

PUBLIC LECTURE EVALUATION

Masaryk University

Faculty	Faculty of Science
Procedure field	Plant Physiology
Applicant	Mgr. Markéta Šámalová, Ph.D.
Lecture date	April 17 th , 2023
Lecture topic	Development of chemically inducible transcription activation systems and their use in plants
Persons present (number)	27 (21 in person, 6 online)
Designated evaluators (board members)	Prof. Miloš Barták (Masaryk University, Brno, CZ), on-site Prof. Jana Řepková (Masaryk University, Brno, CZ), on-site Prof. Ondřej Novák (Palacký Univ., Olomouc, CZ), on-site Prof. Hugh Dickinson (University of Oxford, UK) online Prof. Liam Dolan (Gregor Mendel Institute, Austria) online

The lecture took place in a hybrid form (people on-site and online) at Brno, University Campus Brno-Bohunice, Building B17, Seminar Room of the Dean's Office (Monday, April 17th, 2023 at 10:30). The above-mentioned members of the Habilitation Board attended the lecture (both on-site and online) and provided its evaluation.

After a brief introduction of the habilitation applicant, Markéta Šámalová started her lecture on *Development of chemically inducible transcription activation systems and their use in plants*. She presented theoretical background of the above-specified direction of research and overviewed the techniques that has been used in laboratory practice so far. She focused on the principals of chemically inducible transcription first. Then, she moved to biotechnological applications of the systems. She paid major attention to a dexamethasone-inducible GVG system, particularly pOp/LhGR and pOp6/LhGR.

She paid attention to time course and dose-dependent changes in dexamethasone-treated plant material. Finally, she presented the possibility of the application the pOp6/LhGR system in fungi, such as *Magnaporthe oryzae* and *Aspergillus fumigatus*. She presented mentioned XVE, GVE, ethanol *alc*, and other systems. In her lecture, she focused both on the development of these methodological approaches and achievement reached by international teams as well as her personal contribution in this particular field of science. Finally, she summed up potential of such techniques in recent plant science as well as their potential for future applications.

After her lecture, reviewers read their reviews. The applicant answered the questions raised in the reviews. The three reviewers (assoc. Prof. Jan Zouhar, Assoc. prof. Lenka Burketová, and Assoc. Prof. Enrique Rojo de la Viesca) were satisfied with the answers of the applicant. Then, public scientific discussion followed. Several attendees of the public lecture asked questions (see the below list) and the applicant answered the questions.

Questions:

1. Blanka Pekárková:
What is the most substance and the principle of the dexamethasone application method (technically speaking)?
2. Jan Hejátko:
You have mentioned that TA is more efficient activator of the pOp system compared to DEX. Is that because of more efficient interaction with the GA domain?
3. Helene Robert Boisivon:
How much chemical penetrates into the fungi used in your experiments?
4. Milos Bartak:
Is there any specific reason why picomolar DEX concentrations were so effective in tobacco while much less sensitivity was found for *Arabidopsis*?
5. Markéta Pernisová:
What was the function of introns in promoters?

The above-specified people were satisfied with the answers by Markéta Šámalová. Then, public part of the lecture ended (12:20) and Habilitation Board members had a non-public meeting (3 members present in person, 2 members online) and evaluated the lecture. They agreed that the lecture was very interesting from scientific point of view and highlighted the importance of induction system, met a high standard and addressed all aspects of the transcription activation systems in plants.

The Board members emphasized that Markéta Šámalová commented strong and weak points of activation systems and focused also on fungi. They were extremely satisfied with the form of presentation since it was scientifically valuable, well balanced and given in excellent professional English. The Habilitation Board members also appreciated her conclusions given in that last part of the lecture with the emphasis given to the limitations of the technology and its applicability in plant science in a laboratory and in the agroecosystems.

Conclusion

The lecture delivered by Markéta Šámalová, entitled Development of chemically inducible transcription activation systems and their use in plants, **demonstrated** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Plant Physiology.

All designated evaluators are familiar with the text of the Public Lecture Evaluation and agree with it.

Date: Brno, April 17th, 2023

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Prof. Miloš Barták (MU, Brno)

Prof. Jana Řepková (MU, Brno)

prof. Ondřej Novák (UPOL, Olomouc)