Colin Ingram Travel Award for BMedSc(Hons) students

Deadline for project submissions is 17/06/2019

Deadline for Student applications for the Colin Ingram Travel Award 8/7/2019

Website details: https://www.monash.edu/medicine/som/bmedsc-hons/scholarships-and-awards

Colin Ingram Travel Award

Domestic Monash University medical students are invited to apply for a Travel Award that will fund a 3-month exchange to Newcastle University in the United Kingdom, as part of their BMedSc(Hons) project.

One or two Colin Ingram Travel Awards, will be funded. The Travel Award will cover airfares, accommodation and living expenses for a 3-month exchange to Newcastle University (~$5,000 AUD). The student can spend their entire honours year at Newcastle University if the project requires it, but no additional funding will be available.

The student that receives the Monash-Newcastle BMedSc(Hons) Travel Award will have a main supervisor from Monash University and a Co-supervisor from the University of Newcastle. A high level of independence and maturity are required.

Projects that are eligible for the Colin Ingram Travel Award will be available on this site from ~ June 13th 2019.

The Colin Ingram Travel Award application form must be submitted to: med-bmedsc-hons@monash.edu
The email header should include the words “Colin Ingram Travel Award for BMedSc(Hons)”.

Application deadline is 10am on Monday 8th July, 2019

For more information about this program please contact:
A/Professor Megan Wallace, Director of Medical Student Research
e-mail: megan.wallace@monash.edu
Project Title

Does NOX5 contribute to pancreatic beta-cell dysfunction in diabetes?

Supervisions Details:

Monash Supervision:
Supervisor: Karin Jandeleit-Dahm
Monash School/Dept: Department of Diabetes, The Alfred Centre
Email: karin.jandeleit-dahm@monash.edu

Newcastle Supervision:
Supervisor: Catherine Arden
Newcastle School/Dept: Institute of Cellular Medicine
Email: catherine.arden@ncl.ac.uk

Project Description

Excessive production of reactive oxygen species (ROS) contributes to the deterioration of pancreatic beta-cell function evident in type 2 diabetes. An important source of ROS are the NADPH oxidase (NOX) enzymes of which there are seven isoforms. Previous studies have reported a role for NOX1/2/4 in mediating ROS production in beta-cells. Recent studies have uncovered a pathogenic role for the NOX5 isoform in various disease states but its importance remains largely unexplored due to absence in the rodent genome. The current project will explore a potential pathophysiological role for NOX5 in pancreatic beta-cells. The objectives of the project will be to:

i) Identify the NOX isoform expression profile of human pancreatic islets/beta-cells at mRNA and protein level.

ii) Determine whether NOX isoform expression is altered in human in vitro beta-cell models of diabetes and in pancreatic tissue from control vs type 2 diabetic patients.

iii) Explore whether expression of NOX5 in a rodent model of diabetes impacts on pancreatic islet morphology/phenotype.

The student will be supported by a supervisory team with extensive experience in NOX research (Monash) and human pancreatic cells/tissue (Newcastle), and would support an ongoing collaboration between the groups dissecting the role for NOX in mediating beta-cell phenotype.
Project Title
Defining the molecular basis of Mendelian mitochondrial disease

Supervisions Details:

Monash Supervision:
Supervisor: Professor Mike Ryan
Monash School/Dept: Department of Biochemistry & Molecular Biology
Email: michael.ryan@monash.edu

Newcastle Supervision:
Supervisor: Professor Rob Taylor & Dr Charlotte Alston
Newcastle School/Dept: Wellcome Centre for Mitochondrial Research, Institute of Neuroscience
Email: robert.taylor@ncl.ac.uk & charlotte.alston@ncl.ac.uk

Project Description

Mitochondrial diseases represent an important group of inherited genetic diseases, caused by defects of either the mitochondrial or nuclear genome, inferring widespread genetic and clinical heterogeneity. The Wellcome Centre for Mitochondrial Research is a world-leading centre for the diagnosis and care of patients with mitochondrial disease, underpinned by translational research programmes to identify novel genetic defects and understand molecular mechanisms of disease and tissue-specificity to inform the development of new treatments.

We are using Illumina Novaseq whole exome sequencing to investigate the underlying genetic basis of a cohort of deeply-phenotyped children with a clinical diagnosis of mitochondrial disease and evidence of progressive intellectual and neurological deterioration. This project focuses on the functional investigation of paediatric patients with suspected of mitochondrial disease, using a range of biochemical and cell biological techniques (western blotting, native PAGE to assess mitochondrial complex assembly, measurements of mitochondrial respiration, 35-S-methionine labelling to investigate mitochondrial protein synthesis and cell complementation/Crisp-Cas9 gene knock out experiments) to characterise the pathogenicity of possible disease-associated variants identified by high-throughput sequencing.

Thompson et al. EMBO Mol. Med. 2018;10:e9060