

**IBCH PAS RECRUITMENT PROCEDURE NO. 21/2021/SN  
FOR THE POSITION OF A POSTDOCTORAL RESEARCH ASSISTANT**

INSTITUTION: Institute of Bioorganic Chemistry, Polish Academy of Sciences,  
Department of Ribonucleoprotein Biochemistry  
CITY: Poznan  
POSITION: assistant professor (post-doc)  
POSITIONS AVAILABLE: 1  
SCIENTIFIC DISCIPLINE: Biological sciences  
PUBLICATION DATE: **19 September 2022**  
APPLICATION DEADLINE: **18 October 2022**  
WEBSITE: <https://portal.ichb.pl/homepage/>

**KEY WORDS:** nucleic acid binding proteins, protein-nucleic acid interactions, Dicer ribonuclease,  
G-quadruplexes, regulatory RNAs, regulation of gene expression

**Principal Investigator:** Assoc. Prof. Anna Kurzynska-Kokorniak, PhD, DSc

**Research topic:** functional implications of interactions between the ribonuclease Dicer and DNA/RNA molecules adopting the G-quadruplex structures

### I. Project description

Accumulating evidence indicates that DNA/RNA G-quadruplexes (helical structures containing guanine tetrads) serve important regulatory roles in fundamental biological processes such as DNA replication, transcription, and translation, while aberrant G-quadruplex formation is linked to genome instability and cancer. Understanding the biological functions played by G-quadruplexes requires detailed knowledge of their protein interactome. Our newest finding indicates that ribonuclease Dicer – the enzyme known from its important role in the miRNA/siRNA biogenesis pathways, apart from its canonical substrates (pre-microRNAs and double-stranded RNAs) may as well bind G-quadruplex structures present within RNA and DNA molecules (doi: 10.1007/s00018-021-03795-w). Planned research focuses mainly on the human Dicer (hDicer). During the project implementation, we would like to answer the following questions:

- What are the potential functional implications of *in cellulo* interactions between hDicer and RNA molecules adopting the G-quadruplex structures?
- Whether nuclear hDicer can bind to the telomeric G-quadruplex structures, and other G-quadruplex structures formed within chromatin? If yes, what are the potential functional implications of these interactions?

Using the developed cell models, immunoprecipitation techniques and next-generation sequencing (NGS), we plan to identify and then characterize the pool of cellular DNA and RNA adopting G-quadruplex structures bound by hDicer. To prove that hDicer binds to the G-quadruplex structures in the cell, we will apply Forster Resonance Energy Transfer (FRET)-based assays. Moreover, imaging co-localization experiments will be performed with the MINFLUX nanoscope, a newest technology which enables not only an identification of the interaction and the distance between the two targets, but also allows for unambiguous verification whether the two targets are next to each other, and hence whether they indeed interact. Based on the all collected data, the potential functional implications of Dicer's interactions with the DNA and RNA molecules adopting G-quadruplex structures will be inferred.

Research shall be carried out within the project 2021/41/B/NZ2/03781, entitled “*Close Encounters of the Third Kind: what happens when ribonuclease Dicer encounters in the cell RNA and DNA adopting G-quadruplex structures*”, funded by the National Science Centre.

IBCH PAS is one of the leading scientific units in Poland and conducts research activities in the field of chemistry, molecular biology and biomedicine. The Institute provides access to technologically advanced research equipment.

## II. Requirements for the candidates:

1. A PhD degree in Molecular Biology, Biochemistry, Biotechnology, Bioinformatics or a related discipline.\*
2. Well-documented research output in the form of research papers (Web of Science).
3. Experience in molecular biology techniques, especially in the field of protein and nucleic acid biochemistry, human cell culture techniques (experience in microscope imaging will be an asset).
4. Experience in bioinformatics and NGS data analysis.
5. Creativity and motivation for academic work.
6. Good command of English, enabling efficient communication and preparation of research papers.

\*In accordance with the requirements of the National Science Center, only those candidates who received their PhD degree no earlier than 7 years prior to the date of employment within the research project, excluding parental or related leaves governed by the stipulations of the Labor Code, rehabilitation period associated with rehabilitation allowances or other rehabilitation benefits, are eligible for recruitment. In such cases, the aforementioned 7-year period shall be extended by additional 18 months for every descendant or adoptee. Female applicants may choose the way of justifying breaks in their research career, which is more favorable in a given case.

