PhD Scholarship in Cardiac Developmental Genetics

The project will investigate genetic models of cardiac development with a view to understanding the function of novel genes that pattern heart formation and function.

Institution

Melbourne University's global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University's research strategy Research at Melbourne: Ensuring Excellence and Impact to 2025 aspires to a significant advancement in the excellence and impact of its research outputs.

http://research.unimelb.edu.au/our-research/research-at-melbourne

Department of Physiology

https://biomedicalsciences.unimelb.edu.au/departments/physiology

The working environment

The project will be conducted in the Cardiac Genetics laboratory within the Department of Physiology at the University of Melbourne. Our team provides expertise in the genetics and cell biology of cardiac development, using the zebrafish and mouse models. We use cutting-edge molecular and functional approaches to study the regulation of cardiac development in vivo. We have access to state-of-the-art facilities including a new purpose-built aquarium, confocal and light-sheet microscopy, single cell RNA-Seq as well as a range of phenotyping facilities. Situated in the heart of the Parkville Biomedical Precinct, we actively collaborate with groups within the University as well as in the surrounding Medical Research Institutes.

The project- "Investigating the genetic regulation of cardiac development"

Defects in the anatomy of the heart (termed "congenital heart defects") are the most common form of birth defect. They occur as the heart develops in the embryo, arising from mistakes in the patterning and structure of the heart as it forms. There is a strict genetic program that dictates the events of heart formation and mutations in genes that disrupt this program are a major cause of congenital heart defects.

This project will investigate genetic mutants with defects in heart development using the zebrafish model. We have several different genes we are currently investigating, all of which play crucial roles in cardiac development. The lab also maintains many transgenic report lines that fluorescently label different tissues within the heart and different cellular structures in these tissues. This permits detailed analysis of cell migration and morphology during the process of cardiac development as well as

tissue-specific cell isolations (for transcriptomic analyses) and tissue-specific genetic perturbation experiments.

The outcomes of this PhD project will be new information about what genes are necessary to form a healthy heart and knowledge about their mechanism of function. This knowledge is important for interpreting genomic medicine and may contribute to prenatal screening.

The person

Applicants will have a First-Class Honours degree or equivalent and should be eligible for an Australian Postgraduate Award (APA) or equivalent. Basic expertise and experience in biomedicine or other relevant biological sciences is required, and students with experience in genetics, developmental biology, molecular or cell biology are especially encouraged to apply. Applicants must fulfil the PhD admission criteria for the University of Melbourne, including meeting English language requirements, and demonstrating excellent capacity and potential for research. Demonstration of research ability through publication output in peer reviewed international journals is desirable.

Further information on entry requirements
https://study.unimelb.edu.au/find/courses/graduate/doctor-of-philosophy-medicine-dentistry-and-health-sciences/

You must have the **right to live and work** in this location to apply for this scholarship.

Remuneration

Annual stipend $31,200 (indexed, 2020 rate) for 3 years with the possibility of a 6 month extension

Enquiries

For all enquiries, please contact:

- A/Prof Kelly Smith (kelly.smith1@unimelb.edu.au)

How to apply

Applications are preferred online. Please go to:
http://jobs.unimelb.edu.au/caw/en/listing/ and in search by position title or job number **0051005**. Applications should include the following documents:

- A cover letter stating your skills and experiences, areas of expertise, and compelling reasons for wanting to pursue PhD studies in this program;
- Your complete Academic Records (including grades/GPA scores, and grading scale details)
- CV/Resume

Short-listed candidates will be contacted for a meeting with A/Prof Kelly Smith to discuss your application and the project in more detail. If successful you will be instructed to submit an application to the Graduate School for admission.