



Research Centre	Fraunhofer Project Centre for Embedded Bioanalytical Systems at Dublin City University (FPC@DCU) – a joint initiative of Science Foundation Ireland and Fraunhofer-Gesellschaft
Post title	Postdoctoral Researcher in cell culture, cell line development and cell manipulation
Level on Framework	Level 1
Post duration	Fixed term up to 31 December 2019

Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework <http://dcu.ie/hr/ResearchersFramework/index.shtml>. This framework is designed to provide significant professional development opportunities to researchers and offer the best opportunities in terms of a wider career path.

DCU has a strong track record in attracting both Irish and European Union research funding under Horizon 2020 (and all previous Framework Programmes), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment in which to advance your academic career.

An exciting research position in a very innovative, applied research initiative embedded in Dublin City University – Ireland’s University of Enterprise. FPC@DCU – Ireland’s first Fraunhofer initiative - engineers microfluidics-enabled, next-generation for the benefit of people and societies in collaboration with the Fraunhofer Institute for Production Technology (IPT) in Germany. Common fields of application are in-vitro (“Point-of-Care”) diagnostics, pharma, life-science research, agrifood and environmental monitoring. FPC@DCU therefore operates at the challenging crossroads of microsystems engineering and the life sciences.

Background & Role

You develop microfluidics-based systems towards high technology readiness levels (TRLs) within FPC@DCU under supervision of the project PI. In this role you will have access to competent technical, infrastructural and administrative support and the opportunity to evolve a multi-faceted skillset in an environment where you closely collaborate with world-class Irish and international companies and research organisations. Further career opportunities will arise with the success of the

FPC@DCU. You will also support the business development and project management teams of the FPC@DCU in their interactions with industry, academia and funding agencies.

Project Summary: μ PAT – Microfluidic Process Analysis Technology for Streamlined Upstream Bioprocess Monitoring

The Lab-in-a-Trench chip and optical reader platform is a process analytical technology (PAT) solution for upstream bioprocess monitoring and optimisation which will initially be exploited for cell media screening. At the upstream process stage, cell line, media and culture parameters can all be optimised for quality high-yield production, prior to bioreactor production scale-up. This is a stage in the production process where appropriate PAT solutions can mitigate risk and improve product quality. Chinese hamster ovary (CHO) cells have served the biopharmaceutical industry for the past three decades. These are initially grown in shaker and / or spinner flasks over two to four weeks. Next, the cells are transferred to controlled bioreactors that, in turn, provide seed culture for the production scale bioreactor. There is a significant opportunity for a rapid PAT solution that samples low volumes of cells and culture media at the flask growth stage in order to optimise cell line, media and culture parameters. This technology to be developed will reduce man hours and costs subsequent to upscaling to bioreactor CHO cell growth.

We will target this stage in the production process, focusing on cell media screening as a lead application. The project is based on the microfluidic “Lab-in-a-Trench” platform implementing gravity-driven, high-efficiency sedimentation and retention of cells within a trench at the bottom of a flow channel. The cells may then be exposed to a series of conditions (e.g., cell media configurations, additional reagents) that diffuse from the main channel to interact with the trapped cells. The cells can be monitored in real time at single-cell resolution, acting as reporter elements to assay the quality of various cell media formulations and batches. In addition, the cells can also be screened for stability, growth kinetics, and expression yields, along with being utilised in sequential experiments for at-line process monitoring purposes.

Principal Duties and Responsibilities

Reporting to the μ PAT project Principal Investigator, your technical duties will include, but will not be limited to:

- Conduct a specified programme of research within the μ PAT Enterprise Ireland Commercialisation Fund Project under the supervision of the project PI.
- Development of mammalian cell culture methods
- Development of the appropriate sample preparation protocols required to facilitate lab on a chip cell assay implementation.
- Experimental characterisation and optimisation of the performance of cell assays implemented on the microfluidic platforms.

- Identification and implementation of appropriate benchmark methods (e.g., FACS, well plate assays) against which to assess assays implemented on the developed microfluidic lab on a chip platform.
- Support, quality control and testing of developed microfluidic products
- Interaction with project partners on outsourced small scale production processes

Additional duties will include:

- Support of project management, reporting and interactions with partners
- Gain experience and contribute to grant writing with the support of and under the supervision of the Principal Investigator
- Engage in the dissemination of the results of the research in which they are engaged, as directed by, with the support of and under the supervision of the Principal Investigator
- Authoring of scientific publications, technical reports and marketing activities
- Engage in appropriate training and professional development opportunities as required by the Director, FPC@DCU or University in order to develop research skills and competencies.
- Interact closely with postgraduate research students associated with the same research group and possibly have an agreed role in supporting these students in their day to day research in conjunction with an academic supervisor
- Take leadership and contribute to generation of papers, reports and funding proposals.
- Actively publish research findings in high impact journals and at key conferences as part of the FPC@DCU effort to disseminate research outputs.
- Carry out administrative work to support the programme of research where required, including regular funding agency reports and internal reports etc.
- Support collaboration with industry in areas relevant to the FPC@DCU.

The role will involve domestic and international travel.

Minimum Criteria

Applicants must have a solid technical expertise in cell biology, molecular biology or a closely related discipline and have a track record of successful research and development projects. A background in a subset of the following areas is required:

- A Ph.D., along with an MSc or Bachelor Degree in cell biology, molecular biology or related science degree
- 3+ Years' experience in CHO cell culture methods and plasmid production and transfection.
- Solid knowledge of cell viability, apoptosis and proliferation assays.
- Bioanalytical skills (flow cytometry, well plate assays, RT-qPCR).
- Microscopy and data analysis methods.

Candidates will be assessed on the following competencies:

Discipline specific knowledge and Research Skills (demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline)

Communicating Research (Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students)

Managing & Leadership skills (demonstrates the potential to manage a research project including the supervision of undergraduate students)

Understanding the Research Environment (demonstrates an awareness of the research environment(e.g. funding bodies) and takes responsibility for how their research is conducted

Salary: *€36,854 - €47,728

**Appointment will be commensurate with qualifications and experience will be made on the appropriate point of the salary scale, in line with current Government pay policy.*

Closing date: 16th August 2018

Informal enquiries to: Dr. Damien King (damien.king@dcu.ie)

Application Procedure:

Application forms are available from the DCU Current Vacancies (Open Competitions) website at <http://www4.dcu.ie/hr/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0)1 700 5149; Fax: +353 (0)1 700 5500 Email: hr.applications@dcu.ie

Applications should be submitted by e-mail to hr.applications@dcu.ie or by Fax: +353 (0)1 700 5500 or by post to the Human Resources Department, Dublin City University, Dublin 9.

Please clearly state the role that you are applying for in your application and email subject line: Job Ref 959 Postdoctoral Researcher in cell culture, cell line development and cell manipulation

Dublin City University is an equal opportunities employer