CHARLES UNIVERSITY
FACULTY OF PHARMACY IN HRADEC KRALOVE

Department of Biophysics and Physical Chemistry

Study program: Pharmacy

Opinion of the Opponent of the Diploma Thesis

Year of the defense: 2024

Student:	**Amir Mohammad Nazarzadeh**
Thesis Tutor:	Mgr. Pavel Bárta, Ph.D.
Consultant:	-----
Opponent:	PharmDr. Zbyněk Nový, Ph.D.
Thesis title:	**In vitro study of 99mTc-labelled peptide targeted on VEGF receptor**

Scope of work, number of 62 pages, 12 figures, 2 tables, 138 citations

Evaluation of the work:

a)	Processing of the theoretical part:	Very good
b)	The complexity of the methods used:	Excellent
c)	Preparation of the methodological part (clarity, comprehensibility):	Excellent
d)	The quality of the experimental data obtained:	Very good
e)	Processing of results (clarity):	Excellent
f)	Evaluation of results, including statistical analysis:	Excellent
g)	Discussion of results:	Excellent
h)	Clarity, conciseness, and adequacy of conclusions:	Very good
i)	Meeting the objectives of the work:	Excellent
j)	Quantity and up to date of references:	Excellent
k)	Language level (stylistic and grammatical level):	Excellent
l)	Formal level of the work (text structure, graphic design):	Excellent

I recommend the thesis for recognition as a rigorous thesis ☒

Comments on the evaluation:

Theoretical part of the thesis is very well written and easy to understand. It describres very nicely and extensively the angiogenesis and its role in cancer. The only drawback of this part is that it leaves just two pages for radiolabelled antiangiogenic tracers.

I want just note for the methods section that the describtion of denaturation step of plasma samples is missing in chapter 4.5.10.

I would like to see more detailed description of the mathematical processing of measured data in chapters dealing with determination of Kd and IC50. As well as I would maybe appreaciate more detailed discussion of the obtained results, but nevertheless I was finally satisfied with the discussion part of the thesis.

Language level of the work was really excellent with the only exception of some chapter titles, where the word order was not propperly set (chapters in the methods section).

Finally, overall quality of the thesis is very good and I can recommend it for the defense without any doubts.

Questions and comments to student:

1) What does MA in "MA peptide" stands for?

2) What is commercial (brand) name of ramucirumab? It is not mentioned in the theoretical part of the thesis.

3) What PET nuclide can be considered as suitable for the radiolabelling of MA peptide? Please take into acount presumed biological half-life of MA peptide, but omit the absence of the propper chelator in its structure.

4) You have used BCA protein assay to quantify cell protein concentrations. What are pros and cons of this method compared to Bradford assay?

5) Why have you used mouse serum to asses the stability of labelled MA peptide? Would not be more valuable to use the human serum?

6) You are using cold MA peptide as a competitor in the competition assay. Can you suggest what could be more approprite competitor for this purpose?

7) Was 0.8 MBq of Tc-99m the highest activity used for MA peptide labelling which resulted in 100% radiochemical purity?

8) Can you determine the biological half-life just from in vitro plasmatic stability assay of tested compound?

Evaluation of the thesis: Excellent		**For the defense:**	**Recommend**
In Olomouc	13. září 2024	signature of the opponent	