Medical University of Gdansk

is seeking a candidate for the position of

Assistant / Assistant Professor

with the role of Postdoctoral Researcher

in 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 Nastały

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:

- co-leading R&D activities related to the dynamic_DCIS_device platform for modelling DCIS (micro-)invasion and ensuring its readiness for subsequent experimental stages,
- optimisation and execution of biological experiments in the device: selection of DCIS cell lines, culture conditions, seeding and incubation parameters, and preparation of protocols ensuring reproducibility (in collaboration with PhD students),
- planning and conducting experiments inducing migration/invasion in dynamic_DCIS_device, including surface functionalisation work (e.g., ligands/streptavidin) and optimisation of ECM/hydrogel conditions to initiate invasion,
- modelling the tumour microenvironment in vitro: testing the impact of ECM stiffness, collagen fibre organisation, and cell co-cultures, including collaboration with an industrial partner supplying hydrogels,
- sample preparation and functional analyses using modern technologies: spatial transcriptomics, advanced microscopy (confocal, multiplex, 3D reconstructions, elements of super-resolution/STED), and mechanobiological methods,
- development and coordination of validation of molecular markers in clinical material: collaboration with pathologists, preparation/organisation of immunofluorescence staining,
- participation in data integration and interpretation (imaging, RNA-seq/bulk/single-cell, spatial, clinical data) and collaboration with bioinformaticians/statisticians in analyses and reporting,
- coordination of national and international collaborations within assigned tasks and participation in training/scientific visits planned in the project,
- preparation of research documentation: protocols, stage reports, presentation of results; support for IP/patent activities,
- ongoing scientific support for the team (PhD students/students): consultation on experiments, quality control of data, ensuring laboratory standards and reproducibility.

WE EXPECT CANDIDATES TO HAVE:

- a PhD degree in biology/biotechnology/molecular biology/medicine/bioengineering or a related field,
- documented laboratory experience in cell culture (BSL-2 preferred), including cancer cell work,
- very good knowledge of molecular and/or cell biology techniques (e.g., RNA isolation, sample preparation for gene expression analysis, immunofluorescence; IHC/FISH is an advantage),
- experience in microscopy (fluorescence, confocal and/or time-lapse) and quantitative image analysis (e.g., ImageJ/Fiji, QuPath, or similar),
- ability to plan experiments, maintain documentation, analyse data and interpret results; strong focus on reproducibility and quality control,
- good command of English (reading scientific literature, communication in an international team, writing publications),

- experience in biomedical engineering / biofabrication systems, in particular in designing and/or producing platforms for cell culture (e.g., micro-patterning, surface functionalisation, basics of materials engineering).

NICE TO HAVE (HIGHLY DESIRABLE IN THIS PROJECT):

- experience with 3D models, ECM/hydrogel work (collagen, laminin, Matrigel) and/or cell co-cultures,
- knowledge of mechanobiology concepts and techniques or willingness to rapidly acquire them,
- experience with omics, especially RNA-seq/single-cell and/or spatial transcriptomics,
- experience with clinical material and digital pathology, and collaboration with pathology departments.

WE OFFER:

- an employment contract (planned duration within the project until 31.12.2029; planned start date: immediately following the conclusion of the recruitment process),
- salary: **144,000 PLN gross-gross per year**,
- stable employment at one of the leading medical universities in Poland,
- work at the only medical university in Poland holding the status of a research university,
- additional annual remuneration,
- holiday allowance for employees ("vacation benefit"),
- holiday allowance for employees' children,
- financial support for sports, recreational and cultural activities,
- employee integration events,
- housing loans,
- co-financing of sports cards,
- possibility to join group life insurance on preferential terms,
- opportunity to participate in international scientific conferences and specialist training funded within the project.

FORMAL ELIGIBILITY CRITERIA:

A post-doc position is a full-time position planned by the project leader for a person who obtained their PhD degree in the year of employment in the project or within 12 years before 1 January of the year of employment in the project. This period may be extended by documented career breaks. Employment is subject to additional programme requirements.

REQUIRED DOCUMENTS:

- CV including scientific achievements and a list of publications,
- motivation letter,
- copy of the PhD diploma (or equivalent),
- two letters of recommendation (preferably from recent supervisors/mentors) – nice to have.

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**.
- Please note that we will contact selected candidates only.
- The candidate who receives the highest number of points on the ranking list will be employed. Employment may be offered to the next person on the ranking list if the selected candidate withdraws from signing the employment contract.