



MIKROBIOLOGICKÝ ÚSTAV

Akademie věd České republiky, v. v. i.

in Prague, 28.5. 2024

Supervisor's report on diploma thesis by

Bc. Monica Jandova „*Effect of gluten-free diet on immune parameters in Parkinson's disease*“

This diploma thesis by Bc. Monica Jandova has been elaborated in the Laboratory of Cellular and Molecular Immunology, IMIC, CAS, Prague, as part of a project investigating a possible beneficial role of the gluten-free diet (GFD) in Parkinson's disease (PD), using the most frequently used animal model of PD - the MPTP-induced mouse model of PD.

This project represents a new topic of interest in my lab, using a mouse model that, to our knowledge, has not yet been established in the Czech Republic. The MPTP mouse model involves several read-out methods to monitor possibly subtle environmental influences in PD such as those by the GFD. From these methods, her diploma thesis include histology, immunohistochemistry, behavioral testing, and monitoring of possible changes in proportions of immune cells subsets by flow cytometry that may be influenced by the GFD and thus serve as potential immune biomarkers in PD, that is so far with no cure.

This is a re-submission of her thesis in which, based on the reviewer's and the committee's critical comments, Monica was asked to improve several things in her thesis based on the same set of experimental data. As suggested by the appointed committee, Monica has rewritten the literature introduction, more specifically the part related to the immune cell subsets altered in PD, as they are no clear-cut and conclusive data available on the pathogenic or protective roles of the altered cell subsets in PD. This aspect of PD and the fact that she has got only limited experimental data due to a long-term nature of the chronic MPTP animal model as well as due to the necessity to pool cells from smaller lymphoid organs for flow cytometry experiments, the conclusions were corrected to less ambitious ones.

Bc. Monica Jandova has quickly adapted to the new methods she had to learn in the lab and that she presents in her diploma thesis. She worked often quite independently, participated in the development of some of the methods (e.g. the evaluations of the behavioral test) and also critically worked with the relevant literature. I especially highly appreciate, that during the course of her work in my lab, she has been proposing also new ideas or modifications to the experiments, thus really helping us to get the project a float.

Her work on the MPTP model has been also influenced by some outer factors that cause some delays. Besides the fact that the chronic MPTP mouse model is a long-term, and demanding by requirements to handle the MPTP toxicity, including within the animal facilities, her project was also influenced by the closure of the animal facility at the IMIC (during 2023) and several times postponed start of a new animal house within the institute, that has become fully operational only a few months ago. Despite this, Monica has managed to get her first promising results from some of the read-out methods used in the MPTP model that I believe will lead to a valuable publication, when extended with sufficient number of animals and repetition of experiments.

In conclusion, I can state that Bc. Monica Jandova has mastered several methods, helped us a great deal to developed the MPTP model, critically worked with the literature, has been also very proactive in improving some of the methods and contributed with her own ideas to develop this project. In this resubmitted version of her thesis she has addressed the issues raised by the reviewer and the committee, but as suggested without changing the experimental data. After these changes have bene made, I can definitely recommend her thesis for the opposition proceedings and for the awarding the Master's degree title.



David Funda, M.D., Ph.D.

Laboratory of Cellular and Molecular Immunology,
IMIC AS CR, v.v.i.