Pursuant to the regulations of the National Science Center, only candidates who obtained their PhD degree at an institution other than the Institute of Bioorganic Chemistry, PAS, are eligible for the position.

## III. Job Responsibilities:

1. Planning and conducting experiments. Data analysis and interpretation.
2. Preparation and assistance in the preparation of manuscripts.
3. Critical reading of literature.
4. Presentation of the results at seminars and scientific meetings.
5. Individual and team work; day-to-day supervision of PhD students and graduate students.

## IV. Required documents:

1. Cover letter of application to the Director of IBCH PAS featuring contact details to at least two referees.
2. Copy of the doctoral diploma.
3. CV featuring information on the candidate's scientific track record, including:
  - the list of papers published in journals listed in the Web of Science (WoS) database, stating the IF in accordance with WoS, number of citations and the H-index;
  - list of patents;
  - information on the previously managed projects or participation in project implementation;
  - information on the accomplished research internships;
  - information on the awarded prizes and distinctions.

V. Applications should be submitted via the eRecruiter portal at:

<https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=4f44ce3eb7124b14a0bd2f3e9c60aa>

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VI. The submission deadline is **October 18, 2022**.

## VII. Selection of candidates:

Following preliminary verification, on the basis of the application documents, selected candidates will be invited to an interview, as a result of which a candidate recommended for employment shall be appointed.

The main criteria, taken into consideration during the selection of the candidates, will be: (i) research output (research papers published), (ii) compliance of the previous experience with the tasks planned within the framework of the project, (iii) experience gained during internships.

**VIII.** The recruitment procedure shall be concluded no later than on **October 31, 2022**.

**IX. Employment shall take place in compliance with the provisions of the Labor Code of Poland.**

Employment is available instantly (depending on the result of the recruitment procedure). The position is available for the period of 40 months (with the possible extension). The estimated gross salary is ca. 8 150 PLN/month.

For additional information please contact the Principal Investigator:

Assoc. Prof. Anna Kurzynska-Kokorniak, PhD, DSc

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**Information clause:**

*Pursuant to the stipulations of the regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), further referred to as GDPR, we hereby inform that:*

- *The Institute of Bioorganic Chemistry, Polish Academy of Sciences, seated in Noskowskiego St. 12/14, 61-704 Poznan; REGON 000849327, NIP 777-00-02-062 is the administrator of the collected personal data (further referred to as the Institute).*
- *The Administrator appointed a Data Protection Officer, who can be contacted in writing, via traditional mail, by sending a letter to the following address: Z. Noskowskiego St. 12/14, 61-704 Poznan, or by sending an e-mail to: [dpo@ibch.poznan.pl](mailto:dpo@ibch.poznan.pl).*
- *The personal data of the candidates is processed for the purposes of fulfilling the tasks of the administrator, associated with conducting the recruitment procedure for a vacant position.*
- *The legal basis for processing personal data is the Act of 26 June 1974 – The Labor Code, Act of 30 April 2010 on the Polish Academy of Sciences or the consent of the person whose data shall be subjected to processing.*
- *Your personal data shall be subjected to processing for period of 3 months upon the date of decision of the recruitment committee. Following this period, the data will be irretrievably and effectively destroyed.*
- *The personal data of the candidates shall not be transferred to any third country.*
- *The person whose data shall be subjected to processing has the right to:*
  - *request access to his/her personal data, and to amend it or delete it, pursuant to articles 15-17 of GDPR;*
  - *limit data processing, in the events stipulated in article 18 of GDPR;*
  - *data transferring, pursuant to article 20 of GDPR;*
  - *withdraw consent at any moment, without influencing compliance with the law of the processing that was executed prior to consent withdrawal;*
  - *file a complaint to the Inspector General for Personal Data Protection.*

*Providing personal data in the scope stipulated in article 22 (1) of the Act of 26 June 1974 – The Labor Code is mandatory, whereas providing data in a broader scope is voluntary and requires consent for its processing.*