

Medical University of Gdańsk
is seeking a candidate for the position of
PhD student
at the Department of Translational Oncology (f/m)

A person meeting the requirements will take part in the implementation of a research project funded by the FIRST TEAM FENG programme of the Foundation for Polish Science, entitled: "An innovative dynamic_DCIS_device mimicking the dynamic architecture of invasion in ductal carcinoma in situ of the breast and identification of molecular components involved in this process", led by Dr Paulina Nastal

PROJECT DESCRIPTION

The project focuses on ductal carcinoma in situ (DCIS), whose detection rate has increased significantly due to the widespread use of screening mammography. DCIS currently accounts for approximately 20–30% of all breast cancer diagnoses. Although it is usually associated with a good prognosis, in some patients the disease recurs or progresses to an invasive form. A growing clinical challenge is also the improved detection of DCIS with microinvasion and the identification of cases with a high potential for progression.

The aim of the project is to develop an innovative in vitro model enabling investigation of the (micro-)invasion process in DCIS and identification of molecular markers associated with a high risk of progression to invasive disease. A key element will be the development of an original device, dynamic_DCIS_device, which will reproduce, in a controlled manner, the architecture of the breast duct and the mechanical conditions (including cell compaction and acting forces) influencing cancer cell migration and invasion.

The proposed system will enable dynamic control of the invasion process, modification of the microenvironment components, and integration with state-of-the-art research technologies such as high- and super-resolution microscopy, quantitative image analysis, spatial transcriptomics, mechanobiology methods, and drug screening assays. The project has the potential to deliver a next-generation research tool and data that may support future clinical decision-making within the framework of precision medicine.

<https://nastalylab.gumed.edu.pl>

THE RESPONSIBILITIES OF THE PERSON EMPLOYED IN THIS POSITION WILL INCLUDE:

- developing and improving scripts for quantitative analysis of microscopy images (cell segmentation, invasion analysis, density maps, morphometric analysis, cell tracking over time),
- automation of image data analysis (including elements of machine learning / deep learning),
- analysis of RNA-seq data (bulk, single-cell) and spatial transcriptomics,
- integration of large-scale datasets: imaging, transcriptomic and clinical data,
- development of molecular signatures associated with invasive potential,

- preparation of statistical analyses (multivariable, correlation, survival analyses – Log-rank, Cox),
- creation of data visualisations (heatmaps, spatial maps, multidimensional plots),
- collaboration with the experimental team in planning analyses and interpreting results,
- preparation of bioinformatics reports, materials for publications, and support in preparing patent applications,
- collaboration with the GUMed Center for Biostatistical and Bioinformatics Analyses and with national and international partners.

WE EXPECT CANDIDATES TO HAVE:

- master's degree, preferred fields: mathematics, physics, statistics, computer science,
- experience in data analysis is an advantage,
- knowledge of RStudio,
- very good command of English.

WE OFFER:

- a scholarship agreement (planned duration within the project until 31.12.2029; planned start date: immediately following the conclusion of the recruitment process),
- scholarship of 60,000 PLN gross-gross per year,
- work in a young and dynamically developing research team,
- the opportunity to participate in international scientific conferences and specialist training funded within the project.

FORMAL ELIGIBILITY CRITERIA:

The scholarship holder will be recruited in accordance with the documentation available in the FIRST TEAM FENG call announcement [LINK](#).

APPLICATION PROCEDURE:

- Interested persons are asked to submit applications (CV) via the [APPLY](#) button.
- The application deadline is **15 March 2026**; planned interview dates: **16–17 March 2026**.
- Applications submitted between the deadline and the end of the advertisement publication period may still be considered in the recruitment process.
- Please note that we will contact selected candidates only.
- The candidate who receives the highest number of points on the ranking list will be awarded the scholarship. The scholarship may be offered to the next person on the ranking list if the selected candidate withdraws.