March 8, 2021

To Whom It May Concern

**Supervisor's Opinion on Doctoral Dissertation Thesis and PhD Candidate**

Name of PhD candidate: Mgr. Ivana Víšová
Title: The Study on Interactions of Functional Surfaces with Biological Systems
Supervisor: RNDr. Hana Lísalová, Ph.D. (Vaisocherová-Lísalová)

The dissertation thesis of Mgr. Ivana Víšová concerns a research topic of surface-mediated biomolecular interactions studies in complex biological media. This work has been explored in the Institute of Physics CAS and the Institute of Photonics and Electronics CAS. The dissertation thesis covers a considerable number of specific research topics requiring knowledge from several disciplines, including polymer chemistry, biophysics, optics, molecular biology, and biology. All of these topics are in line with the main objectives of the work. In my opinion, the interdisciplinary character of the work is quite challenging and on the other hand, it may substantially increase the scientific impact of the results.

The dissertation work addresses key issues in surface-based analytical techniques and biomedical devices development, i.e. nonspecific fouling from complex biological fluids to synthetic surfaces. It is highly appreciated that the works deal with the theoretical background through model biomolecular studies up to real-world applications such as tailored biosensors. The results from this work contributed to the design of novel dual-functional antifouling materials for bioanalytical applications and cell research. The original results from this work were published in a considerable number of journal publications in high-impact journals, such as *Biosensors and Bioelectronics* (IF of ~10) or *Analytical Chemistry* (IF of ~7). In my opinion, it is a nice example of a „success story „of how the findings from complex fundamental research can be directly employed in specific real-world applications. This fact can be documented not only by several original scientific publications but also by a set of filed patent applications.

This work is divided into three main parts – theoretical, methodological, and results and it is supplemented by appropriate appendices. It is written in English. This work is written clearly and understandably. Namely, I would like to highlight the theoretical part, in which a comprehensive overview of nonspecific fouling phenomena and antifouling surface design is quite originally combined.

As documented by a considerable number of original scientific achievements, Mgr. Ivana Visova has been performing an excellent job on her dissertation work. She has become in-depth familiar with several complementary experimental techniques, namely SPR, QCM, fluorescence microscopy, or spectroscopic ellipsometry as well as with several research disciplines. During her dissertation work, she worked very hard on given research tasks, she proved unique independent thinking with an exceptional „passion for science ", as well as she has become a valuable team member.

In summary, I am convinced that the doctoral dissertation thesis of Mgr. Ivana Víšová meets all the requirements for the dissertations and I am very pleased to recommend it for the defense to obtain a PhD degree.

RNDr. Hana Lísalová, Ph.D.

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