ÚOCHB AV ČR
IOCB PRAGUE
Ústav organické chemie a biochemie
Akademie věd České republiky, v. v. i.
Institute of Organic Chemistry and Biochemistry
of the Czech Academy of Sciences

Supervisor's statement on PhD performance 4th of June 2024

Thesis title:	Characterization of LACTB-induced tumor suppressor pathway
Researcher:	MSc. Sara Escudeiro Lopes
Thesis subject area:	Cellular and Developmental Biology
Faculty:	Faculty of Natural Sciences, Charles University
Supervisor:	Mgr. Zuzana Kečkéšová, Ph.D.

Our laboratory works in cancer research, specifically in uncovering novel tumor suppressor pathways that can help us to identify new sensitivities and vulnerabilities of cancer cells. Our recent work led to the identification of a mitochondrial tumor suppressor enzyme called LACTB. While our work and work of others uncovered relevant information about the actions of this potent tumor suppressor, many important aspects of its mechanism and regulation were still missing.

Sara started to work as a PhD student in my laboratory five years ago where she aimed to fill this gap in our knowledge with a project entitled "Characterization of LACTB-induced tumor suppressor pathway". In this important and very complex study, she designed, set up and implemented many molecular biology, 2D, 3D, *in vivo* and bioinformatics studies to uncover the mechanism of LACTB regulation in cancer cells, to identify LACTB binding partners and substrates, to characterize the requirements for LACTB's filament formation and to identify realistic and promising avenues for the therapeutic reactivation of LACTB and cancer treatment. Furthermore, she helped to shed light on the mechanism that LACTB uses to eliminate cancer cells in breast cancer models, as well as the characterization of LACTB as a tumor suppressor in ovarian cancer. Her overall high quality and productivity in her PhD studies (which were initialized in Prof. Hozak's laboratory and continued in my laboratory) led to significant conceptual studies that resulted in one first author publication, two co-author publications and another first author publication that is currently being revised for Nature Cancer journal.

Flemingovo nám. 2
166 10 Praha 6
Czech Republic
+420 220 183 333
uochb@uochb.cas.cz
www.uochb.cz
IČ: 61388963
DIČ: CZ61388963

Sara without doubt successfully fulfilled and, in many cases, exceeded the objectives set in the thesis assignment. She proved during her studies that she is a very intelligent, driven and independent student, fully capable of leading a scientific project. In many aspects, for some time I already regarded her as being a postdoctoral researcher in my laboratory. Her projects required her to learn many diverse molecular, biochemistry and bioinformatics approaches, and were often highly technically challenging and further complicated by the lack of biological information about the newly discovered LACTB enzyme. At the beginning of her studies, she trained in the design and prioritization of experiments, their logical sequence, and the parallel execution of multiple experiments. Sara learns quickly, is very perceptive, consistent, and extremely hardworking. Communication and the ability to work with her was excellent. Many times, experiments required her presence during the weekends or evenings, which Sara often suggested herself, because she was driven by scientific curiosity to reveal the result of the experiment. During her PhD studies, Sara clearly performed high-quality research, which revealed important aspects of the functioning of the LACTB tumor suppressor and many of the projects she started will be continued by her lab peers and will lead to subsequent publications. Sara is my very first PhD student and I can only hope that my future PhD students will have similar scientific and personal qualities as she does.
For the reasons mentioned here, I highly recommend the dissertation of Sara Escudeiro Lopes for defense.

Sincerely,

Zuzana Keckesova, PhD
Junior Group Leader
Institute of Organic Chemistry and Biochemistry (IOCB), Czech Academy of Sciences
Prague, Czech Republic

Flemingovo nám. 2
166 10 Praha 6
Czech Republic
+420 220 183 333
uochb@uochb.cas.cz
www.uochb.cz
IČ: 61388963
DIČ: CZ61388963