



### Supervisor's assessment of Božena Klodová's Ph.D. thesis

I know Božena Klodová since her Bachelor studies. In these times, she joined our team. Her B.Sc. thesis was about the role of long non-coding RNAs in plants. Then, she continued with her M.Sc. and Ph.D. studies under my supervision. She started to unveil the role of nascent polypeptide-associated complex subunit  $\beta$  (NAC $\beta$ ) in *Arabidopsis thaliana*. In her M.Sc. thesis, she characterized the flower bud transcriptome of *nac $\beta$ 1-nac $\beta$ 2* mutant plants and tested various interaction combinations between NAC $\alpha$  and NAC $\beta$  subunits. Since the time of RNAseq data analysis, Božena showed a great interest in bioinformatics, visited several courses to analyse the transcriptomics data and learned also a lot by searching for the scripts by herself.

During her Ph.D. studies, she further contributed to unveil the function of the nascent polypeptide-associated complex (NAC) during plant development, not only in the angiosperm *Arabidopsis thaliana* but also in the liverwort *Marchantia polymorpha*. She has been actively involved in the formulation of the tested hypotheses, and then suggested and implemented methodological approaches to achieve the goals of the Ph.D. thesis. Due to the pleiotropic characteristics of the studied NAC $\beta$  proteins, her research notably extended beyond her original focus on male gametophyte. To acquire access to novel methodologies, she took part in several internships during her Ph.D. study. For instance, she learned how to test photosynthetic activity of the studied plants in Mark Aurel Schoettler's laboratory at Max Planck Institute (Potsdam, Germany). Then, Dr. Sotirios Fragkostefanakis' laboratory at Goethe University in Frankfurt am Main (Germany) introduced her to a fascinating world of protein sorting inside plant cells by applying advanced confocal microscopy. These experiences abroad have greatly broadened her methodological perspective and fostered an open-minded approach to science.

During her M.Sc. and Ph.D. studies, Božena independently developed substantial bioinformatics skills, which were further successfully applied in various international collaborations, leading to significant advancements in understanding of gene regulatory dynamics during male gametophyte development. She has also applied her skills in teaching, organizing seminars to introduce non-bioinformaticians to basic techniques, and managed to supervise a B.Sc. student.

She was involved in 3 impacted publications as a first author and several others as a co-author. Part of these papers included researchers from abroad, which documents Božena's collaborative mind. I think that her publication record is more than sufficient for the purpose of defending her Ph.D. thesis. Thus, I can clearly state that Božena represents a talented young researcher that is definitely skilled to drive a scientific project independently, and react on the progress with experimental solutions. I recommend her Ph.D. thesis to be accepted.

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RNDr. Jan Fíla, Ph.D.