

BOGLÁRKA HARSÁNYI



National Academy of Scientist Education, 2nd year

University of Debrecen,
Faculty of Medicine, 2nd year

YEAR OF BIRTH

2004

FORMER SZENT-GYÖRGYI PUPIL

no

RESEARCH UNIT

University of Debrecen

SZENT-GYÖRGYI MENTOR

Csaba Matta

JUNIOR MENTOR

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SPECIALIZATION

Stem cell research,
differentiation,
chondrogenesis

SECONDARY SCHOOL

Kisvárdai Bessenyei György
High School and College

NAME OF TEACHER

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LANGUAGES

English/intermediate

IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

The planned research is motivated by the fact that musculoskeletal disorders, in particular disorders of large joints such as the knee and hip, place a significant burden on health care systems worldwide. Today, cartilage replacement remains a major challenge, partly due to the lack of detailed knowledge of the molecular processes that regulate cartilage formation. For this reason, a number of biological therapeutic approaches are being developed, for which a more detailed understanding of cartilage differentiation is essential.

The central starting point for this research is that during cartilage formation, mesenchymal stem cells (MSC) and mature chondrocytes are metabolically distinct. Mature articular cartilage cells are located in a vascular tissue where nutrient availability is limited. During chondrogenesis, metabolic pathways undergo a major transformation - however, the exact mechanism of this is currently poorly understood. Understanding the differences between the metabolic pathways of cartilage progenitor cells and mature articular cartilage cells could provide a new, unexploited way to promote cartilage regeneration.

AMBITIONS AND CAREER GOALS

In the course of the above research project, I will have the opportunity to learn about the methods to answer scientific questions (RNA expression methods, protein analysis, network biology, metabolic processes) and to participate in the process of presenting the research results in the form of a scientific paper (in extenso publication). I would also like to present the research results at a scientific student conference. One of my long-term goals is to obtain a PhD degree, which I will have the opportunity to do alongside my medical studies (MD PhD).

HONORS AND PRIZES

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PUBLICATIONS

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