



[8/2023/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, **Kamila Kusz-Zamelczyk, PhD**

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,
Independent Research Group of RNA Biology IHG PAS**

Number of vacancies: **1**

I. General information

1. Department in which candidate would work: **Independent Research Group of RNA Biology**
2. Discipline: **Medical Science**
3. Planned remuneration: **scholarship to the value of about 4300 PLN gross (3800 PLN net/per month)**
4. Period of involvement in research project: **39 months (extension possible)**
5. Deadline for submission of documents: **14.04.2023 r.**
6. Date of announcement: **10.03.2023 r.**

The proposed study will be carried out within the **OPUS-22 2021/43/B/NZ3/01635**

Project title: "The role of NANOS3 in modulating genetic processes of early human germ cell development and implication in the human reproductive health"

Research Description:

Infertility affects approximately 15% of couples worldwide. They are often caused by genetic defects that interfere with the development of germ cells, which in turn is a risk factor for gonadal cancer. NANOS3 is an RNA-binding protein (RBP) that regulates gene expression at the post-transcriptional level and has been identified as a marker of germ cells since their specification during early embryogenesis. However, the precise role of NANOS3 in these early stages is not well understood, and the RNAs it regulates at this stage remain unidentified.

The aim of this project is to identify the RNAs and pathways regulated by NANOS3 in the early stages of germ cell development, especially those that are impacted by the infertility-causing NANOS3 mutation p.Glu120Lys (v-NANOS3). Specific objectives are as follows: **1.** Creation two types of cell lines, one with degradable NANOS3 protein (degron) using CRISPR-Cas9 and the PiggyBac transposon system, and the other containing the v-NANOS3 mutation using CRISPR-Cas9, and differentiate them into primordial germ cells (PGCs) for further study. **2.** Identification of genes which expression is regulated by NANOS3 and v-NANOS3 at early stages of germ cell development using whole transcriptome RNA sequencing (RNA-Seq). **3.** Identification of RNAs directly regulated by NANOS3 compared to v-NANOS3 using eCLIP and Nanopore sequencing. **4.** Confirmation of the regulation and interaction of NANOS3 with selected most interesting RNAs by RT-qPCR, western blot, immunofluorescence, EMSA.

Keywords:

infertility, germ cell tumor, human germ cell development, RNA-binding proteins, post-transcriptional gene expression regulation, ribonucleoprotein complexes

Predicted tasks in the project:

- active participation in the implementation of the experimental tasks of the grant (cell culturing and cell differentiation, design and creation of cell lines modified with the CRISPR-Cas9 and PiggyBac technique, preparation of samples for RNA-Seq and eCLIP, RT-qPCR, western blot) and analysis of the results
- presentation of results at seminars and conferences, participation in writing scientific publications
- supervision of students

Opportunities:

- work in an international research team, highly experienced in many cutting edge molecular methodologies, and enthusiastic about conducting scientific research
- participation in international conferences and workshops

II. Requirements for candidates

1. Master's degree in biology, biotechnology, biochemistry, molecular biology or related fields, or final year graduate student who will defend the thesis before the start of the fellowship
2. Background in molecular biology.
3. Experience in RNA, DNA, protein, cell culture and molecular biology techniques.
4. Experience with microscopic techniques will be advantageous.
5. Good written and oral communication skills in English.
6. Motivation and enthusiasm about working in the field of science
7. Predisposition for scientific work, perseverance and accuracy in manual work, self-reliance, good work organization.
8. Willingness to learn and take on new challenges, analytical thinking.
9. Ability to work in a group.

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. 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/>)
6. 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 are available on (https://www.ncn.gov.pl/sites/default/files/pliki/uchwalyrady/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: [8/2023/IGC/PSD] in the title of your e-mail.

Additional information is available from:

Kamila Kusz-Zamelczyk, PhD: kamila.kusz-zamelczyk@igcz.poznan.pl

and the Secretary for Scientific purposes: phdstudies@igcz.poznan.pl,

Applications 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

K. Kuz-Żolczyk

Director of the Institute

DIRECTOR
Institute of Human Genetics
Polish Academy of Sciences

Prof. Michał Wit, MD PhD