

Registration Form - declaration of willingness for establishing interdisciplinary Dioscuri Centres of Scientific Excellence

This is a registration form for Host Institutions wanting to establish an interdisciplinary Dioscuri Centre of Scientific Excellence within [Dioscuri 5 call](#).

Registration form for Polish research institution

1. Research institution data (name and address):

Institute of Biochemistry and Biophysics Polish Academy of Sciences

2. Type of research institution¹ (**select only one from the listed options**):

scientific institutes of PAN operating under the Act referred to in point 3, hereinafter referred to as “PAN institutes”;

3. Head of the Institution: **prof. dr hab. Jarosław Poznanski**
4. Contact information of designated person(s) for applicants and the NCN, first and last name, position, e-mail address, phone number, correspondence address:

Agnieszka Sirko, Director of Science, sci-director@ibb.waw.pl, +4225922145, Institute of Biochemistry and Biophysics PAS, ul. Pawinskiego 5A, 02-106 Warsaw, Poland

5. Research disciplines in which the institution ensures establishing of an interdisciplinary Dioscuri Centre (select two (and if necessary three) of the domains that should be combined; select two (or if necessary three) from the 25 listed auxiliary panels of disciplines). Provide two (and if necessary three) specific NCN subpanels according to the list².

² Lists of the disciplines for each auxiliary panel of disciplines to be found here:

<https://www.ncn.gov.pl/en/finansowanie-nauki/panele-ncn>

DOMAIN: Humanities, Social Sciences and Art Sciences³

- Fundamental questions about human existence and the nature of reality
- Culture and cultural production
- The study of the human past
- Institutions, markets, space
- Law and political science
- Human nature and human society

DOMAIN: Life Sciences⁴

Molecules of Life: Biological Mechanisms, Structures and Functions

- Integrative Biology: from Genes and Genomes to Systems

Cellular, Developmental and Regenerative Biology

- Physiology in Health, Disease and Ageing
- Neuroscience and Disorders of the Nervous System
- Immunity, Infection and Immunotherapy
- Prevention, Diagnosis and Treatment of Human Diseases
- Environmental Biology, Ecology and Evolution
- Biotechnology and Biosystems Engineering

³ Lists of the disciplines for each auxiliary panel of disciplines to be found here:

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DOMAIN: Physical Sciences and Engineering⁵

Mathematics

Fundamental constituents of matter

Condensed matter physics

Chemistry

Synthetic Chemistry and Materials Science

Computer science and informatics

Systems Engineering

Production and processes engineering

Earth sciences

Materials Engineering

6. Description of important research achievements from the selected disciplines from the last 5 years including a list of the most important publications, data bases, series of workshops, patents, policy briefs, field work/ field site, exhibitions, other (*up to one page*):

The Institute of Biochemistry and Biophysics of the Polish Academy of Sciences (IBB PAS), established in 1957, is a modern interdisciplinary research center specializing in molecular biology, bioinformatics, and omics technologies. The Institute conducts research of high scientific and translational relevance, contributing to advances in medicine, biotechnology, and systems biology.

Originally focused on classical biochemistry and biophysics, the Institute has expanded its research profile to include: molecular genetics of microorganisms and yeasts, medical biology, including mutagenesis, DNA repair, and genome stability, plant molecular biology, pathogen–host interactions and mechanisms of pathogenesis, RNA and protein biology, structural biology, bioinformatics and biological chemistry, genomics, transcriptomics, proteomics, and metabolomics.

IBB PAS employs more than 250 staff members, including over 100 researchers, many of whom hold professorial positions. The Institute runs the Doctoral School of Molecular Biology and Biological Chemistry and participates in interinstitutional initiatives such as the Translational Medicine Doctoral School “Bench to Bedside

⁵ Lists of the disciplines for each auxiliary panel of disciplines to be found here:

<https://www.ncn.gov.pl/en/finansowanie-nauki/panele-ncn>

– B2B4PhD.” It also maintains extensive collaborations with national and international academic institutions and actively supports the training of young scientists.

Between 2022 and 2025, researchers affiliated with the Institute published more than 600 scientific papers, including over 40 articles in journals listed in the Nature Index. The Institute currently coordinates more than 80 national and approximately 10 international research projects funded by organizations including the NIH and the European Research Executive Agency (REA), reflecting the strong international dimension of its research activities.

