Přírodovědecká fakulta
Faculty of Science

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

STATEMENT OF THE BACHELOR THESIS REVIEWER

Name of the student:	**Adéla Křižová**
Thesis title:	**Functional Analysis of Protein MRB8620 of the Mitochondrial RNA Binding Complex 1 of *Trypanosoma brucei***
Supervisor:	Mgr. Mir Mohamod Hassan Hashimi Ph.D.
Reviewer:	**Heather Esson, PhD**
Reviewer` affiliation:	**Institute of Parasitology, Biology Centre, Academy of Sciences of Czech Republic and Faculty of Science, University of South Bohemia**

	Point scale[1]	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	2
quality of the theoretical part (review) (number and relevancy of the references, recency of the references)	0-3	2
Accuracy in citing of the references (presence of uncited sources, uniform style of the references, use of correct journal titles and abbreviations)	0-3	1
Graphic layout of the text and of the figures/tables	0-3	1
Adequacy and clarity of the results and conclusions	0-3	2
Quality of the annotation	0-3	3
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		15
(2) PRACTICAL REQUIREMENTS		
Clarity of the aims	0-3	1
Fulfillment of the aims	0-3	2
Discussion quality – interpretation of results and their discussion with the literature	0-3	1
Logic in the course of the experimental work	0-3	2
Completeness of the description of the used techniques	0-3	3

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

Experimental difficulty of the thesis, independence in experimental work	0-3	3
Quality of experimental data presentation	0-3	3
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	2
Formal requirements – points in total		20
POINTS IN TOTAL (MAX/AWARDED)	51	35

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

1. In glucose-free medium, induced cells undergo a growth defect 5 days post-induction (Fig. 15) due to a reduction in levels of MRB8620. What cellular processes other than RNA editing might be affected by the knockdown? If you observed induced cells under the microscope, what morphological changes, if any, would you expect to see?

2. Knockdown experiments are frequently accompanied by Western blots to verify a reduction in transcription. Why were Western blots omitted from your research methods? Are there any differences between Western blots and qPCR (e.g. as shown in Fig. 16) concerning the accuracy of transcript quantification? Explain.

3. The growth defect observed 5 days post induction (Fig. 15) is interpreted as evidence that MRB8620 is essential in *T. brucei*; however, growth appears to recover on days 6 and 7. Why does this recovery occur? What experimental methods could you use to help you answer that question? Is it possible that recovery indicates a non-essential role for MRB8620? Why or why not?

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

The mistakes I found were relatively minor, attesting to the student's diligence in preparing her thesis; nevertheless, correcting them will be important for the student's future academic work.

English language issues were minimal and did not interfere with reader comprehension. Articles (such as „a" and „the") were frequently omitted or added in the wrong places, but this is a minor issue and can be avoided in the future through further exposure to writing in English and proofreading.

The details of the double knockout methods described in 3.2 seemed to unnecessarily repeat information already provided in the Materials and Methods section. Figures 11 and 12 should be moved to Materials and Methods.

Figure 8 had very poor resolution (possibly an issue with my computer), making it difficult to read. While Fig. 7 was better, its resolution could also be improved. Given the high quality of other figures in the thesis, this may be a problem with the program used to produce Figs. 7 & 8 or the size of the files saved. If possible, save plasmid maps in higher resolution/larger image size so that they will be ready for publication if necessary.

Finally, the discussion section was rather sparse. While it provided a satisfactory summary

and interpretation of experimental results, I would have preferred to see the student discuss her data in light of the „bigger picture“ of previously published research.

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

The student has produced a satisfactory thesis and should be proud of her work. Laboratory work was clearly performed and documented with care and attention to detail, and the thorough Introduction reveals the student's understanding of the relevant scientific literature. Moreover, she managed to convey detailed and difficult information succinctly, in English, which is difficult for graduate students and native speakers. I believe that with more experience and instruction the student will be capable of further academic success in the future.

Conclusion:

In conclusion, I

recommend / not recommend

the thesis for the defense and I suggest the grade _2__.[2]

In **České Budějovice** date

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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.