

## KATA KÓTA



National Academy of Scientist Education, 4<sup>th</sup> year

Semmelweis University  
Faculty of Medicine, 4<sup>th</sup> year

### YEAR OF BIRTH

2002

### FORMER SZENT-GYÖRGYI PUPIL

no

### RESEARCH UNIT

Institute of Experimental  
Medicine

### SZENT-GYÖRGYI MENTOR

László Acsády

### JUNIOR MENTOR

László Biró

### SPECIALIZATION

thalamic research

### SECONDARY SCHOOL

Radnóti Miklós  
Experimental High School,  
Szeged

### NAME OF TEACHER

Ádám Zoltán Seres

### LANGUAGES

English/advanced

### IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

The thalamus is an especially important area in the brain, as it is the major source of inputs of the cerebral cortex, which is the top level information processor. Without the thalamus, the cortex has very little access to information from other areas of the brain. The cortex and the thalamus form a functional unit, and the disfunction of this thalamocortical system plays role in numerous neurological and psychiatric diseases. In spite of this, until recently thalamic research has been focused on a very narrow area, the relay of sensory inputs to the cortex, however all cortical areas are in connection with thalamic nuclei. Because of the lack of research, very little is known about the exact function of many thalamic nuclei so far. Our group aims to understand better this complex thalamocortical system.

A part of the group focuses on the inputs of one of the thalamic nuclei, the paraventricular nucleus (PVT). Via injecting viruses into definite areas of the brain of transgenic mice, we can visualize the axons ending in the PVT using a fluorescent or confocal microscope. This helps us determine the source of PVT inputs. Besides, we are also interested in exactly which areas of the PVT the axons from different sources end, and whether they are segregated or not. Based on this information, we can reveal the degree of integration of inputs from different sources in the PVT, which could help in understanding its exact function.

### AMBITIONS AND CAREER GOALS

During my university years, I would like to acquire both theoretical and practical knowledge in order to become a good physician. It is equally important for me to join a scientific research group to learn about research work because and scientific techniques, because, I am convinced, this experience will be valuable later during my work.

### HONORS AND PRIZES

2024 Semmelweis University Students' Scientific Conference, 1<sup>st</sup> place

### PUBLICATIONS

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