PETER MARINCSÁK

National Academy of Scientist Education, 1st year

University of Debrecen
Faculty of Medicine, 2nd year

YEAR OF BIRTH:

2005

FORMER SZENT-GYÖRGYI PUPIL:

no

RESEARCH UNIT

University of Debrecen

SZENT-GYÖRGYI MENTOR:

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JUNIOR MENTOR:

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SPECIALIZATION:

Interleukin receptors

SECONDARY SCHOOL:

Fényi Gyula Jezsuita Secondary School

NAME OF TEACHER:

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LANGUAGES:

English/B2

IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

Interleukin receptors and the signaling pathways they mediate play a crucial role in the functioning of the immune system. Their dysfunction is implicated in numerous diseases, their activity is altered in most malignant and in many autoimmune disorders. The aim of my work is to gain a better understanding primarily of IL-2 and IL-15 receptor–ligand interactions and the signaling processes they induce under both pathological and physiological conditions.
In the case of IL-2, we aim to demonstrate that signaling can occur in an intracrine manner already within the Golgi apparatus. This will first be investigated in Jurkat E6-1 cells and later in peripheral CD4+ T cells using molecular biological and biophysical techniques such as immunoprecipitation (IP) and Western blotting (WB) flow cytometric analysis and at a later stage, we also plan to perform FRET measurements in the Golgi apparatus.
In the case of IL-15, we seek to better understand the relationship between antigen presentation and IL-15 trans-presentation processes. Our goal is to investigate the stability of the immunological synapse formed upon antigen stimulation and IL-15 binding.
In the future, we also plan to study additional interleukin receptors and the signaling pathways they mediate.

AMBITIONS AND CAREER GOALS

My goal is to use my research and the newly acquired knowledge to support my future career as a practicing physician by gaining a more comprehensive understanding of molecular-level processes occurring in patients, thereby enabling me to provide the best possible care to the best of my abilities. Therefore I chose to focus on the study of interleukin receptor function and the signaling pathways they mediate because this research has the potential to yield clinically relevant observations that may serve as novel therapeutic targets in clinical practice.

HONORS AND PRIZES

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PUBLICATIONS

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