

11-month #RF1267 Post-Doctoral Researcher Functional Genetics

Funded by : 
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The Nutritional Genomics Group at Dublin City University (DCU) under the supervision of Principal Investigator Dr. Anne Parle-McDermott, are seeking a **Post-doctoral researcher** to work on an SFI funded project '*Deciphering the function of the human Dihydrofolate reductase 2 gene*'. This is a collaboration with Prof. Nicholas Greene of the Institute of Child Health at University College London under the joint funding programme Science Foundation Ireland and the UK's Biotechnology and Biological Sciences Research Council (BBSRC). The **position start is negotiable** and will be based at Dublin City University and has a duration of **11 months with a potential 1-month extension**.

Project Summary: '*Deciphering the function of the human Dihydrofolate reductase 2 gene*': Folate one-carbon metabolism (FOCM) is a complex interlinked network of reactions that provides one-carbon units for a range of cellular functions including DNA synthesis and methylation reactions. Integrity of FOCM is therefore essential throughout life and dysfunction is associated with a range of disorders including birth defects, inborn errors of metabolism and cancer. Dihydrofolate reductase (DHFR) mediates reduction of dihydrofolate (DHF) to tetrahydrofolate (THF), which is needed for recycling of folates following DHF production by thymidylate synthase. DHFR is also the only enzyme that provides an entry route for folic acid, the form of folate found in supplements and fortified foods to prevent birth defects, into FOCM. DHFR's essential role in cell proliferation has made it a well-established drug target for the treatment of cancer and rheumatoid arthritis. We found that humans and other primates have a second DHFR enzyme, DHFR2. The amino acid differences between DHFR and DHFR2 cause variation in their enzymatic properties and their differential regulation affects their relative abundance in different cells and tissue types. This project will elucidate the cellular function of DHFR2 by assessing the interplay between human DHFR and DHFR2 in FOCM during cellular differentiation and early embryonic development in genome edited cell lines and humanised mouse models. Elucidation of DHFR2 function will give new insight into FOCM and its role in human health.

Role: The successful candidate will join the Nutritional Genomics Group at DCU and will optimize protocols to cultivate induced Pluripotent Stem Cell models and their differentiation. The PD will execute and/or supervise experiments in these *in vitro* cell models to elucidate the transcriptional and translational control of DHFR2 (and DHFR) and its role in Folate One Carbon Metabolism and development.

Duties & Responsibilities The Postdoctoral Researcher will be required to fulfill the following:

- Carry out all experimental objectives and ensure timelines are met as specified in the project award.
- Document all experimental data, analyses and protocols.
- Report/present regularly at group meetings.

- Attend relevant meetings, seminars and conferences including local, national and international.
- Contribute to manuscript preparation relevant to the project.
- Complete a detailed report upon completion of the project.
- Ensure laboratory consumable spending is within budget.
- Support the PI in the supervision of Ph.D students funded by the award.
- Undertake other tasks as defined by the PI, Dr. Anne Parle-McDermott.

The successful applicant will participate in the DCU Research Career Framework to enhance their professional development. <http://dcu.ie/hr/ResearchersFramework/index.shtml>

Qualifications & Experience The successful candidate will hold a Ph.D in the area of cell and molecular biology or a closely related discipline. Candidates must have experience in mammalian cell culture and those candidates with specific experience in the growth of iPSCs and their differentiation are particularly encouraged to apply. Candidates that also have experience in any or all of the following techniques will have a distinct advantage: genome editing, FACs, recombinant protein expression, gene expression & protein translation methodologies.

Enquiries To: Dr. Anne Parle-McDermott, Email: anne.parle-mcdermott@dcu.ie; Phone: +353-1-7008499.

Salary scale: €37,750 - €38,860 per annum

Closing date: 31st August 2019 or until the position is filled.

Application details: Applicants should submit their Curriculum Vitae, a cover letter and the names and contact details of up to three referees by email to anne.parle-mcdermott@dcu.ie

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