Technology and knowledge transfer constitute another important aspect of the Institute’s mission. Currently, 26 inventions are protected by patents, while additional patent applications are under evaluation, highlighting the practical and innovative potential of the research conducted at IBB PAS.

The Institute also maintains an extensive network of scientific partnerships, having collaborated with more than 1,000 academic and non-academic institutions worldwide over the past five years.

The Institute runs several Collections that offer biological material for scientific research, including Collection of Strains and Plasmids, Collection of Polyrenols, Collection of siRNA.

Recent publications (selected):

VALENZUELA-VILLATORO M., DE LA CRUZ-RUIZ P., GUERRERO-GÓMEZ D., GÓMEZ-ORTE E., SCHIAVI A., MAGLIONI S., MONTERO M., [...], POLACZYK J., TUREK M., ET AL. Mitochondrial redox homeostasis links organellar stress surveillance to germline and somatic integrity in *Caenorhabditis elegans*. *Redox Biology* (2026) 93: 104115 (18 p.) DOI: 10.1016/j.redox.2026.104115 IF 11.9 (2024)

GOWDA S., KUMAR A., TOPF U., Unlocking neuronal health: leveraging *C. elegans* for drug repurposing studies. *Cell Communication and Signaling* (2026) 24(1): 101 (19 p.) DOI: 10.1186/s12964-025-02592-3 IF 8.9 (2024)

FEDENKO A., CZAPIŃSKA H., KRÄMER A., STÖLZEL F., BOCHTLER T., BOCHTLER M., Etiology of TP53 mutated complex karyotype acute myeloid leukemia. *Leukemia* (2026) 40(2): 444–448 DOI: 10.1038/s41375-025-02835-9 IF 13.4 (2024) [Letter]

KOŁODZIEJSKA K., SZCZEPAŃSKA A., VALDAMANI S., SUKUMARAN R.P., RADKIEWICZ M., BRINGMANN H., PUJOL N., POKRZYWA W., TUREK M., Volatile and non-volatile pathogen cues shape host extracellular vesicles production in pre-infection response. *Nature Communications* (2026) 17(1): 1038 (22 p.) DOI: 10.1038/s41467-025-67789-z IF 15.7 (2024)

BINENBAUM J., ADAMKOVA V., FRYER H., XU L., GORRINGE N., WŁODZIMIERZ P., ET AL. CRISPR targeting of H3K4me3 activates gene expression and unlocks centromere proximal crossover recombination in *Arabidopsis*. *Nature Communications* (2025) 16: 9587 (13 p.) DOI: 10.1038/s41467-025-65167-3 IF 15.7 (2024)

ŚWIRSKI M.I., TIERNEY J.A.S., ALBÀ MAR M., [...], SZCZESNY R.J., ET AL. Translon: a single term for translated regions. [Correspondence] *Nature Methods* (2025) 22(10): 2002-2006 DOI: 10.1038/s41592-025-02810-3 IF 32.1 (2024)

SENDRA K, BARWINSKA-SENDRA A, MACKENZIE ES, BASLE A, KEHL-FIE TE, WALDRON KJ. An ancient metalloenzyme evolves through metal preference modulation. *Nat Ecol Evol.* 2023 May;7(5):732-744. DOI: 10.1038/s41559-023-02012-0. IF: 14.5 (2023).

KLUSKA K, VERONESI G, DENIAUD A, HAJDU B, GZURCSIK B, BAL W, KRĘŻEL A. Structures of Silver Fingers and a Pathway to Their Genotoxicity. *Angewandte Chemie International Edition* (2022), 134, e202116621. DOI: 10.1002/anie.202116621. IF: 16.6 (2022)

ASHRAF K. U., NYGAARD R., VICKERY O. N., ERRAMILI S. K., HERRERA C. M., MCCONVILLE T. H., PETROU V. I., GIACOMETTI S. I., DUFRISNE M. B., NOSOL K., ZINKLE A. P., GRAHAM C. L. B., LOUKERIS M., KLOSS B., SKORUPINSKA-TUDEK K., SWIEZEWSKA E., ROPER D. I., CLARKE O. B., UHLEMANN A.-C., KOSSIAKOFF A. A., TRENT M. S., STANSFELD P. J. & MANCIA F. Structural basis of lipopolysaccharide maturation by the O-antigen ligase. 2022. *Nature* 604, 371–376. DOI: 10.1038/s41586-022-04555-x. IF: 64.8 (2022)

