## Supervisor's statement – Alexandra Austenová

Alexandra Austenová worked on her project from October 2019 to January 2020 and then finished distantly remaining analysis under more challenging conditions due to my maternity leave and coronavirus. The aim of her project was to identify and characterise novel 5'UTR regions in mouse oocytes and preimplantation embryos, focusing in more details on oocytes and 2-cell stage embryos. It was a beginning of a new project studying why mammalian oocytes and embryos frequently employ alternative upstream promoters and what new functions these extended regions might possess. Alexandra's analysis provided interesting first insights which will be followed up by more bioinformatic analyses and wet lab experiments.

Alexandra's work involved transcriptome assembly from high number of publicly available RNA-seq datasets from oocytes, preimplantation embryos and somatic tissues, complicated analyses with high throughput sequencing data analysis tool Seqmonk and Microsoft Excel, and use of Python scripts and available R packages. Therefore, such project required Alexandra to develop and practise a range of essential bioinformatics skills, to be able to troubleshoot problems, and made her familiar with the use of a computer cluster. In addition, she had to grasp complicated biological background of the project regarding regulation of translation of mRNAs by their 5'UTR features and developmental biology, through her independent work with scientific literature, to be able to understand the meaning of the analysis she was doing, and to interpret the data. I have to highlight the fact that Alexandra was using R and generating graphs independently without any assistance or guidance from me.

From the beginning, Alexandra showed motivation for the project and the opportunity to gain new bioinformatics skills. Despite the demanding schedule of the courses and exams she undertook, she found enough time for her project and obtained appropriate amount of results for a short project. She was keeping the agreed schedule and was not afraid to ask when something was not clear. During writing up her undergraduate thesis, she demonstrated excellent scientific writing in English and also excellent background knowledge and interpretation and discussion of her results. Her background, results and discussion sections required very little corrections from me, however, methods section underwent substantial changes between the first draft and final version – probably due to the difficulties explaining complicated analysis procedures in program Seqmonk. Nevertheless, Alexandra managed very well to complete her project in challenging conditions in the second half of the project when my time allowance was very limited.

In České Budějovice on 29th June 2020                                    Mgr. Lenka Gahurová, Ph.D.