School of Biotechnology

2 Ph.D Positions in Functional Genetics

Funded by :

The Nutritional Genomics Group at Dublin City University (DCU) are seeking 2 Ph.D students 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 Ph.D positions will commence on the 1st October 2017 and will be based at Dublin City University.

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.

Informal enquiries should be made by email to: Dr. Anne Parle-McDermott, anne.parle-mcdermott@dcu.ie
https://dcu.academic.ie/live/!W_VALOCAL_DCU_PORTAL.PROFILE?WPBPRSN=1589314

Who should apply? Candidates must have (or expected to have) at least an honours degree in a Biology based subject and have on overall grade of 2.1 or higher. Students with experience in molecular biology and/or mammalian cell culture methods and with a passionate interest in research are particularly encouraged to apply.

Stipend & Fees: The studentships are for 48 months and includes a stipend of €18,500 p.a. and the payment of academic fees.

Application procedure: Interested applicants should Email their CV including the names of 2-3 referees to mairead.callan@dcu.ie. Emails should include SFI-BBSRC Project for reference in the subject line.

Closing Date for applications for both PhD positions: Friday 9th June 2017.
Shortlisted candidates are expected to be interviewed on 30th June 2017.