



STATEMENT OF THE BACHELOR THESIS REVIEWER

Name of the student: Michaela Husová

Thesis title: The role of mitochondrial SCoAS substrate-level phosphorylation in the bloodstream form *Trypanosoma brucei*

Supervisor: RNDr. Alena Panicucci Zíková, PhD.

Reviewer: Julie Kovářová, PhD.

Reviewer's affiliation: Wellcome Centre for Anti-Infectives Research, School of Life Sciences, University of Dundee, United Kingdom

The Bachelor thesis of Michaela Husová is excellent, and fulfills all the requirements and expectations. The extent of the thesis is absolutely sufficient with the separate parts being balanced and following a logical structure. The theoretical part, language, and stylistics are good. The references are sufficient and recent, just one (Taleva, 2016) is incomplete. Overall, all the formal requirements are met.

The aims of the thesis are clearly stated and all of them are fulfilled. The 'Introduction' is sufficient, however the structure could be improved, and include a paragraph on basic characterisation of trypanosomes. The 'Materials and Methods' section is very specific and thorough, which is desirable in a Bachelor thesis. In the 'Results' section, Michaela presents an impressive number of various experiments, well described and explained. The experiments are organized in a relevant order following a logical flow, and lead to a convincing conclusion. For the future, more consideration could be given to data representation (Figures 3 and 4). The 'Discussion' is a very strong part of the thesis, where the obtained results are comprehensively reviewed and related to published literature and complementary work from the group. Numerous possible explanations are considered for the discrepancy with published literature, where Michaela shows more thoroughness than Zhang *et al.* (2010). She also suggests reasonable further experiments.

Michaela demonstrated understanding of trypanosome metabolism, which is very complex, variable, and diverse from the canonical metabolism presented in textbooks. She learnt a wide range of techniques from cell culture to molecular biology and biochemistry. She presents a nice range of results leading to a convincing conclusion that SCoAS is dispensable in bloodstream form *T. brucei*.

Suggestions and questions, to which the student has to answer during the defense:

1. Figure 3 – Create a new plot from the data, so the separate cell lines can be distinguished.
2. Is it known from other systems, if each alpha and beta subunits are essential for the enzyme activity? Can you predict it from the structure of the enzyme? Please present a structure and basic characterisation of the enzyme as published in literature.

3. This work, and the discrepancy with a previous work (Zhang et al., 2010), demonstrates a clear example of the limitations of the RNA interference approach. Which other techniques are currently available for gene/protein depletion in *T. brucei*? If you were asked to create a new cell line deficient in SCoAS, which method would you choose, and why? List shortly the advantages.

Eventual mistakes, which the students should avoid in the future:

- In the first sentence of the Annotation 'bloodstream form' is missing.
- Include gene IDs
- Figure 4 – labels are confusing
- You can use 'name (unpublished data/personal communication)' when referring to your colleagues' results.

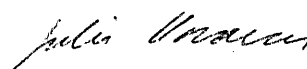
Conclusion:

In conclusion, I

r e c o m m e n d

the thesis for the defense and I suggest the grade 1 .

In Dundee date 13 May 2019



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signature