

## ADÉL LÜVI



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

University of Szeged,  
Faculty of Science and Informatics, Biology, MsC 1<sup>st</sup> year

#### YEAR OF BIRTH

2002

#### FORMER SZENT-GYÖRGYI PUPIL

yes

#### RESEARCH UNIT

HUN-REN Biological  
Research Centre

#### SZENT-GYÖRGYI MENTOR

Imola Wilhelm

#### JUNIOR MENTOR

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#### SPECIALIZATION

tumour biology

#### SECONDARY SCHOOL

Czuczor Gergely  
Benedictine High School  
and College, Győr

#### NAME OF TEACHER

Tamás Kleininger

#### LANGUAGES

English/intermediate  
German/intermediate

#### IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

One of the most important roles of the neurovascular unit – which is built up by cerebral endothelial cells, pericytes, glial cells, and neurons – is to form the blood-brain barrier. In order to form brain metastases, tumour cells – originating principally from malignant melanoma, breast carcinoma and lung cancer – have to migrate through the blood-brain barrier, the main function of which is to prevent the penetration of toxic substances to the brain. Therefore, metastatic cells which are able to extravasate into the brain are protected from therapeutic drugs by the blood-brain barrier itself. This is the main reason why brain metastases have an extremely poor prognosis. According to our group's results, not only brain endothelial cells, but pericytes can also increase survival of the tumour cells. Currently, we are investigating whether pericytes protect tumour cells against chemotherapeutic drugs. However, not only pericytes influence the tumour cells, but this is a mutual interaction. In our experiments, we want to test how brain metastatic breast cancer cells communicate with pericytes and what changes are induced by tumour cells in pericytes to contribute to the formation of the metastatic niche. Understanding of these mechanisms may contribute to the development of novel therapeutic methods.

#### AMBITIONS AND CAREER GOALS

During my research work, my ambition is to contribute to the understanding of brain metastases and therefore, to help people suffering from this tumour disease. In the following years, I want to learn new methods, to improve my scientific skills, and to be a useful member of our research group with the final goal of being able to use this acquired knowledge later in my own projects.

#### HONORS AND PRIZES

- 2023 SZTE Talent Scholarship Silver grade
- 2023 University of Szeged Scientific Students' Associations Conference (TDK)  
Physiology, Pathophysiology and Pharmacology section 1. Special award

#### PUBLICATIONS

Mészáros, Á., Molnár, K., Fazakas, C., Nógrádi, B., Lüvi, A., Dudás, T., Tiszlavicz, L., Farkas, AE., Krizbai, IA., Wilhelm, I. (2023) Inflammasome activation in peritumoral astrocytes is a key player in breast cancer brain metastasis development. *Acta Neuropathol Commun*11(1):155.