

Offer no: 12/MR/2021

Appendix no 1  
to the Regulations for conducting  
competitions for scientific positions at the  
Institute of Human Genetics PAS in Poznań.

## ANNOUNCEMENT OF THE COMPETITION FOR A SCIENTIFIC POSITION

The Director of the Institute of Human Genetics, Polish Academy of Sciences in Poznań (IHG PAS) announces an open competition for the position of an **adjunct** at the Department of Nucleic Acid Function (DNAF) of the IHG PAS

The competition is open to persons who meet the conditions set out in the Act of 30 April 2010 on the Polish Academy of Sciences (Journal of Laws of 2016, item 572, as amended) and the Regulations for conducting competitions for scientific positions at the Institute of Human Genetics, Polish Academy of Sciences in Poznań.

### I. General information

1. Institution announcing the competition: Institute of Human Genetics PAS
2. City: Poznań
3. Position: postdoc (adjunct)
4. Discipline: medical sciences
5. Number of vacancies: 1
6. Planned remuneration: **10 000 PLN** gross per month, ca. **6 000 PLN** net per month, full time employment contract starting at **1.01.2022**.
7. Deadline for documents submission **30.11.2021**.
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: [Jadwiga.jaruzelska@igcz.poznan.pl](mailto:Jadwiga.jaruzelska@igcz.poznan.pl), with annotation: "Postdoc OPUS18"
9. Link: <http://igcz.poznan.pl/en/open-positions>
10. Keywords: infertility, germ cell tumor, human germ cell development, RNA-binding proteins, posttranscriptional gene regulation, ribonucleoprotein complexes, CRISPR/Cas9, stem cells differentiation
11. Department in which the candidate would work: Department of Nucleic Acids
12. A concise description of the scientific research:  
The project is carried out within the OPUS18 grant from the National Science Centre, Poland, project leader is **prof. Jadwiga Jaruzelska**.

Project title: **„NANOS1 RNP-interactome: structure and dynamics during specification/early stages of human germ cell development - significance for human reproduction”**. Infertility affects 15% of couples world-wide. Genetic defects account for 15-30% of male infertility cases and is a risk factor for testis germ cell tumour (TGCT). NANOS is posttranscriptional gene expression regulator, contains highly conserved RNA-binding domain composed of (CCHC)<sub>2</sub> zinc-finger and interacts with few proteins. We have identified v-NANOS1 protein variant in association with infertility in patients. Therefore, the general objective is to get

comprehensive insight into structure and dynamics of NANOS1 ribonucleoprotein interactome during specification/early stages of human male germ cell development. We will use human models upon stable wt- and v-NANOS1 overexpression: 1/ hESCs *in vitro* differentiation towards specification and early development of primordial germ cells (hPGCLCs) and 2/ TCam-2 cell line originating from seminoma and representing slightly later PGC developmental stage. Specific objectives are: **1.** Identification of target RNAs bound by wt- and v-NANOS1 at different developmental stages applying protein-crosslinked RNA extraction (XRNAX) and eCLIP. The anti-FLAG antibody will serve to co-IP NANOS1-bound RNAs. Then, total eCLIP isolated RNA using RiboZero will be analyzed applying RNA-Seq. Databases and bioinformatic tools will be used for gene identification. **2.** Screening for wt and v-NANOS1 protein binding partners by using Stable Isotope Labeling with Amino Acids in Cell Culture (SILAC) followed by LC-MS/MS mass spectrometry and validation by co-IP followed by western. **3.** Identification of specific motifs in target RNAs recognized by wt- and v-NANOS1 protein partners containing RNA-binding domains employing bioinformatic tools and validate RNA-protein interactions applying luciferase reporter assays. Ribonucleoprotein networks will be assembled by implementing pertinent bioinformatic tools/platforms such as CytoScape. We expect these networks being at least partially different for wt- and v-NANOS1 and will differ in specific developmental stages. **4.** Most interesting interactions (RNA/protein and protein/protein) in wt-NANOS1 associated network, missing from the v-NANOS1 ones, will be validated applying phenotypic assays for functional dependence on NANOS1. For that purpose, endogenous NANOS1 silencing will be followed by measurement of the level of NANOS1 targets by real time qPCR/western. We anticipate that the level of target RNAs/protein will change upon NANOS1 silencing. If so, we will test whether it influences apoptosis, cell cycle, proliferation or other parameters that could explain phenotype of the patients and TCam-2 cells.

