



## SUPERVISOR'S STATEMENT ON BACHELOR THESIS

**Name of the student:** Nina Nenin

**Study program:** Biological Chemistry

**Department/Institute:** Institute of Chemistry

**Thesis title:** Novel non-coding transcripts at imprinted loci in mammalian oocytes and embryos

**Supervisor:** Mgr. Lenka Gahurová, Ph.D.

**Supervisor's affiliation:** Department of molecular biology and genetics

	Point scale <sup>1</sup>	Points
<b>(1) FORMAL REQUIREMENTS</b>		
Formal and graphical quality of the thesis	0-3	3
Ability to work with literature	0-3	2
Language and stylistics	0-3	3
Formal requirements – points in total		8
<b>(2) PRACTICAL REQUIREMENTS</b>		
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 results and their discussion with the literature	0-3	2
Experimental difficulty of the thesis, independence in experimental work	0-3	2
Contribution of the thesis to the knowledge in the field and the possibility to publish the results (after eventual supplementary experiments)	0-3	3
Practical requirements – points in total		13
<b>POINTS IN TOTAL (MAX/AWARDED)</b>	<b>24</b>	<b>21</b>

<sup>1</sup> Mark as: 0-unsatisfactory, 1-satisfactory, 2-average, 3-excellent.

### Comments of the supervisor on the student and the thesis:

In her bioinformatics project, Nina identified and analysed novel transcripts in mouse imprinted regions. The motivation was the recent identification by us and others of the involvement of transposable elements in the expression of novel cell-type specific imprinted transcripts in mouse. Nina's project complements projects of other students with the aim of global identification of the species specificity and cell-type specificity of imprinted regions and imprinted genes in mammals, and the role of species-specific transposable elements acting as promoters of transcripts in these regions. Unfortunately, during the course of Nina's project, a study partially covering this topic was published in Nature Communications, however, we still hope to expand our analysis and publish the results.

Nina started working on her thesis project in October 2018 and completed it within ten months. During this relatively short period, she acquired skills in classical RNA-seq data processing and mapping, de novo transcriptome assembly and expression quantification, various types of RNA-seq data analysis and visualisation using programs Seqmonk and R. In addition, she had to grasp not so easy biological background of the project regarding epigenetics, imprinting, DNA methylation and developmental biology, to be able to understand the meaning of the analysis she was doing, and to interpret the data.

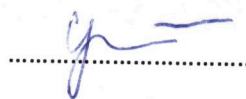
Nina worked hard and in a very conscientious and thorough way. I think she achieved a lot, especially in terms of skills gained, and I was happy with her work. I would like to particularly highlight two things – nearly the assumed end of the project, in April, we found out that we cannot analyse the data in a way we needed because of the incompatibility of the chromosome naming in genome versions used for mapping and the annotation for transcriptome assembly (which we could not anticipate). I offered Nina that we could leave it as it was and proceed in a different, less precise, way, which would be sufficient for the thesis but not for the publication. But she instead decided to redo the whole project from the beginning to have it in a correct way. Also, she wrote up her thesis immediately after finishing the project, in contrast to most of the Biological Chemistry students who usually start writing up their thesis more than a year after finishing the research.

When writing her thesis, Nina showed her capabilities to work with scientific literature and to understand the biology behind her bioinformatics project, I was positively surprised by the level of her theoretical background chapter. She was also able to describe the results in a clear manner and present them using appropriate figures, and discuss them with existing literature. She referenced the literature well in the text of her thesis, however, some references were missing from the final list of references – which is also a note to myself that I should start introducing reference manager to my students.

### Conclusion:

In conclusion, I  
r e c o m m e n d  
the thesis for the defense.

In České Budějovice      date 31/01/2020



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