrecen**  
**Poster (first author):** Medial septal pacemaker neurons synchronize in phase not in frequency during hippocampal theta generation
- 2019      **OTDK, Budapest**  
**Competition essay, III. place (first author):** Investigating the network mechanisms underlying hippocampal theta oscillation in rodents
- 2019      **Fens Regional Meeting, Belgrade**  
**Előadás:** Synchronization of medial septal pacemaker neurons during hippocampal theta generation

- 2019      **SYNDI, Aarhus**  
**Talk:** Investigating the network mechanisms underlying hippocampal theta oscillation in rodents
- 2020      **Go2uni, university introductory lecture, Budapest**  
**Talk:** Using math and computers to find out how neurons work

## **Grants and recognitions**

- 2018      **New National Program of Excellence**  
**Research topic:** The formation of hippocampal theta oscillation
- 2018      **Kopits grant**
- 2019      **Fens Regional Meeting, Belgrade – travel grant**
- 2020      **New National Program of Excellence**  
**Research topic:** Rhythm generating septal neural network model