



**INSTITUTE
OF HUMAN GENETICS**
POLISH ACADEMY OF SCIENCES

“OPEN PHD POSITION”

[30/2023/IGC/PSD] Announcement concerning recruitment to the Poznań Doctoral School of the Institutes of the Polish Academy of Sciences (PDS IPAS) as part of a research project

The Director of the Institute of Human Genetics, Polish Academy of Sciences (IHG PAS), and leader of the current research project, **Natalia Rozwadowska, PhD**, professor IHG gives notice of an open competition to be held for the position of

**PhD student-scholarship holder at the Poznan Doctoral School of Institutes PAS,
Department of Molecular Pathology IHG PAS**

Number of vacancies: **1**

I. General information

1. Department in which candidate will work: **Department of Molecular Pathology**
2. Discipline: **Medical Science**
3. Planned remuneration: scholarship to the value of **4300 PLN gross/per month (3800 PLN net /per month)**
4. Period of involvement in research project: **44 months**
5. Deadline for submission of documents: **22.12.2023**
6. Date of announcement: **16.11.2023 r.**

The proposed study will be carried out within the **OPUS-LAP 2022/47/I/NZ3/02790**

PI – Natalia Rozwadowska, PhD, professor IHG

Project title: ***“It takes two to tango - a decryption of Marfan cardiomyopathy using human iPSC-derived cardiac cells and engineered heart tissues”***

7. Description of research:

Stem cell modeling of genetic diseases is one of the greatest achievements of the last decade. Thanks to the appropriate conditions created in the laboratory, scientists can obtain heart or brain cells from stem cells that show symptoms similar to those observed patients.

The aim of the project is to obtain heart cells (muscle and stromal cells) and engineered heart tissue (EHT) construct that would show the characteristics of the heart of patients diagnosed with Marfan Syndrome (MFS). For this purpose, we plan to obtain induced pluripotent cells (hiPSCs) derived in the laboratory from patients suffering from this disease.

Thanks to the cooperation between the University of Ghent, where intensive research on MFS is being conducted, and the Institute of Human Genetics in Poznan whose expertise is based on the ability to produce heart tissue from hiPSC cells, it will be possible to create a platform for an in-depth analysis of the mechanism of heart function damage in patients with MFS. This analysis will be based on the study of two types of cells present in the heart (muscle cells and stromal cells)

but also on the extracellular matrix, which, as recent studies show, seems to be much more important in the proper functioning of the heart than we initially assumed, Research will be conducted using the cutting-edge technologies such as confocal microscopy, atomic force microscopy and molecular analysis including high-throughput next-generation sequencing. We will verify how DNA variants in the fibrillin-1 gene (FBN1), which are the cause of Marfan syndrome, affect the functions of heart cells and its microenvironment.

Knowledge of the effects of FBN1 gene variants and the signaling pathways involved in the development of the disease will allow us to propose new therapeutic approaches as well as to explain the mechanisms of action of drugs that are used to alleviate the symptoms associated with the malfunctioning of the cardiovascular system in patients with Marfan syndrome.

Keywords:

hiPSC, cardiomyopathy, Marfan syndrome, engineered heart tissue, disease modelling

Predicted tasks in the project:

- active participation in the realization of project goals and analysis of obtained results
- presenting at seminars and conferences, participation in writing scientific papers
- supervision of students

Opportunities:

- getting familiar with a rich palette of molecular and cellular experimental techniques
- working with a team engaged and enthusiastic about science
- participation in national and international trainings, conferences and workshops
- chance for a brilliant scientific career

II. Requirements for candidates

1. master's degree in molecular biology, biotechnology, genetics or a related field
2. knowledge of molecular biology
3. basic experience in *in vitro* cell culture and handling (hiPS, iCMs, fibroblasts) and cell transfection
4. experience in molecular biology techniques: PCR, RT-qPCR, preferably also Western blot and flow cytometry
5. basic experience in CRISPR/Cas9 based genome editing technique
6. experience in handling DNA and RNA, extraction of nucleic acids
7. very good written and oral communication in English
8. motivation and enthusiasm about working in science
9. good collaborative and team work skills

