

Criteria for accepting the students to work on their thesis in the Department of Technology and Biotechnology of Drugs in the academic year 2021/2022

1. Students who are interested in the research topics conducted at the Department (computer methods in drug design, chemical synthesis, pharmaceutical biotechnology) may apply for the MA thesis.

2. In the case of more applicants than the number of places, admission will be decided in turn:

a) Membership and active participation in a student club operating at the Department (Medicinal Chemistry Club, Medical Biotechnology Club, Computer methods in the search for medicinal substances)

b) The grade average after the first semester

c) Association of the course selected by student with the topic of the thesis

- Preferred students of the Medicinal Chemistry course (MA thesis on design and organic synthesis)

- Preferred students of the MIDD course (MA thesis on CADD&D)

- Preferred students of the Molecular Pharmacology course (MA thesis on Biotechnology/ADMET)

d) the order of applying to a given supervisor, taking into account the recommended division of places (presented in point 3 of the criteria)

3. The fixed number of places for a master's thesis of DDD students at the Department of Technology and Biotechnology of Drugs is 4 in 2021/22

The final decision on admitting a student is made by the Head of the Department

Registration Schedule:

- Students should have an interview (in life or via MS Teams) with the potential supervisor of the thesis before deciding to enter on the list of the Department
- Students enter for MA thesis in the Department only by e-mail to the address of Prof. J. Handzlik (j.handzlik@uj.edu.pl).
- A student entering to the list should indicate in the email the subject (one or more) of his/her interest and the name of proposed Supervisor (one or more) as well as the following information about:
 - the course he/she will choose in 2nd year (if he/she already knows),

- participation in a student club operating at the Department
- the grade average after the first semester

- Registration by e-mail is open from April 28 to May 15, 2021

May 18 - students will receive confirmation of their qualification or refusal at the Department

by May 20, enrolled students are required to confirm their final decision

May 22 - The Department submits the list to the Dean's Office

Proposed topics of master's theses at the Department of Technology and Biotechnology of Drugs in 2021/22

Proposal #1

1. Name of the supervisor of the thesis

Prof. dr hab. Jadwiga Handzlik

2. Contact details

j.handzlik@uj.edu.pl

3. Proposed research topic

- Design and synthesis of 5-HT₆ serotonin receptor antagonists from the group of 1,3,5-triazine derivatives
- Design and synthesis of selective or multitargeted ligands for 5-HT_{1A}, 5-HT₇, D₂, α_1 -adrenergic receptors and other in the group of arylpiperazine derivatives of imidazolidinediones
- Design and synthesis of modulators of bacterial and cancer multidrug resistance mechanisms

4. Information about the type of research within the thesis

- a) experimental (chemical synthesis with elements of in silico design)
- b) CADD-experimental
- c) combined chemical and biotechnological experimental work (synthesis of new compounds + *in vitro* ADMET screening)
- d) combined CADD-chemical and biotechnological experimental work (computer aided design+synthesis + *in vitro* ADMET screening)

5. Requirements:

Interest in medicinal chemistry, diligence in laboratory work, regularity, punctuality

6. Additional information

- 1) Preferred students of the Medicinal Chemistry course
- 2) Possibility to combine the master thesis with the Erasmus internship at cooperative universities
- 3) If you are interested, I invite you to an interview on MS Teams or "live" to my Department.

Proposal #2

1. Name of the supervisor of the thesis

Dr Ewelina Honkisz-Orzechowska

2. Contact details

ewelina.honkisz@uj.edu.pl

3. Proposed research topic

- search for compounds with anti-inflammatory activity in a mouse model of LPS-induced neuroinflammation

- search for compounds with neuroprotective activity in Alzheimer's and Parkinson's *in vitro* models

4. Information about the type of research within the thesis

Experimental work using cell culture *in vitro* techniques, gene expression analysis (qPCR) and protein expression analysis (Western Blot)

5. Requirements:

willingness to work in the laboratory, availability, open mind, willingness to continue scientific development

6. Additional information

Possibility of presenting the obtained results at scientific conferences and in the form of publications

Proposal #3

1. Name of the supervisor of the thesis

[Dr Gniewomir Latacz](#)

2. Contact details

glatacz@cm-uj.krakow.pl

3. Proposed research topic

The determination of ADME-Tox parameters using *in vitro* methods based on biochemical and cell-culture based methods (research are a part of several ongoing grants and projects).

4. Information about the type of research within the thesis

Experimental

5. Requirements:

Interest in medicinal chemistry and biotechnology. Diligence in laboratory work, regularity, punctuality

6. Additional information

The obtained results may be presented during domestic or international conferences related to Medicinal chemistry

Proposal #4

1. Name of the supervisor of the thesis

[Dr Tadeusz Karcz](#)

2. Contact details

tadeusz.karcz@uj.edu.pl

3. Proposed research topic

Evaluation of anticancer drugs resistance mechanism in selected human cancer cell lines.

4. Information about the type of research within the thesis

Experimental project, involving the application of animal cell culture and gene expression analysis techniques

5. Requirements:

Interest in topic of study, strong motivation to learn new laboratory techniques, ability to follow the arrangements and to keep the deadlines

6. Additional information

If you have a specific idea for your master project – shoot me an e-mail and we may arrange your study according to your proposal.

Proposal #5

1. Name of the supervisor of the thesis

Dr Kamil Kuder

2. Contact details

kamil.kuder@uj.edu.pl

3. Proposed research topic

GPCR receptor ligands; homologys modeling of GPCR receptors (histamine, adenosine, GPR18); molecular docking for selected biological purposes; Knime platform (process automation / data analysis)

4. Information about the type of research within the thesis

Experimental work – computational research; remote work possible to a large extent.

5. Requirements:

Students interested in using computational methods in their drug search are especially welcome. At least basic computer software skills, at least average knowledge of English

6. Additional information

- 1) Preferred students of the Medicinal Chemistry course
- 2) For further details please contact me via e-mail or MS-Teams