INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS
POLISH ACADEMY OF SCIENCES

PhD Student Candidate
in Human Mitochondrial RNA Biology

Laboratory of RNA Biology IBB PAS seeks a highly motivated PhD Student candidate who would like to join a mitochondrial research group working under the supervision of Dr Roman Szczesny.

Mitochondria are fascinating for various reasons, one of which is their possession of their own genetic material—mitochondrial DNA (mtDNA). Like many biological processes, the expression of mtDNA is not without errors. The transcription of mtDNA and the subsequent processing of mitochondrial RNA can lead to the formation of abnormal or faulty molecules. These abnormal RNAs can impact the function of the mitochondrial genetic system; therefore, they are typically maintained at low levels. However, the mechanisms by which abnormal mitochondrial RNAs are recognized and targeted for degradation remain unknown.

The primary goal of the proposed research is to identify and characterize the proteins responsible for quality control of mitochondrial RNA.

To address these question, we will investigate the role of selected proteins in mitochondrial RNA quality control that we hypothesize may be involved. This hypothesis-driven approach will be complemented by unbiased loss-of-function screening to discover new mitochondrial RNA players. To achieve this, we will employ high-throughput siRNA-based screening of the human genome, enabling the silencing of the expression of 6,395 selected nuclear genes. Human cells will be transfected with the siRNA library and then examined for mtRNA levels and degradation using a fluorescence microscopy-based approach. The selected protein candidates will be characterized in follow-up studies using various molecular, biochemical, and transcriptomic methods.

During the programme, you will get extensive training in state-of-the-art methods which involve (i) fluorescence microscopy (including high-throughput), (ii) automated, high-throughput sample handling, (iii) NGS-based transcriptome analysis, (iv) proteomics, (v) various cellular and molecular biology approaches. **Not familiar with these methods? Don't worry, you can learn them with us.**

In addition to the regular training offered by the IBB Doctoral School, you will have a unique possibility to participate in dedicated workshops and courses for Doctoral Candidates from European MITGEST Consortium (https://www.mitgest.eu/training/) that will be held Poland and Spain. This will be an excellent opportunity to develop your skills and interact with scientists from eight universities, three research institutions, one university hospital and six innovative companies covering nine European countries and Israel.

FULL OFFER

Visit our web to learn more about us: https://ibb.edu.pl/en/laboratory/roman-szczesny/

Position starts on: 1st March 2025 or 1st October 2025

Full description of the offer and the recruitment procedure: FULL OFFER

Contact: Roman Szczesny, rszczesny@ibb.waw.pl, add "PhD position" to the message's subject.

Deadlines: The application **deadline** is **14-01-2025**. Selected candidates will be interviewed between 21-01-2025 and 31-01-2025. Don't wait; apply now. **For details on the application procedure and scholarship, see FULL OFFER**

What we offer:

- Interesting and important research project.
- A thorough scientific education in the frame of a doctoral training program, including MITGEST training activities (https://www.mitgest.eu/training/).
- The possibility to participate in specific international courses, workshops and conferences.
- Supportive and international inspiring work environment.
- Delicious coffee and fruity Wednesdays.

Profile of a candidate/requirements:

- Master's degree (or equivalent) in biology, biochemistry, genetics or other related life science discipline before 1st March 2025 or 1st October 2025 (you don't need to have the degree when applying; you can start the project on 1st March 2025 or 1st October 2025).
- Passion for science, love of experimental research, and creativity.
- Good interpersonal skills, willingness to learn, and the ability to work both in a team and independently. Ability to analyse data and draw conclusions.
- Independent thinking, structured work organisation, and a good team spirit are expected.
- At least one year of experience in experimental research (molecular and/or cellular biology).
- Any experience in imaging, RNA biology, *in vitro* cell culture, next-generation sequencing, and involvement in studies on mitochondrial biology will be an advantage, **but is not mandatory.**

Funding

National Science Center, Project number 2021/42/E/NZ2/00442, Project name: Identification and analysis of mechanisms controlling steady-state levels and quality of mitochondrial mRNA.

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