The full list of our publications in the last years is available at the IBB website <https://ibb.edu.pl/en/research/publications/>

Recent patents (selected): US12449426, CA3173639, Method of screening for a chronic kidney disease or glomerulopathy method of monitoring a response to treatment of a chronic kidney disease or glomerulopathy in a subject and a method of treatment of a chronic kidney disease or glomerulopathy; PL240721B1, EP20797545, Use of thiosangivamycin as a herbicide and method of weed control; PL244438B1, EP4267248A2, Peptide for use in treatment or prevention of COVID-19; EP3185893, Use of catatonic derivatives of polyprenols PTAI in production of immunomodulating substances; PL246586B1, Protein panel for a method of pleural fluid diagnosis and method for pleural fluid analysis for diagnosing the etiology of pleural fluid; EP3384289, Method for analysis of proteins in urine; EP3469372B1, Methods for diagnosis, differentiation and monitoring using urine proteins as markers in IgA nephropathy.

7. List of no more than 4 important research projects from the selected disciplines awarded in national and international calls to the institution in the last 5 years (title, name of PI, source of funding, amount of funding):

- Leveraging host-imposed metal starvation to elucidate the molecular and environmental factors that dictate metal utilization by the iron/manganese superoxide dismutase superfamily (NIH); Project leader: dr Waldron Kevin; Duration: 2023-02-01 / 2024-04-30; Budget: 139 527 USD/586 000 PLN
- POL-OPENSREEN – Polska Platforma Infrastruktury Skriningowej dla Chemii Biologicznej (MNiSW); Project leader: Prof. dr hab. Piotr Zielenkiewicz; Duration: 2018-10-24 / 2023-05-31; Budget: 11 500 000 PLN

- Identification and analysis of mechanisms controlling steady-state levels and quality of mitochondrial mRNA (NCN, SONATA Bis); Project leader: Dr hab. Roman Szczęsny; Duration: 2022-10-01 / 2027-10-02; Budget: 4 165 600 PLN
- A rare Single Nucleotide Polymorphism in human WDR61 used to identify a novel complex associated with SF3A/B component of U2 spliceosome subcomplex (NCN, OPUS); Project leader: Dr Agnieszka Tudek; Duration: 2023-01-02 / 2027-01-01; Budget: 2 839 460 PLN

8. Description of the available office space, working space, laboratory for the Dioscuri Centre (*up to one page*):

Half the floor at one of the buildings of IBB PAS consisting of three laboratories (18m² and two 36m²) with the adjacent 9m² offices, two separate offices, 9m² each and 18m² cold room will be provided for the Dioscour Center at IBB PAS. If required, additional space could be available.

9. List of the available research equipment for the Dioscuri Centre:

The DC will benefit from full access to our common infrastructure, such as ultracentrifuges, incubators, cold rooms, ultra-deep freezers (-90°C), anaerobic hoods (chamber), BSL2 labs, an isotope lab class 2, phosphorimagers, chemiluminescence imaging systems, real-time quantitative PCR instruments, autoclaves and will be supplied with common standard services, such as the Milli-Q ultrapure water system and Internet network. The Institute has several Central Service Units to support researchers in reaching their scientific goals, such as: sterilization and growth media service, media preparation facilities. IBB PAS has also the Phytotron and Greenhouse Complex providing facilities for cultivating plants and in vitro cultures in greenhouse conditions and phytotron chambers. It enables users to grow plants under stable temperature and lighting conditions.

