

## Supervisor Review of Doctoral Dissertation

**Ing. Jana Musilová:** *Advanced methods for genome annotation and functional description of non-model organisms in biotechnology research*

In her thesis, Jana Musilová focused on an interdisciplinary topic of functional annotation of non-model bacteria utilizable for white biotechnology. She set several ambitious goals and by fulfilling them, she significantly contributed to the current bioinformatics and systems biology with descriptive studies, new computational approaches, and automated pipelines.

Regarding the formal side, the thesis is at a very good level. It is written in English, contains a minimum of typos, is well-formatted, and uses nice illustrations. The thesis is also excellent on the content side. It is structured as a commentary of the attached six manuscripts. For each publication, its relevance to the topic of the dissertation is highlighted, including the specific contribution of the author. The manuscripts themselves are preceded by a definition of the aims of the dissertation and a detailed theoretical introduction to the given topic. I have to highlight that Jana is the first author of five out of six attached manuscripts that were all published in top-tier scientific journals, including *Briefings in Bioinformatics* (IF 9.5, D1) or *Computational and Structural Biotechnology Journal* (IF 6, Q1). I particularly appreciate her last paper introducing a novel computational pipeline for gene regulatory network inference – Augusta.

Jana was very active throughout her studies. In all evaluated areas of the doctoral study, she significantly exceeded the required point criteria. She published 11 papers indexed in WoS and her h-index is 4. She demonstrated her ability to work independently and effectively. Throughout her doctoral studies, she participated in Czech grant projects, GA17-00551S and GA22-10845S, and an international project GF21-15958L. Moreover, she was a principal investigator of two interfaculty junior grants supported by BUT. At last, not least, she was the first recipient of the prestigious Brno PhD Talent scholarship at the Faculty of Electrical Engineering and Communication. Additionally, Jana spent a 12-month internship at UNL in Nebraska, USA and a shorter two-week stay at LMU Munich, Germany.

In summary, I consider Jana's dissertation to be of excellent quality, both formally and professionally. I believe she met all the individual goals she had set and contributed substantially to current bioinformatics and systems biology. I am convinced that Jana fulfills all the requirements to be awarded the Ph.D. degree.

In Brno on 7<sup>th</sup> May 2024

doc. Mgr. Ing. Karel Sedlář, Ph.D.  
supervisor