

SCHOLARSHIP AVAILABLE

In Drug Development for Therapeutic Application in MS

FORWARD APPLICATION FORM TO:

CARMEL MCFARLANE – cmcfa@unimelb.edu.au
LEVEL 5, KENNETH MYER BUILDING
UNIVERSITY OF MELBOURNE
30 ROYAL PARADE
PARKVILLE VIC 3010

CLOSING DATE FOR APPLICATIONS:

19TH FEBRUARY 2018

Applicants for this scholarship must be eligible to undertake a PhD program at the University of Melbourne.

This project will be co-supervised by:

Professor Trevor Kilpatrick,
Professor of Neurology, Melbourne Neuroscience Institute
University of Melbourne and
Head, MS Division,
Florey Institute of Neuroscience and Mental Health

And

Professor Jonathan Baell
Larkins Fellow, Monash Institute of Pharmaceutical Sciences
Monash University

University of Melbourne

Established in 1853, the University of Melbourne is a public-spirited institution that makes distinctive contributions to society in research, learning and teaching and engagement. It's consistently ranked among the leading universities in the world, with international rankings of world universities placing it as number 1 in Australia and number 32 in the world (Times Higher Education World University Rankings 2017-2018). For more information about our University and our exciting future, please visit www.unimelb.edu.au

Monash University

Monash is a university of transformation, progress and optimism. Our people are our most valued asset, with our academics among the best in the world and our professional staff revolutionising the way we operate as an organisation. For more information about our University and our exciting future, please visit www.monash.edu.

Florey Institute of Neuroscience and Mental Health

The Florey Institute of Neuroscience and Mental Health is the largest brain research group in the Southern Hemisphere. Our teams work on a range of serious diseases including stroke, epilepsy, Alzheimer's disease, Parkinson's disease, multiple sclerosis, Huntington's disease, motor neurone disease, traumatic brain and spinal cord injury, depression, schizophrenia, mental illness and addiction. We are world leaders in imaging technology, stroke rehabilitation and epidemiological studies. The Florey Institute of Neuroscience and Mental Health is committed to improving our quality of life through brain research.

Monash Institute of Pharmaceutical Sciences

The Faculty of Pharmacy and Pharmaceutical Sciences is dynamic, innovative and ambitious, engaging in world-class research and being a leading education provider for over 130 years. We have two key research initiatives: the Monash Institute of Pharmaceutical Sciences and the Centre for Medicine Use and Safety, in which we engage some of the best equipped and most experienced pharmaceutical scientists in Australia. From a teaching perspective, our education curriculum - comprised of undergraduate, postgraduate and higher degrees by research programs - is purpose designed for the study of pharmacy and pharmaceutical science and taught by discipline experts. Our premises are located in 'the Parkville Strip', Australia's premier health & biomedical precinct, and offer world-class teaching facilities and research laboratories to our students and staff. To learn more about the Faculty, please visit our website: www.monash.edu/pharm/. Medicinal Chemistry Theme; Medicinal chemistry is a rapidly advancing field of chemistry focussing on the design, development, biological activities and properties of drugs. Medicinal chemists seek to find new active chemical compounds, particularly from natural products such as rainforest plants and microbes, and also to design novel synthetic compounds.

The Florey Department of Neuroscience and Mental Health, UoM

The position sits within the Florey Department at the University of Melbourne and with the Medicinal Chemistry Themes of MIPS/Monash University.

Applications will be evaluated on the following:

- Academic Record
- Scientific excellence of the application that the candidate proposes within the scope of the available project.

Information for Applicant:

- It is intended that the applicant will be provided with a stipend of \$29,000 per annum for three years in order to undertake full-time research
- Applicants must be an Australian citizen, Australian Permanent Resident or New Zealand citizen and not be under bond to any foreign government in order to be eligible. Evidence of citizenship (citizenship certificate, birth certificate, passport) or residential status must accompany this application.
- Only applicants about to commence a PhD within the next three months should apply.
- Applicants enrolled in a combined degree are not eligible to apply.
- Applicants receiving additional stipend funding are not eligible to apply.

HOW TO APPLY

Provide:

- A two-page project synopsis
- A curriculum vitae including academic transcripts
- Contact details of three referees
- Proof of citizenship/residency status

Research Project

Background

Multiple sclerosis (MS) is the commonest neurodegenerative disease affecting young Caucasian adults.

The consensus is that MS is an autoimmune disease in which the adaptive immune system targets the central nervous system (CNS) to cause inflammatory demyelination. Whilst over the last 20 years a number of immunomodulatory therapies have been developed that target the adaptive immune system and which reduce the activity of early stage MS, the risk of long-term disability remains. The emerging consensus is that this long-term disability, characterized as progressive MS, is caused by ongoing inappropriate activity of the innate immune system which continues to attack nerve cells and fails to assist repair, even when the activity of the adaptive immune system is being adequately controlled.

We have recently discovered that the TAM (Tyro3, Axl, Mertk) family of receptor tyrosine kinases are crucially important in reconfiguring the activity of innate immune cells from a pathogenic to a reparative phenotype in animal models of MS. The TAM receptors are activated by two ligands, Gas6 and ProS and it would be ideal to provide one or both of these molecules as therapeutic agents. However, these molecules have short half lives and will not cross the blood brain barrier. One way to redress this issue is to generate variants of the TAM ligands with increased half-life that could be delivered by infrequent injection directly into the cerebrospinal fluid that bathes the CNS. This project will aim to generate such an agent.

Broad Aims of the work

- Determination of the half-life and clearance of Gas6 from the CNS
- Application of protein chemistry to increase the half-life of Gas6
- Determination of bioavailability of modified Gas6 within the brain and the bioactivity of this derivative.

For further information please contact:

Professor Trevor Kilpatrick - tkilpat@unimelb.edu.au

Professor Jonathan Baell - Jonathan.baell@monash.edu