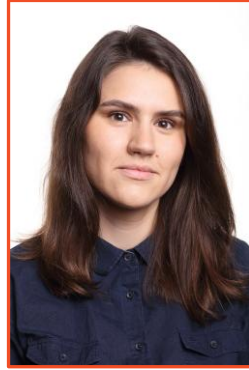

Regular Wednesday IMG seminar



Olha Ivashchenko

Laboratory of Cilia Genetics and Pathology

“Primary cilia in bone marrow niche regulation”

Primary cilia are small sensory organelles that regulate cellular signaling, but their role in the bone marrow mesenchymal stromal cell (MSC) niche is still not well understood. Here, we show that MSCs possess primary cilia both in vivo and in vitro and are mainly located around blood vessels in the bone marrow. Interestingly, the number of ciliated MSCs decreases with age, suggesting that ciliation changes over time. To study the role of MSC cilia in bone marrow homeostasis, we generated mice lacking the cilia-associated protein IFT88 specifically in MSCs using an Ocn-Cre driver. Loss of MSC cilia caused mild changes in bone structure, particularly in females. Under normal conditions, hematopoiesis remained largely unaffected, although females showed modest increases in hematopoietic stem cells and reduced lymphoid progenitors. Under hematopoietic stress, induced by lipopolysaccharide treatment or 5-fluorouracil administration, mice lacking MSC cilia showed mild but reproducible alterations in hematopoietic responses, with differences between males and females. To better understand the molecular mechanisms involved, we are currently analyzing single-cell RNA sequencing data from bone marrow stromal cells to identify signaling pathways regulated by ciliary function within the niche.

The seminar will be held

on Wednesday 27 May 2026 at 15:00

in the Milan Hašek Auditorium at IMG

(Institute of Molecular Genetics of the Czech Academy of Sciences, Vídeňská 1083, Prague 4)
