

## KITTI KURTÁN



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

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

#### YEAR OF BIRTH

2000

#### FORMER SZENT-GYÖRGYI PUPIL

no

#### RESEARCH UNIT

University of Debrecen

#### SZENT-GYÖRGYI MENTOR

Florina Zákány

#### JUNIOR MENTOR

-

#### SPECIALIZATION

Biophysics, cell biology

#### SECONDARY SCHOOL

Kossuth Lajos Vocational  
High School and Primary  
School of the  
University of Debrecen

#### NAME OF TEACHER

-

#### LANGUAGES

English/proficiency  
German/intermediate

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

My research focuses on investigating the interaction between spike proteins of different SARS-CoV-2 variants and the ACE2 receptor. Previously, we demonstrated that cholesterol-depleting cyclodextrins can alter the cell surface distribution of ACE2 and TMPRSS2 proteins essential in the initial steps of virus infection. This results in a reduced capability for the virus to bind to ACE2, subsequently decreasing its entry into the cell. Our further goal is to study the differences in the affinity of various SARS-CoV-2 variant spike proteins for ACE2. Additionally, we aim to explore how changes in the target cell membrane, especially modifications in cholesterol levels in lipid rafts, affect the affinity of SARS-CoV-2 spike proteins for ACE2 and their entry into the cell. Our results may contribute to understanding how alterations in the membrane composition of target cells and mutations in the spike protein influence the binding and entry of SARS-CoV-2 into target cells. This data can enhance our comprehension of the infection process and, consequently, aid in the development of more effective therapeutic methods.

#### AMBITIONS AND CAREER GOALS

My goal is to acquire extensive knowledge and experience in both research and general medical practices throughout my studies. Among my short-term plans is the completion of the MD PhD program to obtain a doctoral degree, for which the NTA training provides excellent assistance. My ambition is to become a renowned medical professional in the future. Therefore, I also consider it crucial to actively participate in research activities in the long term.

#### HONORS AND PRIZES

-

#### PUBLICATIONS

-