

**IBCH PAS RECRUITMENT PROCEDURE NO. 22/2024/SN  
FOR THE POSITION OF RESEARCH ASSISTANT**

INSTITUTION: Institute of Bioorganic Chemistry, Polish Academy of Sciences,  
Department of Molecular and Systems Biology  
CITY: Poznan  
POSITION: research assistant  
POSITIONS AVAILABLE: 1  
SCIENTIFIC DISCIPLINE: Computer science, biological sciences, biomedical engineering  
or related field  
PUBLICATION DATE: **23.10.2024**  
APPLICATION DEADLINE: **22.11.2024**  
WEBSITE: <https://portal.ichb.pl/>

**KEY WORDS:** ovarian cancer, spatial transcriptomics, next generation sequencing (NGS), artificial intelligence, bioinformatics, mathematical modeling, image analysis, predictive algorithm

**Principal Investigator:** Mikołaj Zaborowski, PhD

**Research topic:** “Algorithm for personalizing ovarian cancer treatment based on a spatial transcriptomic model of tumor tissue with single-cell resolution”

**Project description:**

Most patients with ovarian cancer will experience a recurrence of the disease, which ultimately leads to a poor prognosis. The aim of the project is to develop an innovative predictive algorithm to determine (A) which patients will benefit from the use of available PARP inhibitor therapies, and (B) what new drugs could be used in the treatment-resistant group. Testing will involve developing a cancer tissue model by analyzing the spatial distribution of RNA expression, morphological features, and intercellular interactions. Data will be obtained using spatial transcriptomics of cancer tissue at single-cell resolution. Transcriptomic profile information at each location will be combined with its morphological characteristics in a 3D model of the tumor tissue. Spatial transcriptomic data and the characterization of tissue morphology will be analyzed using advanced mathematical tools and artificial intelligence techniques to develop a model that predicts which patients will respond to standard ovarian cancer treatment. In the treatment-resistant group, the algorithm will indicate which molecular pathways are disrupted and what alternative drugs could be used.

The Institute of Bioorganic Chemistry of the Polish Academy of Sciences (IBCH PAN), where this project will be implemented, is one of the leading research institutions in the fields of molecular biology, bioinformatics, and biomedicine in Poland. The work will be carried out in a young, interdisciplinary team, offering the opportunity to publish results well. Working on the project provides a great opportunity for growth and gaining experience in the field of (1) innovative spatial transcriptome sequencing techniques, (2) bioinformatic analysis of unique biomedical molecular and imaging data, (3) the application of state-of-the-art artificial intelligence methods for medical predictions, (4) large-scale computations on a high-throughput computing cluster, (5) and the use of advanced mathematical models.



European Funds  
for Smart Economy



Republic  
of Poland

Co-funded by the  
European Union



#### **Additional information:**

Research work will be carried out as part of the FIRST TEAM FENG project, call 1/2023 nr FENG.02.02-IP.05-0361/23, titled: „Algorithm for personalizing ovarian cancer treatment based on a spatial transcriptomic model of tumor tissue with single-cell resolution”

#### **I. Requirements for the candidate:**

1. PhD degree in the field of STEM disciplines, particularly in computer science or biological sciences or related fields, or engineering and technical sciences with a specialization in biomedical data processing, e.g., biomedical engineering and related fields.
2. Documented scientific achievements in the form of co-authorship in publications in recognized scientific journals (from the Web of Science database).
3. Documented professional experience in applying artificial intelligence methods. Additionally, experience in the analysis of biomedical data, such as imaging, molecular, biosignal, or biometric data, will be an asset.
4. Experience in bioinformatics and/or biostatistics is also welcomed.
5. Experience with Python programming and knowledge of libraries implementing artificial intelligence methods (tensorflow, scikit-learn, and/or pytorch) is required. Knowledge of the R language will be an additional advantage.
6. Experience working on Linux systems and in a high-throughput computing cluster environment, including with a job scheduling system, e.g., SLURM, is also welcomed.
7. Willingness to actively expand one's knowledge and skills.
8. Ability to work independently and solve problems independently, as well as adaptability to work in an interdisciplinary team.
9. Proficiency in spoken and written English, enabling effective communication and preparation of publications.

