

**[3/AM/2019] - ANNOUNCEMENT OF THE COMPETITION FOR A POSITION OF A PhD STUDENT –
A SCHOLARSHIP HOLDER IN THE DEPARTMENT OF MOLECULAR PATHOLOGY**

The Director of the Institute of Human Genetics, Polish Academy of Sciences (IHG PAS) and the leader of the research project announce an open competition for the position of a PhD student- scholarship holder in the Department of Molecular Pathology.

I. General information

1. Institution announcing the competition: Institute of Human Genetics PAS
2. City: Poznań
3. Position: PhD student – scholarship holder
4. Discipline: medical biology
5. Number of vacancies: 1
6. Planned remuneration: scholarship: 4 500 PLN per month
7. Deadline for documents submission: 09.08.2019
8. Address to which documents should be submitted: in person or via registered e-mail to Institute of Human Genetics PAS, ul. Strzeszyńska 32, 60-479 Poznań or by e-mail to: tomasz.kolanowski@igcz.poznan.pl, with annotation: "FIBROdrive PhD"
9. Link: <http://igcz.poznan.pl/en/>
10. Keywords: human cardiomyocytes, cardiac fibroblasts, advanced tissue culture systems, tissue engineering, human induced pluripotent stem cells, iPSCs
11. Department in which the candidate would work: Department of Molecular Pathology
12. A concise description of the scientific research:
The project is carried out within the **SONATA 14 programme of the National Science Centre, Poland**, project leader is **dr Tomasz Kolanowski**

Project title: ***„FIBROdrive - just a passenger or the driver? Investigating the mechanism of the cardiac fibroblast influence on heart tissue function - tissue engineering study to define differentiation proces of human atrial and ventricular cardiomyocytes”***

The cardiac fibroblasts role in human heart was underrated until recently, however they become more recognized for their plasticity and crucial function specifically in the first phases after heart injury or disease. We believe that **cardiac fibroblasts (CFs) are the driving factor** in final **specification of cardiomyocytes (CMs)** defining their atrial or ventricular fate. If leading role of CFs proven, it would open the possibility to drive cardiomyocytes into specific fates and ultimately remodel the human heart after injury or disease, thus **making the heart regeneration *in situ* possible**. The aim of this project, is to prove and deeply investigate the role of **fibroblasts in the terminal specification of human cardiomyocytes** and, as a consequence, fibroblast influence on heart function. Reaching this aim would strongly challenge the current paradigm of a “spectator” role of fibroblasts in these processes. For this reason, we will use atrial and ventricular fibroblasts and cross-mix them with *in vitro*- derived cardiomyocytes in a monolayer culture as well as one of the most advanced 3D heart tissue models available (**Engineered Heart Tissue, EHT**). We will use different conditions and evaluate results using molecular biology methods including **NGS** and **secretome** studies (in collaboration with bioinformatician). Project will be performed in collaboration with scientists in Germany and in Poland.

Key project tasks:

1. Differentiation of the human iPS cell lines into the cardiomyocytes, and their culture
2. Molding and culture of Engineered Heart Tissue (EHT) constructs
3. Measurements of the EHTs with subsequent analyses

4. Molecular biology including qPCR, WB
5. Preparation of the samples and subsequent analysis of the NGS data (secretome and RNAseq) with bioinformatical assistance
6. Functional follow-up experiments
7. Supervising master students
8. Writing scientific papers, presenting results on seminars and conferences.

II. Requirements for candidates

1. Master degree in molecular biology, biotechnology, genetics, medicine or related field.
2. Background in pluripotent cell biology and culture
3. Basic knowledge of the heart and cardiomyocyte physiology
4. Experience in RNA analysis and molecular biology techniques.
5. Very good written and oral communication skills in English.
6. Motivation and enthusiasm to work in science.
7. Good collaborative and team work skills.

III. Required documents

1. CV including research achievements.
2. Cover letter.
3. Copy of MSc diploma.
4. Minimum two recommendation letters from former supervisors/collaborators and their contact details.
5. Consent for the processing of Candidate's personal data for the purposes of the recruitment process (http://bip.igcz.poznan.pl/wp-content/uploads/2018/10/Zgoda-rekrutacja-Consent_for_the_processing.pdf)

IV. Criteria for the evaluation of candidates

1. Research achievements (scientific papers, participation in scientific conferences, activity in student research groups, awards).
2. Experience in laboratory work.
3. Background in human iPS cells, molecular biology and especially topics relevant for the project.
4. Opinion about the candidate stated in recommendation letters.
5. Motivation for work in science.
6. Communication skills in English.

V. Announcement of results

Up to 30 days after the deadline of documents submission. Selected candidates will be invited for an interview.

VI. Additional conditions

1. Period of involvement in research project: 01.09.2019-05.07.2022
2. The condition of involvement in the project is participation in the International Doctoral School at IGC PAN (after passing the recruitment procedure). Details of the studies are available on the website: <http://igcz.poznan.pl/en/scientific-activity/phd-studies/> and meeting the requirements set up in the Regulations on awarding scholarships in NCN-funded research projects (https://www.ncn.gov.pl/sites/default/files/pliki/regulaminy/ncn_scholarships_in_projects_en.pdf).

VII. Additional information

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Project Leader

Kolanowski Tomasz

Director of the Institute

DIRECTOR
Institute of Human Genetics
Polish Academy of Sciences

Prof. Michał Witt, MD PhD