*The project 'NANOS1 RNP-interactome: structure and dynamics during specification/early stages of human germ cell development - significance for human reproduction' is carried out within OPUS18 grant from the National Science Centre Poland.*

#### **Key responsibilities:**

1. Bioinformatic analysis of raw RNA-Seq and mass spectrometry data using such platforms as SearchGUI (MS), Galaxy and CytoScape
2. Designing experiments
3. Performing functional assays for functional dependence of identified genes on NANOS1 protein
4. Functional characterization of selected genes
5. Supervising PhD and master students
6. Writing scientific papers, presenting results on seminars and conferences

#### **II. Requirements for candidates**

1. PhD degree in molecular biology, biotechnology, genetics, medicine or related field (obtained **no more than 7 years ago before the application**).
2. During the engagement lab researcher would not be funded from the other NSC grant projects nor be hired in another place as the full-time employee.
3. Strong knowledge of molecular biology and developmental biology.



4. Experience in RNA (including eCLIP and similar techniques), DNA, stem cell culture and molecular biology techniques (experience in genome editing CRISPR/Cas9, RNA immunoprecipitation will be an advantage), basic knowledge about flow cytometry and cell sorting. Knowledge in proteomics including mass spectrometry will be highly appreciated.
4. Good publication record and conference attendance.
5. Excellent written and oral communication skills in English.
6. Independence, self-motivation, problem-solving skills.
7. Good collaborative and team work skills.

### **III. Required documents**

1. An application for employment with an address and contact details (email, telephone),
2. A scan or a photocopy of the university diploma,
3. A scan or a photocopy of a degree
4. A scan or a photocopy of a scientific title diploma (if applicable),
5. CV,
6. A list of publications, in particular from the last 5 years of the candidate's scientific work (after accounting for deduction of breaks in scientific work), list of patents/ patent applications, implementations or implementation projects (if applicable),
7. Information on number of citations (without self-citations), Hirsch index and the number of years effectively worked in science (after deduction of breaks) (if applicable),
8. Number of research projects (also application ones) managed by the candidate or in which the candidate was the PI/ main contractor together with 1-3 main publications as project results or other measurable results of the project (if applicable),
9. At least one opinion of an independent researcher, who is a specialist in a given field described in the announcement,
10. A self-presentation containing information about scientific interests, current achievements, participation in research projects and description of own research projects, not exceeding 3 500 printing characters (max. 1 A4 page),
11. Consent to the processing of personal data of the Candidate for the purposes of the Competition,  
(available at: [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_for_the_processing.pdf)),
12. Candidate's statement about getting acquainted with the Regulations for conducting competitions for scientific positions at the Institute of Human Genetics, Polish Academy of Sciences in Poznań.  
(available at: [http://bip.igcz.poznan.pl/wp-content/uploads/2018/10/Oswiadczenie\\_regulamin-Statement\\_Regulations.pdf](http://bip.igcz.poznan.pl/wp-content/uploads/2018/10/Oswiadczenie_regulamin-Statement_Regulations.pdf)),
13. Candidate's statement that, in case of winning the competition, the Institute of Human Genetics, Polish Academy of Sciences in Poznań will be the main place of employment.  
(available at: [http://bip.igcz.poznan.pl/wp-content/uploads/2018/10/Oswiadczenie\\_miejsce\\_pracy-Statement\\_place\\_of\\_work.pdf](http://bip.igcz.poznan.pl/wp-content/uploads/2018/10/Oswiadczenie_miejsce_pracy-Statement_place_of_work.pdf)).

### **IV. Criteria for the evaluation of candidates**

1. Creativity measured by the quality and number of scientific publications in which the candidate is the first author, corresponding author, or significant author, together with patent applications/patents and/or implementations.

2. Mobility in their scientific career (including completed academic internships, change of scientific profile, internships and work in industry).
3. The number of citations of the candidate's publications, especially those in which the candidate is the first author, corresponding author or significant author.
4. Creativity measured by the quality and number of managed research projects.
5. An opinion of an independent researcher (R3-R4).
6. Experience in laboratory work.
7. Knowledge in molecular biology
8. Motivation for work in science.
9. 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. Each candidate will be individually informed of the results of the competition in relation to him/herself. Information on the winner of the competition will be published on the Institute's website. The incomplete applications will not be considered.

**VI. Planned period of employment**

From 1.01.2022


**VII. Additional information:**

Prof. dr hab. Jadwiga Jaruzelska [jadwiga.jaruzelska@igcz.poznan.pl](mailto:jadwiga.jaruzelska@igcz.poznan.pl)

**VIII. Appeal procedure.**


Candidates who have been negatively evaluated by the Competition Commission have the right to appeal against the results of the assessment. The appeal is submitted to the Director of the Institute within 7 days from the date of receipt of negative feedback from the Competition Commission. The decision of the Director of the Institute is final.

PI of the project

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Director



**DIRECTOR**  
Institute of Human Genetics  
Polish Academy of Sciences  
Prof. Michał Witt, MD PhD