DP: Molecular characterisation of M cell biology Stipend Advertisement

**Project Description**

Outstanding candidates with a background in biomedical science, pharmacology, or pharmacy or similar are invited to apply for a fully funded PhD scholarship in the Centre for Inflammation, School of Life Science, University of Technology Sydney, to study cellular and molecular biology of gut and lung M cells under the supervision of Prof. Phil Hansbro.   
  
During their PhD, candidates will learn and implement a number of important techniques spanning biology and immunology to characterise specialised cells in the epithelium of the lung and gut at a molecular level. The ultimate aim is to determine their roles and functions in immunity and facilitate the discovery of therapeutic compounds to influence its activity for medical and scientific benefit.   
  
Prospective candidates should contact Prof. Phil Hansbro ([Philip.Hansbro@uts.](mailto:Philip.Hansbro@uts.)edu.au) for further information and to find out how to apply. Please include a CV and short description explaining your interest in the project.   
  
**Background**   
  
The mucosa is the largest surface area in the body and forms the major protective barrier. It harbors a 10-100 trillion micro-organisms. Consequently, it is both the primary portal through which infectious microbes enter the host and the pivotal first line of host defence. Disruption of this mucosal barrier results in the invasion of microbes into the host initiating a destructive cascade of inflammatory reactions. M cells, Tuft cells and Paneth cells are specialised intraepithelial cells that provide crucial links between microbes and antigens from the external environment and the host immune system. They act as the alarm system for mucosal surfaces of the gut and respiratory tract, and the pathways they initiate are essential for the rapid induction of responses against infectious challenge to maintain tissue homeostasis. Due to the rarity of these cells, to date, unravelling how they work has been intractable. This is despite the fact that they lay the foundation for mucosal immunity. A major road-block to our understanding has been the lack of tools to probe these cells. We have developed novel reporter mice that now allow us to characterise the fundamental cellular and molecular biology of these cells and determine the pathways they employ to regulate immune function. We will use these systems to define how these cells and pathways work and what they contribute to host defence.   
  
**Scholarship Criteria**

This Commonwealth Research Training Program scholarship (RTP) is open to domestic students and includes the cost of tuition fees and a tax-free stipend for the duration of the project at the RTP rate.   
  
Applicants must hold a bachelor’s degree in a biomedical or biological science, have a strong academic record and prior laboratory experience, inducing, but not limited to an Honours degree with First Class, or Second Class Division 1, or MSc Research or MSc Coursework with a research thesis of at least 6 months.

**Applications close 10th April 2020**