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Annex No. 13 to the MU Directive on Habilitation Procedures and Professor Appointment Procedures

HABILITATION BOARD DECISION ON THE NOMINATION FOR APPOINTMENT TO ASSOCIATE PROFESSOR

Masaryk University	
Faculty	Faculty of Science
Procedure field	Genomics and Proteomics
Applicant	RNDr. Martin Falk, Ph.D.
Applicant's home unit, institution	Institute of Biophysics, Czech Acad. Sci.
Habilitation thesis	DNA Damage and Repair upon Cell Exposure to Different Types of Ionizing Radiation? the Importance of Chromatin Context and New Perspectives of Cancer Radiotherapy

Board members

Chair	prof. RNDr. Jiří Fajkus, CSc. *CEITEC and Faculty of Science, Masaryk University*
Members	prof. MUDr. Leoš Navrátil, CSc., MBA *Faculty of Biomedical Engineering, CTU Prague* doc. Ing. Ivan Štekl, CSc *Institute of Experimental and Applied Physics, CTU Prague* Prof. Dr. Harry Scherthan *Bw Institute of Radiobiology affil. to the University of Ulm, Munich, Germany* Prof. Dr. Andrey V. Solov´yov *MBN Research Center, Frankfurt*

Evaluation of the applicant's scholarly qualifications

Dr. Martin Falk graduated in the field Molecular Biology and Genetics at Masaryk University in 2000. In 2003 he was awarded by the title *Rerum Naturalium Doctor* (RNDr.), and in 2004 he obtained a Ph.D. degree in the field of Molecular and Cellular Biology, also at Masaryk University. During his Ph.D. thesis he became interested in the higher order chromatin structure and its relationship to the regulation of gene expression. Since 2008 he has completed a special state exam which qualifies him for a work of Radiation Protection Officer and Qualified Expert in Radiation Protection (valid for workplaces with important sources of ionizing radiation). This qualification has been relevant for his topic of research (radiobiology and DNA damage repair) which he has been focused on in his postdoctoral and also current independent researcher career.

He developed numerous international collaborations through his common projects and scientific visits, which allowed him to combine diverse methodologies and disciplines, e.g., with Prof. Michael Hausmann, Kirchhoff Institute for Physics, University of Heidelberg, Germany (Single Molecule Localization Microscopy and radiobiological research), Acad. Prof. Evgeny Krasavin, Joint Institute for Nuclear Research, Dubna, Russia (access to high-LET particle accelerators, radiobiological research), Prof. Pier Giuseppe Pelicci, M.D., Ph.D. (EOI Director) and Assoc. Prof. Ivan Gaetano Dellino, Ph.D., European Institute of Oncology (EIO), Milan,

Italy (advanced molecular biology methods, leukemia research), and Prof. Sandrine Lacombe, Ph.D., University Paris Sud, France (nanoparticle-mediated tumor cell radiosensitization), to list at least some of them. He has also a rich national collaborative network and he participated as a PI, Co-PI or research team member in more than 30 national and international research projects which were all accomplished successfully.
To the date of habilitation thesis submission, he was the author of 49 papers in WoS journals, 2 papers in Scopus-listed journals, 2 papers in Czech peer-reviewd journals, co-author of 1 book and 3 book chapters. His papers were cited – at the time of submission – 532 times excluding self-citations in international databases. In 2011 he became the Head of the Laboratory at the Institute of Biophysics (and later on the Head of the fully independent Department), and since then he has been the predominant corresponding author of papers published under his survey.
Importantly, besides these formal parameters, Dr. Falk with his collaborateors has developed a specific field of research combining two less common approaches – the use of high LET ion irradiation to induce chromatin damage, and the single molecule high resolution microscopy to analyse this damage in great detail. He became an internationally recognised scientist (as reflected by invited lectures at international conferences, as well as his involvement in the organisation of international conferences).

Conclusion: The applicant's scholarly capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Genomics and Proteomics.

Evaluation of the applicant's pedagogical experience

Dr. Falk has been involved in teaching at the Faculty of Science, Masaryk University since 2007 with the lecture course Radiation Biophysics. Since 2016 he also was involved in teaching specific lectures on DNA damage and repair in the course Structure and Function of Eukaryotic Chromosomes at the same faculty.
He also contributed to the courses Chemical properties, structure and interactions of nucleic acids, and Molecular physiology of the genome. In 2011 he was invited lecturer at the 6th International Summer Student School on Nuclear Physics Methods and Accelerators in Biology and Medicine in Dubna, Russia. In addition, he acted as an instructor in numerous practical courses and trainings, not only at Masaryk University but also at the University of
Southern Denmark, Odense, Denmark, Mendel University, Brno, CZ, University of Dubna, Russia, University of Heidelberg, Germany, and University of Fukui, Tsuruga, Japan. He was further teaching one week seminars on Sensitive monitoring of DNA damage and repair in biodosimetry and cancer research (University of Fukui, Tsuruga, Japan) and on Higher-order chromatin structure in DNA double-strand break induction, repair and formation of chromosomal translocations (Brunel University, London, UK). So far, Dr. Falk supervised 2 Bachelor and 4 master theses, and 4 Ph.D. theses (3 of them accomplished successfully).
He authored and co-authored 2 textbooks and 1 textbook chapter. Moreover, he was active in public outreach activities as popular science articles, lectures for public, open-day lectures and radio broadcasting.

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

Habilitation thesis evaluation

Dr. Falk's habilitation thesis "DNA Damage and Repair upon Cell Exposure to Different Types of Ionizing Radiation? the Importance of Chromatin Context and New Perspectives of Cancer Radiotherapy" has been evaluated by three internationally recognised top-class scientists in the fields related to the focus of the thesis: Prof. Penelope A Jeggo (Genome Damage and Stability Centre, School of Life Sciences, University of Sussex, Brighton UK), Prof. Kevin Prise (Patrick J. Johnston Centre for Cancer Research, Queen's University Belfast, UK) and by Prof. Kai Rothkamm (Department of Radiotherapy and Radiation Oncology, University Medical Center Hamburg Eppendorf, Germany). All these reviewers provided highly qualified reviews and conclude that the thesis ***fulfils the*** requirements expected of a habilitation thesis in the field of Genomics and Proteomics. More specifically, Proff Jeggo stresses the quality, both intellectual and technical, of the candidate's work, an extensive understanding of the field, an ability to explain and convey the important questions in his writing, and also an ability to raise the interest and enthusiasm to think about the questions considered. Prof. Prise acknowledges a substantive and wide-ranging contribution of the candidate to our scientific knowledge in this area and confirms the major contribution that Dr Falk has made. Prof. Rothkamm concludes that "...while some of these results are somewhat confirmatory, others represent genuinely new findings that have certainly advanced our understanding of higher order chromatin structure and its dynamic interactions with the DNA damage response and repair machinery. Finally, some of Dr Falk's research findings may support the development of combined treatment approaches to enhance the efficacy of radiotherapy." The committee members fully agree with these views.

Conclusion: The applicant's habilitation thesis **meets** the requirements expected of habilitation theses in the field of Genomics and Proteomics.

Secret ballot results

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

[X] appoint the applicant associate professor of Genomics and Proteomics.

[ ] terminate the procedure.

Date: 22nd Sep 2020

Jiří Fajkus ……
signature

[name and surname] ……
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