III. Required documents

1. CV, including research achievements.
2. Cover letter.
3. A copy of the diploma confirming completion of a Master's Studies Programme, or a certificate of their completion (in the case of diplomas issued by foreign institutions, the diploma referred to in article 326 para.2 point 2 or article 327 para. 2 of the Act of 20 July 2018 – Law on Higher Education

and Science (Journal of Laws of 2018, item 1668 as amended), giving the right to apply for a doctoral degree in the country in which the University of Higher Education issuing the diploma operates. If the candidate does not have the above-mentioned documents, s/he is obliged to provide them before being admitted to Poznań Doctoral School IPAS. More information about foreign diplomas is available at: <https://nawa.gov.pl/en/recognition/recognition-for-academic-purposes/applying-for-admission-to-doctoral-studies>.

4. Contact details of at least one current supervisor or other researcher who has previously agreed to issue an opinion about the candidate. The opinion should not be included in the application.
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](http://bip.igcz.poznan.pl/wp-content/uploads/2018/10/Zgoda-rekrutacja-Consent%20for%20the%20processing.pdf)
6. Application for admission to the Poznań Doctoral School IPAS, together with a consent to the processing of personal data for the purposes of the recruitment procedure plus a statement on his/her familiarity with recruitment regulations for the Poznań Doctoral School (Application is available on: <http://igcz.poznan.pl/en/phd-studies/poznan-doctoral-school-of-institutes-of-pas/recruitment-regulations-for-psd-ipan/>)
7. Certificates or other documents indicating level of English language proficiency, if the candidate possesses any.

IV. Criteria for the evaluation of candidates

1. Candidate's scientific and professional experience based on his/her participation in conferences, workshops, training courses and internships; participation in research and commercial projects; involvement in scientific societies and associations; international and professional mobility; experience in other sectors, including industry.
2. Background in molecular biology.
3. Candidate's scientific achievements, based on study grades, scientific and popular science publications, scholarships; prizes and awards resulting from research carried out; student activity or other achievements.
4. Communication skills in English.

V. Announcement of results

Up to 30 days after the deadline of documents submission.

VI. Additional conditions

1. A condition of involvement in the project is participation in the Institutes of PAS (after passing the recruitment procedure). Details of the studies are available on [https://igcz.poznan.pl/en/phd-studies/poznan-doctoral-school-of-institutes-of-pas/Fulfillment of requirements as set out in the Regulations for Granting Scholarships in Research Grants Financed by the National Research Center](https://igcz.poznan.pl/en/phd-studies/poznan-doctoral-school-of-institutes-of-pas/Fulfillment%20of%20requirements%20as%20set%20out%20in%20the%20Regulations%20for%20Granting%20Scholarships%20in%20Research%20Grants%20Financed%20by%20the%20National%20Research%20Center) are available on (https://www.ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2019/uchwala25_2019-zal1_ang.pdf).

VII. Additional information

Address to which documents should be submitted by e-mail to the Secretary for Scientific Purposes:
phdstudies@igcz.poznan.pl.

Please, include the number of the announcement: **[30/2023/IGC/PSD]** in the title of your e-mail.

Additional information is available from:

- Natalia Rozwadowska: natalia.rozwadowska@igcz.poznan.pl,
- Secretary for Scientific purposes: phdstudies@igcz.poznan.pl

Application sent after the deadline will not be considered.

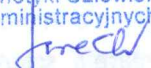
Once the recruitment process is finished, unsuccessful candidates will be informed about the scores they have obtained at each step of evaluation.

Refusal of admission to PDS IPAS takes place by way of an administrative decision. The candidate is entitled to submit a request for reconsideration of the decision to the director of the institute concerned.

Project Leader



Director of the Institute

Z-ca DYREKTORA
Instytutu Genetyki Człowieka PAN
ds. administracyjnych

mgr Malgorzata Strecker
