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### **Research Internship Report**

On 22<sup>nd</sup> November to 23<sup>rd</sup> December 2024, I completed a research internship at the University of Maribor in Maribor, Slovenia, the supervision of Prof. Dr. Aleš Gregorc. The professor's team specializes in research on the histology of bee tissues, particularly the midgut and fat body, as well as broader molecular biology. This topic aligns with my Individual Research Plan focused on the morphology and biochemical role of the bee fat body. The internship served as a continuation of my doctoral dissertation research and the ongoing Preludium project.

The pilot studies conducted during the internship form the basis for applying for external funding such as European grants and enable the continuation of international collaboration.

The internship was carried out according to the schedule:

#### **First week of the internship:**

- Familiarization with the working procedures in Prof. Aleš Gregorc's Department, including health and safety regulations; introduction to research methodologies.
- Preparation of samples for laboratory analysis.

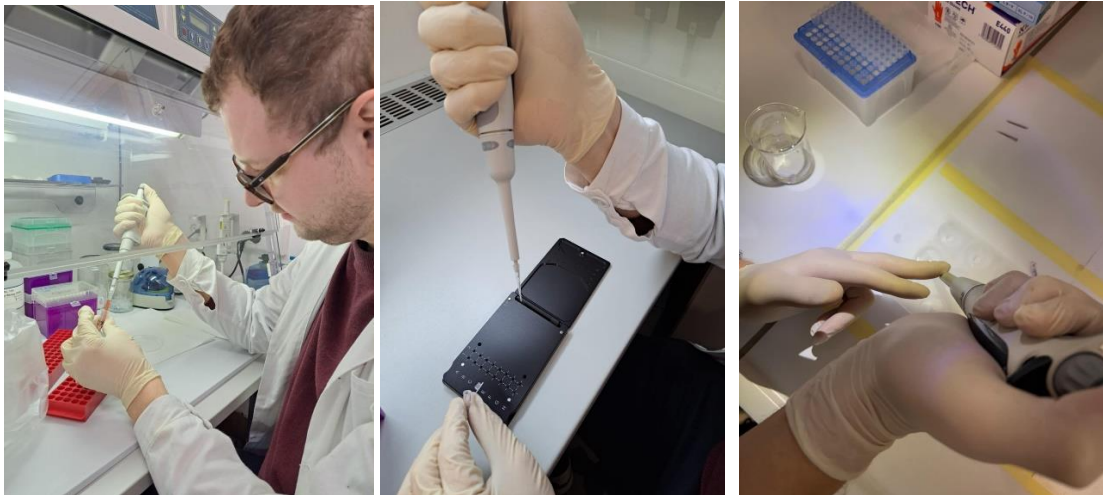
#### **Second week of the internship:**

- Preparation of bee tissue samples: preparation of the fat body and midgut.
- Preparation of paraffin blocks.
- Use of a microtome to section the prepared blocks



**Third week of the internship:**

- Preparation of histological preparations: dehydration, staining, and mounting processes.
- Preparation of biological material: eggs and abdomens of bees for RNA isolation using RNeasy Lipid Tissue Kit (QIAGEN)

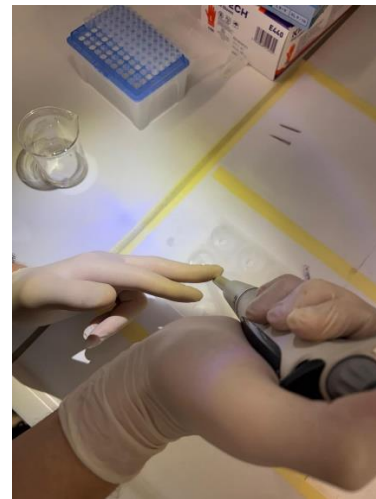


-Continuation of analyses

### Fourth week of the internship:

-Continuation of histological analyses.

-Interpretation of obtained results, summary, and conclusions.





In addition to my research, I was fortunate to explore Slovenia, immersing myself in its rich culture, savoring delicious local cuisine, and marveling at its stunning natural landscapes.



The experience I have gained broadens my research horizons and also expands the scope of my knowledge of laboratory analytics, which I will successfully use in scientific research related to the pollen diet.

Maciej Bryś