

CHARLES UNIVERSITY
FACULTY OF PHARMACY IN HRADEC KRALOVE

Department: of Biological and Medical Sciences Master's degree program in Pharmacy

Opponent's review of Master's thesis

Student's name: SeyedehNiloufar Mohammadi

Mentor of the thesis: prof. PharmDr. Petr Nachtigal, Ph.D.

Year of the thesis
defense: 2022

Opponent of the thesis: PharmDr. Jana Rathouská, Ph.D.

Title of the thesis:

Carotximab effects on endoglin expression and signaling in liver fibrosis

Formal comments: number of pages: 72, number of figures: 10, number of tables: 8, number of references: 111.

Type of work: Experimental work

- a) The aim of the thesis is: Fulfilled
- b) Language and graphic level: Excellent
- c) Processing of the theory: Excellent
- d) Methods description: Excellent
- e) Results description: Excellent
- f) Discussion and conclusions: Excellent

I recommend Diploma thesis for the recognition as Rigorous thesis .

Opponent's comments:

Minor points:

- 1.) In common terminology, capital letters are not necessary (see Adenosin triphosphate, Transforming growth factor, Hepatocytes, Functions, pancreatic Beta cells, Short and Long endoglin, Ammonium persulphate, Low molecular weight, Albumin, Bone morphogenetic proteins...)
- 2.) The word "shows" in the TITLES of figures 1, 2, 3 and 4 is a bit inappropriate.
- 3.) Since the detection in WB is based on chemiluminiscence, I would not state that "colour" is detected by the machine. Rather the "light" is detected.

Major points:

- 1.) A part of the chapter 2.1.1. and chapters 2.2.2., 2.6.2, 2.6.3, 2.6.5 in theoretical part lack citations.
- 2.) Description of Western blot analysis in both theoretical part and experimental part seems a bit tricky and redundant. Unfortunately, several statements are repeating the same.

- 3.) Axis labels in the graphs (figures) no. 7 and 10 seem incorrect. TBIL levels are compared as absolute numbers in $\mu\text{mol/L}$, not in % of control. Similarly, the levels of sEng are apparently in absolute numbers (pg/mL), not in % of control.
- 4.) In conclusion part, it's not quite correct to state: "Carotuximab treatment had no significant effect on sEng levels in DDC diet", if this effect has not been evaluated.

Questions:

- 1.) In the chapter 2.2.1. you mention the term LIPOTOXICITY. Could you describe this term more in detail? Which organs are mostly affected? Is there any possible treatment (in humans)?
- 2.) In the chapter 2.4. you nicely describe several animal models of fibrosis. One of the model mentioned is an "alcohol-induced fibrosis model", in which the liver fibrosis is achieved by a combination of alcohol consumption and high-fat diet feeding. How is the alcohol administered to these animals?
- 3.) In the chapter 4.1.2.4. you describe gel electrophoresis as a part of Western blot analysis. You describe the use of ice pads to avoid heating up of the electrophoretic system. Why is so important to avoid heating up in electrophoresis?
- 4.) If you consider the harmful effect of DDC diet to the mouse body generally (described in chapter 2.4.1), which organ (apart from the liver) you think might be another contributor to higher sEng levels in DDC diet fed mice?

Evaluation of Master's thesis: Excellent

Recommendations for the thesis defense: Recommended

In Hradec Kralove 24.5. 2022

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Opponent's signature