

Review of the bachelor thesis of Viktor Sieranski entitled „Changes of IgM expression levels in the head kidney of *Cyprinus carpio* following an infection with *Sphaerospora molnari*“

Bachelor thesis of Viktor Sieranski was a part of a larger project focusing on cellular and humoral immune responses of common carp to presporogonic development of the myxozoan *Sphaerospora molnari*. Viktor's role was to identify changes of IgM expression levels in the head kidney of carp.

Introduction of the thesis is well structured. In the first part, reader is well informed about the general knowledge of Myxozoa with emphasis on the model organism *Sphaerospora molnari*. Second part is focused on the immune system of fish in connection with myxozoan infections. Regarding the introduction part I have one specific question for the candidate: Do we really know the life cycle of *Sphaerospora dykova* as you stated on Page 4? Please, make a deeper literature research on this problematics.

Unfortunately, the introduction suffers with a relatively high number of typos. I checked the references just on the first page and I found that two references, that are in the text on this page, are missing in the reference list. There is also a mistake in the style of referring to name an year of a description of the genus *Sphaerospora* (section 1.1.1), and also I miss name and year of a description of your model organism *S. molnari* (although it is an immunologically focused work I still think that taxonomic rules should be followed) – please, provide corrections. I appreciate that the drawings on the two figures were done by the author of the thesis, but unfortunately the quality of drawings could be better.

The aims are actually three major methodological steps rather than proper aims that a student should achieve. Can you provide the better formulation of aims, please.

Methodology is well done with all details that are necessary to elucidate the workflow of the experiments. It is not clear to me if there was also transcriptome sequencing of *S. molnari* included in the methodology of bachelor thesis as it could be understood from 3.4 (page 13). Similarly, if the author really did a transcriptome mining for IgM and design of primers in Primer3 program as it is claimed in 3.4.

Fig. 3 clearly shows all obtained results, however the text part explaining the results is very brief. The bachelor thesis should be more detailed, present work resembles brief style of results of scientific paper. I understand that overall there is not much results to present although the amount of work to obtain them was great and sufficient for a bachelor thesis, but still I feel, that there might be more effort to better sell the results here. For example, more attention could be paid to the levels of expression of IgMsec at 56 and 63 dpi – these values were relatively high compared to the other values obtained during the experiment. I am not an expert in immunology but I think (deducing from the Fig. 3) that it is not correct (or accurate) to say that IgMmem showed 10-fold increase at the day 49 – please clarify this for me. Similarly, I would guess that IgMmem should be significantly different from levels obtained

in day 2 and 4 (not only comparing to days 1 and 7). What does the dashed line mean on the Fig. 3? I would also expect that expression levels significantly higher than the control fish samples will be highlighted on the Fig. 3.

Discussion is satisfactory. Author of the bachelor thesis well compared achieved results with similar results published in previous works, however, I would argue already the first sentence saying that IgM was significantly higher than in the control group at 21 dpi. I cannot see the support for this statement in the results. Can you explain it, please?

Overall, I found the bachelor thesis acceptable to be defended and I am recommending the thesis to be approved.

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