MUSEUM AND INSTITUTE OF ZOOLOGY
POLISH ACADEMY OF SCIENCES

Recruitment for a PhD position (BioPlanet Doctoral School) at the Museum and Institute of Zoology, Polish Academy of Sciences, within the project:

Galleria mellonella as a model in nutritional immunology: The role of fatty acids in enhancing host immune response to fungal infection

This position is funded by National Science Centre in Poland (Opus 28+LAP, 2024/55/I/NZ6/01932)

Project Description:

Fatty acids (FAs) are essential regulators of energy, cell membranes, and immune function. This project investigates how specific FAs modulate immune responses and enhance resistance to fungal infections using *Galleria mellonella* larvae as a model. The focus is on *Conidiobolus coronatus*, an opportunistic fungal pathogen affecting mammals and insects.

The research combines nutritional immunology, microbiology, molecular biology, and advanced bioanalytical techniques. The project will involve:

- Dietary supplementation: FA-enriched diets for larvae to assess survival and fitness
- Fungal infection assays: Evaluating infection rates and immune responses
- Immune analysis: Transcriptomic, proteomic, and biochemical assays to study FA-mediated immune pathways
- Metabolomic/lipidomic profiling: Chromatographic analysis of hemolymph to investigate the biochemical basis of fungal resistance

The study aims to understand how FAs strengthen innate immunity, reduce susceptibility to fungal infection, and provide insights with potential translational relevance. The project also includes collaboration with the Czech Academy of Sciences, offering advanced expertise in metabolism and bioanalysis.

PhD Student Responsibilities:

- Design and conduct dietary supplementation and fungal infection experiments with *G.mellonella*;
- Collect hemolymph and analyze immune responses, fatty acid profiles, oxidative stress markers, and related metabolites;
- Perform immunological assays (caspase activity, ROS production, mitochondrial function) and omics analyses (transcriptomics, proteomics, metabolomics);
- Analyzing data and contributing to publications and conference presentations.

As part of the project, an internship is planned at the Institute of Entomology in Biological Center, Czech Academy of Sciences.

Requirements:

- Master's degree in biology, biochemistry, molecular biology, or related fields;
- Research experience in immunology, microbiology, or insect models;
- Laboratory skills (e.g., ELISA, biochemical assays);
- Good command of English (written and spoken);

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- Strong organizational and teamwork skills, initiative, and attention to detail.

Application Documents:

- BioPlanet Doctoral School (application form, including consent for personal data processing (application form);
- Certified copy of master's degree;
- CV with education, research experience, publications, and scientific achievements;
- English proficiency certificates (if available);

Funding and Benefits:

- PhD scholarship: 5000 PLN /month (first 2 years), 6500 PLN/month (next 2 years);
- Supportive research team and laboratory training;
- Stimulating interdisciplinary research environment.

Application Deadline: January 31, 2026

Planned Start: March 2026

Submission: Email applications to dr Agata Kaczmarek **akaczmarek@miiz.waw.pl**

The recruitment rules will follow the National Science Centre regulations. The selection will be based on the qualifications of the candidates including scientific achievements, experience, awards, internships, skills and competences. Recruitment is a two-stage process and includes: 1) evaluation of candidates' documentation and 2) an interview with selected candidates. Successful candidates will need to recruit to BioPlanet Doctoral School, you will find all the details on the school webpage.

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