Research Assistant in Cell & Molecular Biology (Wound Healing)
Cell & Molecular Physiology Group
School of Health & Human Performance
Fixed Term Contract – 12 Months

Dublin City University www.dcu.ie is a research-intensive, globally-engaged, dynamic institution that is distinguished both by the quality and impact of its graduates and by its focus on the translation of knowledge into societal and economic benefit. Through its mission to transform lives and societies through education, research and innovation, DCU acts as an agent of social, cultural and economic progress. DCU is Ireland's fastest growing university, and now hosts more than 17,000 students across its three academic campuses: DCU Glasnevin Campus, DCU St Patrick's Campus and DCU All Hallows campus.

School of Health & Human Performance

The School of Health and Human Performance was founded in 1999 and has successfully grown and developed into a dynamic Centre for Teaching, Learning and Research. It offers four undergraduate degree programs to approximately 440 students, as well as post-graduate teaching and training across multidisciplinary research areas. As a School we are passionate and committed to providing the best possible learning and training environment for both undergraduates and postgraduates. The School prides itself not only on its excellence in teaching and learning, but also in research. We currently offer post-graduate research programs in a number of Human Physiology, Cell & Molecular Biology, Genetics & Epigenetics, Clinical Exercise Medicine, Health, Physical Education and Injury related disciplines in state-of-the-art facilities.

The Cell & Molecular Physiology Group

Based in the School of Health & Human Performance, the group focuses on the cellular and molecular aspects of Cardiovascular Biology (integrin signalling, cytoskeletal dynamics, cell signalling, transcriptomics, epigenetics and microRNA biology), Chronic Inflammation associated with Aging (Inflammaging) and Skin biology. The research program also involves applied and translational research, focusing on the development of novel cellular and molecular diagnostics and prognostics, and organotypic model development for therapeutic evaluation at the clinical and preclinical stages, including the assessment of functional foods, nutraceuticals and active biologics. This work has contributed to various clinical trials and studies including Sickle Cell Anaemia, CVD, Inflammation, diabetic retinopathy and Cancer. The group's research portfolio has expanded into the new area of cardiovascular epigenetics and the role of lifestyle (exercise and nutrition) on the cardiovascular compartment. Current projects also include international collaborations with the University of Angers,

France in association with the French (CNES) and European space agencies (ESA) on the effect of space flight on cardiovascular epigenetics, using platelets as a circulating biomarkers.

Project and Role Profile

In recent years, biomedical studies and clinical research have indicated that as we age, we become hypomagnesic, which contributes to chronic illness (inflammation, CVD, cancer etc). A major draw-back of current Mg supplementation approaches is in that the form of Mg is not readily bioavailable. Initial studies carried out in our lab demonstrated that a novel form of marine mineral complex, rich in magnesium, was extremely bio-available, non-cytotoxic, functional and beneficial to homeostasis. Data from four years of research has led to the development of a novel Burns dressing (Wallace, R, Kenealy, MR, Brady, A, Twomey, L, Duffy, E, Degryse, B, Caballero-Lima, D, Moyna, N, Custaud, MA, Meade-Murphy, G, Morrin, A, Murphy, R. 2020. Development of dynamic cell and organotypic skin models, for the investigation of a novel visco-elastic burns treatment using molecular and cellular approaches. Burns 2020, May 14, 2020. https://doi.org/10.1016/j.burns.2020.04.036) and future commercial opportunities for our industry partner, Oriel sea Salt and Marine Extracts.

Based on our findings and developments to date, we will now address areas required to bring this product to commercial success through an **Enterprise Ireland** funded programme, in collaboration with an industrial partner (Oriel), for a single specific product target- A new Smart Wound Healing Dressing which for the purposes of this study we call GRAFT (Gel Release Away Film Technology). The project will employ cell and molecular biology techniques as well as *in vitro* organotypic modelling of chronic wounds to address this challenge.

Duties and Responsibilities

Reporting to the Principal Investigator or nominee, the Research Assistant will:

- Conduct a specified programme of research
- Engage in the dissemination of the results of the research in which they are engaged, as directed by, with the assistance of and under the supervision of the Principal Investigator or nominee
- Participate in meetings and conferences, as required
- Carry out administrative work associated with the programme, as necessary
- Liaise with partners, industry, collaborators and stake-holders

Candidate Requirements

Essential Criteria

- A bachelor degree in microbiology, cell and molecular biology or a related discipline
- Experience working:
    - in a class II biosafety laboratory;
    - with cell culture;
    - with molecular biology techniques e.g. PCR and qRT-PCR;
    - in a biological research laboratory and implementing/handling common biological material.
- The ability to work independently and as part of a team
- Proven communication, organisational, and problem solving skills

- High level social/interpersonal skills necessary for productive collaborations, as well as an ability to bring initiative and imagination to self-directed work

Desirable Criteria

- Knowledge of 'omics' (e.g. Transcriptomics) and bioinformatics
- Experience with bacterial and fungal biofilm assays
- Microscopy
- Microbiome

Mandatory Training

The post holder will be required to undertake the following mandatory training: GDPR, Orientation and Compliance.