

"Defining the early-life stress psychiatric subtype at single-cell resolution" PhD Scholarship

Location

MINDS Lab (www.MINDSLaboratory.wordpress.com) in beautiful Wollongong, NSW Australia, approximately one hour south of Sydney.



About the scholarship

Students are invited to apply for a Doctor of Philosophy Scholarship in Neuroscience (neurogenetics, molecular neurobiology and cellular neuroscience) in the project "Defining the early-life stress psychiatric subtype at single-cell resolution".

The scholarship is being offered by the University of Wollongong and will contribute to a larger study funded by the Rebecca L Cooper Medical Research Foundation. The overall aim of the project is to determine the molecular and cellular mechanisms that re-shape the human brain after exposure to early-life stress, which contributes to the development of mental illnesses such as depression, bipolar disorder and schizophrenia. To do this, the project focuses on data obtained from postmortem human brain specimens, integrating single-cell RNA sequencing information (from droplet and spatial based approaches), with advanced histological techniques (e.g. tissue clearing and 3D immunohistochemistry, RNAscope) that will enable visualisation of brain cells and determination of how molecular changes within brain cells affect their physical characteristics. The specific aims of the project are to uncover the lasting changes in brain cellular architecture following early life stress, to define the molecular changes caused by early life stress and their spatial distribution, and to identify cell-types and sub-anatomical brain areas impacted by early life stress. While we focus on postmortem brain tissues, there is the possibility to integrate other approaches through our many collaborators. From a methods perspective, the project is unique in that it combines sequencing and bioinformatics approaches, combined with traditional histological methods.

The work will be undertaken at the University of Wollongong's Molecular Horizons research institute, home to one of the best microscope suites in the world. This project will be undertaken in

collaboration with our research partners at the Max Planck Institute for Psychiatry (Germany), McGill University (Canada), and the Lieber Institute for Brain Development (USA). The PhD candidate will therefore be expected to interact proactively with an international team of neuroscientists and psychiatrists. The student will obtain broad and specialised training in cutting edge neuroscience techniques while also making international connections with world leaders, opening opportunities for post-doctoral studies.

Stipend

The scholarship is for three (3.0) years full-time for doctoral candidates with a stipend of \$AUD 28,092 per annum (tax free and indexed annually)

Conditions for application

Applications are invited from

- Students (including current Honours students) who will be commencing their Doctor of Philosophy at the University of Wollongong from Session 1, 2023.
- Applicants are expected to commit to full-time study and have the capacity to be based at the University of Wollongong. At this time, it is mandatory to be fully vaccinated against COVID-19.
- Both domestic and international prospective students are encouraged to apply.

Applicants should hold an Honours 1 or high 2A (or equivalent) undergraduate degree in a relevant discipline or the equivalent combination of professional experience and academic qualifications. Experience in wet-lab laboratory techniques is essential, applicants with a background in neuroscience will take precedence and skills in bioinformatics would be highly desirable. We are a close-knit lab, and team work as well as scientific excellence are integral to our group. We celebrate diversity and welcome applicants from under-represented groups.

Application

Please format the application as a single document (pdf or word doc) that includes a cover letter outlining relevant experience (1 page max), a Curriculum Vitae, a copy of academic transcript, and contact details for 2 recent referees.

Submit application or any enquiries by email to Doctor Natalie Matosin nmatosin@uow.edu.au

Applications close

Closing date: Open until the position is filled, however the position must commence in Session 1, Feb/March 2023.