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**Diploma thesis of Bc. Marek Jedlička**

**Title: The transcription factor C/EBP $\gamma$  as a novel regulator in mast cell development and function**

The main goal of this project is to understand how C/EBP $\gamma$  controls mast cell differentiation and activity. Mast cells are immune cells belonging to the myelo-erythroid lineage. They are tissue resident cells, and represent one of the first lines of defense of the organism. Nevertheless, mast cells are mostly known for their role in allergies and hypersensitivity, and consequently understanding the mechanisms that control their production as well as their activity is crucial. C/EBP $\gamma$  is a transcription factor that belongs to the family of CCAAT proteins, in which 6 members have been identified. The role of C/EBPs has been well established in granulocytic differentiation, however little is known about whether and how these proteins might regulate mast cell development and functionality. Our preliminary data suggested that C/EBP $\gamma$  controls mast cell production and critical mast cell functions such as migration and degranulation. Using in vitro and in vivo models, the aim of this diploma thesis was to identify C/EBP $\gamma$  target genes that could control these processes. The author of this thesis identified two critical transcription factors regulated by C/EBP $\gamma$ , i.e. C/EBP $\alpha$  and GATA2. He designed and clone luciferase constructs containing the promoter regions of C/EBP $\alpha$  and GATA2 in order to determine whether C/EBP $\gamma$  might regulate expression of these factors in a direct manner. Additionally, he contributed to verify our preliminary data and analyze the in vivo phenotype of *Cebpg* deficient mice. This thesis has provided very solid basis for further research into this topic in our laboratory, and I expect that the data generated will be included in a future publication by our team.

Marek Jedlička joined my laboratory at the beginning of 2018 and spent a year working on this project. During the course of his training I could appreciate the personal and scientific development of Marek. He was responsible, dedicated to his project, and careful with his work. The written part of this diploma thesis was entirely written by him, using the available literature and my advice. The thesis was written in English and my contribution was rather small, with few linguistic adaptations. The result is a coherent and well written document, both formally and scientifically.

In conclusion, I state that Marek Jedlička proved his laboratory skills and his ability to design, perform and evaluate complex experiments. He is able to critically evaluate the published data and his own results, and put everything in a broader context. He also proved considerable independence in the writing of the diploma thesis. **In my opinion, this work clearly meets the requirements for the diploma thesis and I recommend its acceptance to the defense with excellent evaluation.**

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Meritxell', with a stylized flourish.

Meritxell Alberich-Jorda, Ph.D