Instytut Katalizy i Fizykochemii Powierzchni
im. Jerzego Habera
Polskiej Akademii Nauk

HR EXCELLENCE IN RESEARCH

KSN 5/2025 Kraków, 30.04.2025

Adjunct (POST-DOC) in
the Theoretical and Experimental Biocatalysis group

- Employer: Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences, Krakow, Poland
- Research field:
  - Chemistry > biochemistry
- Researcher profile: R2
- Deadline for applications: 31.05.2025, 3:00 pm GTM+1
- Place: Poland, Kraków
- Type of Contract: temporary
- Job Status: Full-time
- Working hours/week: 40
- Start of employment: 01.09.2025
- Key Words: enzymes, oxidoreductases, bacteria cultivation, cascade reaction, organic synthesis.

Jerzy Haber Institute of Catalysis and Surface Chemistry PAS invites applications for an Adiunct (post-doc) in the Theoretical and Experimental Biocatalysis group within the OPUS 26 project entitled "Tungsten Aldehyde Oxidoreductase - a novel hydrogenase. Studies of reaction mechanism and potential biocatalytic applications", project number 2023/51/B/ST4/01224. The candidates who meet the conditions stated in the act "Ustawa o Polskiej Akademii Nauk" dated 30 April 2010 (Dz.U. 2018 poz. 1475 z póź. zm.), art 89. Ust. 4 for the position of Adiunct are encouraged to apply for the position.

The candidate will participate in research conducted in the Theoretical and Experimental Biocatalysis group on tungsten aldehyde oxidoreductase (AOR) as part of the OPUS 26 research project. The aim of the project is the elucidation of the mechanism of the hydrogenase activity of the enzyme as well as the development of several methods for the synthesis of organic compounds that utilize the hydrogenase activity of the enzyme. The development of cascade systems is planned that will use AOR's capability to catalyze H_2-dependent reduction of organic acid to aldehydes and NAD^+ to NADH. The AOR's activity will be coupled to a range of enzymes that catalyze a transformation of aldehydes.

The research will utilize methods of molecular biology, bacteria cultivation for the production of recombinant proteins, preparative chromatography for enzyme purification, analytical methods of high-performance liquid chromatography combined with MS detection and kinetic spectroscopic test for catalytic investigations and optimization of the cascade processes. The conduction of cascade reactions is envisaged in both batch and flow reactor systems. The project will require isolation and purification of the product from the reactors as well as skill in organic synthesis for preparation of the commercially unavailable substrates.

In particular, the Assistant's responsibilities will include:

- protein production by overexpression in E. coli and *Aromatoleum evansii*,
- protein purification using affinity chromatography and molecular filtration,
- catalytic tests in batch and/or flow systems using spectroscopic or LC-MS detection
- isolation of products and their characterization with NMR/MS methods
- organic synthesis of commercially unavailable substrates,
- supervision of PhD and undergraduate students,
- documentation of the conducted research,
- preparing scientific publications.

Required education:

The candidate should have a doctoral degree in chemistry, biology or related disciplines.

Skills/qualifications:

- PhD degree in chemistry, biology or related fields;
- knowledge of molecular biology methods (at least at the student level, confirmed by courses);
- knowledge of protein purification methods;
- knowledge of organic chemistry;
- experience in using analytical and spectroscopic techniques (UV-vis, GC, LC-MS and MS/MS, NMR)
- knowledge of the English language;
- ability to conduct independent scientific work;
- the candidate must meet the requirements specified in the NCN regulations governing the principles of employment as a post-doc in the OPUS competition (25th edition) and criteria for employment in ISCS PAS at an Adiunct position.
    - NCN conditions:
        - PhD title of a candidate was granted 7 years or less before the 1st of January of the year of employment in the project (2025); this period can be extended due to documented longer health leaves or in the case of women for 18 months for each of the born or accommodated child
        - The project leader (prof. Maciej Szaleniec) was not a PhD supervisor of the Candidate
        - PhD of the Candidate was granted by another Institution than ICSC PAS or the Candidate was on at least a 10-month continuous research fellowship outside of Poland
        - During the employment time on the Adiunt position the Candidate will not be receiving any remuneration from any NCN project or any other employer, even outside of Poland territory
    - ICSC PAS conditions:
        - The candidate took at least 24 weeks of scientific fellowship in other Institutions that granted PhD title

Specific requirements:

1. An application.

2. Completed and signed "Consent to the processing of personal data for the needs necessary to carry out the recruitment process" in accordance with the Act of 29 August 1997 on the protection of personal data (t.j. Dz. U. z 2016 r. poz. 922, z 2018 r. poz. 138, 723.) [FORM] and "Information obligations – recruitment of a prospective employee/collaborators" confirming acquainting with its content [FORM].
3. A copy of the scientific degree certificate.
4. Full CV (including information on maternal leaves, voluntary work and periods of work in the industry).
5. At least one opinion on the Candidate given by an independent researcher.
6. List of scientific achievements (scientific papers, patents, patent applications, grants, etc.).
7. The Candidate's report on his/her scientific interests and research aims (an A4 page).

Languages:

Good command of the English language in speech and writing.

Research experience:

4-10 years of research experience in chemistry, biochemistry, biological chemistry or related fields.

Additional information:

Remuneration:

The gross salary ok 9650 PLN /month which is approximately a net salary of 7200 PLN (roughly 2260 Euro/month and 1680 Euro/month respectively). The exact salary will depend on the Candidate's experience.

Eligibility criteria:

- Documented experience in conducting scientific research in the field of biochemistry, biological chemistry, medical chemistry or related fields, confirmed by a list of publications in journals from the Journal Citation Reports list (0-10 points). Minimum number of points required: 3;
- Knowledge of protein purification techniques (0-5 points).
- Knowledge of organic synthesis methods and catalysis, including cascade reactions (0-10 points);
- Knowledge of techniques used for characterization of organic compounds and analytical methods (in particular LC-MS and NMR); (0-10 points);
- Additionally, experience in working with biotech or fine chemical industry will be a plus (0-5 points)

The minimal threshold of a sum of all points for the application to be considered for employment is 20 points /40 points total.

Selection process:

Applications for the Competition should be sent electronically to sekretariat@ikifp.edu.pl, with the subject line "Biocatalysis KSN 5/2025".

The deadline for submitting documents is May 31, 2025 at 15:00 GTM+1. The competition will be concluded by June 11, 2025. Candidates will be notified about the result.

The employment will proceed in accordance with the rules of the Labour Code for the period till January 31, 2027.

In the case of candidates with equivalent qualifications or a need for further clarification of information provided selected candidates will be asked to participate in an online interview.

Additional information:

The Institute has been adapted to the needs of the disabled. The Institute does not provide accommodation.

Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, awarded the HR Excellence in Research Award by the European Commission in recognition of ongoing commitment to adopt the principles of The European Charter for Researchers (ECR) and a Code of Conduct for the Recruitment of Researchers (CCRR) fully supports and applies open, transparent and merit-based recruitment (OTM-R policy) procedures. The Institute is dedicated to implementing and strengthening the OTM-R policy as one of the pillars of the ECR and CCER and one of the crucial components of the Human Resources Strategy for Researchers (HRS4R).