

Masaryk University

Faculty

Faculty of Science

Procedure field

Molecular Biology and Genetics

Applicant

Mgr. Petr Králík, Ph.D.

Applicant's home unit, institution

Faculty of Science, Masaryk University

Habilitation thesis

Use of PCR-based methods in microbiology and their specific applications

Board members

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Faculty of Science, Masaryk University

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Mendelova Univerzita v Brně

Prof. Luca Simone Cocolin

University of Torino, Italy

Evaluation of the applicant's scholarly/artistic qualifications

Petr Králík completed his master's degree in Molecular Biology and Genetics at the Faculty of Science in 2001 and then his doctoral degree in General and Molecular Sciences in 2005. In his dissertation, which he wrote at the University of Veterinary and Pharmaceutical Sciences in Brno, he studied immune genes in horses.

After completing his doctoral studies, he worked at the Veterinary Research Institute in Brno in the Department of Food and Feed Safety, where, as a researcher and since 2012 as the head of the department, he dealt with the applications of molecular biological methods in the diagnosis of bacteria in relation to food safety and animal health. The main contributions of his work include the creation of detection and quantification procedures based on PCR, including multiplex methods for the detection of mycobacterial infections, with a focus on bovine paratuberculosis. He also dealt with the development of culture-independent methods for the detection of the viability of microorganisms in food.

Since 2016, he has also worked as a researcher at the Veterinary University in Brno, and since 2023 at the Institute of Biochemistry, Faculty of Medicine, MU. Since 2020, Dr. Králík has also been applying his experience with methods for diagnosing microorganisms at the company Elisabeth Pharmacon, where he is employed as a research and development manager and focuses mainly on the development of new applications of PCR methodologies in the detection, quantification and identification of pathogens.

He published his results in 75 professional articles, mainly in international scientific journals, the quality and importance of which is evidenced by their high citation rate (a total of 2300 citations), and the corresponding author's H index of 22.

The application potential of his achieved results is very significant, as evidenced by the number of certified methodologies (42), utility and functional designs (9) and 3 patents, which indicate the possibility of wide use of the methods and procedures he developed in the food industry and in veterinary practice to ensure animal health and food safety. Dr. Králík is the main author of most of the items falling under intellectual property.

Dr. Králík is a very successful applicant for grant projects, in 7 of them he is the main investigator and in 2 others he is a co-investigator.

As part of his R&D activities, Dr. Králík cooperates with experts from abroad. He completed medium-term study stays in Great Britain, Italy and Sweden. He was a member of several consortia of European projects, where he developed the implementation of PCR-based methods for the detection and quantification of foodborne pathogens or animal pathogens.

For his contribution to the study of mycobacteria using PCR methods, he received the Award of the Minister of Agriculture of the Czech Republic for Young Scientists in 2012.

Conclusion: The applicant's scholarly/artistic capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Molecular Biology and Genetics.

Evaluation of the applicant's pedagogical experience

Dr. Králík began his teaching career at the Veterinary and Pharmaceutical University in Brno (now VETUNI), where he provided the lecture Mycobacterial Infections of Livestock in 2013–2019, since 2014 he has provided a lecture at the Faculty of Science of the Masaryk University in the subject Molecular Diagnostics of Microorganisms and since 2022 selected lectures in the subject Microbiology. He was a supervisor of 2 bachelor's, 3 master's and 3 doctoral students studying in Ph.D. programs at our faculty, who successfully defended their theses.

He is the author of electronic teaching texts (presentations) for the subjects he teaches. He popularizes the field of his research in the form of presentations and lectures for the public, and he has also published popular articles in domestic journals.

Dr. Králík also demonstrated his pedagogical skills in his lecture for a wider professional audience, which was evaluated very positively by both the members of the habilitation board and the audience.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Molecular Biology and Genetics.

Habilitation thesis evaluation

The habilitation thesis was assessed by the three opponents: Prof. Hana Drahovská, Faculty of Natural Sciences, Comenius University in Bratislava, Prof. Leona Buňková, Faculty of Technology, Tomáš Baťa University in Zlín,, Doc. Marcela Pejchalová, Faculty of Chemical Technology, University of Pardubice, who are among the internationally recognized experts in the issue that Dr. Králík deals with in his scientific research work.

All opponents agreed that the habilitation thesis of Mgr. Petr Králík, Ph.D., represents a comprehensive study on the current topic of the use of PCR methods to determine the amount of DNA and viability of microorganisms in natural samples, and their multiplex detection. The results presented are original and highly valuable, and are thus accepted by the professional public as is evident from their numerous citations. All opponents appreciate the high level of scientific competence and research skills, the applicant's long-term and systematic work in the field of molecular diagnosis of microorganisms. His scientific excellence is further demonstrated by long-term cooperation with Czech and international research institutions.

Conclusion: The applicant's habilitation thesis **meets** the requirements expected of habilitation theses in the field of Molecular Biology and Genetics.

Secret vote results

Voting took place: electronically

Number of board members		5
Number of votes cast		5
of which	in favour	5
	against	0

Board decision

Based on the outcome of the secret vote and following an evaluation of the applicant's scholarly or artistic qualifications, pedagogical experience and habilitation thesis, the board hereby submits a proposal to the Scientific Board of the Faculty of Science of Masaryk University to **appoint the applicant associate professor** of Molecular Biology and Genetics.

In Brno on 14.10.2025

prof. RNDr. Jiří Doškař, CSc.