



STATEMENT OF THE BACHELOR THESIS REVIEWER

Name of the student: Alexander Christoph Haindrich

Thesis title:

Iron-Sulphur Cluster Assembly in *Trypanosoma brucei*

Supervisor:

Prof. RNDr. Julius Lukeš, CSc.

Reviewer:

Ondřej Gahura

Reviewer's affiliation:

Biology Centre ASCR, Institute of Parasitology

Point scale¹ Points

(1) FORMAL REQUIREMENTS

Extent of the thesis (for bachelor theses min. 18 pages, for masters theses min. 25 pages), balanced extents of the thesis divisions (recommended extent of the theoretical part is max. 1/3 of the total extent), 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	2
Graphic layout of the text and of the figures/tables	0-3	3
Adequacy and clarity of the results and conclusions	0-3	3
Quality of the annotation	0-3	1
Language and stylistics, complying with the valid terminology	0-3	2
Accuracy and completeness of figures/tables legends (clarity even without reading the rest of the text, explanation of the symbols and labeling, indicating the units)	0-3	2
Formal requirements – points in total		19

(2) PRACTICAL REQUIREMENTS

Clarity of the aims	0-3	3
Fulfillment of the aims	0-3	3
Discussion quality – interpretation of results and their discussion with the literature	0-3	2
Logic in the course of the experimental work	0-3	2
Completeness of the description of the used techniques	0-3	3
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

¹ Mark as: 0-unsatisfactory, 1-satisfactory, 2-average, 3-excellent.

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

- What was the RNAi efficiency in the newly generated cell lines? (If neither protein nor transcript levels were tested in the double KD lines, the data of single KD lines should have been shown, as it is crucial to reliably interpret results. From the same reason, the growth curves of single KD lines should also have been included. Table 20 provides only a rough idea of their growing phenotypes.)
- Which of the genes encoding CIA pathway members are essential in *S. cerevisiae*?
- Cytosolic aconitase, an [Fe-S] protein, has a dual function in mammals, where it besides its catalytic activity promotes translation of proteins involved in iron-uptake. In contrast, in yeast, the iron-uptake system is regulated on transcription level, and a signal originates at mitochondrial [Fe-S]. Is it known if Trypanosomatids use c-aconitase to posttranscriptionally regulate iron concentration in cells?
- What would be a better negative control for the transformation of ligation into *E. coli* than water?

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

Major points:

- In the section 1.2.2 describing the CIA pathway, not all findings come from studies on *S. cerevisiae*. Some observations are also from human cells. It should be always clearly stated, which model is referred to.
- Material & Methods should describe only general protocols for the techniques used. Additional details on particular cloning, PCR, etc. belong to Results. In this way, a lot of space could have been saved and used e.g. for presenting DNA gels, which are often mentioned only as "data not shown".
- Description of reaction mixture (PCR and others) should involve concentrations of components. Stating solely the volume of e.g. gDNA or primers is non-informative.

Minor points:

- All figures and tables should be referred to in text.
- In my opinion, more references would be appropriate in some sections (e.g. 1.2.1 – 2nd and 3rd paragraph).
- The term "hot-start" refers to a derived PCR technique reducing unspecific amplification. First step of PCR cycle is usually called "initial denaturation".
- It is mentioned couple times that DNA concentration was measured by Nanodrop, but the values are not indicated.

Eventual additional comments of the reviewer on the student and the thesis:

Concerning formal issues – the text contain several typos (mostly those that are not recognized by spell check), a few expressions are rather confusing or inaccurate (e.g. page 6 – "...antibiotic resistance genes coding for hygromycin and geneticin" instead of "genes coding for resistance to hygromycin..."). But in general, the thesis reads well, and it is easy to understand.

The extent of text as well as amount of work corresponds to the demands on BSc. thesis. Taking in account a short period available to work in lab, it is more than sufficient. During the experimental work, Alex learned basic techniques of molecular biology and got acquainted with *T. brucei* as a model organism.

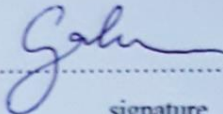
Conclusion:

In conclusion, I

r e c o m m e n d

the thesis for the defense and I suggest the grade 1.²

In České Budějovice date 10. 6. 2013


signature

² You can suggest a grade, which can be modified during the defense based on the presentation. However, if the reviewer is not present at the defense, the grade will not be counted.