The Ph.D. Study Board of Anatomy, Histology, Embryology at Charles University, Faculty of Medicine in Pilsen and 2nd Faculty of Medicine

Doctoral (Ph.D.) studies:

- **Anatomy, Histology and Embryology (P0912D350015) in the Czech language,**
- **Anatomy, Histology and Embryology (P0912D350016) in the English language,**

Recommendations for projects of the Charles University Grant Agency

The Ph.D. Study Board recommends to all Ph.D. students in their 1st or 2nd year of study to prepare and submit an application for a project of the Charles University Grant Agency GAUK - Charles University (cuni.cz) in which the student is the principal investigator.

Under the guidance of the supervisor, the student will learn how to write a research project application, conduct a literature research, formulate objectives and testable hypotheses, design a methodological approach, balance the solution timeline and part of the financial costs, and write an interim and final report. In the case of a successful project, the student also receives considerable financial support and a certain degree of autonomy. This prepares the future Ph.D. graduate for the regular part of the work of an independent researcher, which cannot be done without obtaining and solving projects and grants.

A few general recommendations that may affect your success:

- Read carefully the documentation published for the announcement of the competition and follow it; it is binding and does not pay to ignore it.
- The following are very often positively evaluated by the opponents and rapporteurs who assess the project application:
    - A clear explanation of why the area under the study is important, what is the current state of knowledge, what is the current knowledge gap?
    - What is the biological research question to be answered by the project? How and why is it important? What is the potential impact of answering it?
    - Does the proposal contain a testable hypothesis that will lead to answering the biological question?
    - Is the methodology section written in a way that allows the biological question to be answered? Is the source of the material described? Is it clear who will process it, how and when? Does the experimental design require ethics committee approval and if so, are these documents included in the appendix? For experiments, is the design explained, are the experimental groups described, is it clear what will be compared with what? Is the number of samples required for the statistical evaluation explained and justified - e.g. using a power sample analysis that demonstrates the required size of each of the experimental groups to be compared from the pre-mapped biological variability of the parameter being measured? If the experiment includes, for example, repeated measurements, how many times will they be performed? Are the instrumental methods required to produce the data described? Is it described how the data will be handled, i.e. specifically how they will be statistically processed? Can

the justification and appropriateness of the financial costs be inferred from the methodology?
    - Are there any preliminary/pilot data attached to justify the importance of the project and at the same time demonstrate its feasibility (proof of concept)? Alternatively, is the readiness of the research team otherwise demonstrated?
    - What part of the work will be carried out by the student researcher and does this correspond to the proposed financial evaluation? Is this truly a student project? Is any methodological or substantive overlap with other projects of members of the research team, including the supervisor, explained?
    - Is the instrument equipment of the facility documented? Do the members of the research team possess the know-how needed to obtain valid results?
    - Is a timetable documented (e.g. in the form of a Gantt chart)? Does it show the coherence and continuity of the different steps of the solution from the collection of material to the publication of the results? If the project requires multiple groups to work together, is it clear how they will build on each other?
    - Does the project involve international collaboration? If so, what will be the role of the supported UK students in this?
    - Are the financial costs specified and justified in detail to the extent that their reasonableness and cost-effectiveness can be assessed in relation to the project methodology? If there is an apparent conflict between the plan for the work and experiments to be carried out and the limited budget, is it explained where the remainder will be funded from?
    - Do the proponents have an idea of the publication of the results? Do they foresee possible problems (risk analysis) and have they thought through alternative scenarios?
    - Is the project sufficiently innovative, ambitious and significant, but at the same time realistically achievable within the proposed time frame, which should fall within the standard period of study of the principal investigator (possibly increased by 1 year according to current UK rules)? How will the project contribute to the success of the proposers' studies?
    - Is the entire project written in a clear manner, at an appropriate level of language and without formal errors? Is it clearly structured? Are the individual components logically linked and related to each other? Does the project refer to relevant literature?
    - What previous experience do the members of the proposer's team have? What are the supervisor's other projects and publication history?
    - If this is a repeat application, have the proposers taken into account the critical comments of reviewers or reporters from the previous round of the competition?
- Currently, more and more project applications in the biological and medical sciences fields of GAUK are prepared in English, which is evaluated positively and allows to approach foreign opponents.