Přírodovědecká fakulta
Faculty of Science

Jihočeská univerzita v Českých Budějovicích
University of South Bohemia in České Budějovice

OPPONENT'S REVIEW ON BACHELOR THESIS

Name of the student: **Sebastian Tschernuth**

Thesis title: The role of juvenile hormone dusring immune response in *Drosophila melanogaster.*
Supervisor: **doc. Mgr. Tomas Dolezal, Ph.D., Prof. Marek Jidra, CSc.**
Referee: RNDr. Alena Krejci, Ph.D.
Referee`s affiliation: **University of South Bohemia, Faculty of Science**

	Point scale[1]	Points
(1) FORMAL REQUIREMENTS		
Extent of the thesis (for bachelor theses min. 18 pages, for masters theses min. 25 pages), **balanced length of the thesis parts** (recommended length of the theoretical part is max. 1/3 of the total length), **logical structure of the thesis**	0-3	3
Quality of the theoretical part (review) (number and relevancy of the references, recency of the references)	0-3	3
Accuracy in citing of the references (presence of uncited sources, uniform style of the references, use of correct journal titles and abbreviations)	0-3	3
Graphic layout of the text and of the figures/tables	0-3	3
Quality of the annotation	0-3	2
Language and stylistics, complying with the valid terminology	0-3	2
Accuracy and completeness of figures/tables legends (clarity without reading the rest of the text, explanation of the symbols and labeling, indication of the units)	0-3	2
Formal requirements – points in total		19
(2) PRACTICAL REQUIREMENTS		
Clarity and fulfillment of the aims	0-3	3
Ability to understand the results, their interpretation, and clarity of the results, discussion, and conclusions	0-3	3
Discussion quality – interpretation of the results and their discussion with the literature (absence of discussion with the literature is not acceptable)	0-3	2
Logic in the course of the experimental work	0-3	3
Completeness of the description of the used techniques	0-3	2
Experimental difficulty of the thesis, independence in experimental work	0-3	3
Quality of experimental data presentation	0-3	2

The use of up-to-date techniques	0-3	3
Contribution of the thesis to the knowledge in the field and possibility to publish the results (after eventual supplementary experiments)	0-3	1
Practical requirements – points in total		22
POINTS IN TOTAL (MAX/AWARDED)	**41**	**(0-48)**

Comments of the reviewer on the student and the thesis:

The main focus of Sebastian thesis was to investigate if juvenile hormone signalling plays a role during the imune response of *Drosophila* larvae to wasp infections. It was an ambitious project that aimed to tackle the problem with several different approaches, either by measuring the JH levels during infection, by measuring the mRNA levels of one of the JH target and by ablating JH production using genetic tools. Unfortunatelly, most of these efforts failed to generate solid conclusions due to technical problems that were not solved. Nevertheless, preliminary results may suggest that JH affects the development of lamellocytes.

The thesis is brief but well written. I appreciated that the it is focused on the topic studied but sometimes setting a wider context or better description of the data would be beneficial. The Methods section is far too bried and it would be unsufficient for other people to repeat the experiments. Also the figure legend is sometimes missing details. On the other hand, it is obvious that Sebastian did a lot of work and tried many different approaches, probably more than one would expect from an average bachelor thesis. The downside of such an approach is the fact that majority of the experiments were done only once and with low number of samples, therefore showing no statistical significance and definitive conclusion. I wonder whether it would have been better to concentrate on fewer experiments and perform them with more biological replicates; Sebastian clearly preferred to try more new things than to get stuck with mondate troubleshooting. However, I understand the time pressure of Linz students and I appreciate the scope of techniques that Sebastian was exposed to in the short time window provided for the lab work.

Questions that may be used for discussion during the defence:

1. It is not obvious from the description which larvae you used as controls (without CA ablation). Can you explain?

2. The description of the genotypes used is not always written correctly. For example in Chapter 4.2.2. called 'JHAMT x GrimII. This is obviously a shortcut but you did not explain it in the text. What exactly are these flies? It would be easier for the reader if you include a table listing all flies you used in your experiments.

3. The tables that belong to the graphs do not seem to correlate with the values displayed in the graph (Table 3 and Fig. 12). Can you explain?

4. Why did you chose E-cadherin as a houskeeping gene? Are therere any other genes used in similar studies and did you test any of them to normalize the data?

5. Which effect does JH ablation have on the development of the larva? Could the low number of lamellocytes be caused by the effects on developmental timing? Did both control and non-CA larvae had the same amount of immune cells at the onset of the infection (time 0)?

6. If your preliminary results are correct and JH affects immune response - how could JH achieve that? Do you have a model in your head? It would have been nice to present it in the discussion and during the defence.

Conclusion:

In conclusion, I

r e c o m m e n d

the thesis for the defense and I suggest the grade very good **but I do not object to improve the grade depending on the performance during the defense.**

In **Ceske Budejovice** date **15th January 2020**