

## BOGLÁRKA TÓTH



National Academy of Scientist Education, 6<sup>th</sup> year

Semmelweis University  
Faculty of Medicine, 6<sup>th</sup> year

### YEAR OF BIRTH

1999

### FORMER SZENT-GYÖRGYI PUPIL

no

### SZENT-GYÖRGYI MENTOR

László Acscády

### JUNIOR MENTOR

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### SPECIALIZATION

neurobiology

### SECONDARY SCHOOL

Ágoston Trefort  
Practising High School of  
Eotvos Lorand University

### NAME OF TEACHER

Judit Szászné Heszlényi

### LANGUAGES

English/C1

### IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

There is growing evidence in the literature for the interdependent activity of the cortex and thalamus, based on this knowledge we can conclude that the thalamus is not just a simple relay site for the cortex, but they are interdependent and to maintain cortical activity thalamic input is required. Our next paper will examine frontal cortico-thalamic pathways using anatomical, electrophysiological and optogenetic behaviour experiments. Based on our research frontal cortico-thalamic pathways show major differences in anatomy, connectivity and function. In my independently performed optogenetic behavioural experiments, I examine frontal layer 5 cortico-thalamic pathways during motor learning. Based on my work (and supported by our anatomical findings), plasticity in this connection is possible, which would reshape our understanding of thalamo-cortical interactions.

### AMBITIONS AND CAREER GOALS

After receiving my medical degree next year I'm planning to apply for the pre-PhD scholarship at the KOKI, where I could get an insight into 3 different laboratories' work. Either during or after my PhD I'm planning to spend a few years abroad. I'm planning to work in research, in the field of neuroscience.

### HONORS AND PRIZES

2019 Semmelweis University TDK Conference; I. prize  
2019 National TDK Conference; special prize  
2020 Semmelweis University TDK Conference; I. prize

### PUBLICATIONS

Hádinger, N., Bósz, E., **Tóth, B.** et al. (2023) Region-selective control of the thalamic reticular nucleus via cortical layer 5 pyramidal cells. **Nat Neurosci** **26**, 116–130.