#### **II. Job Description:**

An artificial intelligence specialist (PhD) with a background in STEM sciences and professional experience in applying artificial intelligence methods. Their role will involve participating in the processing of bioinformatic and medical data, as well as designing, training, and evaluating machine learning models, which will be a key component of the predictive algorithm. Additionally, their role will include supervising and training a bioinformatics PhD student in the application of machine learning methods.

#### **III. Job Responsibilities:**

1. Active involvement in the implementation of the project in the following tasks:
  - Processing bioinformatics analysis results to prepare data for the application of machine learning methods
  - Participation in preparing training data for machine learning models
  - Participation in evaluating the quality of machine learning models and visualizing their decision-making rules
  - Providing substantive supervision over all tasks related to building machine learning models and training the PhD student in this area
  - Participation in the statistical analysis and presentation of the results obtained in the project
2. Involvement in the preparation of scientific publications.

#### **IV. Required documents:**

1. Letter of application to the Director of IBCH PAS.



European Funds  
for Smart Economy



Republic  
of Poland

Co-funded by the  
European Union



2. Scientific CV including list of publications in recognized scientific journals (from the Web of Science database) with corresponding Impact Factor by WoS, citations count and Hirsch index; patents, previous positions and managed projects.

Additionally, depending on the candidate's achievements, the application may include:

- A list of additional publications,
- A list of patents,
- Information on leading or participating in research projects,
- Information on completed scientific internships,
- Information on awards and honors received,
- Information on completed training and passed specialized exams.

3. Copy of PhD diploma.

4. Contact details to the referees.

V. Applications should be submitted via the eRecruiter portal:

<https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=33b20370c8f94cc9b5f05fceb707995d>

**VI. The submission deadline is 22.11.2024.**

**VII. Selection of candidates:**

After conducting an initial verification based on the submitted documents, selected candidates may be invited for an interview, as a result of which a person recommended for employment will be chosen. The main criteria that will be taken into account during the selection of candidates are: (i) scientific achievements (publications), (ii) the compatibility of previous experience with the research tasks planned as part of the project, (iii) experience gained during a long-term foreign internship.

**VIII. The recruitment procedure shall be concluded no later than on 27.11.2024.**

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

**X. We offer:**

1. Opportunity to work in a leading scientific unit in Poland, in a young, interdisciplinary team of several people, who value reliability, cooperation and take up ambitious scientific challenges.
2. Position available immediately (depending on the outcome of the competition).
3. Position for a period of ...48... months
4. Planned part-time employment of fraction: 0.2
5. The expected salary is approximately 2,700 PLN/month (total employer cost, approximately 2,220 PLN gross/month).

**For more details, please contact:**

dr Mikołaj Zaborowski  
Department of Molecular and Systems Biology  
Institute of Bioorganic Chemistry, PAS  
Noskowskiego 12/14  
61-704 Poznań  
Tel. +48 690 490 513  
e-mail: [mzaborowski@ibch.poznan.pl](mailto:mzaborowski@ibch.poznan.pl)



European Funds  
for Smart Economy



Republic  
of Poland

Co-funded by the  
European Union



### Information clause:

*Under 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 Poznań; 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 Poznań, 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 the 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.*

### Whistleblower Protection:

*Please be informed that when reporting violations using the dedicated whistleblower system, the personal data of the reporting individual will be processed in accordance with the applicable data protection regulations, including the aforementioned Regulation of the European Parliament and of the Council (EU 2016/679 of April 27, 2016). We ensure the confidentiality and protection of the identity of whistleblowers, and their data will not be disclosed without their consent unless required by law.*

*Detailed rules regarding the protection of personal data and the procedures for reporting violations can be found in our Internal Reporting Regulations at the Institute of Bioorganic Chemistry of the Polish Academy of Sciences, available via the following link:*

*[https://portal.ichb.pl/wp-content/uploads/2024/09/ZacznikdoZarzdzenianr29\\_09\\_2024REGULAMINZGOSZEWEWNTRZNYCH-1.pdf](https://portal.ichb.pl/wp-content/uploads/2024/09/ZacznikdoZarzdzenianr29_09_2024REGULAMINZGOSZEWEWNTRZNYCH-1.pdf)*



European Funds  
for Smart Economy



Republic  
of Poland

Co-funded by the  
European Union

