

Entity: Warsaw University of Life Sciences (SGGW), Institute of Biology, Department of Physics and Biophysics

Position: PhD student

The PhD student will conduct research within the project Sonata Bis 9 No. 2019/34/E/ST4/00281 granted by Polish National Science Centre entitled " Effect of drugs, mitochondrial proteins and miRNA biomarkers of neurodegenerative diseases on dynamics and conversion of mitochondria monitored using novel multifunctional microfluidic biosensing devices" led by Dr hab. Sławomir Jakieła.

Requirements:

1. Graduate of biology, biotechnology, chemistry, physics or related disciplines.
2. Applying to the SGGW PhD School and complete the recruitment process (https://www.sggw.pl/nauka/szkola-doktorska/_rekrutacja_/harmonogram-rekrutacji)
3. Skills:
 - a. knowledge of microscopic techniques: fluorescence, Raman, Light Sheet Microscopy,
 - b. experience and expertise in cell culture,
 - c. knowledge of programming languages, especially scripting languages like Python, etc.
 - d. excellent knowledge of English in speech and writing,
4. Strong motivation for scientific work, full involvement in the implementation of planned research, creativity in solving problems, independence, ability to work in a team.

Description of tasks:

The motivation for this research is the exploration of new, effective diagnostic methods both in the diagnosis and treatment of neurodegenerative diseases, as well as in the development of a new methodology for the study of drugs with selective activity against Parkinson's and Alzheimer's disorders. In our research, we will use microfluidic technology, which we will combine with biosensors based on the detection of mitochondrial specific biological reactions. It will enable us to learn the fundamental processes of neurodegenerative diseases at the molecular level. To understand why mitochondrial dysfunction is central in Parkinson's disease is an integral part of the fight against this debilitating disease. Therefore, it is a significant challenge in the development of effective neurological treatment. Effective development of therapeutic strategies can stop or slow down the progression of the disease, rather than just treating its symptoms. Therefore, in order to fully understand the mechanisms underlying neurodegenerative diseases, it is necessary to study a wide range of cellular processes and their links to the mitochondrial network.

The tasks of a doctoral student will include.:

- working in a 'wet laboratory' with microfluidic systems, fluorescent microscopes, piezoelectric weights and fluorescent probes,
- construction of biosensors for early detection of neurodegenerative diseases,
- analysis of the dynamics of mitochondrial fusion/fission under the influence of drugs/markers.

Conditions of employment:

- the scientific scholarship in the amount of: about 3000 PLN/month, additionally a scholarship within the doctoral school of SGGW (about 2000 PLN/month) after positive recruitment.
- the scientific scholarship granted under the project will be paid out until 31.03.2024.
- planned start of work within the project: 1 October 2020.

Additional information:

Candidates should submit their CVs (with academic achievements, average grade from studies, and the addresses of the two persons to whom references may be requested), a summary of the Master's thesis (maximum 1 page A4), as well as copies of the obtained diplomas to the e-mail address: slawomir_jakiela@sggw.edu.pl by 31.07.2020, 23:59.

Recruitment is three-stage and includes 1) evaluation of candidate files and 2) an interview, as well as 3) positive recruitment to the Doctoral School of SGGW. Selected candidates will be invited to an interview. Candidates will be notified about the results of the recruitment process by e-mail or telephone and the results of the recruitment process will be published on the website of the Department of Physics and Biophysics, Institute of Biology, SGGW - kf.sggw.pl by 01.10.2020. We do not return the submitted documents. The documents contain the special categories of personal data according to *General Data Protection Regulation*, therefore it is necessary to provide the appropriate statement:

I hereby give consent for my personal data included in the application to be processed for the purposes of the recruitment process in accordance with Art. 6 paragraph 1 letter a of the Regulation of the European Parliament and of the Council (EU) 2016/679 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)

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(place and date)

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(signature)