

MÁTÉ CSEPI



National Academy of Scientist Education, 2nd year

Semmelweis University
Faculty of Medicine, 3rd year

YEAR OF BIRTH

2002

FORMER SZENT-GYÖRGYI PUPIL

no

RESEARCH UNIT

Semmelweis University

SZENT-GYÖRGYI MENTOR

Tamás Hegedűs

JUNIOR MENTOR

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SPECIALIZATION

biophysics and
bioinformatics of
transmembrane proteins

SECONDARY SCHOOL

Miklós Révai High School
and College

NAME OF TEACHER

József Bacher,
Andrásné Dr. Degovics

LANGUAGES

English/intermediate

IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

With the development of experimental techniques, new protein sequences become available. However, the methods for determining the three-dimensional structure and the function of proteins could not keep up with this rapid development. Using prediction methods, it is possible to assign functions to the accumulating sequences. Primarily, we employ protein language models. They enable to transform amino acid sequences into vectorial representations which encode structural and functional properties of proteins, like hydrophobicity, participation in transmembrane regions, or membrane-binding abilities. Up to this point, we have worked with a specific group of membrane-binding regions named MemMoRFs (Membrane-binding Molecular Recognition Features), which are intrinsically disordered, lacking a well-defined secondary structure and gain stable secondary structural elements upon association with lipids. These proteins and regions play essential roles in numerous biological processes, including cell cycle regulation, cell signaling, and apoptosis. Our goal is to identify MemMoRFs with high confidence that will aid in enhancing our understanding of their roles in the cell or the body.

AMBITIONS AND CAREER GOALS

I am heading towards medical research and scientific discovery, guided by the Szent-Györgyi Program and my medical university studies. These two important components complement each other organically and provide an opportunity for me to delve deeper and contribute to the advancement of medical biology. By participating in TDK conferences, I aim to enhance my presentation skills. The program offers me a chance to collaborate closely with other researchers and experts. My goal is to take part in uncovering and applying the latest scientific findings in the field of healthcare.

HONORS AND PRIZES

2024 Semmelweis University Students' Scientific Conference, 1st place

PUBLICATIONS

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