In addition, the following dedicated research facilities exist at IBB PAS: Fluorescence Microscopy, Mass Spectrometry, DNA Sequencing and Synthesis, Cell Culture and Protein Production, Biological NMR, Microarray Analysis and Single-Molecule Biophysics. The Facilities offer access to modern proteomic and microarray methods, DNA sequencing, purification of recombinant proteins, biophysical analysis of single molecules, analyses using nuclear magnetic resonance, and a broad array of fluorescence microscopy techniques. Their teams of experts provide support tailored to individual needs, from guidance in study design and training in instruments use and data analysis to complete end-to-end support in the entire workflow. More information can be found on our website <https://ibb.edu.pl/en/research/facilities/#content>

The internal research equipment database is available at the IBB website <https://ibb.edu.pl/en/research-equipment/>

10. List of the additional benefits (other than listed in invitation call) that the Institution declares to provide for the Dioscuri Centre (i.e.: additional funds, personal benefits, other) (*up to one page*):

IBB PAS will provide the following, cost-free personal benefits to the DC personnel: on-site medical and dental care, multi-sport admission cards to gyms and to the next-door Olympic size swimming pool, accommodation at the Institute's hotel for the initial few months of stay. Additional benefits will be offered, such as extended medical-package at low cost. Additionally IBB PAS will cover one Scholarship for PhD student to complement those planned within the Dioscuri funding. PhD students participating in the DC research will be enrolled in either the Doctoral School of Molecular Biology and Biological Chemistry run by IBB PAS or the Doctoral School of Translational Medicine "Bench to Bedside – B 2 B 4 PhD" run by Medical Centre for Postgraduate Studies (where IBB PAS is a partner), ensuring high level training and alleviating all administrative issues.

11. Other information about the internationalisation of the research institution e.g. international environment (international researchers community at the institution, internationalization of the management and administration), didactic in English, availability of Polish course for Foreigners etc. (*up to one page*):

Since June 2021, the Institute of Biochemistry and Biophysics PAS (IBB PAN) has operated the "Welcome to IBB Center," funded by the Polish National Agency for Academic Exchange (NAWA) under the "Welcome to Poland" programme. The initiative supports the internationalization of the Institute by providing dedicated assistance to international researchers and students, as well as organizing informational, promotional, and integration activities that foster a welcoming research environment. The Welcome Center has significantly improved the transparency of procedures and the quality of support offered to foreign employees and doctoral students. These efforts have strengthened the Institute's international profile: four new laboratories have recently been established by researchers previously unaffiliated with IBB PAN. Currently, 19 of the Institute's 191 scientific and technical staff members are foreign nationals from 14 countries; among them, 3 lead laboratories and 8 coordinate projects funded by NCN, NIH, PASIFIC, and the European Union.

Internationalization is also strongly reflected in the Doctoral School, where more than half of the participants are international students (56 doctoral candidates

from 19 countries). Since 2020, the number of foreign nationals associated with the Institute has increased by nearly 250%.

Currently, the Institute is implementing two projects supporting the internationalization of scientific activities and the development of international cooperation, funded by the Polish National Agency for Academic Exchange (NAWA): the PROM Project – short-term academic exchange, and the 3xW Project under the Strategic Partnerships Programme.

IBB PAS provides language courses for employees and PhD students, including English, German, French, Spanish, Polish for foreigners and other.

We have a Research Management Unit with English-speaking staff that provides administrative support for research conducted by the Institute independently or in collaboration with national and international institutions.

Since July 2025, a Representative for International Relations and a dedicated support office have been active at IBB PAS. They support researchers in securing EU and other international funding by identifying relevant calls, providing guidance on grant applications, and assisting with administrative and budgetary preparation, including mobility grants.

Our IT Support Department responsible for maintaining the Institute's digital infrastructure and providing technical support for research, administration, communication, and data security. In addition, Data Steward at IBB PAS provides support in research data management for staff and doctoral students.

IBB PAS participates in initiatives implemented under the EU4Health Programme, including Joint Actions aimed at strengthening European cooperation in the fields of oncology, neurodegenerative diseases, cardiovascular disease prevention, and epidemiological surveillance within the One Health approach. In 2025, the Institute was involved, among others, in the following projects: JANE-2 – Joint Action Networks of Expertise on Cancer, JADE Health Joint Action – an initiative focused on reducing the burden and stigma associated with dementia and neurological disorders through prevention, early detection, and integrated care, Joint Action SANTE-02 – *Supporting Lifelong Prevention for a Healthy Life*, with particular emphasis on cardiovascular diseases and Joint Action SANTE-IBA-01 – a coordinated surveillance system for cross-border pathogens within the One Health framework.