

## DÁVID KÁROLY ERDEI



National Academy of Scientist Education, 1<sup>st</sup> year

University of Debrecen  
Faculty of Medicine, 2<sup>nd</sup> year

#### YEAR OF BIRTH

2005

#### FORMER SZENT-GYÖRGYI PUPIL

no

#### RESEARCH UNIT

University of Debrecen

#### SZENT-GYÖRGYI MENTOR

György Panyi

#### JUNIOR MENTOR

Éva Korpos-Pintye-Gyuri

#### SPECIALIZATION

Tumor immunology

#### SECONDARY SCHOOL

SZSZC Tokaji Ferenc  
Secondary School

#### NAME OF TEACHER

Csilla Szentesi

#### LANGUAGES

English/C1  
German/B2

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

The research focuses on defining the role of the Hv1 proton channel in myeloid-derived suppressor cells (MDSCs) to better understand their function in tumor development. MDSCs are key components of the immunosuppressive tumor microenvironment, and their presence in tumor tissue or peripheral blood usually indicates a poor prognosis.

Tumor-secreted chemokines recruit MDSCs from the bone marrow to the tumor site, where they suppress anti-tumor immune responses through several mechanisms, for example, by producing large amounts of reactive oxygen species (ROS) that inhibit cytotoxic T-cell proliferation, or by depleting arginine via high arginase-1 activity.

Because of their strong immunosuppressive effects, targeting MDSCs holds therapeutic potential in cancer treatment. The Hv1 proton channel, expressed in many immune cell types, helps regulate intracellular pH and cooperates with NADPH oxidase (NOX2) to promote ROS generation.

#### AMBITIONS AND CAREER GOALS

My goal as a future practicing physician is to apply the knowledge I have gained through biomedical research to provide patients with personalized and modern therapeutic options. I believe that a deeper understanding of tumors contributes to better patient recovery; therefore, I see it as my mission to establish a strong connection between clinical practice and molecular biological research as a future clinician.

During my university studies, I also intend to begin the MD-PhD program.

#### HONORS AND PRIZES

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#### PUBLICATIONS

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