MUNI

Annex No. 10 to the MU Directive on Habilitation Procedures and Professor Appointment Procedures

HABILITATION THESIS REVIEWER'S REPORT

Masaryk University	
Applicant	Mgr. Karel Souček, Ph.D.
Habilitation thesis	Plasticity of cell identity and its role in cancer progression
Reviewer	Daniel Rösel, Doc., PhD
Reviewer's home unit, institution	Charles University, Faculty of Science

The common denominator of Dr. Souček's habilitation thesis is the investigation of tumor heterogeneity and the role of cellular plasticity in cancer progression, with a particular focus on prostate cancer. The text of the thesis is based on selected 19 primary research articles, two book chapters, and five reviews. Main part of the thesis is divided into 4 thematic chapters, which combine the results obtained from publications of a similar focus, and a chapter summarizing the significance of the obtained results and ways of using the result in future research. The text is written logically and clearly.

The thesis further includes copies of the publications described in the main text, always accompanied by a description of the significance of the work, the author's contribution to the work and a summary of citation response to the work. It is clear that Dr. Soucek was mostly the driving force behind this work, as he is the corresponding author of 21 of these papers.

According to WOS, Dr. Souček has also authored and co-authored a total of 140 publications (as of 31 January 2024). This in itself is a clear indication of exceptional publishing activity, which is furthermore supported by success in obtaining grant support. The thesis lists 17 grant sources, most of which Dr. Souček is the principal investigator.

In conclusion, the overall scientific output of Dr. Souček undoubtedly exceeds the requirements not only for habilitation, but also for a full professorship.

Reviewer's questions for the habilitation thesis defence (number of questions up to the reviewer)

I was pleased to read about the results of Dr. Soucek's team. I was particularly interested in two lines of their results. Therefore, I have two specific scientific questions for Dr Soucek and one general question.

1. GDF-15 is described to hinder the formation of mature osteoclasts, which could indicate its potential in the therapy of bone metastases. It is not clear from the text whether its function should be suppressed or whether, on the contrary, it should be

administered to patients. What is the proposed approach to affecting metastasis through GDF-15? Are there any potential risks of systemic administration of GDF-15 to patients?

2. Trophoblast cell surface antigen 2 seems to have both oncogene and tumor suppressor properties. Is its ambivalent role in tumorigenesis due to its different roles in early and late stages of tumorigenesis, as is the case with TGFbeta? If known, what is the mechanistic effect of TROP2 as an oncogene and tumor suppressor?

3. The traditional main methods of cancer treatment are surgery, chemotherapy, radiotherapy and, more recently, immunotherapy. In the development of which of these do you see the greatest hope for patients? What other approaches do you think might emerge in the future?

Conclusion

The habilitation thesis entitled "Plasticity of cell identity and its role in cancer progression" by Karel Souček **fulfils** requirements expected of a habilitation thesis in the field of Experimental Animal Biology.

Date: 6.5.2024 Signature: